

Philadelphia Coke Co., Inc.

REMEDIAL INVESTIGATION REPORT AND CLEANUP PLAN

Former Philadelphia Coke Plant
Philadelphia, Pennsylvania
PADEP eFACTS Site ID #833593
& Facilities ID #609978
EPA ID #PAD000427906

July 2021



APPENDIX A

Notice of Intent to Remediate - 11/19/18

(revised 12/11/18 to check box for Participation in DEP/EPA MOA)



NOTICE OF INTENT TO REMEDIATE

Act 1995-2 requires four general information items to be included in the NIR: the general location, listing of contaminants, intended use of property, and proposed remediation measures. In addition, indicate the standard(s) to be obtained (if known) and attach a scaled site map (if available).

Property Name Former Philadelphia Coke Plant

Former Name(s) / AKA - -

Address / Location 4501 Richmond Street; site bounded by Buckius Street to the north, Orthodox Street to the south, Garden and Richmond Streets to the west, and the Delaware River to the east

City Philadelphia Zip Code 19137

Municipality(s) Philadelphia County(ies) Philadelphia

Latitude 39 ° (deg). 59 ' (min) 45 " (sec) Longitude -75 ° (deg). 4 ' (min) 7 " (sec)

Horizontal Collection Method GPS

Horizontal Reference Datum NAD 83 - State Plane of Pennsylvania South

Wish to participate in the DEP/EPA MOA. Contact the Land Recycling Program Manager at landrecycling@pa.gov for details.

EPA ID#, if known PAD000427906

DEP ID#(s), if known eFACTS site ID #609978, Storage Tank Facility ID #51-44990
(i.e., eFACTS site ID#, storage tank facility ID#, water quality permit #, watershed permit, air quality permit #, etc.)

Date Release Occurred (if known) Unknown

Provide a brief description of the site contamination in plain language (e.g. fuel oil spill, historical chemical industrial area contamination), the names of any know primary contaminants to be addressed, and the intended future use of the property.

This Notice of Intent (NIR) to remediate has been prepared to enter the former Philadelphia Coke Facility (the Site) into the Pennsylvania Act 2 Land Recycling Program (Administered in Title 25 Chapter 250 of the Pennsylvania Codes) without a contract buyer. The Site is impacted by byproducts from historical facility operations that produced manufactured gas used by the City of Philadelphia. Polycyclic aromatic hydrocarbons (PAHs), arsenic, and lead remain in site soil (primarily within a fill layer), and there are a few isolated pockets of residual tar or oil-like material at the Site. Site conditions have been evaluated most-recently by a groundwater investigation performed earlier this year and a soil and groundwater investigation performed in 2006. Further soil investigation is proposed to: (1) confirm that site conditions have not significantly changed since samples were last collected and analyzed (existing site analytical data are more than 12 years old); and (2) fill existing data gaps from previous investigation activities to complete the delineation of the nature and extent of impacts.

The site was developed in the mid-1920s to provide manufactured gas to the City of Philadelphia. Facility operations from January 1929 to May 1982 focused on the production of metallurgical coke. Principal processes of the operation included coal and coke storage, coke production, tar storage, by-product operations, and iron oxide storage. A fuel oil blending facility operated on the eastern 2.5 acres of the site from approximately 1969 through 1989. All former structures at the site have been demolished to ground level, and the site is currently vacant.

Available data indicate that groundwater quality at the Site is relatively unimpacted by former facility operations. Site soil is primarily impacted by the volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and inorganics listed below:

- VOCs: benzene, toluene, ethylbenzene, chlorobenzene, dichloromethane, and styrene (monomer)
- SVOCs: 2-methylnaphthalene, 4-methylphenol, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, carbazole, chrysene, dibenzo(a,h)anthracene, dibenzofuran, fluoroanthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, phenol, pyrene
- Inorganics: antimony, arsenic, cyanide, lead

Provide a general description of proposed remediation measures.

The remedy for the Site will employ engineering controls (e.g., capping impacted soil with clean fill, asphalt or concrete paving) and institutional controls (e.g., environmental covenant restricting property to non-residential use and prohibiting groundwater use) to mitigate potential exposure pathways, as afforded by the site-specific cleanup standard. A Post-Remediation Care Plan will outline future maintenance requirements for the Site.

Remediation Standard(s) planned (if known at this time):

- | | | |
|---|--|---|
| <input type="checkbox"/> Unknown at this time | <input type="checkbox"/> Soil | <input type="checkbox"/> Groundwater |
| <input type="checkbox"/> Background Contaminants: | <input type="checkbox"/> Soil | <input type="checkbox"/> Groundwater |
| <input type="checkbox"/> Statewide Health - Residential Contaminants: | <input type="checkbox"/> Soil | <input type="checkbox"/> Groundwater |
| <input type="checkbox"/> Statewide Health – Non-Residential Contaminants: | <input type="checkbox"/> Soil | <input type="checkbox"/> Groundwater |
| <input checked="" type="checkbox"/> Site Specific Contaminants: PAHs, Metals, select volatile organic compounds | <input checked="" type="checkbox"/> Soil | <input checked="" type="checkbox"/> Groundwater |
| <input type="checkbox"/> Special Industrial Area* Contaminants: | <input type="checkbox"/> Soil | <input type="checkbox"/> Groundwater |

*NOTE: Specific standard or Special Industrial Area require a 30-day municipal comment period

Remediator / Property Owner / Consultant. Complete the form below for each recipient obtaining a release of liability upon approval of the final report. Attach additional sheets as necessary.

Remediator		
Contact Person/Title	<u>Brian M. Stearns, Manager, Site Investigation & Remediation</u>	eFACTS Client ID* _____
Relationship to Site	<u>Owner</u>	Client Type* <u>Other (non-government)</u>
(e.g. owner, remediator, participant in cleanup, consultant, etc.)		
Phone Number	<u>315-428-5731</u>	Email Address <u>brian.stearns@nationalgrid.com</u>
Company Name	<u>National Grid</u>	EIN or Federal ID # <u>04-1663150</u>
Address (street, city, state, zip) <u>300 Erie Boulevard West, Syracuse, New York 13202</u>		

Property Owner		
Contact Person/Title	<u>Michael E. Guerin, Director, Property Strategy & Transactions</u>	eFACTS Client ID* <u>288280</u>
Relationship to Site	<u>Owner</u>	Client Type* <u>Other (non-government)</u>
(e.g. owner, remediator, participant in cleanup, consultant, etc.)		
Phone Number	<u>781-907-1741</u>	Email Address <u>Michael.Guerin@nationalgrid.com</u>
Company Name	<u>National Grid</u>	EIN or Federal ID # <u>04-1663150</u>
Address (street, city, state, zip) <u>40 Sylvan Road, 1st Floor East, Waltham, MA 02451</u>		

Consultant		
Contact Person/Title	<u>Daniel P. Sheehan, PE, Principal in Charge</u>	eFACTS Client ID* <u>285433</u>
Relationship to Site	<u>Consultant</u>	Client Type* <u>Other (non-government)</u>
(e.g. owner, remediator, participant in cleanup, consultant, etc.)		
Phone Number	<u>302-884-6919</u>	Email Address <u>Daniel.Sheehan@arcadis.com</u>
Company Name	<u>Arcadis U.S., Inc</u>	EIN or Federal ID # <u>57-0373224</u>
Address (street, city, state, zip) <u>824 N Market Street, STE 820, Wilmington, Delaware 19801-4939</u>		

*Include eFACTS Client ID (if known) – “Client Types” below:

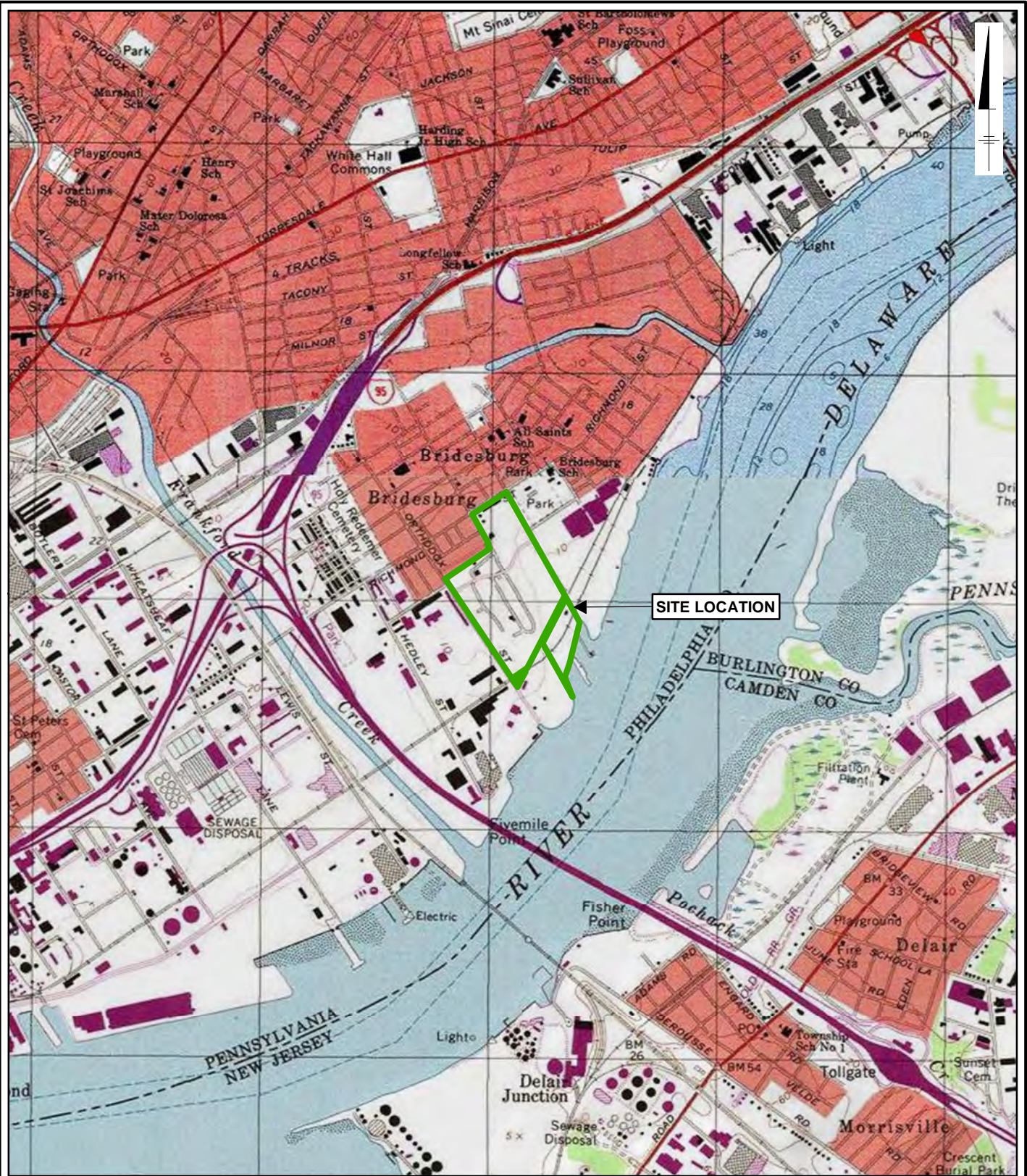
- | | | |
|--------------------------|-------------------------------|---------------------|
| Association/Organization | Limited Liability company | Partnership-General |
| Authority | Limited Liability Partnership | Partnership-Limited |
| County | Municipality | School District |
| Estate/Trust | Non-Pennsylvania Government | Sole Proprietorship |
| Federal Agency | Other (Non-Government) | State Agency |
| Individual | Pennsylvania Corporation | |

Preparer of Notice of Intent to Remediate		
Name	<u>Daniel P. Sheehan</u>	Title <u>Principal Engineer/Principal in Charge</u>
Phone Number	<u>302-884-6919</u>	Email Address <u>Daniel.Sheehan@arcadis.com</u>
Company Name	<u>Arcadis U.S., Inc</u>	eFACTS Client ID <u>285433</u>
Address (street, city, state, zip) <u>824 N Market Street, STE 820, Wilmington, Delaware 19801-4939</u>		

ATTACHMENT 1

Site Location Map

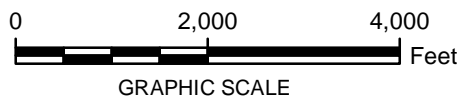




City: Syr Div/Group: IM/DV Created By: K. Sinsabaugh Last Saved By: kgpeters
 National Grid Philly Coke (B00036790.0000.000001)
 \\corporate\Data\ArcGISData\GISProjects_ENV\NationalGrid\PhiladelphiaCoke\2016_Report\mxd\Fig1_SiteLocationMap.mxd 5/10/2017 2:12:42 PM

NOTE:

1. USGS TOPOGRAPHIC MAP PROVIDED BY ESRI.



NATIONAL GRID
 FORMER PHILADELPHIA COKE PLANT SITE
 PHILADELPHIA, PENNSYLVANIA

SITE LOCATION MAP



FIGURE
1

ATTACHMENT 2

Notice to Municipality



Harold T. Epps
Director of Commerce
City of Philadelphia
1515 Arch Street, 12th Floor
Philadelphia, PA 19102

Arcadis U.S., Inc.
One Lincoln Center
110 West Fayette Street
Suite 300
Syracuse
New York 13202
Tel 315 446 9120
Fax 315 449 0017
www.arcadis.com

Subject:
Former Philadelphia Coke Facility
PADEP eFACTS Site ID#609978
4501 Richmond Street
Philadelphia, Philadelphia County, Pennsylvania

ENVIRONMENT

Dear Mr. Epps:

Date:
November 5, 2018

The Pennsylvania Land Recycling and Environmental Remediation Standards Act (Act 2) requires that a Notice of Intent to Remediate (NIR) for a site undergoing investigation and remediation under Act 2 be provided to the municipality in which the site is located. Act 2 also provides that when a site is being remediated to a Site-specific Standard, the municipality is afforded a 30-day comment period. In accordance with the provisions of the Act, we are formally notifying you of our intent to remediate the above-referenced site. A copy of the NIR, which has been sent to the Department of Environmental Protection (DEP), is enclosed. The NIR will be published in the Pennsylvania Bulletin, and a summary of the NIR will appear in a local newspaper (Philadelphia Daily News).

Contact:
Dan Sheehan

Phone:
302.884.6919

Email:
Daniel.Sheehan@arcadis.com

Our ref:
B0036790.0001 #5

Publication of the NIR summary in a local newspaper initiates the 30-day public and municipal comment period. During this time, your municipality may request to become involved in the development of the remediation and reuse plans for the site. If the municipality wishes to become involved in this project, please send your comments to Brian M. Stearns of National Grid at 300 Erie Boulevard West, Syracuse, New York 13202 with copies submitted to the DEP at the Southeast Regional Office, 2 East Main Street, Norristown, PA 19401, Environmental Cleanup and Brownfields Program.

Harold T. Epps
November 5, 2018

Should you have any questions or comments on the enclosed NIR, please contact Brian M. Stearns of National Grid at 315.428.5731 or the undersigned at 302.884.6919.

Sincerely,

Arcadis U.S., Inc.

A handwritten signature in blue ink, appearing to read "Daniel P. Sheehan".

Daniel P. Sheehan, PE, BCEE
Principal Engineer

Copies:

Brian M. Stearns, National Grid

Enclosure:

Notice of Intent to Remediate Form

ATTACHMENT 3

Delivery Confirmation for Notice to Municipality



SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Harold T. Epps, Dir. of Commerce
City of Philadelphia
1515 Arch Street, 12th FL.
Philadelphia, PA 19102



9590 9402 3511 7275 1491 82

2. Article Number (Transfer from service label)

015 1520 0002 6705 8773

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X *[Handwritten Signature]*

Agent

Addressee

B. Received by (Printed Name)

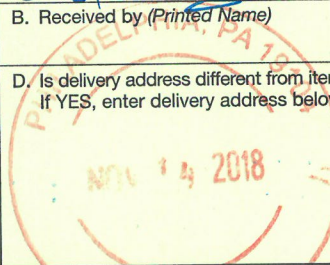
C. Date of Delivery

D. Is delivery address different from item 1? Yes
If YES, enter delivery address below: No

3. Service Type

- Adult Signature
- Adult Signature Restricted Delivery
- Certified Mail®
- Certified Mail Restricted Delivery
- Collect on Delivery
- Collect on Delivery Restricted Delivery
- Insured Mail
- Insured Mail Restricted Delivery (over \$500)

- Priority Mail Express®
- Registered Mail™
- Registered Mail Restricted Delivery
- Return Receipt for Merchandise
- Signature Confirmation™
- Signature Confirmation Restricted Delivery



ATTACHMENT 4

Newspaper Notice and Proof of Publication




Proof of Publication in The Philadelphia Daily News
Under Act. No 587, Approved May 16, 1929

STATE OF PENNSYLVANIA
COUNTY OF PHILADELPHIA

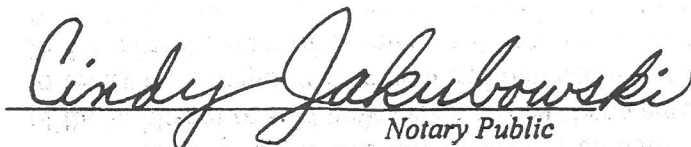
Helene Sweeney being duly sworn, deposes and says that **The Philadelphia Daily News** is a newspaper published daily, except Sunday, at Philadelphia, Pennsylvania, and was established in said city in 1925, since which date said newspaper has been regularly issued in said County, and that a copy of the printed notice of publication is attached hereto exactly as the same was printed and published in the regular editions and issues of the said newspaper on the following dates:

November 7, 2018

Affiant further deposes and says that she is an employee of the publisher of said newspaper and has been authorized to verify the foregoing statement and that she is not interested in the subject matter of the aforesaid notice of publication, and that all allegations in the foregoing statement as to time, place and character of publication are true.

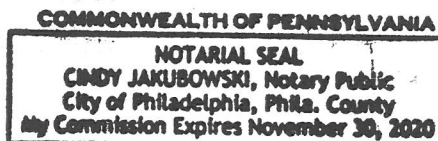


Sworn to and subscribed before me this 7th day of
November 2018.



Notary Public

My Commission Expires:



Copy of Notice of Publication

**NOTICE OF INTENT TO REMEDIATE
FORMER PHILADELPHIA COKE FACILITY**

Pursuant to the Land Recycling and Environmental Remediation Standards Act, the act of May 19, 1995, P.L. 4, No. 1995-2., notice is hereby given that National Grid has submitted to the Pennsylvania Department of Environmental Protection a Notice of Intent to Remediate a site located at 4501 Richmond Street in Philadelphia, Pennsylvania. This Notice of Intent to Remediate states that the site was built in the late 1920s to provide manufactured gas to the City of Philadelphia. Subsequent facility operations focused on the production of metallurgical coke and associated products, which continued until facility closure in 1982.

Soil at the site has been found to be impacted with polycyclic aromatic hydrocarbons (PAHs), arsenic, lead, and isolated pockets of residual tar or oil-like material. The proposed remediation measures are anticipated to include engineering controls (e.g., capping impacted areas with clean fill, asphalt, concrete, or soil) and institutional controls (e.g., environmental covenant restricting property to non-residential use and prohibiting groundwater use) to mitigate potential exposure pathways. The proposed future use of the property will be non-residential.

National Grid plans to use the site-specific standard at the site. The Act provides for a 30-day public comment period for site-specific standard remediations. The 30-day comment period is initiated with the publication of this notice. Within this 30-day period, the City of Philadelphia may submit a request to National Grid to be involved in the development of the remediation and reuse plans for the site. The City of Philadelphia may also submit a request to National Grid during this 30-day comment period to develop and implement a public involvement plan. Copies of these requests and of any comments should also be submitted to the Department of Environmental Protection at the Southeast Regional Office, 2 East Main Street, Norristown, PA 19401, Environmental Cleanup and Brownfields Program.



December 24, 2018

Mr. Brian M. Stearns
National Grid
300 Erie Boulevard West
Syracuse, New York, 13202

Re: Receipt of Notice of Intent to Remediate
Site-Specific Standard
Philadelphia Coke Plant
eFACTS PF No. 831308
eFACTS Activity No. 52785
4501 Richmond Street
City of Philadelphia
Philadelphia County

Dear Mr. Stearns:

This letter acknowledges receipt of your Notice of Intent to Remediate (NIR) on November 20, 2018, pertaining to the subject property and submitted in accordance with the Land Recycling and Environmental Remediation Standards Act (Act 2). The procedures set forth in Act 2 must be followed in order for this site to qualify for the liability protection provided by the Act. The Department of Environmental Protection (DEP) will not accept plans and reports until after the 30-day comment period following submission of the NIR ends.

The 30-day comment period following submission of the NIR allows the municipality the opportunity to request to be involved in the development of remediation and reuse plans for the property. If the municipality requests a public involvement plan, any comments and responses must be included in any subsequent Site-Specific Standard reports. Remedial investigation reports, risk assessment reports, cleanup plans, and final reports submitted to DEP under the site-specific standard need to be accompanied by the required fees and documentation verifying compliance with the public notification requirements.

Additional technical and program information can be found at www.dep.pa.gov (Business>Land>Land Recycling). Also, please refer to the Land Recycling checklists which are helpful in assuring reports are complete before submittal. DEP uses the checklists to perform administrative and technical completeness reviews when plans and/or reports are submitted. It is strongly encouraged to include the appropriate completed checklist with your Final Report submission. Land Recycling checklists can also be found at the website under 'Forms, Checklists & Notifications' link.

Please refer to the Standard Attachment for considerations of other programs which may be applicable to this property.

Sarah Pantelidou is the project officer assigned to your project and will be working with you towards the remediation of this property. Frequent contact is encouraged between your representatives and our staff. If you have any questions or need further clarifications of our procedures, please contact the project officer by email at spantelido@pa.gov or by telephone at 484.250.5878.

Sincerely,



C. David Brown, P.G.
Professional Geologist Manager
Environmental Cleanup and Brownfields

Enclosure: Standard Attachment

cc: Philadelphia Department of Health
City of Philadelphia
Mr. Guerin (National Grid)
Mr. Sheen (Arcadis U.S., Inc)
Ms. Pantelidou
Ms. Bass
Re 30 (cb18ecb) 358.1



pennsylvania

DEPARTMENT OF ENVIRONMENTAL
PROTECTION

Bureau of Environmental Cleanup and Brownfields

Thank you for participating in the Pennsylvania Department of Environmental Protection's (DEP) Land Recycling Program. You are receiving this Standard Attachment because you have provided a Notice of Intent to Remediate or a Final Report submission to the department. The following program summaries are provided to you as a guide to other programs that are commonly associated with brownfield remediation projects. These programs are important for the successful completion of site remediation and the grant of liability relief for your site. Please note if several of the following items apply to your site, it may be valuable to request a pre-application coordination meeting with your assigned DEP Project Manager. For remediation projects that involve multiple programs, an initial coordination meeting is beneficial to determine required date of submission(s), program participation consideration(s), and priorities.

This list is not meant to be all inclusive, but does summarize a listing of programs that are commonly affiliated with these types of projects.

Land Recycling Program Considerations

Uniform Environmental Covenants Act (UECA)

Based on the remediation standard that you have selected for your remediation/redevelopment project, you may be required to submit an environmental covenant. The covenant, as defined and governed under the auspices of UECA, provides a tool to ensure that the conditions allowing for a risk-based cleanup will continue in the future. UECA requires that a completed and signed environmental covenant shall be submitted to the appropriate regional DEP office no later than 30 days from receipt of the final cleanup approval letter. A \$500 fee is required to be submitted with the environmental covenant. Once received, the DEP has 90 days to review and return the signed covenant for recordation. Notifications of recordation of the covenant are subsequently required to be sent within 90 days to the DEP and to the entities listed in Section 6507 of UECA and in accordance with the terms of the covenant. For more information, visit www.dep.pa.gov, under Businesses > Land > Land Recycling, select related information under 'Uniform Environmental Covenants'.

Other Program Requirements

Depending on the specific details of each case, other program requirements may be applicable to your site as cleanup is progressing and/or upon completion of Act 2 activities. These considerations are summarized in the following:

Land Disturbance

Depending on the remediation approach selected for your site, you must carefully evaluate the remedial activities to minimize erosion and sedimentation in conformance with Chapter 102 of the PA Code, Erosion and Sediment Control. These requirements may be satisfied with the development, implementation, and maintenance of erosion and sediment control best management practices. Please note that any future earth disturbance or development at your site after cleanup is completed may require either approvals or permits from the appropriate county soil conservation district. Therefore, you should contact the conservation district before engaging in any such activities. For more information regarding this topic, visit www.dep.pa.gov, search 'Stormwater Management'.

Surface Water Discharges

Surface water discharges from sites undergoing Act 2 cleanups may be considered point or nonpoint sources. Point source discharges to surface water include, as examples, leachate discharge from a disposal unit or runoff from contaminated site discharges through a storm sewer. Discharges such as these are subject to National Pollutant Discharge Elimination System (NPDES) requirements, and as such may require a permit. Additionally, Act 2 requires that any site undergoing cleanup via the Statewide health or site-specific standard also demonstrate compliance with surface water quality criteria when a nonpoint source discharge, such as contaminated groundwater, discharges into surface water. More information regarding these programs may be found at the DEP's website or through your site's assigned Project Manager.

Sewage Facilities Program

The redevelopment of Act 2 sites after completion of cleanup activities may require you to investigate sewage planning considerations. For example, when site utilization is changed from industrial use to residential use as a result of Act 2 implementation, the sewage facilities planning for the property will require analysis/revision. Act 537, Sewage Facilities Program, contains provisions to enable proper municipal planning and permitting for current and future utilization of sewage facilities. For more information, visit www.dep.pa.gov, search 'Act 537 Sewage Facilities Program'.

Water Well Abandonment

Abandoned wells must be reported on required forms to the PA Department of Conservation and Natural Resources (DCNR), Bureau of Topographic and Geologic Survey (BTGS). Information is available on the DCNR website, www.dcnr.pa.gov, select Conservation > Water > Groundwater, under Abandoned Private Water Wells for the water well abandonment guidelines and forms.

If available, the original driller's log should be included along with the details of the well abandonment procedure. A photograph should be taken of the site, and a reference map should be made to locate the abandoned well. **We recommend that you identify the exact location by GPS** (it also may be appropriate to survey the exact location of the well). If a permit was issued for the well installation (e.g., by a local agency or County Health Department), please provide a copy of your BTGS submission to the issuing agency and to this office.

Oil and Gas Well Site Restoration

If the site specified for remediation is considered to be part of a well site as that term is defined by Section 603a(d) of the Oil and Gas Act, you must ensure restoration of the area under Section 206 of the Oil and Gas Act, 58 P.S. § 601.206. The Department considers a well site to be restored under Section 206 when the disturbed or impacted area is returned to its approximate original contours and restored to conditions that support the same potential uses of the land that existed prior to the spill or release, including the vegetation of those areas. The restored area should be capable of supporting the type of vegetation that was present before the release.



CITY OF PHILADELPHIA

DEPARTMENT OF PUBLIC HEALTH
1101 Market Street, 13th Floor
Philadelphia, PA 19107

THOMAS A. FARLEY, MD, MPH
Health Commissioner

CAROLINE JOHNSON, MD
Acting Deputy Health Commissioner

February 6, 2019

Daniel P. Sheehan, PE, BCEE
Arcadis U.S., Inc.
One Lincoln Center
110 West Fayette Street
Suite 300
Syracuse, New York 13202

Mr. Sheehan:

Recently, the City of Philadelphia Department of Public Health, Environmental Engineering Unit received a Notice of Intent to Remediate (NIR) from your firm, under the provisions of the Pennsylvania Land Recycling and Environmental Remediation Standards Act (Act 2) regarding the property located at **4501 Richmond Street**, Philadelphia, Pennsylvania (19137).

Through the Notice of Intent (NIR) provisions of Act 2, the City of Philadelphia hereby requests that you develop a Public Involvement Plan (PIP) for this site. This request is made in accordance with the internal procedures first developed by the City in 2003 for this purpose. These procedures recommend our municipality request a PIP if the project is in close proximity or adjacent to residential, educational (schools/daycare), medical, religious, recreational and park properties. Since this property is in close proximity to residential properties, we are obligated to request a PIP. In addition to the reason above, members of the interdepartmental review team which reviews NIRs submitted to the City have recommended a PIP in this instance.

The venue for this PIP will be an appropriately publicized meeting of interested parties (impacted community and businesses) you will host to discuss this site, to be held at a suitable location and time, allowing interested parties to attend. An approximate 30 days advance notice of the meeting must be provided, during which time all relevant sampling and background investigation material should be made available for public inspection at a suitable location, such as the nearest school or public library.

The meeting would focus on the following:

- Identity, location and concentration of contaminants and hazardous substances found in sampling events at the site;
- Any potential health effects of those contaminants, based on locations and concentrations noted;
- Measures to be taken to protect the community, workers and recreation areas from possible exposure;
- Further definition of the remediation methodology to be employed;
- Discussion of specific procedures, such as dust control, sedimentation and erosion control.

Following the meeting, all supplemental material, which will include presentation materials, attendance list, and questions and answers will append the material provided earlier, which will be given to PA DEP, with a copy to the City.

Please notify the Department of Public Health in writing of the date, time and location of the public meeting, and the location of the document depository as noted above.

Please note that this PIP request has nothing to do with the perceived value and need of this development for the community and the City. We assume that you have already had several meetings with the community, elected officials and others on the benefits of this development. This PIP request is specifically concerned with final questions regarding the proposed remediation to be employed on the site in its current condition. Accordingly, your presentation can be geared specifically to the remediation strategy, and the questions noted above.

Should you have any questions, please contact Leigh Anne Rainford of our Department's Environmental Engineering section at 215-685-7342 or at Leighanne.Rainford@Phila.gov.

Sincerely,

A handwritten signature in black ink that reads "Caroline Johnson, MD". The signature is written in a cursive style with a large, looped initial "C".

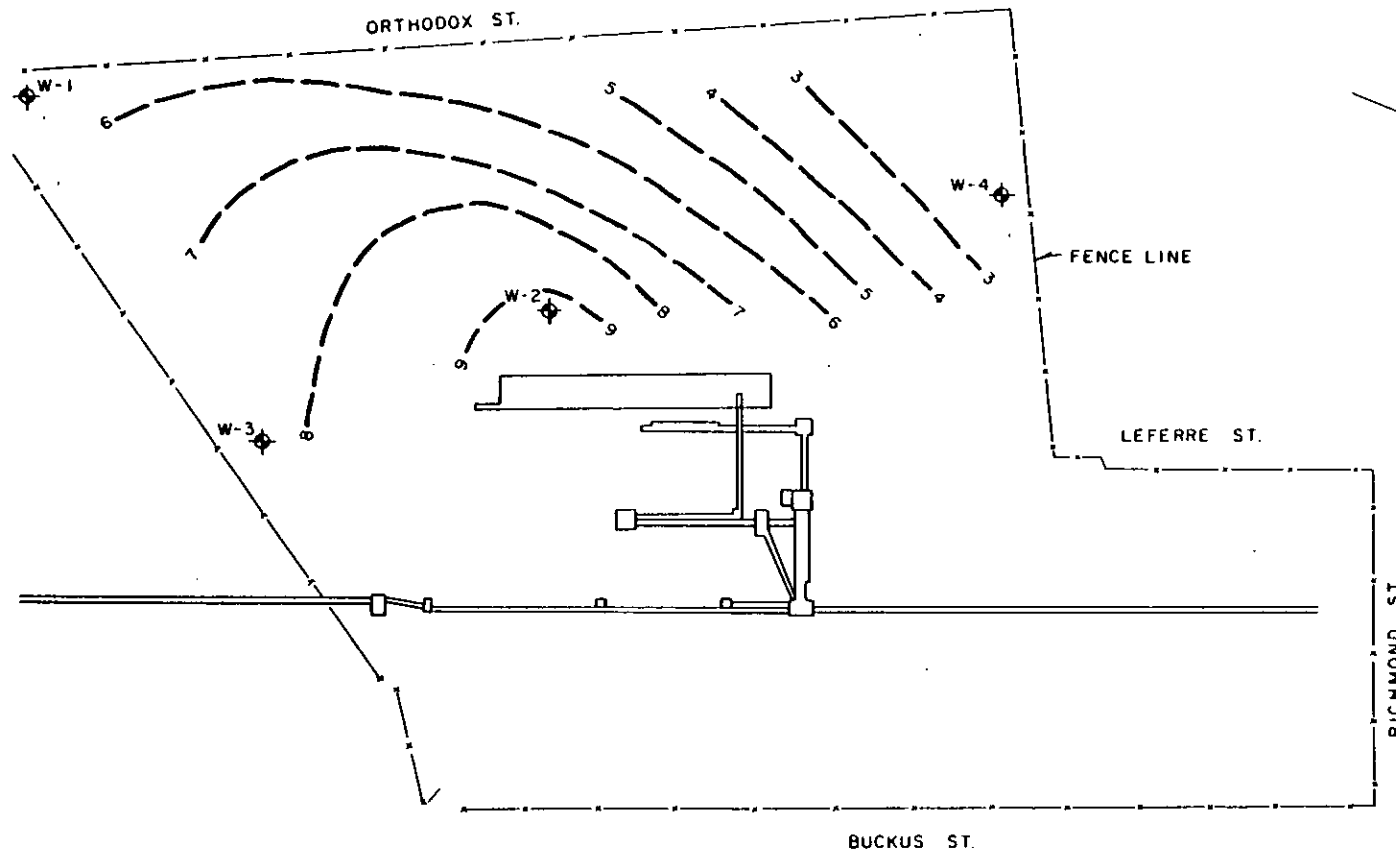
Caroline Johnson, MD
Deputy Health Commissioner

cc: David Brown, PA DEP
Palak Raval-Nelson, Director, Environmental Health Services
Patrick O'Neill, Divisional Deputy City Solicitor

APPENDIX B

Historical Potentiometric Surface Maps





LEGEND:

⊕ MONITORING WELL

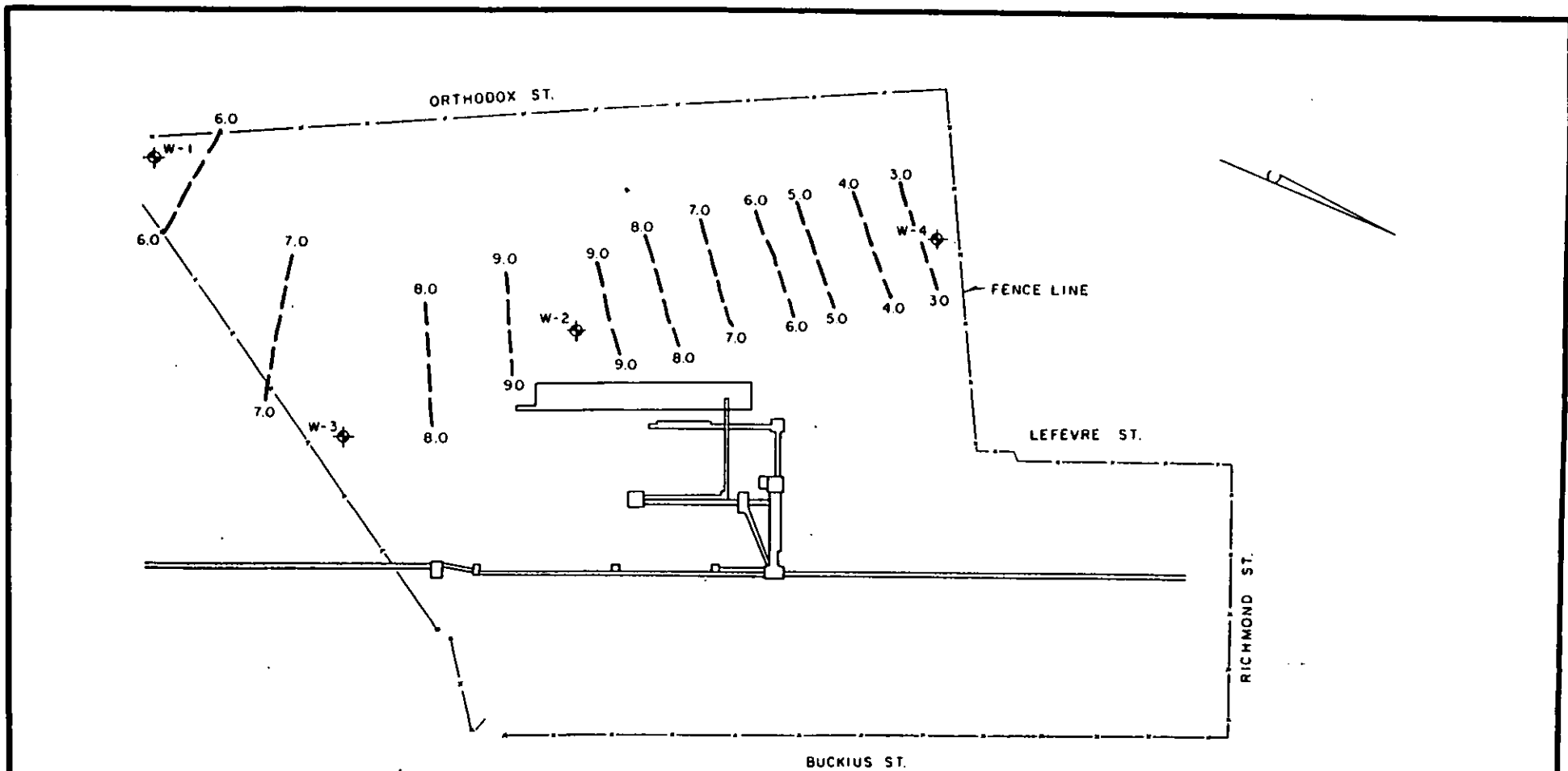
— GROUNDWATER CONTOUR

GROUNDWATER ELEVATIONS, JUNE 26, 1985
 PHILADELPHIA COKE, INC.
 PHILADELPHIA, PENNSYLVANIA

WOODWARD-CLYDE CONSULTANTS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

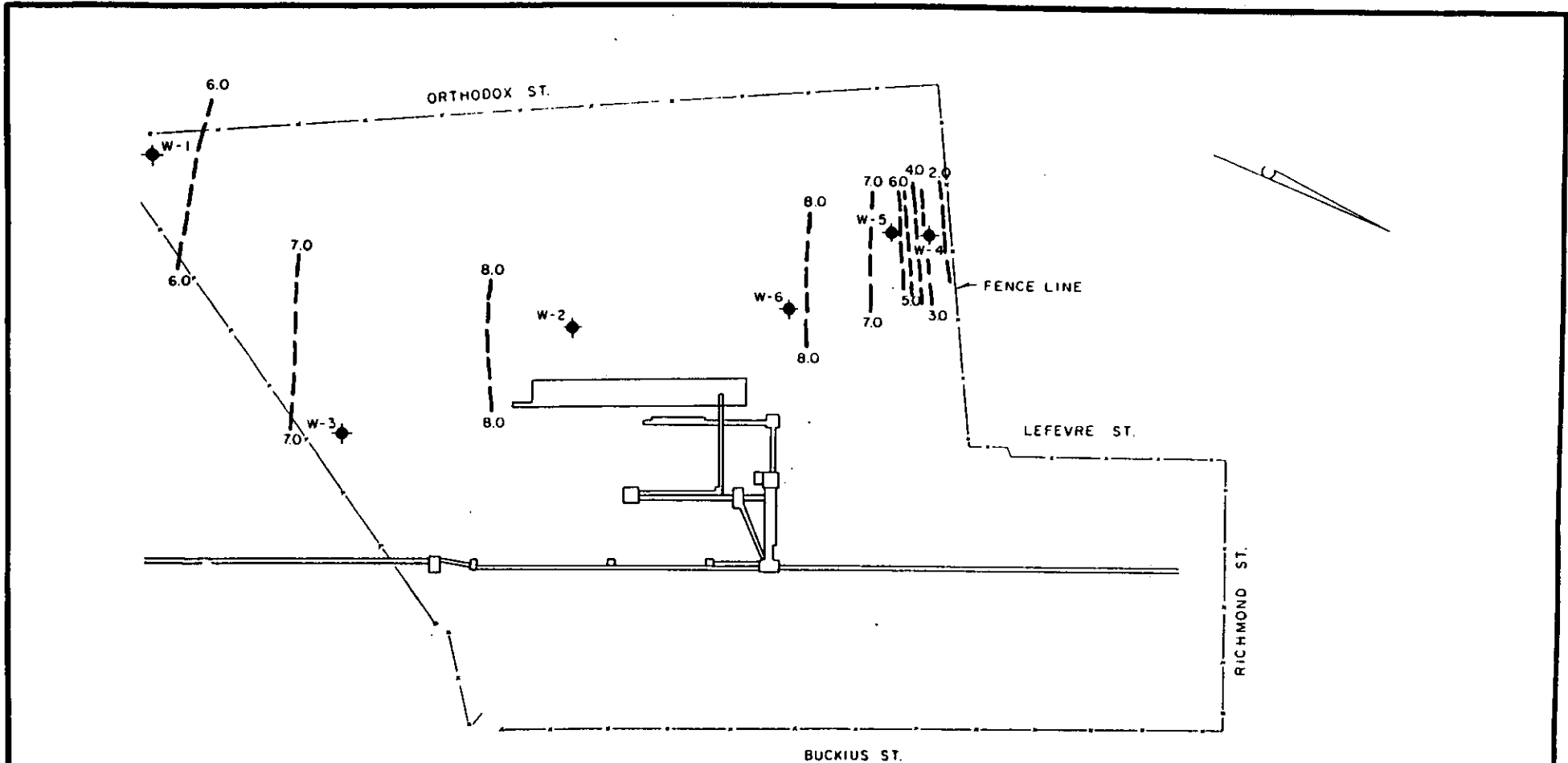
Drawn By	T. P.	SCALE IN FEET	Date	9/10/85
Checked By	T. W. T.	0 ————— 200	Job	84C 2145



LEGEND:
 ◆ MONITORING WELL
 80 --- GROUNDWATER CONTOUR

GROUNDWATER ELEVATIONS, OCT. 10, 1986 PHILADELPHIA COKE COMPANY PHILADELPHIA, PENNSYLVANIA		
WOODWARD-CLYDE CONSULTANTS CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS		
Drawn By	T. P.	SCALE IN FEET
Checked by	T. W. T.	0 200
		DATE: 10-28-86
		NO.: BAC 2143

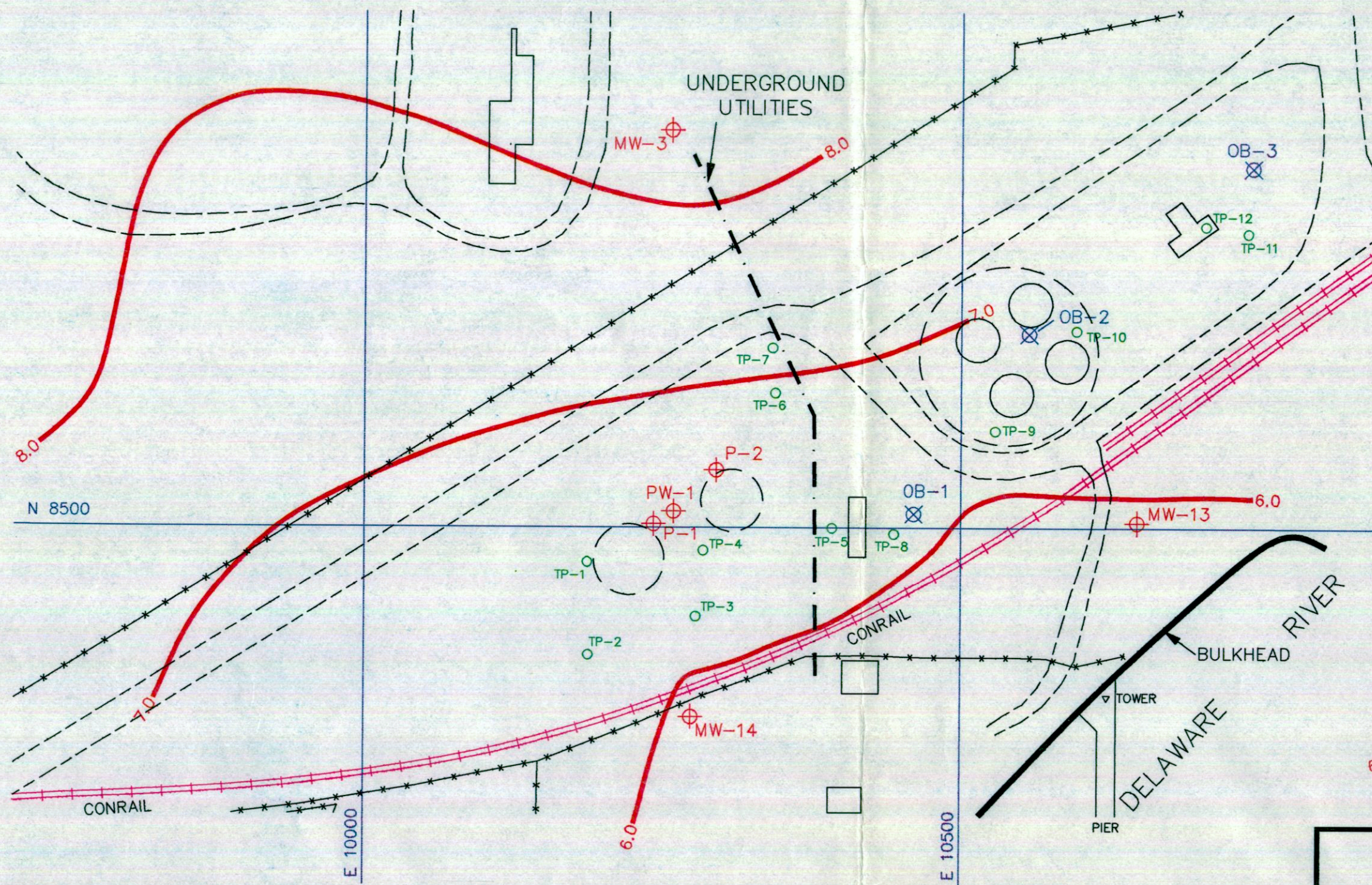
FIGURE 4.2



LEGEND:
 ◆ MONITORING WELL
 8.0 ——— GROUNDWATER CONTOUR

GROUNDWATER ELEVATIONS, OCT. 27, 1986 PHILADELPHIA COKE COMPANY PHILADELPHIA, PENNSYLVANIA		
WOODWARD-CLYDE CONSULTANTS CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS		
Drawn By	T. P.	Date 12/8/86
Checked	T. W. T.	Scale IN FEET 0 200 B4C 2145

FIGURE 4.1



- LEGEND:**
- MW-13 WELLS / PIEZOMETERS
 - TP-2 TEST PITS
 - OB-3 BORINGS
 - 6.0 INTERPOLATED WATER TABLE ELEVATION CONTOURS (1' INTERVAL; FT, MSLD)

FORMER FUEL OIL BLENDING AREA
 PHILADELPHIA COKE COMPANY
 PHILADELPHIA, PENNSYLVANIA

Woodward-Clyde Consultants
 Consulting Engineers, Geologists and Environmental Scientists

Job No.: 87C2839A-12 Drawing No. 78390190 Date: 10/16/95

Drawn by: TP Checked by: J.V.H.

Scale:

FIGURE 2

Rev. No.	Date	Type of Revision	Checked by:

APPENDIX C

EPA Environmental Indicator Forms



DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action

Environmental Indicator (EI) RCRIS code (CA750)

Migration of Contaminated Groundwater Under Control

Facility Name: Philadelphia Coke Co., Inc.
Facility Address: 4501 Richmond Street, Philadelphia, PA 19137
Facility EPA ID #: PAD000427906

1. Has all available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units [SWMU], Regulated Units [RU], and Areas of Concern [AOC]), been considered in this EI determination?

- If yes – check here and continue with #2 below.
- If no – re-evaluate existing data, or
- If data are not available skip to #6 and enter “IN” (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of “Migration of Contaminated Groundwater Under Control” EI

A positive “Migration of Contaminated Groundwater Under Control” EI determination (“YE” status code) indicates that the migration of “contaminated” groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original “area of contaminated groundwater” (for all groundwater “contamination” subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The “Migration of Contaminated Groundwater Under Control” EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Page 2

2. Is groundwater known or reasonably suspected to be “contaminated”¹ above appropriately protective “levels” (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

 X If yes - continue after identifying key contaminants, citing appropriate “levels,” and referencing supporting documentation.

 If no - skip to #8 and enter “YE” status code, after citing appropriate “levels,” and referencing supporting documentation to demonstrate that groundwater is not “contaminated.”

 If unknown - skip to #8 and enter “IN” status code.

Rationale and Reference(s):

Philadelphia Coke Co., Inc. (PCC) was located at 4501 Richmond Street, Philadelphia, Pennsylvania, on a flat, 63-acre industrial site in the “Bridesburg Section” of Philadelphia. The property is bordered by Richmond, Orthodox, and Buckius Streets, as well as the Delaware River. The main portion of the property, north of the former railroad tracks, is entirely enclosed by a chain linked fence. The property is ten feet above sea level.

The facility had various operations including coke storage, coal storage, coke oven batteries, a rail line, a smoke stack, decanter tar bottoms, gas holders, a boiler house, a machine shop, and other structures and fuel blending operations. The facility was active from January 1929 until its permanent closing on May 12, 1982.

The facility was decommissioned, the structures were dismantled, and various cleanup and closure activities took place from 1982 through 1988, ultimately removing 30,000 tons of contaminated soil and operational related wastes. The site also underwent various environmental investigations including groundwater monitoring and soil sampling activities. Certified closure of the facility was provided to the Pennsylvania Department of Environmental Protection (PADEP) in December 1994. As a result of stabilized groundwater monitoring trends of contamination, PADEP terminated the groundwater monitoring requirement in 1999.

The August 11, 2011 site visit confirmed that all operations of the facility have been decommissioned, dismantled, and removed, with only cracked portions of concrete pads and asphalt paved areas remaining. The entire property is now overgrown with trees, brush and high grasses.

The use of the property currently remains idle, with no development since the facility’s closure. The surrounding properties are mixed commercial, industrial, and residential uses. The property is zoned as a Waterfront Redevelopment District (WRD). The City of Philadelphia Property Assessors website identifies the property as zoned Heavy Industrial. The property is served by public water and sewer.

The groundwater at the facility was observed to be at depths that ranged from approximately 2.2 to 9.4 feet bgs during the 1996 CME sampling. Shallow groundwater resides in a shallow layer (approximately 10 foot thick) of surficial deposits of variable thickness, consisting of natural sands and gravels deposited by the Delaware River, as well as man-made fill materials. Groundwater flow in the upper aquifer does not conform to regional trends. It indicates radial groundwater flows away from a centrally high area near MW-2 with relatively flat gradients (0.002 to 0.006 foot/foot typical) both toward the Delaware River to the east and to the west (WCC, 1993). The site lies over both an upper unconfined aquifer and lower confined aquifer.

Upon the facility’s closure, the impact to soils and subsequently the groundwater were investigated. Impacted were

¹“Contamination” and “contaminated” describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate “levels” (appropriate for the protection of the groundwater resource and its beneficial uses).

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Page 3

remediated through removals and in-situ methods. Monitoring of the groundwater was conducted on a regular basis with oversight from the PADEP and USEPA, eventually reaching acceptable concentrations to permit the discontinuation of future monitoring after 1999.

Concentrations of the COCs in the site groundwater were generally below the residential used aquifer MSCs, EPA MCLs, and EPA RSLs at the site monitoring wells during the 1996 and 1997 CME investigations except for TCE collected from MW-5 in 1996 and 1997, PCE in MW-5 in 1996, benzene in MW-2R in 1996 and 1997 and MW 6 in 1997, and benzo(a)anthracene, benzo(b)fluoranthene, benzo(a) pyrene, and indeno(1,2,3-cd)pyrene in MW-6 in 1996. In general, groundwater concentrations indicated a general decreasing trend over time at the facility, which was why PADEP allowed the facility to discontinue monitoring after 1999. The concentrations were also below detection levels in groundwater collected from MW-1, MW-3 and MW-4 during 1996 and 1997, which were the perimeter downgradient wells for the facility. Results of the 1996 and 1997 CME are presented in the table below.

PARAMETER (ug/L [±])	1996/1997 CME MONITORING WELL RESULTS						Non-Use Aquifer - Residential MSC	Used Aquifer Residential MSC
	MW-1R	MW-2R	MW-3	MW-4R	MW-5	MW-6		
PAHs	--/ ND	--/ ND	--/ ND	--/ ND	--/ 43	--/ ND	--	--
TCE	ND/ ND	ND/ ND	ND/ ND	ND/ ND	33/ 14	ND/ ND	50	5
PCE	ND/ ND	ND/ ND	ND/ ND	ND/ ND	55/ ND	ND/ ND	50	5
Benzene	ND/ ND	83/ 42	ND/ ND	ND/ ND	ND/ ND	3/ 10	500	5
Ethylbenzene	ND/ ND	1/ ND	ND/ ND	ND/ ND	ND/ ND	2/ 3	70,000	700
Toluene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	2/ 5	100,000	1,000
TOC (mg/L)	29/ 19	28/ 24.4	12/ 11.2	42/ 45.3	5/ 4.3	8/ 7.2	--	--
TOX	33/ 17.7	42/ 29.5	25/ 20.6	11/ 9.5	71/ 95	6/ 7.1	--	--
pH	7.05/ 6.96	8.45/ 8.17	6.88/ 6.74	6.93/ 6.79	6.39/ 6.6	7.01/ 6.7	--	--
Specific Conductance (umhos/cm)	3,370/ 2,740	2,140/ 1,780	6,640/ 3,630	2,160/ 2,590	293/ 392	1,080/ 828	--	--
Naphthalene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	30,000	100
Acenaphthylene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	16,000	2,200
Acenaphthene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	48/ 62	3,800	2,200
Fluorene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	11.9/ 17.5	1,900	1,500
Phenanthrene	ND/ ND	9.8/ 7.6	ND/ ND	ND/ ND	ND/ ND	ND/ ND	1,100	1,100
Anthracene	ND/ ND	2.1/ 1.5	ND/ ND	ND/ ND	ND/ ND	ND/ ND	66	66
Fluoranthene	ND/ ND	3.12/ 2.61	ND/ ND	ND/ ND	0.78/ ND	1.07/ 0.74	260	260
Pyrene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	130	130
Benzo(a)anthracene	ND/ ND	0.17/ 0.14	ND/ ND	ND/ ND	0.25/ ND	0.49/ 0.28	11	0.29
Chrysene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	1.9	1.9
Benzo(b)fluoranthene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	0.44/ ND	1.2	0.29
Benzo(k)fluoranthene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	0.24/ 0.13	0.55	0.55
Benzo(a) pyrene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	0.55/ ND	3.8	0.2
Dibenzo(a,h)anthracene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	0.6	0.029
Benzo(g,h,i)perylene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	0.26	0.26
Indeno(1,2,3-cd)pyrene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	0.86/ ND	62	0.29

Notes: * All results in ug/L except where indicated; 1996 values from WCC / 1997 values from PADEP.

ND = Not Detected;

-- = not applicable

Reference:

Environmental Indicator Inspection Report for Philadelphia Coke Co., Inc., EPA ID No. PAD004427906,
Prepared by Michael J. Baker Jr., Inc., January 2012

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Page 4

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"² as defined by the monitoring locations designated at the time of this determination)?

 X If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"².

 If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"²) - skip to #8 and enter "NO" status code, after providing an explanation.

 If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

Upon the facility's closure, the impact to soils and subsequently the groundwater were investigated. Impacted were remediated through removals and in-situ methods. Monitoring of the groundwater was conducted on a regular basis with oversight from the PADEP and USEPA, eventually reaching acceptable concentrations to permit the discontinuation of future monitoring after 1999.

4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

 If yes - continue after identifying potentially affected surface water bodies.

 X If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

 If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

The concentrations were also below detection levels in groundwater collected from MW-1, MW-3 and MW-4 during 1996 and 1997, which were the perimeter downgradient wells for the facility. Results of the 1996 and 1997 CME are presented in the table above.

² "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)
Page 5

5. Is the discharge of "contaminated" groundwater into surface water likely to be "insignificant" (i.e., the maximum concentration³ of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

_____ If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration³ of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

_____ If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration³ of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations³ greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

³ As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)
Page 6

6. Can the discharge of “contaminated” groundwater into surface water be shown to be “**currently acceptable**” (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented⁴)?

_____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site’s surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR
2) providing or referencing an interim-assessment,⁵ appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment “levels,” as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_____ If no - (the discharge of “contaminated” groundwater can not be shown to be “**currently acceptable**”) - skip to #8 and enter “NO” status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

_____ If unknown - skip to 8 and enter “IN” status code.

Rationale and Reference(s):

⁴ Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

⁵ The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)
Page 7

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

_____ If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

 X If no - enter "NO" status code in #8.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

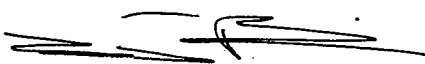
Page 8

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

YE Yes, "Migration of Contaminated Groundwater Under Control" has been verified.
Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the Philadelphia Coke Co., Inc. facility,
EPA ID # PAD000427906, located at 4501 Richmond Street, Philadelphia, PA 19137.
Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater". This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

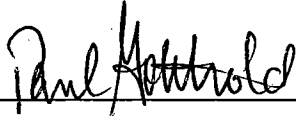
NO - Unacceptable migration of contaminated groundwater is observed or expected.

IN - More information is needed to make a determination.

Completed by (signature)  Date 4/10/13

(print) Kevin Bilash

(title) RPM

Supervisor (signature)  Date 4-10-13

(print) ASSOCIATE DIRECTOR, LCD

(title) EPA Region 3

(EPA Region or State) _____

Locations where References may be found:

USEPA Region III
Waste and Chemical Mgmt. Division
1650 Arch Street
Philadelphia, PA 19103

PADEP
South East Regional Office
2 East Main Street
Norristown, PA 19401

Contact telephone and e-mail numbers

(name) Kevin Bilash
(phone#) 215-814-2796
(e-mail) bilash.kevin@epa.gov

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action

Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: Philadelphia Coke Company
Facility Address: 4501 Richmond Street, Philadelphia, PA 19137
Facility EPA ID #: PAD000427906

1. Has all available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

If yes – check here and continue with #2 below.

If no – re-evaluate existing data, or

If data are not available skip to #6 and enter “IN” (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of “Current Human Exposures Under Control” EI

A positive “Current Human Exposures Under Control” EI determination (“YE” status code) indicates that there are no “unacceptable” human exposures to “contamination” (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all “contamination” subject to RCRA corrective action at or from the identified facility [i.e., site-wide]).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The “Current Human Exposures Under Control” EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program’s overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

2. Are groundwater, soil, surface water, sediments, or air media known or reasonably suspected to be “contaminated”¹ above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale/Key Contaminants</u>
Groundwater	X			Volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAH) detected in groundwater at the facility above medium specific concentration (MSCs). In the case of the Contaminants of concern (COCs) here, the MSCs are equivalent to EPA’s Maximum Contaminant Levels (MCLs) or within the Regional Screening Level (RSL) risk range of 10 ⁻⁶ to 10 ⁻⁴ .
Air (indoors) ²		X		No structures remain at the site.
Surface Soil (e.g., <2 ft)		X		Impact limited to specialized areas which were address with subsurface soil remediation. The facility was remediated to removed PAHs with a combined carcinogenic PAH (CPAH) concentrations not to exceed 50 ppm with no individual of the six CPAH exceed 15 ppm. Soils were remediated in 16 areas.
Surface Water		X		Facility is now closed and no discharges are expected.
Sediment		X		COCs in groundwater were below detection in the far downgradient monitoring wells.
Subsurf. Soil (e.g., >2 ft)		X		Impact limited to specialized areas which were address with subsurface soil remediation. The facility was remediated to removed PAHs with a combined CPAH concentrations not to exceed 50 ppm with no individual of the six CPAH exceed 15 ppm. Soils were remediated in 16 areas.
Air (outdoors)		X		Facility operated under air permits on file with City of Philadelphia. Facility in now closed.

¹ “Contamination” and “contaminated” describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based “levels” (for the media, that identify risks within the acceptable risk range).

² Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

_____ If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

X If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

_____ If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):

Background Information

Philadelphia Coke Co., Inc. (PCC) was located at 4501 Richmond Street, Philadelphia, Pennsylvania, on a flat, 63-acre industrial site in the "Bridesburg Section" of Philadelphia. The property is bordered by Richmond, Orthodox, and Buckius Streets, as well as the Delaware River. The main portion of the property, north of the former railroad tracks, is entirely enclosed by a chain linked fence. The property is ten feet above sea level.

The facility had various operations including coke storage, coal storage, coke oven batteries, a rail line, a smoke stack, decanter tar bottoms, gas holders, a boiler house, a machine shop, and other structures and fuel blending operations. The facility was active from January 1929 until its permanent closing on May 12, 1982.

The facility was decommissioned, the structures were dismantled, and various cleanup and closure activities took place from 1982 through 1988, ultimately removing 30,000 tons of contaminated soil and operational related wastes. The site also underwent various environmental investigations including groundwater monitoring and soil sampling activities. Certified closure of the facility was provided to the Pennsylvania Department of Environmental Protection (PADEP) in December 1994. As a result of stabilized groundwater monitoring trends of contamination, PADEP terminated the groundwater monitoring requirement in 1999.

The August 11, 2011 site visit confirmed that all operations of the facility have been decommissioned, dismantled, and removed, with only cracked portions of concrete pads and asphalt paved areas remaining. The entire property is now overgrown with trees, brush and high grasses.

The use of the property currently remains idle, with no development since the facility's closure. The surrounding properties are mixed commercial, industrial, and residential uses. The property is zoned as a Waterfront Redevelopment District (WRD). The City of Philadelphia Property Assessors website identifies the property as zoned Heavy Industrial. The property is served by public water and sewer.

Groundwater:

The groundwater at the facility was observed to be at depths that ranged from approximately 2.2 to 9.4 feet bgs during the 1996 CME sampling. Shallow groundwater resides in a shallow layer (approximately 10 foot thick) of surficial deposits of variable thickness, consisting of natural sands and gravels deposited by the Delaware River, as well as man-made fill materials. Groundwater flow in the upper aquifer does not conform to regional trends. It indicates radial groundwater flows away from a centrally high area near MW-2 with relatively flat gradients (0.002 to 0.006 foot/foot typical) both toward the Delaware River to the east and to the west (WCC, 1993). The site lies over both an upper unconfined aquifer and lower confined aquifer.

Upon the facility's closure, the impact to soils and subsequently the groundwater were investigated. Impacted were remediated through removals and in-situ methods. Monitoring of the groundwater was conducted on a regular basis with oversight from the PADEP and USEPA, eventually reaching acceptable concentrations to permit the discontinuation of future monitoring after 1999.

Concentrations of the COCs in the site groundwater were generally below the residential used aquifer MSCs, EPA MCLs,

and EPA RSLs at the site monitoring wells during the 1996 and 1997 CME investigations except for TCE collected from MW-5 in 1996 and 1997, PCE in MW-5 in 1996, benzene in MW-2R in 1996 and 1997 and MW 6 in 1997, and benzo(a)anthracene, benzo(b)fluoranthene, benzo(a) pyrene, and indeno(1,2,3-cd)pyrene in MW-6 in 1996. In general, groundwater concentrations indicated a general decreasing trend over time at the facility, which was why PADEP allowed the facility to discontinue monitoring after 1999. The concentrations were also below detection levels in groundwater collected from MW-1, MW-3 and MW-4 during 1996 and 1997, which were the perimeter downgradient wells for the facility. Results of the 1996 and 1997 CME are presented in the table below.

PARAMETER (ug/L*)	1996/1997 CME MONITORING WELL RESULTS						Non-Use Aquifer - Residential MSC	Used Aquifer - Residential MSC
	MW-1R	MW-2R	MW-3	MW-4R	MW-5	MW-6		
PAHs	--/ ND	--/ ND	--/ ND	--/ ND	--/ 43	--/ ND	--	--
TCE	ND/ ND	ND/ ND	ND/ ND	ND/ ND	33/ 14	ND/ ND	50	5
PCE	ND/ ND	ND/ ND	ND/ ND	ND/ ND	55/ ND	ND/ ND	50	5
Benzene	ND/ ND	83/ 42	ND/ ND	ND/ ND	ND/ ND	3/ 10	500	5
Ethylbenzene	ND/ ND	1/ ND	ND/ ND	ND/ ND	ND/ ND	2/ 3	70,000	700
Toluene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	2/ 5	100,000	1,000
TOC (mg/L)	29/ 19	28/ 24.4	12/ 11.2	42/ 45.3	5/ 4.3	8/ 7.2	--	--
TOX	33/ 17.7	42/ 29.5	25/ 20.6	11/ 9.5	71/ 95	6/ 7.1	--	--
pH	7.05/ 6.96	8.45/ 8.17	6.88/ 6.74	6.93/ 6.79	6.39/ 6.6	7.01/ 6.7	--	--
Specific Conductance (umhos/cm)	3,370/ 2,740	2,140/ 1,780	6,640/ 3,630	2,160/ 2,590	293/ 392	1,080/ 828	--	--
Naphthalene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	30,000	100
Acenaphthylene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	16,000	2,200
Acenaphthene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	48/ 62	3,800	2,200
Fluorene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	11.9/ 17.5	1,900	1,500
Phenanthrene	ND/ ND	9.8/ 7.6	ND/ ND	ND/ ND	ND/ ND	ND/ ND	1,100	1,100
Anthracene	ND/ ND	2.1/ 1.5	ND/ ND	ND/ ND	ND/ ND	ND/ ND	66	66
Fluoranthene	ND/ ND	3.12/ 2.61	ND/ ND	ND/ ND	0.78/ ND	1.07/ 0.74	260	260
Pyrene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	130	130
Benzo(a)anthracene	ND/ ND	0.17/ 0.14	ND/ ND	ND/ ND	0.25/ ND	0.49/ 0.28	11	0.29
Chrysene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	1.9	1.9
Benzo(b)fluoranthene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	0.44/ ND	1.2	0.29
Benzo(k)fluoranthene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	0.24/ 0.13	0.55	0.55
Benzo(a) pyrene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	0.55/ ND	3.8	0.2
Dibenzo(a,h)anthracene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	0.6	0.029
Benzo(g,h,i)perylene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	0.26	0.26
Indeno(1,2,3-cd)pyrene	ND/ ND	ND/ ND	ND/ ND	ND/ ND	ND/ ND	0.86/ ND	62	0.29

Notes: * All results in ug/L except where indicated; 1996 values from WCC / 1997 values from PADEP.

ND = Not Detected;

-- = not applicable

Air (indoors):

There are no structures remaining at the site thus indoor air quality is no longer relevant. The entire facility has been dismantled and removed and areas where waste material was stored and may have impacted soils have been remediated.

Soil:

Since the facility ceased operations in 1982, access to the property has been restricted by a perimeter fence of the main area. Highly contaminated soils were removed and appropriately disposed, while mildly contaminated soils were remediated with other remedial methods such as bioremediation. The facility was certified as closed in accordance with the closure plan in 1994.

The facility was remediated to removed PAHs with a combined CPAH concentrations not to exceed 50 ppm with no individual of the six CPAH exceed 15 ppm. Soils were remediated in 16. The maximum concentrations of base neutrals in the confirmation samples from the Soil Contamination Assessment (1988) were as follows:

Parameter	Maximum Concentration Remaining On-site (mg/kg)	Sample Area	Direct Contact Residential MSC	Direct Contact Nonresidential MSC - Surface Soil	Direct Contact Nonresidential MSC - subsurface surface soil	Soil to Groundwater Residential Used Aquifer TDS ≤ 2,500	Soil to Groundwater Non Residential MSC Used Aquifer TDS ≤ 2,500
Acenaphthene	1.27	I	13,000	170,000	190,000	2,700	4,700
Acenaphthylene	1.33	XVI	13,000	170,000	190,000	2,500	6,900
Anthracene	7	XVI	66,000	190,000	190,000	350	350
Benzo(a)anthracene*	17.7	XVI	5.7	110	190,000	25	320
Benzo(a)pyrene*	11	XVI	0.57	11	190,000	46	46
Benzo(b)fluoranthene *	22	XVI	5.7	110	190,000	40	170
Benzo(g,h,i)perylene	8.7	XVI	13,000	170,000	190,000	180	180
Benzo(k) fluoranthene	***	XVI	57	1,100	190,000	610	610
Chrysene*	26.7	XVI	270	11,000	190,000	230	230
Dibenzo(a,h)anthracene*	2.13	XVI	0.57	11	190,000	13	160
Fluoranthene	31.7	XVI	8,800	110,000	190,000	3,200	3,200
Fluorene	2.57	V	8,800	110,000	190,000	3,000	3,800
Indeno(1,2,3-c,d)pyrene*	7	XVI	5.7	110	190,000	2,200	28,000
Naphthalene	26.7	VIII	4,400	56,000	190,000	25	25
Phenanthrene	23	XVI	66,000	190,000	190,000	10,000	10,000
Pyrene	24.7	XVI	6,600	84,000	190,000	2,200	2,200
Total PAHs	188.4	XVI	--	--	--	--	--
Total Carcinogenic PAHs	85.5	XVI	--	--	--	--	--

Notes: Maximum concentration based on 16 confirmation samples from the Soil Contamination Assessment (1988). One confirmatory sample per remedial area.

MSC = PADEP Medium Specific Concentration

Note that samples from Area XIV exceeded the standard so additional excavation was conducted and the area was resampled (sample XIVR).

*** = compound could not be distinguished from benzo (b) fluoranthene in analysis; reported values are the combined concentrations

While the concentrations in area XVI exceeded the required cleanup criteria of 50 ppm of the carcinogenic PAHs, the source was believed to be the former coal tar-derived macadam paving that covered Area XVI and not the decanter tank tar sludge (K087) waste, because no K087 waste was observed in the area. Therefore, no further action was taken in Area 16. These concentrations are less than or equal to the non-residential MSCs or within EPA's RSL risk range of 10^{-6} to 10^{-4} for all of the tested PAHs. The maximum naphthalene concentration slightly exceeded the soil to groundwater MSCs in Area VIII. While no monitoring well was specifically located in Area VIII, naphthalene was not detected in groundwater during 1996 and 1997 at any of the existing site six monitoring wells. An insitu bioremediation process where groundwater was withdrawn from the shallow contaminated zone, treated to remove free product and re-dispersed into the shallow zone with nutrient and oxygen supplementation was performed in the south area. Bioremediation was completed when TPH concentrations were less than 300 ppm in the confirmatory soil samples. In summary, concentrations are below non-residential MSCs or within EPA's RSL risk range of 10^{-6} to 10^{-4} for all of the tested PAHs, bioremediation was complete when TPH concentrations were less than 300 ppm in the soil in the south area, access to the site is permissible through the un-maintained perimeter fence.

Surface Water/Sediment: The closest surface water body to the facility is the Delaware River. PCC is 10 feet above sea level and less than 100 feet from the Delaware River. During its operation, several notices of violations (NOVs) were issued pertaining to oily discharges (in minor quantities) in violation of NPDES permits at the time. Upon its closure, the facility posed no further direct discharge impact to the Delaware River. In groundwater, the concentrations of the COCs were below detection at the far downgradient wells (MW-1R and MW 3) in the main area, and therefore, should not be a source of contamination to the surface water/sediment.

Two monitoring wells (MW-13 and MW-14) were installed in December 1989 in the thin saturated zone of the fill down gradient of the tank farm. In-situ bioremediation of groundwater was achieved through the use of sumps screened through the saturated fill layer. Confirmatory samples were collected from soil borings advanced down to the silty clay aquiclude. Bioremediation was completed and TPH concentrations were less than 300 ppm.

No sediment data is available. However, based on the information presented above, EPA has concluded that sediment is not reasonably suspected to be contaminated above appropriately protective risk-based levels.

Air (outdoors): As PCC is no longer operating, air emissions from operations are no longer a factor of concern.

Reference:

Environmental Indicator Inspection Report for Philadelphia Coke Co., Inc., EPA ID No. PAD004427906,
Prepared by Michael J. Baker Jr., Inc., January 2012

3. Are there **complete pathways** between “contamination” and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential **Human Receptors** (Under Current Conditions)

Contaminated Media	<u>Residents</u>	<u>Workers</u>	<u>Day-Care</u>	<u>Construction</u>	<u>Trespassers</u>	<u>Recreation</u>	<u>Food³</u>
Groundwater	No	No	No	No	No	No	No
Air (indoors)							
Soil (surface, e.g., <2 ft.)							
Surface Water							
Sediment							
Soil (subsurface e.g., >2 ft.)							
Air (outdoors)							

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not “contaminated” as identified in #2 above.
2. enter “yes” or “no” for potential “completeness” under each “Contaminated” Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential “Contaminated” Media - Human Receptor combinations (Pathways) do not have check spaces (“___”). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

 X If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter “YE” status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

 If yes (pathways are complete for any “Contaminated” Media - Human Receptor combination) - continue after providing supporting explanation.

 If unknown (for any “Contaminated” Media - Human Receptor combination) - skip to #6 and enter “IN” status code.

Rationale and Reference(s):

The use of the property currently remains idle with no development since the facility’s closure. Groundwater is not currently or anticipated to be used in the near future. Concentrations of constituents in groundwater above EPA MCLs and EPA RSLs are isolated to a central location on site and do not migrate beyond the facility boundary. Vertically, drilling logs and regional maps show a continuous clay layer which acts as an impermeable barrier resulting in an inability for contaminants to migrate to deeper aquifers. Therefore, EPA has determined that exposures cannot be reasonably expected under the current land and groundwater use.

³ Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.

4. Can the exposures from any of the complete pathways identified in #3 be reasonably expected to be “significant”⁴ (i.e., potentially “unacceptable” because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable “levels” (used to identify the “contamination”); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable “levels”) could result in greater than acceptable risks)?

_____ If no (exposures can not be reasonably expected to be significant (i.e., potentially “unacceptable”) for any complete exposure pathway) - skip to #6 and enter “YE” status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

_____ If yes (exposures could be reasonably expected to be “significant” (i.e., potentially “unacceptable”) for any complete exposure pathway) - continue after providing a description (of each potentially “unacceptable” exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

_____ If unknown (for any complete pathway) - skip to #6 and enter “IN” status code

Rationale and Reference(s):

5. Can the “significant” exposures (identified in #4) be shown to be within acceptable limits?

_____ If yes (all “significant” exposures have been shown to be within acceptable limits) - continue and enter “YE” after summarizing and referencing documentation justifying why all “significant” exposures to “contamination” are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be “unacceptable”) - continue and enter “NO” status code after providing a description of each potentially “unacceptable” exposure.

_____ If unknown (for any potentially “unacceptable” exposure) - continue and enter “IN” status code

Rationale and Reference(s):

⁴ If there is any question on whether the identified exposures are “significant” (i.e., potentially “unacceptable”) consult a human health Risk Assessment specialist with appropriate education, training and experience.

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the Information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the Philadelphia Coke Company facility, EPA ID # PAD000427906, located at 4501 Richmond Street, Philadelphia, PA 19137 under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

NO - "Current Human Exposures" are NOT "Under Control."

IN - More information is needed to make a determination.

Completed by (signature) [Signature] Date 4/10/13
(print) Kevin Bilash
(title) RPM

Supervisor (signature) [Signature] Date 4-10-13
(print) Paul Gotthold
(title) Associate Director, LCD
(EPA Region or State) EPA R3

Locations where References may be found:

USEPA Region III
Land and Chemicals Division
1650 Arch Street
Philadelphia, PA 19103

PADEP
South East Regional Office
2 E Main Street
Norristown, PA 19401

Contact telephone and e-mail numbers
(signature) [Signature]
(print) Kevin Bilash
(title) RPM

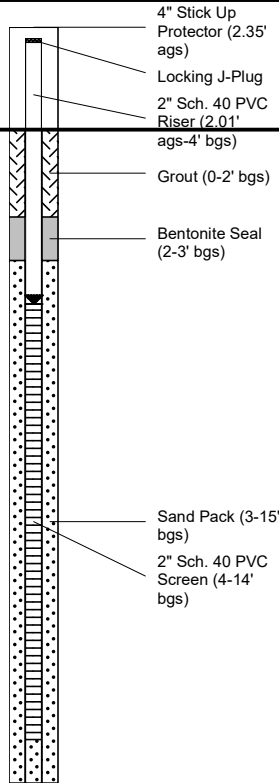
FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.


APPENDIX D

Soil Boring, Test Pit, and Monitoring Well Installation Logs




Date Start/Finish: 5/14/2018	Northing: 252827.11'	Well/Boring ID: MW-101
Drilling Company: Advanced Drilling, Inc.	Easting: 2719591.88'	Client: National Grid
Driller's Name: Nick	Top of Inner Casing Elevation: 14.841'	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Hollow Stem Auger	Surface Elevation: 12.835' NAVD88	
Sampling Method: 2"x2' Split Spoon	Borehole Depth: 16' bgs	
	Descriptions By: Chris Ortolano	

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
15								 <p>4" Stick Up Protector (2.35' ags) Locking J-Plug 2" Sch. 40 PVC Riser (2.01' ags-4' bgs) Grout (0-2' bgs) Bentonite Seal (2-3' bgs) Sand Pack (3-15' bgs) 2" Sch. 40 PVC Screen (4-14' bgs)</p>
0		1	0-2	15.6"	0.0		SILT; moist, brown.	
							GRAVEL and BRICK.	
							SAND and GRAVEL; coarse, dry.	
10		2	2-4	12"	0.0		Silty SAND, coarse; trace Gravel, fine; medium dense, dry.	
5		3	4-6	7.2"	0.0		SAND, coarse; some Gravel, coarse; dark brown, dense, wet.	
		4	6-8	4.8"	0.0		Split spoon refusal. Drill down to 8' bgs.	
5		5	8-10	6"	0.0		SAND, fine to coarse, black; some Roots; dense, wet.	
10		6	10-12	6"	0.0		GRAVEL, coarse; and SAND, fine to coarse; some broken Glass; black and brown, loose, wet. [FILL]	
0		7	12-14	12"	0.0		SAND, fine; some fine to coarse Gravel; little Clay; black, soft, wet.	
15		8	14-16	NR	0.0		CLAY; black, soft, wet.	
							End of boring at 16' bgs.	
-5								
-20								
-10								

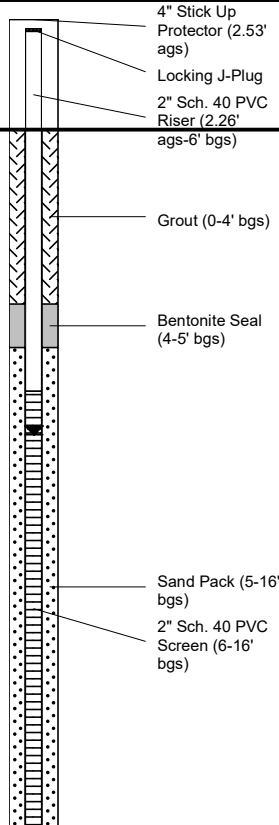


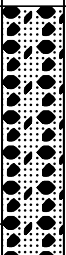
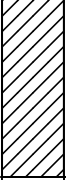
 <p>ARCADIS Design & Consultancy for natural and built assets</p>	<p>Remarks: ags = above ground surface; bgs = below ground surface; NAVD88 = North American Vertical Datum of 1988; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot.</p>
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Date Start/Finish: 5/16/2018	Northing: 253136.36'	Well/Boring ID: MW-102
Drilling Company: Advanced Drilling, Inc.	Easting: 2719716.67'	Client: National Grid
Driller's Name: Nick	Top of Inner Casing Elevation: 16.917'	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Geoprobe	Surface Elevation: 14.829' NAVD88	
Sampling Method: 5' Macrocore Liner	Borehole Depth: 20' bgs	
	Descriptions By: Chris Ortolano	

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	1.5							4" Stick Up Protector (2.37' ags) Locking J-Plug 2" Sch. 40 PVC Riser (2.09' ags-8' bgs)
5	10	1	0-5	31.2"	0.0	[Pattern]	Sandy SILT, brown; some Brick and Gravel; moist. [FILL]	Grout (0-6' bgs)
10	5	2	5-10	38.4"	0.0	[Pattern]	Silty SAND, tan; some Gravel, fine to coarse; moist.	Bentonite Seal (6-7' bgs)
15	0	3	10-15	36"	0.0	[Pattern]	SAND, fine to coarse, black; some Gravel; wet. CLAY; gray, wet. GRAVEL, coarse, tan; some fine to coarse Sand; moist. Unknown, white spackle-like material, soft.	Sand Pack (7-18' bgs) 2" Sch. 40 PVC Screen (8-18' bgs)
20	-5	4	15-20	24"	0.0	[Pattern]	Sandy CLAY, fine, gray; trace coarse Gravel, wet.	
20	-10						End of boring at 20' bgs.	


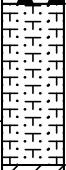
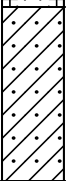
 Design & Consultancy for natural and built assets	Remarks: ags = above ground surface; bgs = below ground surface; NAVD88 = North American Vertical Datum of 1988; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot; Macrocore inner diameter = 1".
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Date Start/Finish: 5/16/2018	Northing: 252909.76'	Well/Boring ID: MW-103
Drilling Company: Advanced Drilling, Inc.	Easting: 2720099.75'	Client: National Grid
Driller's Name: Nick	Top of Inner Casing Elevation: 16.087'	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Geoprobe	Surface Elevation: 13.826' NAVD88	
Sampling Method: 5' Macrocore Liner	Borehole Depth: 20' bgs	
	Descriptions By: Chris Ortolano	

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
15								 <p>4" Stick Up Protector (2.53' ags) Locking J-Plug 2" Sch. 40 PVC Riser (2.26' ags-6' bgs) Grout (0-4' bgs) Bentonite Seal (4-5' bgs) Sand Pack (5-16' bgs) 2" Sch. 40 PVC Screen (6-16' bgs)</p>
0		1	0-5	36"	0.0		BRICK; and CONCRETE; and GRAVEL; moist. [FILL]	
10		2	5-10	24"	0.0		Sandy CLAY; gray, moist to wet.	
5		3	10-15	32.4"	0.0		SAND and GRAVEL; fine to coarse, black, wet.	
0		4	15-20	43.2"	0.0		CLAY; light to dark gray, wet.	
15							End of boring at 20' bgs.	
-5								
-10								
-20								

 <p>ARCADIS Design & Consultancy for natural and built assets</p>	<p>Remarks: ags = above ground surface; bgs = below ground surface; NAVD88 = North American Vertical Datum of 1988; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot; Macrocore inner diameter = 1".</p>
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Date Start/Finish: 5/15/2018	Northing: 252335.33'	Well/Boring ID: MW-104
Drilling Company: Advanced Drilling, Inc.	Easting: 2719009.93'	Client: National Grid
Driller's Name: Nick	Top of Inner Casing Elevation: 13.928'	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Geoprobe	Surface Elevation: 11.641' NAVD88	
Sampling Method: 5' Macrocore Liner	Borehole Depth: 15' bgs	
	Descriptions By: Chris Ortolano	

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								4" Stick Up Protector (2.42' ags) Locking J-Plug 2" Sch. 40 PVC Riser (2.29' ags-4' bgs)
1.0		1	0-5	24"	0.0		SILT, dark brown; some Gravel, coarse; dry. SAND, fine to coarse, tan; some Gravel, fine to coarse; moist.	Grout (0-2' bgs) Bentonite Seal (2-3' bgs)
5							Wet at 5' bgs.	
5		2	5-10	48"	0.0		Gray at 6.8' bgs. Silty SAND; little Gravel, fine to coarse; gray, wet.	Sand Pack (3-11' bgs) 2" Sch. 40 PVC Screen (4-11' bgs)
10								
10		3	10-15	48"	0.0		Sandy CLAY; trace Gravel, fine; black, wet.	
15							End of boring at 15' bgs.	
-5								
-20								
-10								
-25								

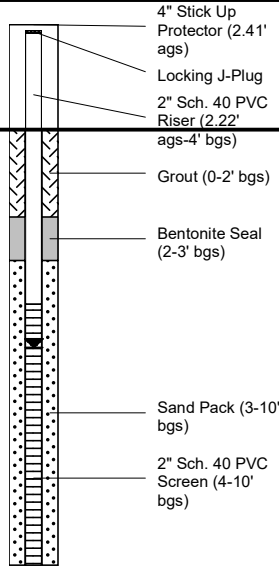






	Remarks: ags = above ground surface; bgs = below ground surface; NAVD88 = North American Vertical Datum of 1988; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot; Macrocore inner diameter = 1".
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Date Start/Finish: 5/15/2018	Northing: 251955.46'	Well/Boring ID: MW-105
Drilling Company: Advanced Drilling, Inc.	Easting: 2719250.51'	Client: National Grid
Driller's Name: Nick	Top of Inner Casing Elevation: 13.987'	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Geoprobe	Surface Elevation: 12.136' NAVD88	
Sampling Method: 5' Macrocore Liner	Borehole Depth: 15' bgs	
Descriptions By: Chris Ortolano		

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
15								
0								4" Stick Up Protector (2.22' ags) Locking J-Plug 2" Sch. 40 PVC Piecer (1.85' ags-4' bgs) Grout (0-2' bgs) Bentonite Seal (2-3' bgs)
10		1	0-5	36"	0.0		SAND, coarse, black; Gravel, fine to coarse; dry. BRICK and CONCRETE. [FILL] SAND, fine to coarse; some Gravel; tan, moist.	
5		2	5-10	40.8"	0.0		CLAY, dark gray, moist. SAND; fine to coarse, dark gray, wet.	
5							CLAY, black, wet. SAND; fine to coarse, black, wet.	
10		3	10-15	60"	0.0		Trace Gravel at 10' bgs.	Sand Pack (3-15' bgs) 2" Sch. 40 PVC Screen (4-14' bgs)
0							CLAY, black, wet.	
15							SAND, coarse, black, wet.	
							End of boring at 15' bgs.	
-5								
-20								
-10								
0								

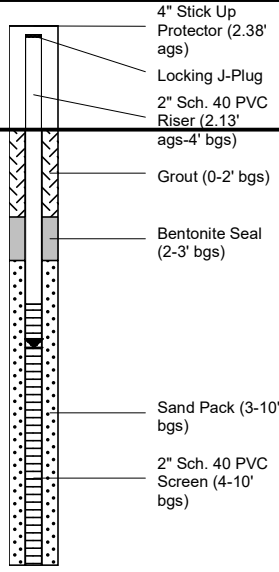
 ARCADIS Design & Consultancy for natural and built assets	Remarks: ags = above ground surface; bgs = below ground surface; NAVD88 = North American Vertical Datum of 1988; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot; Macrocore inner diameter = 1".
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Date Start/Finish: 5/15/2018	Northing: 251684.02'	Well/Boring ID: MW-106
Drilling Company: Advanced Drilling, Inc.	Easting: 2720437.39'	Client: National Grid
Driller's Name: Nick	Top of Inner Casing Elevation: 9.031'	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Geoprobe	Surface Elevation: 6.81' NAVD88	
Sampling Method: 5' Macrocore Liner	Borehole Depth: 15' bgs	
	Descriptions By: Chris Ortolano	

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								 <p>4" Stick Up Protector (2.41' ags) Locking J-Plug 2" Sch. 40 PVC Riser (2.22' ags-4' bgs) Grout (0-2' bgs) Bentonite Seal (2-3' bgs) Sand Pack (3-10' bgs) 2" Sch. 40 PVC Screen (4-10' bgs)</p>
5		1	0-5	40.8"	0.0		GRAVEL, black; and Silty SAND, moist.	
5							SAND, fine to coarse; some Gravel, fine to coarse; moist.	
5							Wet at 5' bgs.	
0		2	5-10	45.6"	0.0		Sandy CLAY; gray.	
10							Peat.	
10							CLAY, gray; some Silt.	
-5		3	10-15	50.4"	0.0			
15							End of boring at 15' bgs	
-10								
-20								
-15								

 <p>ARCADIS Design & Consultancy for natural and built assets</p>	<p>Remarks: ags = above ground surface; bgs = below ground surface; NAVD88 = North American Vertical Datum of 1988; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot; Macrocore inner diameter = 1".</p>
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Date Start/Finish: 5/15/2018	Northing: 252078.78'	Well/Boring ID: MW-107
Drilling Company: Advanced Drilling, Inc.	Easting: 2720497.99'	Client: National Grid
Driller's Name: Nick	Top of Inner Casing Elevation: 10.105'	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Geoprobe	Surface Elevation: 7.979' NAVD88	
Sampling Method: 5' Macrocore Liner	Borehole Depth: 15' bgs	
Descriptions By: Chris Ortolano		

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
1.0								 <p>4" Stick Up Protector (2.38' ags) Locking J-Plug 2" Sch. 40 PVC Riser (2.13' ags-4' bgs) Grout (0-2' bgs) Bentonite Seal (2-3' bgs) Sand Pack (3-10' bgs) 2" Sch. 40 PVC Screen (4-10' bgs)</p>
0							Silty SAND; dark brown; some fine to coarse Gravel, wet at 2' bgs.	
5		1	0-5	24"	0.0			
5							SAND, black, fine to coarse; trace Glass; wet.	
0		2	5-10	7.2"	0.0			
10							Sandy CLAY and GRAVEL; fine to coarse; wet.	
-5		3	10-15	19.2"	0.0			
15							End of boring at 15' bgs.	
-10								
-20								
-15								

 <p>ARCADIS Design & Consultancy for natural and built assets</p>	<p>Remarks: ags = above ground surface; bgs = below ground surface; NAVD88 = North American Vertical Datum of 1988; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot; Macrocore inner diameter = 1".</p>
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Date Start/Finish: 9/24/2019	Northing: 252644.999'	Well/Boring ID: MW-108
Drilling Company: Advanced Drilling, Inc.	Easting: 2720170.134'	Client: National Grid
Driller's Name: Craig Jablonksi	Top of Inner Casing Elevation: 16.964' NAVD88	Location:
Drilling Method: Geoprobe/HSA	Surface Elevation: 14.652' NAVD88	Former Philadelphia Coke Plant
Sampling Method: 5' Macrocore Liner	Borehole Depth: 20' bgs	4501 Richmond St.
Rig Type: Track-mounted Geoprobe	Descriptions By: Chris Ortolano	Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	15								4" Diameter Stick Up Protector Locking J-Plug 3' stickup
0		1	0-5	36"	0.0			Brown Sandy SILT, some fine to coarse Gravel, dry.	
5	10				0.0			Black at 2.6' bgs.	Grout (0-3' bgs) 2" Sch. 40 PVC Riser (3' ags-9' bgs)
5		2	5-10	48"	NA			Black Sandy Silty CLAY, some fine to coarse Gravel, moist, petroleum-like odor. Tar-like (tacky) material scattered throughout at 6-8' bgs. Purifier material from 6-10' bgs.	Bentonite Seal (3-6' bgs) #00 Choker Sand (6-7' bgs)
10	5				88.7				
10		3	10-15	36"	69.9			Wet at 11' bgs.	#1 Filter Sand (7-20' bgs) 2" Sch. 40 PVC 0.010" Slotted Screen (9-19' bgs)
15	0				0.0			Black Sandy Gravel, wet.	
15		4	15-20	60"	0.0			Gray Silty CLAY, moist to wet.	2" Sch. 40 PVC 0.010" Slotted Screen (9-19' bgs) #1 Filter Sand (7-20' bgs)
20	-5				0.0			Bronze Sandy Silty CLAY, wet.	
20					0.0			End of boring at 20' bgs.	
25	-10								
30	-15								

Remarks: NAVD88 = North American Vertical Datum of 1988; ags = above ground surface; bgs = below ground surface; HSA = hollow-stem auger; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot. Macrocore inner diameter = 1".

Analytical samples collected at 5-7' and 10-12' bgs.



Date Start/Finish: 9/25/2019
Drilling Company: Advanced Drilling, Inc.
Driller's Name: Craig Jablonksi
Drilling Method: Geoprobe/HSA
Sampling Method: 5' Macrocore Liner
Rig Type: Track-mounted Geoprobe

Northing: 252689.061'
Easting: 2720267.001'
Top of Inner Casing Elevation: 13.185' NAVD88
Surface Elevation: 10.878' NAVD88
Borehole Depth: 19' bgs
Descriptions By: Chris Ortolano

Well/Boring ID: MW-109
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0									4" Diameter Stick Up Protector Locking J-Plug 3' stickup
1.0		1	0-5	36"	1.8			Brown Sandy SILT, some fine to coarse Gravel, dry.	Grout (0-3' bgs) 2" Sch. 40 PVC Riser (3' ags-9' bgs) Bentonite Seal (3-6' bgs) #00 Choker Sand (6-7' bgs) #1 Filter Sand (7-19' bgs) 2" Sch. 40 PVC 0.010" Slotted Screen (9-14' bgs) #1 Filter Sand (7-19' bgs)
2.1				0.9			Black at 1.5 bgs.		
5.0		2	5-10	36"	NA		Black Sandy Clayey SILT, some fine to coarse Gravel, moist.		
11.0					NA		Brown Sandy SILT, moist. Wood at 8' bgs.		
15.0		3	10-15	48"	0.0			Gray Silty SAND, trace fine Gravel, wet.	
16.0					0.0			Gray Silty CLAY, wet.	
19.0		4	15-19	48"	0.0			End of boring at 19' bgs.	

Remarks: NAVD88 = North American Vertical Datum of 1988; ags = above ground surface; bgs = below ground surface; HSA = hollow-stem auger; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot. Macrocore inner diameter = 1".



Date Start/Finish: 9/25/2019
Drilling Company: Advanced Drilling, Inc.
Driller's Name: Craig Jablonksi
Drilling Method: Geoprobe/HSA
Sampling Method: 5' Macrocore Liner
Rig Type: Track-mounted Geoprobe

Northing: 252610.933'
Easting: 2720324.165'
Top of Inner Casing Elevation: 10.864' NAVD88
Surface Elevation: 8.38' NAVD88
Borehole Depth: 22' bgs
Descriptions By: Chris Ortolano

Well/Boring ID: MW-110
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
10									4" Diameter Stick Up Protector Locking J-Plug 3' stickup
0					38.1			Brown Sandy SILT, some fine to coarse Gravel, moist.	Grout (0-2' bgs) 2" Sch. 40 PVC Riser (3' ags-4' bgs) Bentonite Seal (2-2.5' bgs) #00 Choker Sand (2-2.5' bgs)
5		1	0-5	36"	29.7			Black Sandy SILT, some fine to coarse Gravel, trace Clay.	
5					24.3			Slight petroleum-like odor from 0-3' bgs.	
5					NA			Wet 5 bgs.	
5					NA				
0					0.0			Black Sandy GRAVEL, wet.	#1 Filter Sand (3-14' bgs)
10		2	5-10	36"	0.0				2" Sch. 40 PVC 0.010" Slotted Screen (4-14' bgs) Backfilled with native soil (14-22' bgs)
10					0.0				
10					0.0				
5					NA				Backfilled with native soil (14-22' bgs) Backfilled with native soil (14-22' bgs)
15		3	10-15	20.4"	NA			Gray Silty CLAY, wet.	
15					NA				
10					NA				
20		4	15-20	36"	0.0			Brown Sandy Gravel, some coarse Gravel, wet.	
20					NA				
20					NA				
20		5	20-22	24"	0.0				
20					0.0				
15								End of boring at 22' bgs.	
25									
20									



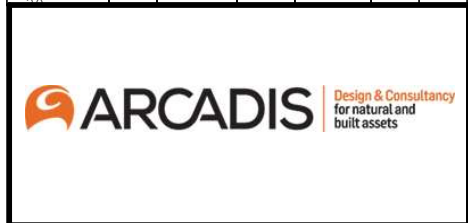
Remarks: NAVD88 = North American Vertical Datum of 1988; ags = above ground surface; bgs = below ground surface; HSA = hollow-stem auger; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot. Macrocore inner diameter = 1".

Date Start/Finish: 9/23/2019
Drilling Company: Advanced Drilling, Inc.
Driller's Name: Craig Jablonksi
Drilling Method: Geoprobe/HSA
Sampling Method: 5' Macrocore Liner
Rig Type: Track-mounted Geoprobe

Northing: 251899.935'
Easting: 2719793.692'
Top of Inner Casing Elevation: 19.323' NAVD88
Surface Elevation: 16.709' NAVD88
Borehole Depth: 22' bgs
Descriptions By: Chris Ortolano

Well/Boring ID: MW-111
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0									4" Diameter Stick Up Protector Locking J-Plug 3' stickup
1.5		1	0-5	36"	0.4 9.9 5.7 NA NA			Brown gray Sandy SILT, some fine to coarse Gravel and Brick, trace Coal, dry.	Grout (0-3' bgs) 2" Sch. 40 PVC Riser (3' ags-9' bgs) Bentonite Seal (3-6' bgs)
10		2	5-10	36"	2.8 1.6 1.1 NA NA			Black Sandy SILT, some fine to coarse Gravel and Brick, moist. CONCRETE and ROCK Black Clayey and Sandy SILT, some fine to coarse Gravel, moist.	#00 Choker Sand (6-7' bgs)
10.5		3	10-15	48'	1.9 83.7 183.8 19.3 NA			Black Clayey and Sandy SILT, some fine to coarse Gravel, moist. Sheen at 12.2' bgs. Naphtha-like odor at 12.2-12.4' bgs. Gray Silty and Sandy CLAY, moist.	2" Sch. 40 PVC 0.010" Slotted Screen (9-19' bgs) #1 Filter Sand (7-20' bgs)
20		4	15-20	48"	0.0 5.8 5.9 2.9 3.1			Wet at 15.8' bgs.	2" Sch. 40 PVC 0.010" Slotted Screen (9-19' bgs) 2" Sch. 40 PVC Sump (19-20' bgs) Backfilled with native soil (20-22' bgs)
20.5		5	20-22	24"	0.0 0.0			End of boring at 22' bgs.	



Remarks: NAVD88 = North American Vertical Datum of 1988; ags = above ground surface; bgs = below ground surface; HSA = hollow-stem auger; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot. Macrocore inner diameter = 1".

Date Start/Finish: 9/24/2019
Drilling Company: Advanced Drilling, Inc.
Driller's Name: Craig Jablonksi
Drilling Method: Geoprobe/HSA
Sampling Method: 5' Macrocore Liner
Rig Type: Track-mounted Geoprobe

Northing: 251769.618'
Easting: 2719952.29'
Top of Inner Casing Elevation: 12.078' NAVD88
Surface Elevation: 9.484' NAVD88
Borehole Depth: 22' bgs
Descriptions By: Chris Ortolano

Well/Boring ID: MW-112
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	1.0								4" Diameter Stick Up Protector Locking J-Plug 3' stickup
0		1	0-5	36"	0.0			Brown Sandy SILT, some fine to coarse Gravel, moist.	Grout (0-2' bgs) 2" Sch. 40 PVC Riser (3' ags-4' bgs) Bentonite Seal (2-3' bgs) #00 Choker Sand (3-3.5' bgs) #1 Filter Sand (3-14' bgs) 2" Sch. 40 PVC 0.010" Slotted Screen (4-14' bgs) Backfilled with native soil (14-22' bgs) Backfilled with native soil (14-22' bgs)
0					0.0			Black and Gray Silty SAND, some fine to coarse Gravel, moist.	
0					1.5			Black and Gray Sandy Silty CLAY, moist.	
5					NA			Wet at 5 bgs.	
5					NA				
5		2	5-10	48"	0.0			Gray Silty SAND, wet.	
10					0.0				
10					0.0				
10		3	10-15	60"	0.0			Gray Silty CLAY, wet.	
15					0.0				
15					0.0				
15		4	15-20	22.8"	NA			Brown Silty SAND, some fine to coarse Gravel, wet.	
20					NA				
20					NA				
20		5	20-22	24"	0.0				
20					0.0				
25								End of boring at 22' bgs.	

Remarks: NAVD88 = North American Vertical Datum of 1988; ags = above ground surface; bgs = below ground surface; HSA = hollow-stem auger; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot. Macrocore inner diameter = 1".



Date Start/Finish: 9/23/2019
Drilling Company: Advanced Drilling, Inc.
Driller's Name: Craig Jablonksi
Drilling Method: Geoprobe/HSA
Sampling Method: 5' Macrocore Liner
Rig Type: Track-mounted Geoprobe

Northing: 251714.618'
Easting: 2719797.938'
Top of Inner Casing Elevation: 18.414' NAVD88
Surface Elevation: 16.125' NAVD88
Borehole Depth: 22' bgs
Descriptions By: Chris Ortolano
















Well/Boring ID: MW-113
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA


Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0									4" Diameter Stick Up Protector Locking J-Plug 3' stickup
1.5		1	0-5	43.2"	0.0 0.0 0.6 NA NA			Brown Sandy SILT, some fine to coarse Gravel, trace Brick, dry. Gray at 2' bgs.	Grout (0-3' bgs) 2" Sch. 40 PVC Riser (3' ags-7' bgs) Bentonite Seal (3-4' bgs) #00 Choker Sand (4-5' bgs)
2.5		2	5-10	48"	0.0 0.0 0.0 0.0			Gray Clayey and Sandy SILT, some fine to coarse Gravel and Brick, moist. Black Silty and Sandy GRAVEL, wet.	
3.5		3	10-15	45.6"	0.0 5.7 7.1 NA NA			Gray and black Silty CLAY, trace fine Gravel, moist to wet.	2" Sch. 40 PVC 0.010" Slotted Screen (7-17' bgs)
4.5		4	15-20	60"	0.0 0.0 0.0 0.0			Gray and black Sandy CLAY, trace fine Gravel, wet. Gray and black Silty CLAY, moist.	2" Sch. 40 PVC 0.010" Slotted Screen (7-17' bgs) #1 Filter Sand (4-14' bgs) Backfilled with native soil (14-22' bgs)
5.5		5	20-22	24"	0.0 0.0			End of boring at 22' bgs.	

Remarks: NAVD88 = North American Vertical Datum of 1988; ags = above ground surface; bgs = below ground surface; HSA = hollow-stem auger; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot. Macrocore inner diameter = 1".

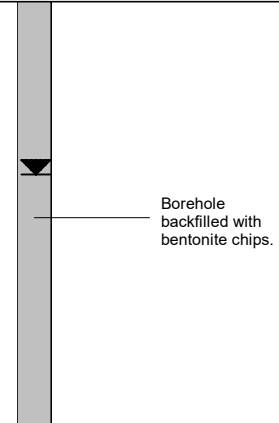



Date Start/Finish: 04/05/2019	Northing: 253971.603'	Well/Boring ID: PCSB-01R
Drilling Company: Advanced Drilling	Easting: 2719455.73'	Client: National Grid
Driller's Name: Craig Jablonski	Surface Elevation: 18.2' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 20' bgs	
Sampling Method: Macrocore	Descriptions By: Evan Green	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
20								Boring hand cleared to 5' bgs.	
0								No recovery.	
1.5			0-5'	NA	NA				
5		1	5-10'	44"	0.4			Black COAL FRAGMENTS, some Coal Cinder, some coarse Sand, loose, moist.	Borehole backfilled with bentonite chips.
7.5					0.2			Gray fine to medium SAND, little subangular fine Gravel, trace Mica, medium dense, moist.	
10					0.1			Brown fine SAND, trace coarse Sand, dense, moist to wet.	
12.5					0.0			Lense of Coal Fragments and Coal Cinder at 8' bgs.	
15					0.0				
17.5		2	10-15'	33"	0.5			Reddish orange fine to medium SAND, trace subrounded fine Gravel, medium dense, moist to wet.	
20					0.2			Tannish gray very fine to fine SAND, little Silt, medium dense to dense, wet.	
22.5					0.4				
25					10.1			Brown fine to medium SAND, medium dense, wet.	
27.5					111.8			Black fine to medium SAND, medium dense, wet, petroleum-like odor, heavy staining.	
30		3	15-20'	48"	440.8			Light gray SILT and CLAY, little very fine Sand, medium plasticity, dense, moist to wet.	
32.5					>15,000				
35					23.1			Light orange coarse SAND, medium dense, wet.	
37.5					6.6				
40					5.9				
20								End of borehole at 20' bgs.	

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Hand auger used to soft dig to 5' bgs. Macrocore length = 5'. Macrocore inner diameter = 1"
	Analytical soil samples collected: PCSB-01R (14-16), PCSB-01R (18-20).

Date Start/Finish: 04/19/2019 Drilling Company: Advanced Drilling Driller's Name: Craig Jablonski and Ron West Drilling Method: Direct Push Sampling Method: Macrocore Rig Type: Track-Mounted Geoprobe	Northing: 252024.517' Easting: 2720514.311' Surface Elevation: 6.4' NAVD88 Borehole Depth: 10' bgs Descriptions By: Grayson Basalyga	Well/Boring ID: PCSB-26R Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
5		1	0-5'	46"	0.0	X		Black fine to coarse SAND and SILT, loose, moist.	
					0.0			Black fine to coarse SAND and SILT, some subangular fine Gravel, trace Woody Debris, trace Brick Fragments, medium dense, wet.	
					0.0			Grayish tan fine to medium SAND and SILT, little subangular fine to coarse Gravel, medium dense, wet.	
5		2	5-10'	38"	0.0			Dark gray Peaty SILT and CLAY, medium dense, moist, medium plasticity.	
10					0.0			End of borehole at 10' bgs.	
-5									
-15									
-10									
-20									
-15									

 <small>Design & Consultancy for natural and built assets</small>	Remarks: NAVD1988 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1". Analytical soil sample collected: PCSB-26R (0.5 - 2.0).
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Date Start/Finish: 04/19/2019
Drilling Company: Advanced Drilling
Driller's Name: Craig Jablonski and Ron West
Drilling Method: Direct Push
Sampling Method: Macrocore
Rig Type: Track-Mounted Geoprobe

Northing: 251555.7360'
Easting: 2720384.850'
Surface Elevation: 9.7' NAVD88
Borehole Depth: 15' bgs
Descriptions By: Grayson Basalyga

Well/Boring ID: PCSB-30R
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	10							Boring hand cleared to 5' bgs.	
0.0		1	0-5'	43"	0.0			Dark gray fine to medium SAND, some Silt, little subangular fine Gravel, medium dense, moist.	<p>Borehole backfilled with bentonite chips.</p>
0.0					0.0			Gray, white in part fine to coarse SAND and SILT, some subangular fine Gravel, dense, moist.	
0.0					0.0			Dark gray fine SAND and SILT, some subangular fine to coarse Gravel, medium dense, moist.	
0.0					0.0			Dark gray fine to coarse SAND and SILT, medium dense, wet.	
0.0		2	5-10'	33"	0.0			Brown, gray in part medium to coarse SAND, some subangular fine to coarse Gravel, medium dense, moist to wet.	
0.0					0.0			Brown, gray in part fine to medium SAND, medium dense, moist to wet.	
0.0					0.0			Gray Peaty SILT and CLAY, low plasticity, stiff, moist.	
0.0		3	10-15'	44"	0.0				
0.0					0.0				
0.0					0.0				
15								End of borehole at 15' bgs.	

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
 Analytical soil samples collected: PCSB-30R (0.5-2), PCSB-30R (0.5-2) MS, PCSB-30R (0.5-2) MSD.



Date Start/Finish: 04/22/2019	Northing: 252342.542'	Well/Boring ID: PCSB-41R
Drilling Company: Advanced Drilling	Easting: 2720479.812'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 6.6' NAVD88	Location:
Drilling Method: Direct Push	Borehole Depth: 15' bgs	Former Philadelphia Coke Plant
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	4501 Richmond St.
Rig Type: Track-Mounted Geoprobe		Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
5		1	0-5'	44"	244.7 349.2 176 12.4 10.4	X	Dark brown fine to coarse SAND and SILT, loose to medium dense, moist. Dark brown fine to coarse SAND and SILT, some subangular fine to coarse Gravel, loose, moist Blue to rainbow sheen over 0.5-2' bgs. Wet at 3' bgs.		
5					3.2 0.0				
10		2	5-10'	49"	0.3 0.0 0.0	X	Brown, gray in part fine SAND, SILT, and CLAY, low plasticity, medium stiff, moist to wet. Dark gray SILT and CLAY, medium plasticity, stiff, moist.	Borehole backfilled with bentonite chips.	
15					0.0 0.0 0.0 0.0				
15		3	10-15'	34"	0.0 0.0 0.0 0.0	X	Gray Peaty SILT and CLAY, medium plasticity, medium stiff, moist.		
15								End of borehole at 15' bgs.	

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil samples collected: PCSB-41R (0.5-2.0), PCSB-41R (9-11).

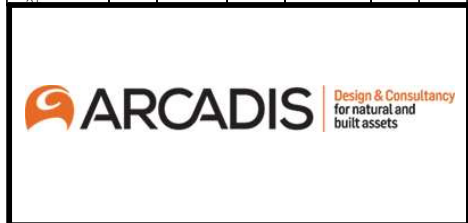
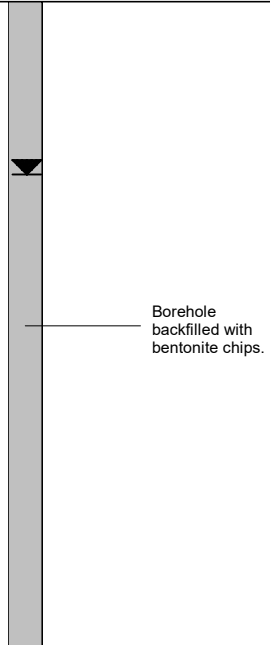


Date Start/Finish: 04/19/2019
Drilling Company: Advanced Drilling
Driller's Name: Craig Jablonski and Ron West
Drilling Method: Direct Push
Sampling Method: Macrocore
Rig Type: Track-Mounted Geoprobe

Northing: 251904.995'
Easting: 2720226.123'
Surface Elevation: 8.2' NAVD 88
Borehole Depth: 15' bgs
Descriptions By: Grayson Basalyga

Well/Boring ID: PCSB-49R
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
10									
0					0.0			Boring hand cleared to 5' bgs.	
		1	0-5'	23"	0.0			Black fine to coarse SAND and SILT, loose, moist.	
5					0.0			Brown gray fine to coarse SAND and SILT, some subangular fine to coarse Gravel, trace Coal Fragments, loose to medium dense, moist.	
					0.0				
5					0.0				
		2	5-10'	28"	0.0			Gray medium to coarse SAND and subrounded fine GRAVEL, trace low density Silty Clay, medium dense, moist.	
					0.0				
10					0.0			Wet at 10' bgs.	
					0.0				
		3	10-15'	56"	0.0			Gray fine Silty SAND and CLAY, low plasticity, medium dense, moist to wet.	
					0.0			Dark gray Peaty SILT and CLAY, low plasticity, medium stiff, moist.	
					0.0				
15								End of borehole at 15' bgs.	
-10									
-20									
-15									












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 Analytical soil samples collected: PCSB-49R (3-5), PCSB-49R (10-12).

Date Start/Finish: 04/05/2019
Drilling Company: Advanced Drilling
Driller's Name: Craig Jablonski
Drilling Method: Direct Push
Sampling Method: Macrocore
Rig Type: Track-Mounted Geoprobe

Northing: 253846.113'
Easting: 2719304.516'
Surface Elevation: 19.4' NAVD88
Borehole Depth: 20' bgs
Descriptions By: Evan Green

Well/Boring ID: PCTP-01R
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
5		1	5-10'	39"	0.0 0.0 0.0 0.0	X	 Black COAL CINDER and COAL FRAGMENTS, little Concrete Fragments, trace Woody Debris (possible purifier waste), trace medium Sand, loose, moist.	 Borehole backfilled with bentonite chips.	
10					0.0 0.0	 Light brown very fine to fine SAND, little angular fine Gravel, trace Brick and Concrete Fragments, loose, moist to wet.			
15		2	10-15'	50"	0.0 0.0 0.0	 Light brown medium to coarse SAND, little fine Sand, medium dense, wet.			
20					0.0 0.0	 Light brown fine to medium SAND, trace coarse Sand, loose to medium dense, moist to wet.			
25					0.2	 Dark gray coarse SAND, little subangular fine Gravel, loose, moist to wet.			
30					0.0 0.0	 Light gray CLAY, little Silt, little very fine Sand, medium to high plasticity, medium stiff, moist.			
35		3	15-20'	57"	0.0 0.0	 Brown medium SAND, little coarse Sand, medium dense, wet.			
40					0.0	 Dark gray fine to medium SAND, little subangular fine Gravel, medium dense, wet.			
45							End of borehole at 20' bgs.		



Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum Excavator used to soft dig to 5' bgs. Macrocore length = 5'. Macrocore inner diameter = 1".

 Analytical soil sample collected: PCTP-01R (5-7)

 Soil boring was hand-cleared from 0-5' bgs.

Date Start/Finish: 04/05/2019
Drilling Company: Advanced Drilling
Driller's Name: Craig Jablonski
Drilling Method: Direct Push
Sampling Method: Macrocore
Rig Type: Track-Mounted Geoprobe

Northing: 253544.741'
Eastings: 2719225.224'
Surface Elevation: 13.6' NAVD88
Borehole Depth: 20' bgs
Descriptions By: Evan Green

Well/Boring ID: PCTP-02R
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
0-5'				NA	NA				
5-10'		1	5-10'	36"	0.0			Light tannish gray very fine to fine SAND, little Silt, dense to very dense, moist.	<p>Borehole backfilled with bentonite chips.</p>
10-15'				0.2			Dark brown medium SAND, trace coarse Sand, loose to medium dense, moist.		
15-20'				0.0			Subangular fine Gravel lens at 8' bgs.		
20-25'				0.0			Light gray fine SAND, loose, wet.		
25-30'				0.8			Reddish orange fine SAND, trace coarse Sand, loose, wet.		
30-35'				0.1			Dark brown coarse SAND, some medium Sand, little subangular fine Gravel, loose to medium dense, moist to wet.		
35-40'				0.0			Light reddish gray SILT and CLAY, little very fine Sand, medium plasticity, soft to medium stiff, moist.		
40-45'				0.0			Orangish gray fine SAND, medium dense, moist to wet.		
45-50'				0.0			Dark brown coarse SAND, little subrounded fine Gravel, little medium Sand, loose to medium dense, wet.		
50-55'				0.0				End of borehole at 20' bgs.	



Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum Excavator used to soft dig to 5' bgs. Macrocore length = 5'. Macrocore inner diameter = 1".
 Analytical soil samples collected: PCTP-02R (4-6).
 Soil boring was hand-cleared from 0-5' bgs.

Date Start/Finish: 04/09/2019 Drilling Company: Advanced Drilling Driller's Name: Craig Jablonski and Ron West Drilling Method: Direct Push Sampling Method: Macrocore Rig Type: Track-Mounted Geoprobe	Northing: 253248.398' Easting: 2719480.631' Surface Elevation: 12.3' NAVD88 Borehole Depth: 15' bgs Descriptions By: Evan Green	Well/Boring ID: PCTP-08R Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
15								Boring hand cleared to 5' bgs.	
0									<p>Borehole backfilled with bentonite chips.</p>
10		1	0-5'	NA	NA				
5					0.0			Light brown fine SAND, some angular fine Gravel, little Brick Fragments, loose, moist.	
5		1	5-10'	39"	0.0			Black COAL CINDER, some medium to coarse Sand, loose to medium dense, moist.	
5					0.0			Light brown fine SAND, little Silt, trace angular fine Gravel, trace Brick Fragments, medium dense, moist to wet.	
10					0.0			Light gray subangular fine GRAVEL, some coarse Sand, loose, wet, very light black staining.	
0		2	10-15'	38"	0.0			Dark gray SILT and CLAY, low plasticity, little very fine Sand, medium stiff, moist.	
15								End of borehole at 15' bgs.	
-5									
-20									
-10									
-25									
-15									

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum Excavator used to soft dig to 5' bgs. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil sample collected: PCTP-08R (10-12).
	Soil boring was hand-cleared from 0-5' bgs.

Date Start/Finish: 04/09/2019	Northing: 252937.011'	Well/Boring ID: PCTP-10R
Drilling Company: Advanced Drilling	Easting: 2719331.859'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 11.7' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 20' bgs	
Sampling Method: Macrocore	Descriptions By: Evan Green	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
1.0		1	0-5'	NA	NA				
5.0		2	5-10'	36"	0.7 0.2 0.2 0.1 0.1	X		Dark gray fine to medium SAND, little subrounded fine Gravel, medium dense, wet, very light black staining.	
10.0		3	10-15'	30"	0.2 0.2 0.0 0.0 0.0			Light brown fine SAND, trace subrounded fine Gravel, loose to medium dense, wet.	
15.0		4	15'-20'	50"	0.2 0.0 1.1 0.0 0.0			Dark gray fine to medium SAND, trace coarse Sand, medium dense, wet.	
20.0								Light staining from 11-16' bgs.	
20.0								End of borehole at 20' bgs.	

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum Excavator used to soft dig to 5' bgs. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil samples collected: PCTP-10R (7-9).
	Soil boring was hand-cleared from 0-5' bgs.

Date Start/Finish: 04/12/2019 Drilling Company: Advanced Drilling Driller's Name: Craig Jablonski and Ron West Drilling Method: Direct Push Sampling Method: Macrocore Rig Type: Track-Mounted Geoprobe	Northing: 252733.408' Easting: 2719180.845' Surface Elevation: 10.5' NAVD88 Borehole Depth: 15' bgs Descriptions By: Evan Green	Well/Boring ID: PCTP-12R Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
10		1	0-5'	36"	0.0			Brown SILT, little fine Sand, little Woody Debris, soft, moist.	<p>Borehole back filled with bentonite chips.</p>
5		2	5-10'	34"	0.0			Dark brown, fine SAND, little Coal Cinder, little subrounded fine Gravel, medium dense, wet.	
5					0.0			Brown medium SAND, little sub angular fine Gravel, loose, wet.	
10					0.0			Dark gray fine SAND, little Silt, soft, wet.	
10					0.0			Dark gray fine to medium SAND, little coarse Sand, little Silt, medium dense, wet.	
15		3	10-15'	36"	0.0			Dark gray SILT and CLAY, low plasticity, little fine Sand, medium stiff, moist.	
15								End of borehole at 15' bgs.	
20									
25									
30									

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum Excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil samples collected: S-112 (2-4), S-112 (9-11).

Soil boring was hand-cleared from 0-5' bgs. Descriptions for 0-5' bgs interval are based on soil cuttings.



Date Start/Finish: 04/15/2019	Northing: 252632.811'	Well/Boring ID: PCTP-17R
Drilling Company: Advanced Drilling	Easting: 2719340.244'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 15.5' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 25' bgs	
Sampling Method: Macrocore	Descriptions By: Evan Green	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
1.5		1	0-5'	29"	0.0			Brown very fine to fine SAND, some Silt, trace Brick fragments, trace Coal Ash, soft, moist.	<p>Borehole backfilled with bentonite chips.</p>
5.0					0.0				
10.0		2	5-10'	42"	0.0			Dark gray fine SAND, little sub angular fine Gravel, medium dense, moist to wet, strong Coal tar-like odor.	
10.5					37.4	X			
11.0					2.0	X		Brown fine to medium SAND, little coarse Sand, trace Coal Cinder, medium dense, wet. Black, very dense, Coal tar-like material from 5.25 - 5.5' bgs	
11.5					0.7	X			
12.0					0.0			Black COAL CINDER, little fine Sand, medium dense, wet.	
12.5					0.3	X			
13.0					0.7			Dark gray SILT, some Coal Cinder, little Clay, low plasticity, soft, wet.	
13.5					3.2			Dark gray SILT and CLAY, some fine Sand, low plasticity, little Woody Debris, soft, moist, faint petroleum-like odor.	
14.0		3	10-15'	48"	3.7				
14.5					8.7				
15.0					22.1				
15.5					22.3			Dark gray SILT and CLAY, little fine Sand, low plasticity, soft, moist, moderately strong Coal tar-like odor.	
16.0					72.9				
16.5		4	15-20'	48"	21.3			Liquid coal tar-like material in void spaces within clay at 17' bgs.	
17.0					26.4	X			
17.5					83.4				
18.0					0.7			Dark gray SILT and CLAY, little fine Sand, low plasticity, soft, moist.	
18.5					10.5				
19.0		5	20-25'	48"	6.8				
19.5					25.4				
20.0					1.0	X		Brown very SILT and CLAY, some fine Sand, low plasticity, medium stiff, moist to dry.	
20.5									
21.0									
21.5									
22.0									
22.5									
23.0									
23.5									
24.0									
24.5									
25.0								End of borehole at 25' bgs.	

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil samples collected: PCTP-17R (5-6), PCTP-17R (7-9), PCTP-17R (9-11), PCTP-17R (18-20), PCTP-17R (24-25).

Soil boring was hand-cleared from 0-5' bgs. Descriptions for 0-5' bgs interval are based on soil cuttings.



Date Start/Finish: 04/11/2019
Drilling Company: Advanced Drilling
Driller's Name: Craig Jablonski and Ron West
Drilling Method: Direct Push
Sampling Method: Macrocore
Rig Type: Track-Mounted Geoprobe

Northing: 252748.917'
Easting: 2719804.489'
Surface Elevation: 16.9' NAVD88
Borehole Depth: 20' bgs
Descriptions By: Evan Green

Well/Boring ID: PCTP-28R
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
1.5		1	0-5'	42"	0.1			Brown SILT, some fine Sand, little Concrete Fragments, trace Brick Fragments, loose to medium dense, moist.	<p>Borehole backfilled with bentonite chips.</p>
5.5					0.1			Brown SILT, little fine Sand, trace Brick Fragments, medium dense, moist, trace Coal Cinder, medium dense, moist.	
10.0		2	5-10'	46"	0.1	X		Black COAL CINDER, little Coal Ash, little Woody Debris (possible purifier waste), trace Brick Fragments, loose, moist.	
10.0					0.0			BRICK FRAGMENTS, little Coal Cinder, little coarse Sand, loose, moist.	
10.0					0.1			Black COAL CINDER, little coarse Sand, loose, wet.	
10.5					75.8	X		Black COAL CINDER, some Coal Ash, little coarse Sand, loose, wet, light rainbow sheen over entire interval, light petroleum-like odor.	
11.0		3	10-15'	48"	33.2			Dark gray SILT and CLAY, low plasticity, soft, moist.	
11.5					19.7			Gray SILT, some Coal Cinder, little Coal Fragments, medium dense, moist.	
12.0					3.0			Black COAL CINDER, some Coal Ash, little coarse Sand, loose, wet, no odor.	
15.0					4.3			Very light rainbow sheen over 15-16' bgs.	
16.0		4	15-20'	50"	2.6			Dark gray SILT and CLAY, some fine Sand, low plasticity, soft, moist.	
16.5					1.5				
17.0					0.0				
17.5					0.0				
20.0								End of borehole at 20' bgs.	

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

 Analytical soil samples collected: PCTP-28R (6-8), PCTP-28R (11-12).

 Soil boring was hand-cleared from 0-5' bgs. Descriptions for 0-5' bgs interval are based on soil cuttings.



Date Start/Finish: 04/09/2019
Drilling Company: Advanced Drilling
Driller's Name: Craig Jablonski and Ron West
Drilling Method: Direct Push
Sampling Method: Macrocore
Rig Type: Track-Mounted Geoprobe

Northing: 252335.438'
Eastings: 2719414.992'
Surface Elevation: 12.1' NAVD88
Borehole Depth: 15' bgs
Descriptions By: Evan Green

Well/Boring ID: PCTP-32R
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
0.0					0.0			Light brown fine SAND, little coarse Sand, trace subangular fine Gravel, trace Brick Fragments, loose, dry to moist.	
3.4				3.4		Dark gray fine to medium SAND, some coarse Sand, trace subrounded fine Gravel, medium dense, wet, petroleum-like odor.			
14.4		1	0-5'	36"	14.4			Petroleum-like odor at 3' bgs.	
1.6					1.6			Light rainbow sheen and strong petroleum-like odor at 5.5' bgs.	
0.9					0.9			Dark gray very fine to fine SAND, little Silt, medium dense, wet, faint petroleum-like odor.	
0.6		2	5-10'	55"	0.6			Dark gray low to SILT and CLAY, little very fine Sand, medium plasticity, medium dense, moist to wet, faint petroleum-like odor.	
0.4					0.4			Light rainbow sheen at 10.5' bgs.	
0.5					0.5				
1.1					1.1				
1.6					1.6				
1.8		3	10-15'	55"	1.8				
3.7					3.7				
1.8					1.8				
15								End of borehole at 15' bgs.	

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
 Analytical soil samples collected: PCTP-32R (6-8).
 Soil boring was hand-cleared from 0-5' bgs. Descriptions for 0-5' bgs interval are based on soil cuttings.



Date Start/Finish: 04/09/2019	Northing: 252251.584'	Well/Boring ID: PCTP-47R
Drilling Company: Advanced Drilling	Easting: 2719972.351'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 16.8' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 15' bgs	
Sampling Method: Macrocore	Descriptions By: Evan Green	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
15			0-5'	NA					
5		1	5-10'	50"	0.0			Brown very fine SAND, little Silt, little Brick Fragments, trace Concrete Fragments, loose, moist.	
10	0.3				Dark gray medium to coarse SAND, trace sub angular fine Gravel, loose to medium dense, wet.				
10	0.0								
10	0.0								
10		2	10-15'	50"	0.1			Dark gray SILT and CLAY, little very fine Sand, low plasticity, soft to medium dense, wet.	
5	0.5								
5	0.7								
15	0.0								
15								End of borehole at 15' bgs.	
0									
20									
-5									
25									
-10									
30									

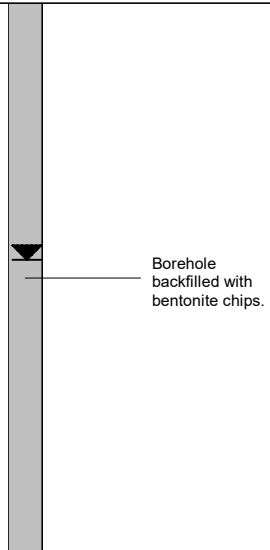
	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil sample collected: PCTP-47R (5-7).
	Soil boring was hand-cleared from 0-5' bgs.

Date Start/Finish: 04/15/2019 / 04/16/2019
Drilling Company: Advanced Drilling
Driller's Name: Craig Jablonski and Ron West
Drilling Method: Direct Push
Sampling Method: Macrocore
Rig Type: Track-Mounted Geoprobe

Northing: 252309.924'
Easting: 2719106.314'
Surface Elevation: 12.0' NAVD88
Borehole Depth: 15' bgs
Descriptions By: Evan Green

Well/Boring ID: PCTP-49R
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
0.0					0.0			Brown SILT, some coarse Sand, little Woody Debris, loose, moist.	
0.7					0.7			Black COAL CINDER, some fine to medium Sand, loose to medium dense, moist to wet.	
1.0		1	0-5'	40"	0.1			Light brown fine SAND, little Silt, medium dense, moist to wet.	
0.0					0.0				
0.0					0.0				
5.0					0.0			Light brown medium SAND, little subangular fine Gravel, loose to medium dense, wet.	
5.0		2	5-10'	50"	0.0			Gray fine to medium SAND, trace coarse Sand, medium dense, wet.	
0.0					0.0				
0.0					0.0				
10.0					0.0			Dark gray SILT, little fine Sand, soft, wet, moderately strong petroleum-like odor, black staining.	
0.0		3	10-15'	36"	47.9			Dark gray SILT and CLAY, little fine Sand, low plasticity, soft, moist, faint petroleum-like odor.	
1.8					1.8				
3.2					3.2				
1.5					1.5				
0.0					0.0			Brownish gray SILT and CLAY, little fine Sand, low plasticity, medium stiff, moist to dry.	
15.0								End of borehole at 15' bgs.	
-5									
-20									
-10									
-25									
-15									



Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

 Analytical soil samples collected: PCTP-49R (8-10), PCTP-49R (10-11).



Date Start/Finish: 04/18/2019	Northing: 251732.6260'	Well/Boring ID: PCTP-51R
Drilling Company: Advanced Drilling	Easting: 2719602.7550'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 15.7' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 15' bgs	
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID HeadSpace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
1.5		1	0-5'	31"	0.0			Brown fine to coarse SAND and SILT, loose, moist.	<p>Borehole backfilled with bentonite chips.</p>
5.0					0.0			BRICK, COAL, and CONCRETE FRAGMENTS, little Woody Debris, medium dense, moist.	
10.0		2	5-10'	51"	0.0				
15.0					0.0				
10.0		3	10-15'	52"	0.0			Dark gray fine to medium SAND and SILT, some Clay, medium plasticity, medium dense, moist.	
15.0					0.0			Dark gray SILT and CLAY, high plasticity, medium stiff, moist.	
15.0					0.0			Dark gray SILT and CLAY, trace sub angular fine Gravel, trace fine Sand, medium plasticity, stiff, moist.	
15.0								End of borehole at 15' bgs.	

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".








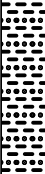
Analytical soil sample collected: PCTP-51R (10-12).



Date Start/Finish: 04/10/2019
Drilling Company: Advanced Drilling
Driller's Name: Craig Jablonski and Ron West
Drilling Method: Direct Push
Sampling Method: Macrocore
Rig Type: Track-Mounted Geoprobe

Northing: 253343.042'
Easting: 2719870.706'
Surface Elevation: 10.5' NAVD88
Borehole Depth: 20' bgs
Descriptions By: Evan Green

Well/Boring ID: PCTP-73R
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
0.0		1	0-5'	45"	0.0			Brown SILT, little fine Sand, little Woody Debris, loose, moist.	 <p>Borehole backfilled with bentonite chips.</p>
0.0				0.0			CONCRETE and BRICK FRAGMENTS, little fine Sand, loose, moist.		
0.0				0.0			COAL FRAGMENTS and COAL CINDER, little Concrete Fragments, loose, moist to dry.		
0.0				0.0			Dark gray subangular to angular fine GRAVEL, some coarse Sand, trace Coal Cinder, loose to medium dense, wet.		
5		2	5-10'	29"	0.0				
5.0					0.0				
0.0		3	10-15'	42"	0.0				
0.0					0.0				
0.0					0.0				
15		4	15-20'	42"	0.0			Dark gray SILT and CLAY, little very fine Sand, low plasticity, trace Woody Debris, dense, moist.	
0.0					0.0				
0.0					0.0				
20								End of borehole at 20' bgs.	
-10									
-25									
-15									

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
 Analytical soil sample collected: PCTP-73R (0.0-0.5).
 Soil boring was hand-cleared from 0-5' bgs. Descriptions for 0-5' bgs interval are based on soil cuttings.



Date Start/Finish: 04/11/2019	Northing: 252910.907'	Well/Boring ID: PCTP-75R
Drilling Company: Advanced Drilling	Easting: 2720140.436'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 11.9' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 20' bgs	
Sampling Method: Macrocore	Descriptions By: Evan Green	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
10		1	0-5'	36"	0.0			Brown SILT, little fine Sand, little Woody Debris, soft, moist.	<p>Borehole backfilled with bentonite chips.</p>
5					0.0			Gray SILT, little subrounded fine Gravel, little Brick Fragments, little Concrete Fragments, little fine Sand, soft to medium dense, moist.	
5		2	5-10'	42"	0.0			Brown SILT, some fine Sand, trace Brick Fragments, soft to medium dense, moist.	
5					0.5			Gray SILT, some fine Sand, little Clay, low plasticity, trace Brick Fragments, soft, moist.	
5					1.9			Woody Debris (possible purifer waste) from 6.5 -7' bgs.	
10					0.0			Dark gray COAL CINDER, some coarse Sand, little Coal Ash, trace Coal Clinker, loose, wet.	
10		3	10-15'	36"	0.0			Dark gray COAL CINDER and COAL ASH, little subangular fine Gravel, little coarse Sand, medium dense, wet, very faint petroleum-like odor.	
10					0.5			Light rainbow sheen from 10-11' bgs.	
15					0.2				
15					0.0				
15		4	15-20'	48"	0.0			Dark gray SILT and CLAY, little fine Sand, medium plasticity, trace Woody Debris, medium stiff, moist.	
20					0.0			End of borehole at 20' bgs.	
-10									
-25									
-15									








Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".


Analytical soil samples collected: PCTP-75R (10-12), PCTP-75R (14-16).

Soil boring was hand-cleared from 0-5' bgs. Descriptions for 0-5' bgs interval are based on soil cuttings.



Date Start/Finish: 04/10/2019	Northing: 253854.166'	Well/Boring ID: PSSTP-01R
Drilling Company: Advanced Drilling	Easting: 2719541.788'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 17.5' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 15' bgs	
Sampling Method: Macrocore	Descriptions By: Evan Green	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
20								Boring hand cleared to 5' bgs.	
0					0.0			Dark brown SILT, trace Coal Fragments, loose, dry.	
1.5		1	0-5'	36"	0.0			Brown fine SAND, little coarse Sand, little rounded fine Gravel, trace Brick and Concrete Fragments, loose to medium dense, moist.	 <p>Borehole backfilled with bentonite chips.</p>
5					21.5			Blueish gray fine SAND, some Concrete Fragments, little coarse Sand, loose, dry to moist. Green stained textile at 5.5' bgs.	
10		2	5-10'	43"	38.4			Light gray COAL CINDER, little Coal Fragments, little Concrete Fragments, trace Woody Debris (possible purifier waste) medium dense, moist. Woody debris (possible purifier waste) at 8' bgs.	
10					2.1			Light brown coarse SAND, little sub angular fine Gravel, loose, moist.	
5		3	10-15'	46"	1.0			Brown medium SAND, little coarse Sand, medium dense, moist.	
15					0.1			Light gray SILT and CLAY, little very fine Sand, medium plasticity, medium dense, moist.	
15					0.0			End of borehole at 15' bgs.	
0									
20									
-5									
25									
-10									
30									

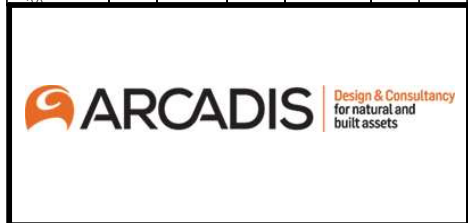
	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil sample collected: PSSTP-01R (5-6).

Date Start/Finish: 04/11/2019
Drilling Company: Advanced Drilling
Driller's Name: Craig Jablonski and Ron West
Drilling Method: Direct Push
Sampling Method: Macrocore
Rig Type: Track-Mounted Geoprobe

Northing: 252671.139'
Eastings: 2720191.549'
Surface Elevation: 13.6' NAVD88
Borehole Depth: 20' bgs
Descriptions By: Evan Green

Well/Boring ID: PSSTP-04R
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
0.1		1	0-5'	39"	0.1			Brown very fine to fine SAND, some Silt, little Brick Fragments, trace Concrete Fragments.	<p>Borehole backfilled with bentonite chips.</p>
0.2					0.2			Dark gray COAL CINDER, some Coal Fragments, trace coarse Sand, trace Brick Fragments, medium dense, moist.	
0.9		2	5-10'	50"	2.7			Dark gray very high viscosity COAL TAR-like material, little Coal Cinder, trace Woody Debris, dense, moist, strong coal tar-like odor.	
58.7					7.5			Black COAL CINDER, little Coal Fragments, little Coal Ash, trace Woody Debris (possible purifier waste), dense, moist, moderately strong coal tar-like odor.	
12.5								Black COAL CINDER, little Coal Fragments, dense, wet. Light rainbow sheen from 10-11' bgs.	
4.3		3	10-15'	50"	1.0			Dark gray coarse SAND, some Coal Cinder, medium dense, wet, very faint petroleum-like odor.	
1.2					0.7			Black COAL CINDER, some Coal Fragments, little coarse Sand, medium dense, moist to wet.	
1.0					4.2			Black COAL ASH, some Coal Cinder, little coarse Sand, medium dense, wet.	
0.8		4	15-20'	50"	0.8			Trace liquid COAL TAR stringers from 16-17' bgs.	
0.4					0.4			Dark gray SILT and CLAY, low plasticity, medium stiff, moist.	
0.4								End of borehole at 20' bgs.	




Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

 Analytical soil samples collected: PSSTP-28R (1-2), PSSTP-28R (7-8), PSSTP-28R (8-9), PSSTP-28R (16-17).

Date Start/Finish: 04/18/2019	Northing: 251966.784'	Well/Boring ID: PSSTP-07R
Drilling Company: Advanced Drilling	Easting: 2719374.326'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 12.9' NAVD88	Location:
Drilling Method: Direct Push	Borehole Depth: 25' bgs	Former Philadelphia Coke Plant
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	4501 Richmond St.
Rig Type: Track-Mounted Geoprobe		Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
15								Boring hand cleared to 5' bgs.	
0								Brown fine to coarse SAND and SILT, loose, moist.	
10		1	0-5'	37"				BRICK and CONCRETE FRAGMENTS, little Coal Fragments loose, dry to moist.	
5					0.0			Tan fine to coarse SAND and SILT, trace subangular fine Gravel, trace Brick Fragments, medium dense, moist.	
5		2	5-10'	36"	0.0				Borehole backfilled with bentonite chips.
5					0.0				
10					0.0				
10		3	10-15'	33"	0.0			Dark gray medium to coarse SAND, medium dense, moist to wet.	
15					0.0			No Recovery	
-5		NA	15'-20'	0"	0.0				
20					0.0			Dark gray medium to coarse SAND, medium dense, moist to wet, light rainbow sheen over interval.	
-10		4	20-25'	44"	0.0			Dark gray SILT and CLAY, high plasticity, stiff, moist.	
25					0.0			End of borehole at 25' bgs.	
-15									

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil sample collected: PSSTP-07R (0.5-2), SO-DUP-0418, PSSTP-07R (8-9), PSSTP-07R (20-22).

Date Start/Finish: 04/23/2019 / 04/24/2019	Northing: 252669.099'	Well/Boring ID: PSSTP-22R
Drilling Company: Advanced Drilling	Easting: 2719644.652'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 13.0' NAVD88	Location:
Drilling Method: Direct Push	Borehole Depth: 25' bgs	Former Philadelphia Coke Plant
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	4501 Richmond St.
Rig Type: Track-Mounted Geoprobe		Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
15								Boring hand cleared to 5' bgs.	
0					0.0			Brown fine to coarse SAND and SILT, loose, moist.	
		1	0-5'	24"	0.0			Dark gray fine to coarse SAND, some subangular fine Gravel, faint coal tar-like odor.	
					0.0			BRICK FRAGMENTS, loose, moist.	
1.0					32.9			Dark gray fine to coarse SAND, some Coal Fragments, trace Brick Fragments, faint coal tar-like odor.	
5					1.0			Black COAL FRAGMENTS, little Ceramic and Glass Fragments, loose, moist.	
5		2	5-10'	48"	0.0			Black fine to medium SAND and SILT, some Coal Ash, little Coal Fragments, trace Brick Fragments, medium dense, moist to wet.	
10					0.0			No Recovery from 10 - 20' bgs.	
0		3	10-15'	0"	NA				
15					NA				
5		4	15-20'	0"	NA				
20					NA				
10		5	20-25'	43"	0.0			Gray peaty SILT and CLAY, low plasticity, medium stiff, moist.	
25					0.0				
25					0.0			End of borehole at 25' bgs.	
15									





Borehole backfilled with bentonite chips.

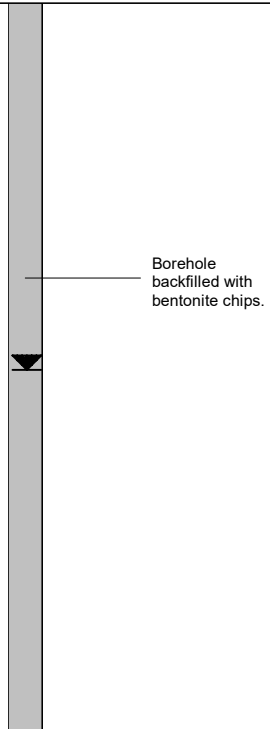
	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil samples collected: PSSTP-22R (0.5-2), PSSTP-22R (4-6).

Date Start/Finish: 04/10/2019
Drilling Company: Advanced Drilling
Driller's Name: Craig Jablonski and Ron West
Drilling Method: Direct Push
Sampling Method: Macrocore
Rig Type: Track-Mounted Geoprobe

Northing: 252928.367'
Easting: 2720126.291'
Surface Elevation: 12.3' NAVD88
Borehole Depth: 20' bgs
Descriptions By: Evan Green

Well/Boring ID: S-101
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
15								Boring hand cleared to 5' bgs.	
0					0.0			Brown SILT, little fine Sand, dense, dry to moist.	
10		1	0-5'	34"	0.0			Brown very fine SAND, little Coal Cinder, little Brick Fragments, trace Concrete Fragments, dense, dry to moist.	
5					0.0			Gray very fine to fine SAND, little Brick Fragments, trace Concrete Fragments, trace Coal Cinder, medium dense, moist.	
5		2	5-10'	48"	0.0				
10					0.8			Black COAL CINDER, little Coal Fragments, loose, moist to wet.	
0		3	10-15'	50"	1.0			Dark gray subangular to angular, fine GRAVEL, some coarse Sand, some Coal Cinder, little Coal Fragments, loose, wet.	
15					0.0				
5		4	15-20'	45"	0.0			Gray SILT and CLAY, little very fine Sand, low to medium plasticity, medium stiff, moist.	
20					0.0			End of borehole at 20' bgs.	
-10									
25									
-15									



Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

 Analytical soil samples collected: S-101 (10-12), S-101 (14.5-16.5).



Date Start/Finish: 04/10/2019
Drilling Company: Advanced Drilling
Driller's Name: Craig Jablonski and Ron West
Drilling Method: Direct Push
Sampling Method: Macrocore
Rig Type: Track-Mounted Geoprobe

Northing: 252920.427'
Easting: 2720154.795'
Surface Elevation: 11.5' NAVD88
Borehole Depth: 20' bgs
Descriptions By: Evan Green

Well/Boring ID: S-102
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
10		1	0-5'	40"	0.0			Brown SILT, little fine Sand, medium dense, moist.	<p>Borehole backfilled with bentonite chips.</p>
5					0.0			Black COAL CINDER, little fine Sand, little Concrete Fragments, loose, dry to moist.	
5		2	5-10'	38"	0.0			Brown fine SAND, little Silt, little Coal Cinder, medium dense, moist to wet, moderately strong petroleum-like odor.	
10					4.1			Black COAL CINDER, some Coal Fragments, little fine Sand, loose, moist.	
10					66.7			Medium to coarse SAND, some Coal Cinder, little subangular, fine Gravel, loose, wet.	
15		3	10-15'	36"	0.8			Dark gray subangular fine GRAVEL, some Coal Cinder, little Coal Ash, trace glass and metal fragments, loose, wet.	
15					0.0			Gray SILT and CLAY, trace fine Sand, low to medium plasticity, medium stiff, moist.	
20		4	15-20'	40"	0.0			End of borehole at 20' bgs.	
20					0.0				
25					0.0				

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

 Analytical soil samples collected: S-102 (10-12), S-102 (13.5-15.5).



Date Start/Finish: 04/11/2019
Drilling Company: Advanced Drilling
Driller's Name: Craig Jablonski and Ron West
Drilling Method: Direct Push
Sampling Method: Macrocore
Rig Type: Track-Mounted Geoprobe

Northing: 252883.469'
Easting: 2720152.722'
Surface Elevation: 12.5' NAVD88
Borehole Depth: 20' bgs
Descriptions By: Evan Green

Well/Boring ID: S-103
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
15								Boring hand cleared to 5' bgs.	
0		1	0-5'	48"	0.1			Brown SILT, some fine Sand, little Brick Fragments, trace Concrete Fragments, loose, moist.	<p>Borehole backfilled with bentonite chips.</p>
1.0					0.1		Coal Cinder from 2.5 - 3' bgs.		
5		2	5-10'	33"	0.0		BRICK FRAGMENTS, Concrete Fragments, loose, dry to moist.		
5					0.0		Black COAL CINDER, little fine Sand, little Coal Ash, medium dense, wet.		
10		3	10-15'	37"	0.8	X		Dark gray COAL CINDER, some Coal Ash, trace Coal Fragments, loose, moist, very faint petroleum-like odor. Light rainbow sheen from 10-12' bgs.	
0					0.0	X			
15		4	15-20'	3"	0.0			Gray SILT and CLAY, trace fine Sand, low plasticity, medium stiff, moist.	
-5					0.0				
20					0.0			End of borehole at 20' bgs.	
-10									
-25									
-15									

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 Analytical soil samples collected: S-103 (10-12), S-103 (13-15).

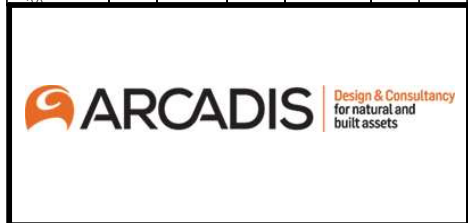


Date Start/Finish: 04/10/2019
Drilling Company: Advanced Drilling
Driller's Name: Craig Jablonski and Ron West
Drilling Method: Direct Push
Sampling Method: Macrocore
Rig Type: Track-Mounted Geoprobe

Northing: 252897.779'
Eastings: 2720119.397'
Surface Elevation: 13.1' NAVD88
Borehole Depth: 20' bgs
Descriptions By: Evan Green

Well/Boring ID: S-104
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
1.5								Boring hand cleared to 5' bgs.	
0		1	0-5'	42"	0.0			Light brown SILT, some fine Sand, trace Brick Fragments, medium dense, moist.	<p>Borehole backfilled with bentonite chips.</p>
10					0.0			Brown very fine to fine SAND, little Silt, little Concrete Fragments, trace Brick Fragments, medium dense, moist.	
5		2	5-10'	23"	0.0			Gray very fine SAND, some Coal Cinder, little Brick Fragments, little Woody Debris (possible purifier waste), loose to medium dense, moist.	
5					0.0			Dark gray SILT, little fine Sand, little Brick Fragments, trace Coal Cinder, soft, moist to wet.	
10					0.8			Gray SILT, some Coal Cinder, little subangular fine Gravel, soft, wet.	
0		3	10-15'	33"	0.0			Black COAL CINDER, some Coal Fragments, little Silt, little fine Sand, loose, wet.	
15					0.0			Dark gray fine to medium SAND, little coarse Sand, little Coal Cinder, loose, wet.	
-5		4	15-20'	50"	0.0			Gray SILT and CLAY, little fine Sand, low to medium plasticity, dense, moist.	
-5					0.0				
-20					0.0			End of borehole at 20' bgs.	



Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".


 Analytical soil samples collected: S-104 (10-12), S-104 (15.5-17.5).


Date Start/Finish: 04/12/2019 Drilling Company: Advanced Drilling Driller's Name: Craig Jablonski and Ron West Drilling Method: Direct Push Sampling Method: Macrocore Rig Type: Track-Mounted Geoprobe	Northing: 252873.561' Easting: 2719221.595' Surface Elevation: 11.8' NAVD88 Borehole Depth: 15' bgs Descriptions By: Evan Green	Well/Boring ID: S-105 Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
10		1	0-5'	35"	0.0	X	Black COAL CINDER, little coarse Sand, little Coal Fragments, medium dense, moist.		<p>Borehole backfilled with bentonite chips.</p>
5					0.0	X	Light brown fine to medium SAND, little Coal Cinder, little coarse Sand, medium dense, moist.		
5		2	5-10'	40"	0.0		Grayish brown fine to medium SAND, some Silt, little Coal Cinder, soft, wet.		
10					0.0	X	Dark gray fine SAND, medium dense, wet.		
15		3	10-15'	42"	0.0		Brownish gray SILT and CLAY, little fine Sand, low plasticity, soft, moist.		
15								End of borehole at 15' bgs.	
-5									
-20									
-10									
-25									
-15									

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil samples collected: S-105 (2-4), S-105 (8-10).

Date Start/Finish: 04/12/2019 Drilling Company: Advanced Drilling Driller's Name: Craig Jablonski and Ron West Drilling Method: Direct Push Sampling Method: Macrocore Rig Type: Track-Mounted Geoprobe	Northing: 252786.585' Easting: 2719274.604' Surface Elevation: 11.331' NAVD88 Borehole Depth: 15' bgs Descriptions By: Evan Green	Well/Boring ID: S-106 Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
10.6		1	0-5'	45"	10.6			Black COAL CINDER, little coarse Sand, loose, moist.	
282.6							Black COAL tar-like material, some Coal Cinder, very dense, moist, coal tar-like odor.		
16.9							Black COAL CINDER, some Coal Ash, little coarse Sand, loose, moist to wet, coal tar-like odor.		
9.4							Brown mottled black fine SAND, some Coal Cinder, medium dense, moist to wet.		
14.4		2	5-10'	44"	0.8			Black COAL CINDER, some Coal Ash, little coarse Sand, loose, wet.	
0.0							Dark gray very fine to fine SAND, little Silt, soft to medium dense, wet.		
1.1									
1.6									
0.6		3	10-15'	30"	0.4			Grayish brown SILT and CLAY, some fine Sand, low to medium plasticity, soft, moist.	
0.0									
0.0									
0.0									
15								End of borehole at 15' bgs.	

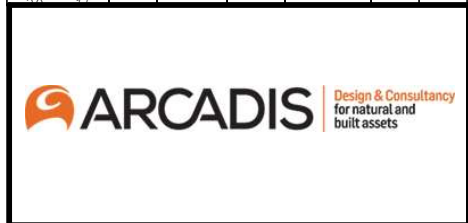
	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil samples collected: S-106 (2-4), S-106 (8-10).

Date Start/Finish: 04/15/2019
Drilling Company: Advanced Drilling
Driller's Name: Craig Jablonski and Ron West
Drilling Method: Direct Push
Sampling Method: Macrocore
Rig Type: Track-Mounted Geoprobe

Northing: 252671.776'
Easting: 2719388.25'
Surface Elevation: 15.0' NAVD88
Borehole Depth: 20' bgs
Descriptions By: Evan Green

Well/Boring ID: S-108
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	15							Boring hand cleared to 5' bgs.	
		1	0-5'	37"	0.0			Light brown very fine to fine SAND, little Silt, little Brick Fragments, loose, moist.	<p>Borehole backfilled with bentonite chips.</p>
					0.0			Brown fine to medium SAND, some Coal Cinder, little coarse Sand, loose, moist to wet.	
5	10	2	5-10'	37"	0.0			Black COAL CINDER, little Silt, little Coal Ash, trace fine Sand, soft to wet	
					0.4			Dark gray SILT, some very fine to fine Sand, medium dense, wet, faint petroleum-like odor, light black staining.	
		3	10-15'	33"	2.1			Light rainbow sheen at 12.5' bgs.	
					2.0			Dark gray SILT and CLAY, little fine Sand, low plasticity, soft, moist.	
					2.4			Dark gray SILT and CLAY, little fine Sand, low plasticity, soft to medium stiff, moist.	
15	0	4	15-20'	40"	71.4			Light staining and faint petroleum-like odor from 15-18' bgs.	
					129.6				
					20.1				
					6.9				
					5.5				
20	5							End of borehole at 20' bgs.	
25	-10								



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 Analytical soil samples collected: S-108 (2-4), SO-DUP-0415, S-108 (8-10), S-108 (15-17).

Date Start/Finish: 04/15/2019	Northing: 252593.435'	Well/Boring ID: S-109
Drilling Company: Advanced Drilling	Easting: 2719444.946'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 14.4' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 15' bgs	
Sampling Method: Macrocore	Descriptions By: Evan Green	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	15							Boring hand cleared to 5' bgs.	
0		1	0-5'	36"	0.0			Light brown SILT, some fine Sand, little subangular fine Gravel, medium dense, moist.	<p>Borehole backfilled with bentonite chips.</p>
0				0.0			Black COAL CINDER, some coarse Sand, little Concrete Fragments, medium dense, moist.		
5		2	5-10'	24"	0.0			Brown medium SAND, some subrounded fine Gravel, little Coal Cinder, little Silt, medium dense, wet.	
5				0.0			Dark gray SILT, some Coal Cinder, little coarse Sand, trace liquid coal tar-like material, soft, wet, faint coal tar-like odor.		
10				0.8			Gray SILT, some very fine Sand, little Clay, low plasticity, soft, wet.		
10		3	10-15'	48"	0.2			Light rainbow sheen at 11.5' bgs.	
10				1.4			Dark gray SILT and CLAY, some very fine Sand, low plasticity, soft to medium stiff, moist.		
15				0.1				Dark gray SILT and CLAY, some very fine Sand, low plasticity, soft to medium stiff, moist.	
15				0.0				End of borehole at 15' bgs.	
20									
25									
30									

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil samples collected: S-109 (2-4), S-109 (8-10).

Date Start/Finish: 04/12/2019	Northing: 252774.8680'	Well/Boring ID: S-110
Drilling Company: Advanced Drilling	Easting: 2719155.1690'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 11.2' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 15' bgs	
Sampling Method: Macrocore	Descriptions By: Evan Green	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
1.0		1	0-5'	35"	0.0	X		Black, dark brown in part COAL CINDER, some coarse Sand, loose, moist to dry.	<p>Borehole backfilled with bentonite chips.</p>
5.0					0.0		Brown fine SAND, little coarse Sand, trace Coal Cinder, medium dense, wet.		
5.0		2	5-10'	40"	0.0	X	Black COAL CINDER, some Coal Ash, little coarse Sand, loose, wet.		
10.0					0.0		Dark gray fine SAND, little coarse Sand, loose to medium dense, wet.		
15.0		3	10-15'	42"	0.0	X	Dark gray SILT, some Clay, little fine Sand, low plasticity, soft, wet.		
15.0								End of borehole at 15' bgs.	
20.0									
25.0									
30.0									

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil samples collected: S-110 (2-4), S-110 (8-10).




Date Start/Finish: 04/12/2019 Drilling Company: Advanced Drilling Driller's Name: Craig Jablonski and Ron West Drilling Method: Direct Push Sampling Method: Macrocore Rig Type: Track-Mounted Geoprobe	Northing: 252707.166' Easting: 2719145.128' Surface Elevation: 9.1' NAVD88 Borehole Depth: 15' bgs Descriptions By: Evan Green	Well/Boring ID: S-112 Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
0		1	0-5'	36"	0.0	X	Black COAL CINDER, some Coal Ash, little coarse Sand, loose, wet.		<p>Borehole backfilled with bentonite chips.</p>
5					0.0		Brown fine SAND, little Silt, little Coal Cinder, medium dense, moist to wet.		
5		2	5-10'	48"	0.0	X	Gray fine SAND, little Silt, soft, wet.		
10					0.0		Gray SILT and CLAY, little fine Sand, low plasticity, soft, moist.		
15		3	10-15'	40"	0.0	X	End of borehole at 15' bgs.		
20									
25									
30									

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1". Analytical soil samples collected: S-112 (2-4), S-112 (8-10).
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Date Start/Finish: 04/22/2019 / 04/24/2019	Northing: 252631.179'	Well/Boring ID: S-113B
Drilling Company: Advanced Drilling	Easting: 2719223.815'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 10.5' NAVD88	Location:
Drilling Method: Direct Push	Borehole Depth: 20' bgs	Former Philadelphia Coke Plant
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	4501 Richmond St.
Rig Type: Track-Mounted Geoprobe		Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headpace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
10		1	0-5'	24"	0.0	X		Brown fine to coarse SAND and SILT, some subangular fine to coarse Gravel, trace Brick Fragments, loose to medium dense, moist to wet.	 <p>Borehole backfilled with bentonite chips.</p>
5				0.0			Brown fine to coarse SAND and SILT, loose, moist to wet.		
5		2	5-10'	35"	1.8			Dark gray fine to medium SAND and SILT, medium dense, wet.	
10				0.0	0.0				
10		3	10-15'	52"	9.3	X		Gray SILT and CLAY, medium plasticity, medium stiff, moist.	
15				8.6				Dark gray very dense coal tar-like material, strong coal tar-like odor from 12 - 13' bgs.	
15				88		X			
15		4	15-20'	35"	9.6	X		Brown Peaty SILT and CLAY, medium plasticity, medium stiff, moist.	
20				0.1					
20				0.1					
20				0.0					
20				0.0					
20				0.0				End of borehole at 20' bgs.	

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil samples collected: S-113B (1-3), S-113B (1-3) MS, S-113B (1-3) MSD, S-113B (10-12), S-113B (13-15), S-113B (15-17),



Date Start/Finish: 04/15/2019	Northing: 252583.331'	Well/Boring ID: S-114
Drilling Company: Advanced Drilling	Easting: 2719328.469'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 16.7' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 25' bgs	
Sampling Method: Macrocore	Descriptions By: Evan Green	
Rig Type: Track-Mounted Geoprobe		


Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
1.5		1	0-5'	31"	0.0	X		Brown SILT, little fine Sand, trace Brick Fragments, trace Concrete Fragments, medium dense, moist to wet.	<p>Borehole backfilled with bentonite chips.</p>
5					0.0			Dark gray SILT, some fine Sand, little Clay, low plasticity, soft, moist to wet.	
10		2	5-10'	24"	0.0	X		Trace liquid coal tar stringers in void spaces at 7.5' bgs.	
15					0.4			Dark gray SILT, some fine Sand, little Clay, low plasticity, soft, wet, coal tar-like odor.	
20					2.8			Heavy liquid coal tar blebs over 14 - 15' bgs.	
25		3	10-15'	30"	1.9	X		Dark gray SILT and CLAY, some fine Sand, low plasticity, soft, moist to wet, coal tar-like odor.	
30					2.4				
35					166.7	X			
40		4	15-20'	43"	30.9			Dark gray SILT and CLAY, some fine Sand, low plasticity, soft, moist to wet, coal tar-like odor.	
45					7.8				
50					12.5				
55					10.5				
60					63.2				
65		5	20-25'	34"	43.6	X		Grayish brown SILT and CLAY, little fine Sand, low plasticity, medium dense, moist.	
70					35.1				
75					2.0				
80					0.9				
85					0.6				
90								End of borehole at 25' bgs.	


Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil samples collected: S-114 (2-4), S-114 (2-4) MS, S-114 (2-4) MSD, S-114 (8-10), S-114 (14-15), S-114 (23-25).



Date Start/Finish: 04/16/2019 Drilling Company: Advanced Drilling Driller's Name: Craig Jablonski and Ron West Drilling Method: Direct Push Sampling Method: Macrocore Rig Type: Track-Mounted Geoprobe	Northing: 252567.816' Easting: 2719016.266' Surface Elevation: 11.9' NAVD88 Borehole Depth: 15' bgs Descriptions By: Evan Green	Well/Boring ID: S-115 Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
10		1	0-5'	48"	0.0			Black COAL CINDER, some Coal Ash, little coarse Sand, little Coal Fragments, medium dense, moist.	
5					0.0		Black COAL ASH, some Coal Cinder, little coarse Sand, loose, wet.		
5		2	5-10'	46"	0.0		Gray fine to medium SAND, little coarse Sand, medium dense, wet.		
10					0.9		Brownish gray fine SAND, trace coarse Sand, medium dense, wet.		
10		3	10-15'	42"	0.0			Brownish gray SILT and CLAY, some fine Sand, low plasticity, medium stiff, moist to wet.	
15					0.0			End of borehole at 15' bgs.	
-5					0.4				
-20					0.8				
-10									
-25									
-15									

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1". Analytical soil sample collected: S-115 (4-6), SO-DUP-0416.
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Date Start/Finish: 04/16/2019 Drilling Company: Advanced Drilling Driller's Name: Craig Jablonski and Ron West Drilling Method: Direct Push Sampling Method: Macrocore Rig Type: Track-Mounted Geoprobe	Northing: 252562.037' Eastings: 2719049.407' Surface Elevation: 11.5' NAVD88 Borehole Depth: 15' bgs Descriptions By: Evan Green	Well/Boring ID: S-116 Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
10		1	0-5'	46"	0.2 0.4 42.5 38.7 9.2			Black COAL CINDER, little coarse Sand, dense, moist to wet, hard. Solid Coal tar-like material at 2.5' bgs. Black COAL ASH, some Coal Cinder, little subrounded fine Gravel, medium dense, moist to wet.	 Borehole backfilled with bentonite chips.
5		2	5-10'	45"	3.1 0.0 0.0 0.0		Gray medium SAND, little coarse Sand, trace Coal Cinder, loose to medium dense, wet.		
10		3	10-15'	48"	0.3 0.9 1.9 2.4 0.8		Gray SILT and CLAY, some fine Sand, low plasticity, medium stiff, wet.		
15								End of borehole at 15' bgs.	
-5									
-20									
-10									
-25									
-15									

 ARCADIS Design & Consultancy for natural and built assets	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1". Analytical soil sample collected: S-116 (4-6), S-116 (4-6) MS, S-116 (4-6) MSD.
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Date Start/Finish: 04/16/2019	Northing: 252536.1060	Well/Boring ID: S-117
Drilling Company: Advanced Drilling	Easting: 2719009.3700	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 12.2' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 15' bgs	
Sampling Method: Macrocore	Descriptions By: Evan Green	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
15								Boring hand cleared to 5' bgs.	
0		1	0-5'	48"	0.0			Black COAL CINDER, some Coal Ash, trace coarse Sand, trace Concrete Fragments, loose, moist.	<p>Borehole backfilled with bentonite chips.</p>
10					0.0				
5		2	5-10'	46"	0.0			Black COAL ASH, some Coal Cinder, little coarse Sand, medium dense, wet.	
5					0.0			Gray rounded fine GRAVEL, some coarse Sand, little fine Sand, medium dense, moist to wet.	
10					0.0			Brownish gray fine SAND, little Silt, trace coarse Sand, medium dense, wet.	
0		3	10-15'	46"	0.2			Brownish gray SILT and CLAY, little fine Sand, low plasticity, medium stiff, moist.	
15					4.1				
15					1.2			End of borehole at 15' bgs.	
-5									
-20									
-10									
-25									
-15									


	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil samples collected: S-117 (4-6)..


Date Start/Finish: 04/16/2019	Northing: 252528.5510	Well/Boring ID: S-118
Drilling Company: Advanced Drilling	Easting: 2719045.0050	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 11.6' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 15' bgs	
Sampling Method: Macrocore	Descriptions By: Evan Green	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
1.0		1	0-5'	47"	0.0			Black COAL CINDER, little Coal Fragments, trace medium Sand, loose, moist to dry.	<p>Borehole backfilled with bentonite chips.</p>
5.0					0.0			Brown fine to medium SAND, some Coal Cinder, trace subround fine Gravel, trace Coal Ash, medium dense, moist.	
5.5		2	5-10'	45"	0.0			Black COAL ASH, some Coal Cinder, little Coal Fragments, little coarse Sand, medium dense, wet.	
6.0					0.0			Gray fine SAND, little Silt, medium dense, wet.	
10.0					0.4			Brownish gray fine SAND, little Silt, medium dense, wet.	
10.5		3	10-15'	47"	2.3			Brownish gray SILT and CLAY, some fine Sand, low plasticity, medium stiff, moist.	
11.0					4.6			Faint petroleum-like odor at 13' bgs.	
15.0					2.0			End of borehole at 15' bgs.	
-5									
-20									
-10									
-25									
-15									

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil samples collected: S-118 (4-6).

Date Start/Finish: 04/09/2019	Northing: 252707.315'	Well/Boring ID: S-119
Drilling Company: Advanced Drilling	Easting: 2718720.721'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 12.9' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 15' bgs	
Sampling Method: Macrocore	Descriptions By: Evan Green	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
15								Boring hand cleared to 5' bgs.	
0		1	0-5'	40"	0.3	X	Black COAL FRAGMENTS, little Coal Cinder, little fine Sand, trace subrounded fine Gravel, medium dense, moist.		 <p>Borehole backfilled with bentonite chips.</p>
1.0				1.6		Light brown fine SAND, trace coarse Sand, medium dense, moist.			
5		2	5-10'	40"	0.4		Light gray SILT, some very fine Sand, medium dense, wet.		
5				1.0	2.5		Light gray SILT, some very fine Sand, medium dense, wet.		
10				0.1	0.3		Gray SILT and CLAY, little very fine, Sand, medium plasticity, soft, moist.		
10		3	10-15'	30"	0.3		Tannish gray SILT and CLAY, some very fine to Fine Sand, little medium Sand, low plasticity, soft, wet.		
15					2.5		End of borehole at 15' bgs.		
-5					1.7				
-20					0.6				
-10					0.2				
-25					0.0				
-15									

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil samples collected: S-119 (0-1).

Date Start/Finish: 04/09/2019
Drilling Company: Advanced Drilling
Driller's Name: Craig Jablonski and Ron West
Drilling Method: Direct Push
Sampling Method: Macrocore
Rig Type: Track-Mounted Geoprobe

Northing: 252675.797'
Easting: 2718720.658'
Surface Elevation: 14.0' NAVD88
Borehole Depth: 20' bgs
Descriptions By: Evan Green

Well/Boring ID: S-121
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
0.0		1	0-5'	39"	0.0	X	Black COAL FRAGMENTS, some coarse Sand, little Coal Cinder, loose to medium dense, moist.		Borehole backfilled with bentonite chips.
0.0					0.0		Orangish brown fine SAND, trace coarse Sand, medium dense, moist.		
0.0					0.0		Dark gray fine SAND, little Silt, medium dense, wet.		
0.0		2	5-10'	40"	0.0		Gray coarse SAND, little subangular fine Gravel, loose to medium dense, wet.		
0.0					0.0		Dark gray coarse SAND, little fine Sand, little subrounded to subangular fine Gravel, loose, wet.		
0.0					0.0		Gray SILT, some coarse Sand, little subrounded fine Gravel, medium dense, wet.		
0.0		3	10-15'	36"	0.0		Gray angular fine GRAVEL, some coarse Sand, medium dense, wet.		
0.0					0.0		Light gray SILT and CLAY, trace fine Sand, low to medium plasticity, medium dense, moist.		
0.0					0.0				
0.0		4	15-20'	35"	0.0				
20								End of borehole at 20' bgs.	

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

 Analytical soil samples collected: S-121 (0-1).



Date Start/Finish: 04/09/2019	Northing: 252666.855'	Well/Boring ID: S-122
Drilling Company: Advanced Drilling	Eastings: 2718748.633'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 12.9' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 15' bgs	
Sampling Method: Macrocore	Descriptions By: Evan Green	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
15								Boring hand cleared to 5' bgs.	
0		1	0-5'	39"	0.0	X	Black COAL FRAGMENTS, little Coal Cinder, little fine Sand, loose to medium dense, dry to moist.		
0.4				0.0		Brown medium to coarse SAND, little fine Sand, trace angular fine Gravel, trace Coal Fragments, medium dense, moist.			
1.0				0.0		Light brown fine SAND, little subrounded fine Gravel, trace coarse Sand, loose to medium dense, moist.			
5				0.0		Light brown medium SAND, some coarse Sand, little fine Sand, medium dense, wet.			
5		2	5-10'	46"	0.0		Dark gray fine SAND, little Silt, medium dense, wet.		
10				0.0			Dark gray SILT and CLAY, little fine Sand, medium plasticity, medium dense, moist.		
10				10.8		X	Dark gray SILT and CLAY, little fine Sand, medium plasticity, medium dense, moist, light rainbow sheen at 10.5' bgs, faint petroleum-like odor.		
0		3	10-15'	40"	2.7				
0				8.8					
15				2.3					
15				1.5				End of borehole at 15' bgs.	
-5									
-20									
-10									
-25									
-15									

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil sample collected: S-122 (0-1), S-122 (10-12).

Date Start/Finish: 04/18/2019	Northing: 252189.006'	Well/Boring ID: S-123
Drilling Company: Advanced Drilling	Eastings: 2719742.16'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 15.2' NAVD88	Location:
Drilling Method: Direct Push	Borehole Depth: 15' bgs	Former Philadelphia Coke Plant
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	4501 Richmond St.
Rig Type: Track-Mounted Geoprobe		Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
1.5		1	0-5'	37"	0.0			Brown BRICK and CONCRETE FRAGMENTS, some fine to coarse Sand, little Silt, trace Coal Fragments, loose to medium dense, moist.	
5		2	5-10'	51"	0.0			Dark gray medium to coarse SAND, some subangular fine Gravel, trace Silt, trace Coal Fragments, medium dense, moist to wet.	
10		3	10-15'	52"	0.0			Dark gray fine to medium SAND and SILT, some CLAY, medium plasticity, medium dense, moist to wet.	
15								Dark gray SILT and CLAY, high plasticity, medium stiff, moist.	
15								End of borehole at 15' bgs.	
20									
25									
30									

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil sample collected: S-123 (7-9), S-123 (13-15).



Date Start/Finish: 04/18/2019	Northing: 252103.949'	Well/Boring ID: S-124
Drilling Company: Advanced Drilling	Easting: 2719788.022'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 15.4' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 15' bgs	
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
1.5		1	0-5'	45"	0.0			Brown fine to coarse SAND and SILT, loose, moist.	
					0.0			Red BRICK FRAGMENTS, loose, dry.	
					0.0			Brown fine to medium SAND and SILT, little interbedded Clay bands, low plasticity, medium dense, moist.	
5		2	5-10'	46"	0.0			Dark gray medium to coarse SAND, some subangular fine Gravel, trace Coal Slag, medium dense, moist, light rainbow sheen over interval. Interbedded low plasticity Clay layer at 7' bgs.	
					0.0			Dark gray SILT and CLAY, high plasticity, stiff, moist.	
10		3	10-15'	43"	0.0				
					0.0				
					0.0				
					0.0				
15								End of borehole at 15' bgs.	
20									
25									
30									

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil sample collected: S-124 (7-9), S-124 (10-12).



Date Start/Finish: 04/18/2019	Northing: 252033.989'	Well/Boring ID: S-125
Drilling Company: Advanced Drilling	Eastings: 2719772.337'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 15.1' NAVD88	Location:
Drilling Method: Direct Push	Borehole Depth: 15' bgs	Former Philadelphia Coke Plant
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	4501 Richmond St.
Rig Type: Track-Mounted Geoprobe		Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction	
0	15							Boring hand cleared to 5' bgs.		
		1	0-5'	28"	0.0			Brown fine to coarse SAND and SILT, loose, moist.	<p>Borehole backfilled with bentonite chips.</p>	
					0.0			Gray BRICK and CONCRETE FRAGMENTS, little fine Sand, loose, moist.		
					0.0					
					0.0					
5	10	2	5-10'	46"	0.0			Brown fine to coarse SAND, little subangular fine to coarse Gravel, trace Silt, medium dense, moist.		
					0.9			Gray coarse SAND and subangular fine GRAVEL, medium dense, moist, light rainbow sheen over interval.		
					0.0					
					2.2			Black COAL Fragments, some Coal Ash, loose, moist.		
10	5	3	10-15'	35"	2.6			Gray coarse SAND and subangular fine GRAVEL, little fine to medium Sand, trace Silts, medium dense, moist to wet, light rainbow sheen over interval.		
					150.6			Reddish gray, blue in part, CLAY, high plasticity, stiff, moist, moderately heavy rainbow sheen over interval.		
					115.0			Dark gray CLAY, high plasticity, stiff, moist.		
					0.0					
					0.0					
15	0							End of borehole at 15' bgs.		
20	-5									
25	-10									
30	-15									

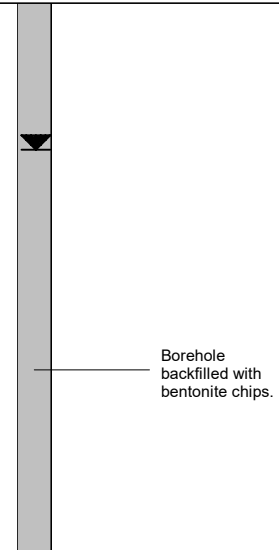
	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil sample collected: S-125 (7-9), S-125 (11-13), S-125 (13-15)..

Date Start/Finish: 04/17/2019	Northing: 252209.321'	Well/Boring ID: S-126
Drilling Company: Advanced Drilling	Easting: 2719572.373'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 15.7' NAVD88	Location:
Drilling Method: Direct Push	Borehole Depth: 15' bgs	Former Philadelphia Coke Plant
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	4501 Richmond St.
Rig Type: Track-Mounted Geoprobe		Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
1.5		1	0-5'	39"	0.0			Brown BRICK and CONCRETE FRAGMENTS, some fine to coarse SAND, little fine Gravel, medium dense, moist.	 Borehole backfilled with bentonite chips.
5					0.0			Brown fine to coarse SAND, some Silt, little fine Gravel, medium dense, moist.	
10		2	5-10'	47"	0.0			Brown fine to coarse SAND, little Silt, little fine Gravel, medium dense, wet.	
15					0.0			Dark gray SILT and CLAY, some fine to medium Sand, medium plasticity, dense, moist to wet.	
10		3	10-15'	49"	0.1			Dark gray CLAY, medium plasticity, stiff, moist.	
15					0.1			End of borehole at 15' bgs.	
20									
25									
30									

 Design & Consultancy for natural and built assets	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1". Analytical soil sample collected: S-126 (7-9), S-126 (13-15).
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Date Start/Finish: 04/17/2019	Northing: 252071.409'	Well/Boring ID: S-127
Drilling Company: Advanced Drilling	Easting: 2719629.064'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 14.8' NAVD88	Location:
Drilling Method: Direct Push	Borehole Depth: 15' bgs	Former Philadelphia Coke Plant
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	4501 Richmond St.
Rig Type: Track-Mounted Geoprobe		Philadelphia, PA


Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	15							Boring hand cleared to 5' bgs.	
		1	0-5'	41"	0.1			BRICK, CONCRETE, and ASPHALT FRAGMENTS, loose, dry.	
					8.2				
					0.7	X		Brown fine to coarse SAND, some Silt, little subangular fine Gravel, loose to medium dense, wet.	
					0.1				
5	10				0.1				
		2	5-10'	56"	0.6	X		Gray fine to coarse SAND, some Silt, little subangular fine Gravel, loose, rainbow sheen over interval.	
					9.7			Tar from 6-8' bgs.	
					1.1	X		Gray SILT and CLAY, some fine to medium Sand, low plasticity, medium stiff, moist.	
					1.0				
10	5				0.9				
		3	10-15'	55"	0.7	X		Rainbow sheen over 11-12' interval.	
					0.7			Gray SILT and CLAY, little fine to coarse Sand, medium plasticity, medium stiff, moist.	
					0.6				
					0.7	X		Gray medium to CLAY, high plasticity, very stiff, moist.	
					0.1				
15	0							End of borehole at 15' bgs.	
20	-5								
25	-10								
30	-15								

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil sample collected: S-127 (2-4), SO-DUP-0417, S-127 (6-8), S-127 (13-15)..



Date Start/Finish: 04/18/2019	Northing: 252010.697'	Well/Boring ID: S-128
Drilling Company: Advanced Drilling	Easting: 2719731.305'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 14.1' NAVD88	Location:
Drilling Method: Direct Push	Borehole Depth: 15' bgs	Former Philadelphia Coke Plant
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	4501 Richmond St.
Rig Type: Track-Mounted Geoprobe		Philadelphia, PA























Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	15							Boring hand cleared to 5' bgs.	
0	10	1	0-5'	38"	0.0	X	•••••	Gray BRICK and CONCRETE FRAGMENTS, some fine to coarse Sand, little Silt, loose to medium dense, moist.	
0	5	2	5-10'	44"	0.0			Dark gray fine to coarse SAND and SILT, medium dense, wet.	
0	5				0.0			Brown WOODY DEBRIS (possible purifier waste) medium dense, moist, light rainbow sheen throughout interval.	
0	10	3	10-15'	49"	2.5	X	•••••	Gray medium to coarse SAND, some subangular fine to coarse Gravel, medium dense, moist to wet, light rainbow sheen throughout interval.	
0	10				0.2			Gray SILT, some fine Sand, little Clay, low plasticity, medium dense to dense, moist.	
0	10				0.0	X		Gray SILT and CLAY, medium to high plasticity, medium stiff to stiff, moist.	
0	15				0.0			End of borehole at 15' bgs.	
0	20								
0	25								
0	30								


Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil sample collected: S-128 (2-4), S-128 (10-12), S-128 (13-15)..



Date Start/Finish: 04/18/2019 Drilling Company: Advanced Drilling Driller's Name: Craig Jablonski and Ron West Drilling Method: Direct Push Sampling Method: Macrocore Rig Type: Track-Mounted Geoprobe	Northing: 251986.5' Easting: 2719691.697' Surface Elevation: 14.5' NAVD88 Borehole Depth: 15' bgs Descriptions By: Grayson Basalyga	Well/Boring ID: S-129 Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	15							Boring hand cleared to 5' bgs.	
0		1	0-5'	37"	0.0			Brown fine to coarse SAND, some SILT, little subangular fine Gravel, medium dense, moist.	
0					0.0		Brown medium to coarse SAND, some Concrete Fragments, little Coal Fragments, loose to medium dense, moist.		
0					0.0		Dark gray fine to coarse SAND, some subangular fine to coarse Gravel, little Coal Ash, medium dense, moist.		
0					0.0		Brown fine to coarse SAND, some Silt, little subangular fine to coarse Gravel, medium dense, moist to wet.		
0					0.0		Dark gray fine to coarse SAND and SILT, little fine to coarse Gravel, medium dense, moist to wet.		
5		2	5-10'	44"	4.8			Gray coarse SAND and fine to coarse GRAVEL, medium dense, moist, coal tar-like material.	
5					4.9			Dark gray fine to coarse SAND and SILT, little fine to coarse Gravel, medium dense, moist to wet.	
5					4.8			Gray coarse SAND and fine to coarse GRAVEL, medium dense, moist, coal tar-like material.	
5					5.9			Dark gray CLAY, medium plasticity, medium stiff, moist.	
10		3	10-15'	47"	3.2			Dark gray CLAY, medium plasticity, medium stiff, moist.	
10					0.0				
10					0.0				
10					0.0				
10					0.0				
15					0.0				
15					0.0				
15					0.0				
15					0.0				
15					0.0				
15					0.0				
15					0.0				

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil sample collected: S-129 (2-4), S-129 (8-10), S-129 (10-12)..

Date Start/Finish: 04/17/2019	Northing: 252137.45'	Well/Boring ID: S-130
Drilling Company: Advanced Drilling	Easting: 2719550.641'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 12.8' NAVD88	Location:
Drilling Method: Direct Push	Borehole Depth: 15' bgs	Former Philadelphia Coke Plant
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	4501 Richmond St.
Rig Type: Track-Mounted Geoprobe		Philadelphia, PA


Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
1.5								Boring hand cleared to 5' bgs.	
0					0.0			Brown fine to coarse SAND, some Silt, little fine Gravel, medium dense, moist.	 Borehole backfilled with bentonite chips.
		1	0-5'	34"	0.0			Gray medium to coarse SAND, some fine Gravel, little Silt, medium dense, wet.	
1.0					0.0			Dark gray fine to coarse GRAVEL, little Coal Cinder, medium dense, moist to wet.	
5					0.0			Gray subangular fine GRAVEL, some Clay, low plasticity, medium dense, moist.	
5		2	5-10'	48"	0.0			Dark gray SILT and CLAY, low plasticity, medium stiff, moist, coal tar-like odor.	
					0.6			Dark gray SILT and CLAY, low plasticity, blebs of coal tar-like material, medium stiff, moist.	
10					0.9			Gray SILT and CLAY, low plasticity, medium stiff, moist.	
		3	10-15'	47"	0.1			Gray SILT and CLAY, low plasticity, medium stiff, moist.	
					0.0				
					0.0				
15								End of borehole at 15' bgs.	
-5									
-20									
-10									
-25									
-15									

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil sample collected: S-130 (2-4), S-130 (7-8), S-130 (10-12), S-130 (13-15).



Date Start/Finish: 04/17/2019 Drilling Company: Advanced Drilling Driller's Name: Craig Jablonski and Ron West Drilling Method: Direct Push Sampling Method: Macrocore Rig Type: Track-Mounted Geoprobe	Northing: 252071.409' Easting: 2719629.064' Surface Elevation: 14.8' NAVD88 Borehole Depth: 10' bgs Descriptions By: Grayson Basalyga	Well/Boring ID: S-131 Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	15							Boring hand cleared to 5' bgs.	
0.9		1	0-5'	39"	0.0	X	●●●●●●●●●●	Dark brown fine to medium SAND, some Silt, little subangular fine Gravel, medium dense, moist.	 Borehole backfilled with bentonite chips.
0.0				0.0			Brown fine to medium SAND, some Silt, little Clay, low plasticity, medium dense, moist.		
0.0				0.0			Gray fine to coarse SAND, little Clay, medium plasticity, dense, wet.		
0.0		2	5-10'	52"	0.0	X	▨▨▨▨▨▨▨▨	Dark gray CLAY, high plasticity, stiff, moist.	
10	5							End of borehole at 10' bgs.	

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil sample collected: S-131 (2-4), S-131 (7-9).



Date Start/Finish: 04/17/2019	Northing: 251996.03'	Well/Boring ID: S-132
Drilling Company: Advanced Drilling	Easting: 2719614.355'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 13.0' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 10' bgs	
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
15								Boring hand cleared to 5' bgs.	
0		1	0-5'	31"	0.9			BRICK and CONCRETE FRAGMENTS, some fine to coarse Sand, little Silt, medium dense, moist.	<p>Borehole backfilled with bentonite chips.</p>
1.0				0.3	0.1		Gray fine to coarse SAND, some Silt, little subangular fine Gravel, medium dense, moist.		
5		2	5-10'	53"	0.0			Gray fine to medium SAND, little Silt, medium dense, moist to wet.	
10				0.0	0.0		Dark gray CLAY, high plasticity, stiff, moist.		
10								End of borehole at 10' bgs.	
0									
15									
-5									
20									
-10									
25									
-15									
30									


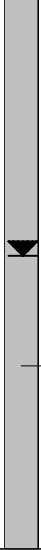


	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil sample collected: S-132 (2-4), S-132 (8-10).


Date Start/Finish: 04/17/2019	Northing: 251960.675'	Well/Boring ID: S-133
Drilling Company: Advanced Drilling	Easting: 2719644.737'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 15.2' NAVD88	Location:
Drilling Method: Direct Push	Borehole Depth: 15' bgs	Former Philadelphia Coke Plant
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	4501 Richmond St.
Rig Type: Track-Mounted Geoprobe		Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
1.5		1	0-5'	37"	0.0			Reddish brown fine to coarse SAND, some fine to medium subangular Gravel, medium dense, moist.	
3.0					0.0			Light gray CONCRETE FRAGMENTS, loose, dry.	
4.5					0.0			Brown fine to coarse SAND, some subangular fine Gravel, medium dense, moist.	
5.0					0.1			Bluish gray subangular fine to coarse GRAVEL, little fine to coarse Sand, medium dense, moist.	
5.5					0.1			Brown fine to coarse SAND, some subangular fine to coarse Gravel, trace fine Cobble, dense, moist.	
6.0		2	5-10'	41"	0.0			Gray subangular fine to coarse GRAVEL, some fine Cobble, dense, wet. Sheen from 7-8' bgs.	
6.5					0.0			Gray SILT and CLAY, some fine Sand, medium plasticity, medium stiff, moist to wet.	
7.0					0.0				
7.5					0.0				
8.0					0.0				
8.5		3	10-15'	42"	0.0			Dark gray CLAY, high plasticity, stiff, moist.	
9.0					0.0				
9.5					0.0				
10.0					0.0				
10.5					0.0				
11.0					0.0				
11.5					0.0				
12.0					0.0				
12.5					0.0				
13.0					0.0				
13.5					0.0				
14.0					0.0				
14.5					0.0				
15.0					0.0			End of borehole at 15' bgs.	

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil sample collected: S-133 (2-4), S-133 (7-9), S-133 (13-15).

Date Start/Finish: 04/09/2019	Northing: 253007.605'	Well/Boring ID: S-134
Drilling Company: Advanced Drilling	Easting: 2718965.395'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 14.7' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 15' bgs	
Sampling Method: Macrocore	Descriptions By: Evan Green	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	15							Boring hand cleared to 5' bgs.	
			0-5'	NA	NA			No recovery.	
5	10	1	5-10'	31"	0.0			Orangish brown very fine to fine SAND, little Silt, trace coarse Sand, soft to medium dense, moist to wet.	 <p>Borehole backfilled with bentonite chips.</p>
					0.0			Dark gray fine to medium SAND, little coarse Sand, medium dense, moist to wet.	
10	5	2	10-15'	34"	0.0			Light brown coarse SAND, little fine to medium Sand, little subrounded fine Gravel, dense, wet.	
					0.0			Light gray SILT and CLAY, little fine Sand, low plasticity, dense, moist.	
15	0							End of borehole at 15' bgs.	
20	-5								
25	-10								
30	-15								

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Macrocore inner diameter = 1".
	No analytical soil samples collected due to absence of visual impacts.

Date Start/Finish: 04/22/2019	Northing: 252356.764'	Well/Boring ID: S-135
Drilling Company: Advanced Drilling	Easting: 2720186.161'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 9.4' NAVD88	Location:
Drilling Method: Direct Push	Borehole Depth: 10' bgs	Former Philadelphia Coke Plant
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	4501 Richmond St.
Rig Type: Track-Mounted Geoprobe		Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	10							Boring hand cleared to 5' bgs.	
0.2		1	0-5'	42"				BRICK, CONCRETE, and COAL FRAGMENTS, some fine to coarse Sand, little Silt, medium dense, moist.	<p>Borehole backfilled with bentonite chips.</p>
0.6								Brown fine to medium SAND and SILT, some angular fine Gravel, medium dense, moist.	
0.7								Dark gray fine to coarse SAND and subangular fine to coarse GRAVEL, trace Silt, medium dense, wet, moderately strong petroleum-like odor.	
0.7					108.9			Gray fine to medium SAND and SILT, medium dense, wet, faint petroleum-like odor.	
7.4								Gray SILT and CLAY, high plasticity, medium stiff, moist.	
3.2		2	5-10'	36"					
0.0									
0.0									
0.0								End of borehole at 10' bgs.	

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil samples collected: S-135 (4-6), S-135 (8-10).

Date Start/Finish: 04/22/2019 Drilling Company: Advanced Drilling Driller's Name: Craig Jablonski and Ron West Drilling Method: Direct Push Sampling Method: Macrocore Rig Type: Track-Mounted Geoprobe	Northing: 251591.032' Easting: 2719840.536' Surface Elevation: 8.1' NAVD88 Borehole Depth: 10' bgs Descriptions By: Grayson Basalyga	Well/Boring ID: S-136 Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
1.0								Boring hand cleared to 5' bgs.	
0		1	0-5'	42"	0.0			Brown, dark gray in part, fine to coarse SAND, some Silt, little Brick and Concrete Fragments, medium dense, moist.	<p>Borehole backfilled with bentonite chips.</p>
5				0.0			Gray fine to coarse SAND and subangular fine to coarse GRAVEL, medium dense, moist.		
5				0.0			Black SILT and CLAY, some fine Sand, high plasticity, medium stiff, moist. Blue to rainbow sheen at 4.5' bgs.		
0		2	5-10'	36"	0.0			End of borehole at 10' bgs.	
10									
-5									
-15									
-20									
-25									
-30									

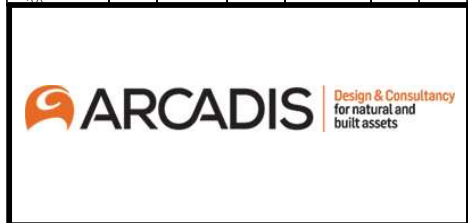
	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil samples collected: S-136 (4-6), S-136 (7-9).

Date Start/Finish: 04/19/2019
Drilling Company: Advanced Drilling
Driller's Name: Craig Jablonski and Ron West
Drilling Method: Direct Push
Sampling Method: Macrocore
Rig Type: Track-Mounted Geoprobe

Northing: 251505.647'
Easting: 2719571.152'
Surface Elevation: 9.7' NAVD88
Borehole Depth: 15' bgs
Descriptions By: Grayson Basalyga

Well/Boring ID: S-137
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	10							Boring hand cleared to 5' bgs.	
0		1	0-5'	37"	0.0			Brown fine to coarse SAND and SILT, trace subangular fine Gravel, medium dense, moist.	<p>Borehole backfilled with bentonite chips.</p>
0					0.0			Gray subangular fine GRAVEL, loose, moist.	
0					0.0			Brown fine to coarse SAND and SILT, little Brick Fragments, medium dense, moist.	
0					0.0			Blue to green subangular fine GRAVEL, some Coal Fragments, medium dense, moist.	
0					0.0			Brown medium to coarse SAND, some subangular fine to coarse Gravel, trace Silt, medium dense, moist.	
0					0.0			Dark gray, brown in part, fine to medium SAND and SILT, medium dense, moist.	
0					0.0			Dark brown medium to coarse SAND, some subangular fine Gravel, trace Silt, loose to medium dense, moist.	
0		2	5-10'	33"	0.0			Brown medium to coarse SAND, some Silt, little subangular fine Gravel, medium dense, moist to wet.	
0					0.0			Brown medium to coarse SAND some subangular fine to coarse Gravel, little Silt, loose to medium dense, wet.	
0					0.0			Gray fine to coarse SAND and SILT, some subangular fine Gravel, medium dense, wet.	
0		3	10-15'	42"	0.0			Bluish gray CLAY, some Silt, little fine Sand, high plasticity, medium stiff, moist.	
15	-5							End of borehole at 15' bgs.	
20	-10								
25	-15								
30	-20								




Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

 No analytical soil samples collected due to lack of visible impacts.

Date Start/Finish: 04/05/2019	Northing: 253728.592'	Well/Boring ID: S-138
Drilling Company: Advanced Drilling	Easting: 2719645.191'	Client: National Grid
Driller's Name: Craig Jablonski	Surface Elevation: 16.7' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 15' bgs	
Sampling Method: Macrocore	Descriptions By: Evan Green	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
1.5			0-5'	NA	NA			No recovery.	
5		1	5-10'	41"	0.0			Dark gray coarse SAND, some Coal Cinder, little subangular coarse Gravel, trace Brick Fragments, loose, moist.	Borehole backfilled with bentonite chips.
10					0.3			Brown fine to medium SAND, little subangular to angular fine Gravel, medium dense, moist to wet.	
10					0.0			Brown medium SAND, little coarse Sand, medium dense, wet.	
10					0.0			Light gray SILT and CLAY, some very fine Sand, low plasticity, dense, moist.	
15		2	10-15'	40"	0.0			Light gray medium SAND, medium dense, wet.	
15					0.0			End of borehole at 15' bgs.	
20									
25									
30									

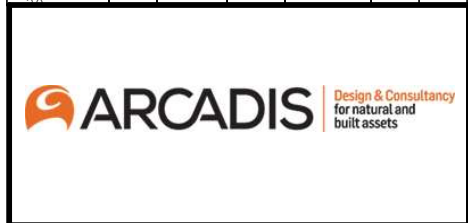
	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil samples collected: S-138 (0-0.5), S-138 (0.5-2).

Date Start/Finish: 04/10/2019
Drilling Company: Advanced Drilling
Driller's Name: Craig Jablonski and Ron West
Drilling Method: Direct Push
Sampling Method: Macrocore
Rig Type: Track-Mounted Geoprobe

Northing: 2719720.015'
Easting: 253603.372'
Surface Elevation: 14.6' NAVD88
Borehole Depth: 20' bgs
Descriptions By: Evan Green

Well/Boring ID: S-139
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	15							Boring hand cleared to 5' bgs.	
0		1	0-5'	36"	0.0			Brown SILT, little fine Sand, trace Woody Debris, trace Concrete Fragments, loose, moist.	<p>Borehole backfilled with bentonite chips.</p>
0					0.0			CONCRETE and BRICK FRAGMENTS, little fine Sand, loose, dry.	
0					0.0			COAL FRAGMENTS and COAL CINDER, loose, dry.	
0					0.0			CONCRETE and BRICK FRAGMENTS, little fine Sand, loose, moist to dry.	
5	10	2	5-10'	43"	0.0			Brown medium to coarse SAND, little subrounded fine Gravel, trace Concrete Fragments, loose, moist. Coal Cinder at 5' bgs.	
5					0.0			Brown medium SAND, little coarse Sand, medium dense, moist to wet.	
10	5	3	10-15'	46"	0.0			Light gray SILT, little Clay, low plasticity, little very fine Sand, dense, dry.	
10					0.0			Orangish brown medium SAND, little very fine to fine Sand, medium dense, wet.	
15	0	4	15-20'	42"	0.0			Brown SILT and CLAY, low plasticity, little fine Sand, medium dense, moist.	
15					0.0				
20	-5							End of borehole at 20' bgs.	
25	-10								
30	-15								



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 Analytical soil samples collected: S-139 (0.0-0.5), S-139 (0.5-2.0).

Date Start/Finish: 04/10/2019
Drilling Company: Advanced Drilling
Driller's Name: Craig Jablonski and Ron West
Drilling Method: Direct Push
Sampling Method: Macrocore
Rig Type: Track-Mounted Geoprobe

Northing: 253290.836'
Eastng: 2719920.434'
Surface Elevation: 11.7' NAVD88
Borehole Depth: 20' bgs
Descriptions By: Evan Green

Well/Boring ID: S-140
Client: National Grid
Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
1.0		1	0-5'	40"	0.0			Brown SILT, little fine Sand, trace Brick Fragments, soft to medium dense, moist.	<p>Borehole backfilled with bentonite chips.</p>
5.0		2	5-10'	9"	0.0		Brown medium SAND, little Concrete Fragments, trace Brick Fragments, medium dense, dry to moist.		
	0.0				Dark gray coarse SAND, some Coal Cinder, little Coal Fragments, trace angular fine Gravel, medium dense, moist.				
	0.0				Dark gray fine SAND, some Coal Cinder, little subrounded fine Gravel, dense, wet.				
10.0		3	10-15'	32"	0.0		Brown coarse SAND, little Coal Cinder, dense, wet.		
15.0					0.0		Dark gray coarse SAND, some angular fine Gravel, trace Brick Fragments, little Coal Cinder, loose, wet.		
20.0		4	15-20'	23"	0.0		Gray SILT and CLAY, low plasticity, little fine Sand, dense, moist.		
					0.0				
					0.0				
25.0								End of borehole at 20' bgs.	

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

 Analytical soil samples collected: S-140 (0.0-0.5), S-140 (0.5-2.0).




Date Start/Finish: 04/23/2019 / 04/24/2019	Northing: 253980.807'	Well/Boring ID: S-144
Drilling Company: Advanced Drilling	Easting: 2719432.906'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 18.3' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 25' bgs	
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headpace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
0.0		1	0-5'	43"	0.0			Brown fine to coarse SAND and SILT, loose, moist.	<p>Borehole backfilled with bentonite chips.</p>
0.0					0.0		Black COAL FRAGMENTS, some coarse Sand, loose, moist.		
0.0					0.0		Tan medium to coarse SAND, some Silt, medium dense, moist.		
0.0					0.0				
0.0					0.0				
0.0		2	5-10'	55"	0.0			Tan medium to coarse SAND, some Silt, little subangular fine to coarse Gravel, medium dense, moist to wet.	
0.0					0.0				
0.0					0.0				
0.4					0.4				
0.5		3	10-15'	47"	1.3				
0.4					0.4				
458.9					458.9				
13.8					13.8			Dark gray fine to coarse SAND and SILT, medium dense, wet, purple and black staining throughout interval, moderately strong petroleum-like odor.	
69.0		4	15-20'	53"	4.8				
0.3					0.3			Light gray SILT and CLAY, high plasticity, medium stiff to stiff, moist. Fine Sand lense at 18.5' and 19.5' bgs.	
0.1					0.1				
0.1					0.1			Tan fine to coarse SAND, some Silt and Clay, low plasticity, dense, moist.	
0.0		5	20-25'	58"	0.0				
0.0					0.0			Gray SILT and CLAY, trace fine Sand, medium plasticity, stiff, moist.	
0.0					0.0				
0.0					0.0			End of borehole at 25' bgs.	


	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil samples collected: S-144 (15-17), S-144 (22-24).


Date Start/Finish: 04/25/2019	Northing: 253992.724'	Well/Boring ID: S-145
Drilling Company: Advanced Drilling	Easting: 2719462.629'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 18.0' NAVD88	Location:
Drilling Method: Direct Push	Borehole Depth: 25' bgs	Former Philadelphia Coke Plant
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	4501 Richmond St.
Rig Type: Track-Mounted Geoprobe		Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
20								Boring hand cleared to 5' bgs.	
0					0.2		Black ASPHALT		Borehole backfilled with bentonite chips.
					0.5		Reddish brown fine to coarse SAND and SILT, medium dense, moist.		
1.5		1	0-5'	49"	0.0				
					0.0				
5					0.1				
					0.5		Dark gray subangular fine to coarse GRAVEL and coarse SAND, loose, medium dense.		
					0.0		Brown fine to coarse SAND and SILT, trace subangular fine to coarse Gravel, medium dense, moist.		
10		2	5-10'	56"	0.0				
					0.0				
					0.0				
10					0.0		Brown fine to coarse SAND and SILT, medium dense, moist		
					0.0				
5		3	10-15'	52"	0.0				
					0.0				
					0.0				
15					0.0		Reddish brown fine to coarse SAND and SILT, some subangular fine to coarse Gravel medium dense, moist to wet.		
					0.0				
0		4	15-20'	57"	0.0		Gray SILT and CLAY, high plasticity, stiff, moist.		
					0.0				
					0.0				
20					0.0		Gray fine to coarse SAND and SILT, some subangular fine Gravel, medium dense, moist.		
					0.0				
					0.0				
-5		5	20-25'	56"	0.0		Red SILT and CLAY, some fine Sand, medium plasticity, stiff, moist.		
					0.0				
					0.0				
25					0.0			End of borehole at 25' bgs.	
-10									
25									

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	No analytical soil sample collected due to lack of visual impacts.

Date Start/Finish: 04/24/2019 / 04/25/2019	Northing: 253953.275'	Well/Boring ID: S-146
Drilling Company: Advanced Drilling	Easting: 2719470.595'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 18.3' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 25' bgs	
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
20								Boring hand cleared to 5' bgs.	
0					0.0			Brown fine to coarse SAND and SILT, loose, moist.	
		1	0-5'	39"	0.0			Reddish brown fine to coarse SAND, some Silt, soft to medium dense, moist.	
1.5					0.0			Trace subangular fine to coarse Gravel from 5-9' bgs.	
5					0.0				
		2	5-10'	45"	0.0			Brown fine to medium SAND and SILT, medium dense, moist.	
10					0.0				
		3	10-15'	51"	0.0			Brown fine to coarse SAND and SILT, medium dense, moist, light black staining, faint petroleum-like odor.	
15					0.1				
		4	15-20'	56"	5.1			Light gray SILT and CLAY, medium plasticity, medium stiff, moist.	
0					0.0			Tan medium to coarse SAND, some Silt, medium dense, moist to wet.	
20					0.0				
		5	20-25'	45"	0.0			Red SILT and CLAY, some fine Sand, medium plasticity, stiff, moist.	
-5					0.0				
25					0.0			End of borehole at 25' bgs.	
-10									

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil samples collected: S-146 (14-16), S-146 (17-19).

Date Start/Finish: 04/24/2019 / 04/25/2019	Northing: 252690.267'	Well/Boring ID: S-147
Drilling Company: Advanced Drilling	Easting: 2720204.081'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 13.7' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 20' bgs	
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
0		1	0-5'	48"	0.0			Tan fine to medium SAND and SILT, some subrounded fine to coarse Gravel, little Brick Fragments, medium dense, moist.	<p>Borehole backfilled with bentonite chips.</p>
0					0.0				
0					0.0				
0					0.0				
5		2	5-10'	54"	13.3			Black COAL FRAGMENTS, some Brick Fragments, loose to medium dense, moist.	
5					9.5			Black COAL FRAGMENTS, some Coal Ash, little Woody Debris, loose, moist.	
10					38.5			Dense Coal tar-like material at 9' bgs.	
10		3	10-15'	56"	2.9			Light rainbow sheen at 12.5' bgs.	
15					56.9			Gray subangular coarse GRAVEL, some medium to coarse Sand, trace Silt, medium dense, moist.	
15					2.5			Light rainbow sheen over 15-18' bgs.	
20		4	15-20'	56"	0.0			Gray SILT and CLAY, high plasticity, stiff, moist.	
20					0.0			End of borehole at 20' bgs.	

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil samples collected: S-147 (12-14), S-147 (18-20).



Date Start/Finish: 04/24/2019 / 04/25/2019	Northing: 252648.537'	Well/Boring ID: S-148
Drilling Company: Advanced Drilling	Easting: 2720196.184'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 14.3' NAVD88	Location:
Drilling Method: Direct Push	Borehole Depth: 20' bgs	Former Philadelphia Coke Plant
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	4501 Richmond St.
Rig Type: Track-Mounted Geoprobe		Philadelphia, PA


Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
0		1	0-5'	36"	0.0			Brown fine to coarse SAND and SILT, some Brick and Concrete Fragments, medium dense, moist.	<p>Borehole backfilled with bentonite chips.</p>
0					0.0			Brick and Concrete Fragments, medium dense, moist.	
0					0.0			Black COAL FRAGMENTS, loose, dry to moist.	
0					0.0			Black COAL tar-like material, dense, moist, strong coal tar-like odor.	
5		2	5-10'	55"	1.1				
5					22.9				
5					63.0				
5					61.8				
5					101.9				
10		3	10-15'	38"	1.1			Dark gray fine to coarse SAND and subangular fine to coarse GRAVEL, little Silt, medium dense, moist.	
10					1.5			Dark gray SILT and CLAY, high plasticity, stiff, moist.	
10					1.8			Dark gray fine to coarse SAND, medium dense, moist, rainbow sheen throughout interval.	
10					2.3				
10					1.9			Gray fine to coarse SAND, some Silt, little subangular fine to coarse Gravel, medium dense, moist.	
15		4	15-20'	38"	0.0			Dark gray Peaty SILT and CLAY, high plasticity, stiff, moist.	
15					0.0				
15					0.0				
15					0.0				
20					0.0			End of borehole at 20' bgs.	


Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil samples collected: S-148 (8-10), S-148 (16-18).





Date Start/Finish: 04/25/2019	Northing: 252668.423'	Well/Boring ID: S-149
Drilling Company: Advanced Drilling	Easting: 2720168.155'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 14.0' NAVD88	Location:
Drilling Method: Direct Push	Borehole Depth: 25' bgs	Former Philadelphia Coke Plant
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	4501 Richmond St.
Rig Type: Track-Mounted Geoprobe		Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
0.0		1	0-5'	48"	0.0			Brown SILT, some Brick Fragments, little coarse Sand, trace Coal Fragments, medium dense, moist.	
0.0					0.0				
0.0					0.0				
0.2					0.2			Black COAL CINDER, little Coal Fragments, little Woody Debris (possible purifier waste), medium dense, moist, faint burnt odor, moist.	
0.4		2	5-10'	50"	14.8			Black COAL CINDER, little Coal Fragments, trace Coal Clinker, trace coarse Sand, medium dense, moist to wet.	
5.0					11.3			Dense coal tar-like material at 8.5' bgs.	
9.9					9.9				
0.8					0.8			Black COAL CINDER, little Silt, little coarse Sand, soft to medium dense, wet.	
0.3		3	10-15'	45"	0.3			Black COAL CINDER, some coarse Sand, little Coal Ash, little subangular fine Gravel, dense, wet.	
0.3					0.3				
0.2					0.2			Gray SILT, some fine Sand, little Clay, low plasticity, medium dense, wet.	
0.2		4	15-20'	38"	0.2			Dark gray medium SAND, little Coal Cinder, trace Coal Fragments, medium dense, wet.	
0.2					0.2				
0.2					0.2			Grayish brown SILT and CLAY, little fine Sand, low plasticity, moist, medium stiff.	
0.1		5	20-25'	26"	0.1				
0.1					0.1				
0.0					0.0				
0.0					0.0				
25.0								End of borehole at 25' bgs.	


	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil samples collected: S-149 (8-10), S-149 (18.5-20.5).


Date Start/Finish: 04/24/2019	Northing: 252338.704'	Well/Boring ID: S-150
Drilling Company: Advanced Drilling	Easting: 2720459.968'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 7.0' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 5' bgs	
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
0					0.0			Brown fine to coarse SAND and SILT, trace Woody Debris, medium dense, moist.	 <p>Borehole back filled with bentonite chips.</p>
5		1	0-5'	41"	0.0		Gray subangular fine to coarse GRAVEL, some Coal Fragments, little Brick Fragments, little fine to coarse Sand, trace Silt, medium dense, wet.		
5					0.0				
5					0.0				
5					0.0				
5								End of borehole at 5' bgs.	
0									
10									
-5									
-15									
-10									
-20									
-15									
-25									
-20									
-30									

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	No analytical soil samples collected due to lack of visible impacts.


Date Start/Finish: 04/24/2019	Northing: 252337.2257'	Well/Boring ID: S-151
Drilling Company: Advanced Drilling	Easting: 2720498.0201'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 7.0' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 5' bgs	
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
0		1	0-5'	40"	0.0	X	H	Brown fine to coarse SAND and SILT, little Woody Debris, medium dense, moist.	 Borehole backfilled with bentonite chips.
5				284	0.1	X	H	Brown fine to coarse SAND and SILT, some fine to coarse Gravel, medium dense, moist. Coal tar-like material, low density at 2' bgs.	
					0.1	X	H	Black COAL FRAGMENTS, loose, moist.	
5					0.0	X	H	BRICK, CONCRETE, and COAL FRAGMENTS, loose, moist to wet.	
5								End of borehole at 5' bgs.	
0									
10									
-5									
15									
-10									
20									
-15									
25									
-20									
30									

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil samples collected: S-151 (0.5-2), S-151 (3-5), SO-DUP-0424.

Date Start/Finish: 04/25/2019	Northing: 252360.176'	Well/Boring ID: S-152
Drilling Company: Advanced Drilling	Easting: 2720468.288'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 7.2' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 5' bgs	
Sampling Method: Macrocore	Descriptions By: Evan Green	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
5		1	0-5'	36"	0.0			Black COAL CINDER, little coarse Sand, trace subangular fine Gravel, medium dense, moist. Gray coarse SAND, little Coal Cinder, little Coal Ash, little subangular fine Gravel, medium dense, wet.	 Borehole back filled with bentonite chips.
5								End of borehole at 5' bgs.	

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	No analytical soil samples collected due to lack of visible impacts.

Date Start/Finish: 04/26/2019	Northing: 251954.432'	Well/Boring ID: S-153
Drilling Company: Advanced Drilling	Eastings: 2719678.232'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 14.3' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 15' bgs	
Sampling Method: Macrocore	Descriptions By: Evan Green	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	15							Boring hand cleared to 5' bgs.	
0		1	0-5'	21"	4.6			Brown SILT, little Woody Debris, trace fine Sand, loose, moist.	<p>Borehole backfilled with bentonite chips.</p>
0				0.0			Brown medium to coarse SAND, some fine Sand, little Brick Fragments, medium dense, moist.		
0				0.0			Gray angular fine GRAVEL, some fine Sand, loose, moist to dry.		
0				0.0			Light brown fine SAND, little coarse Sand, medium dense, moist.		
5		2	5-10'	40"	9.1			Dark gray fine Sand, some Silt, little angular fine Gravel, medium dense, wet, coal tar-like odor.	
5				4.0			Gray SILT and CLAY, little fine Sand, low plasticity, soft, moist.		
5				6.1			Liquid, moderately fluid coal tar-like material at 9' bgs.		
10				0.8			Very dark gray SILT and CLAY, little fine Sand, low plasticity, faint coal tar-like odor, wet.		
10		3	10-15'	50"	6.8			Blebs of liquid coal tar-like material imbedded in the void spaces of the Clay layer at 11' and 13' bgs.	
10				4.9			Gray SILT and CLAY, some fine Sand, low plasticity, soft to medium stiff, moist.		
15				2.8			Gray SILT and CLAY, some fine Sand, low plasticity, soft to medium stiff, moist.		
15				0.8				End of borehole at 15' bgs.	

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil samples collected: S-153 (7-9), S-153 (13.5-15).

Date Start/Finish: 04/26/2019	Northing: 251965.0870'	Well/Boring ID: S-154
Drilling Company: Advanced Drilling	Easting: 2719707.5160'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 14.6' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 15' bgs	
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	15							Boring hand cleared to 5' bgs.	
		1	0-5'	31"	0.1			Brown fine to coarse SAND and SILT, little Woody Debris, loose, moist.	
					0.0			CONCRETE FRAGMENTS, loose, moist.	
					0.0			Brown fine to coarse SAND and SILT, some subangular fine to coarse Gravel, little Brick Fragments, loose, dry to moist.	
					0.0				
					0.0				
		2	5-10'	45"	0.1			Gray subangular fine to coarse GRAVEL, some Coal Fragments, loose, moist.	
					0.1				
					0.3			Brown fine to coarse SAND and SILT, some subangular fine to coarse Gravel, medium dense, moist to wet.	
					1.1			Gray rounded fine to coarse GRAVEL, medium dense, wet. Light rainbow sheen at 9.75' bgs.	
					0.0			Dark gray SILT and CLAY, high plasticity, stiff, moist.	
		3	10-15'	56"	0.0				
					0.0				
					0.0				
					0.0				
15								End of borehole at 15' bgs.	


	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil samples collected: S-154 (9-11), S-154 (12-14), SO-DUP-0426-1.

Date Start/Finish: 04/26/2019	Northing: 251986.658'	Well/Boring ID: S-155
Drilling Company: Advanced Drilling	Easting: 2719755.269'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 15.1' NAVD88	Location:
Drilling Method: Direct Push	Borehole Depth: 15' bgs	Former Philadelphia Coke Plant
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	4501 Richmond St.
Rig Type: Track-Mounted Geoprobe		Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	15							Boring hand cleared to 5' bgs.	
		1	0-5'	31"	0.2			Brown fine to coarse SAND and SILT, medium dense, moist.	<p>Borehole backfilled with bentonite chips.</p>
					0.0			BRICK FRAGMENTS, loose, moist.	
					0.0			Tannish brown fine to medium SAND and SILT, some subangular fine Gravel, little Brick Fragments, trace Coal Ash, medium dense, moist.	
					0.0				
					0.0				
5	10	2	5-10'	44"	0.0			BRICK FRAGMENTS, loose, moist.	
					0.0			Black COAL FRAGMENTS, some subangular fine to coarse Gravel, little coarse Sand, loose, moist.	
					0.0			Tannish brown fine to coarse SAND and SILT, some subangular fine to coarse Gravel, medium dense, moist.	
					0.0				
					0.0				
10	5	3	10-15'	44"	3.4	X		Very dark gray SILT and CLAY, little Woody Debris (possible purifier waste), low plasticity, stiff, moist, blebs of viscous liquid coal tar-like material, light rainbow sheen, coal tar-like odor.	
					33.6			Dark gray fine SAND and SILT, some Clay, low plasticity, dense, moist to wet.	
					4.1				
					0.0			Dark gray SILT and CLAY, high plasticity, stiff, moist.	
					0.0				
15	0							End of borehole at 15' bgs.	

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil samples collected: S-155 (10-12), S-155 (13-15).

Date Start/Finish: 05/03/2019	Northing: 252703.971'	Well/Boring ID: S-156
Drilling Company: Advanced Drilling	Eastings: 2720281.985'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 15.8' NAVD88	Location:
Drilling Method: Direct Push	Borehole Depth: 20' bgs	Former Philadelphia Coke Plant
Sampling Method: Macrocore	Descriptions By: Evan Green	4501 Richmond St.
Rig Type: Track-Mounted Geoprobe		Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
1.5		1	0-5'	45"	0.0			Black COAL CINDER, some fine Sand, little Coal Fragments, medium dense, moist.	
4.8					0.0			Black COAL TAR-like material, some Coal Fragments, little Coal Cinder, trace Brick Fragments, medium dense, moist, strong coal tar-like odor.	
5.2					0.8	X			
5.8					40.8	X			
6.0					80.7	X			
8.2		2	5-10'	50"	83.2			Dark gray medium SAND, little angular fine Gravel, medium dense, wet, black staining, light petroleum-like odor.	
8.3					8.3			Grayish brown SILT, little medium Sand, medium dense, moist.	
8.4					84.3	X		Dark gray coarse SAND and subangular fine GRAVEL, little fine Sand, loose, wet, light rainbow sheen, light black staining, faint petroleum-like odor.	
9.4					60.9	X			
9.6					6.0	X		Black COAL CINDER, some Silt, little Coal Fragments, trace Brick Fragments, medium dense, wet.	
10.0		3	10-15'	52"	1.0			Black COAL CINDER, some Silt, little Coal Fragments, trace Brick Fragments, medium dense, wet.	
10.4					0.4				
10.5					0.1			Gray SILT and CLAY, low plasticity, little fine Sand, dense, moist.	
10.6					0.1	X			
15.0		4	15-20'	41"	0.4				
15.1					0.1				
15.2					0.1				
15.3					0.1				
15.4					0.1				
20.0					0.1			End of borehole at 20' bgs.	

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil samples collected: S-156 (3-5), S-156 (7.5-9.5), S-156 (14-16), SO-DUP-0503.

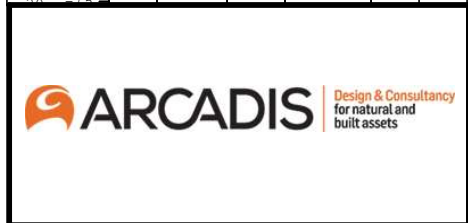


Date Start/Finish: 05/03/2019
 Drilling Company: Advanced Drilling
 Driller's Name: Craig Jablonski and Ron West
 Drilling Method: Direct Push
 Sampling Method: Macrocore
 Rig Type: Track-Mounted Geoprobe

Northing: 252624.276'
 Easting: 2720252.45'
 Surface Elevation: 14.9' NAVD88
 Borehole Depth: 25' bgs
 Descriptions By: Grayson Basalyga

Well/Boring ID: S-157
 Client: National Grid
 Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	1.5							Boring hand cleared to 5' bgs.	
		1	0-5'	46"	0.0 0.0 0.0 0.0			Gray subangular fine to coarse GRAVEL, some medium to coarse Sand, little Coal Fragments, loose, moist.	<p>Borehole backfilled with bentonite chips.</p>
5	10	2	5-10'	54"	11.0 80.0 29.9 82.6 32.6			Wet at 4' bgs. Rainbow sheen at 4.5' bgs. Gray subangular fine to coarse GRAVEL, some medium to coarse Sand, little Coal Fragments, loose, moist, petroleum-like odor, rainbow sheen throughout entire interval.	
10	5	3	10-15'	47"	66.2 7.1 2.9 3.4 3.1			Dark gray CLAY, medium plasticity, medium stiff, moist, petroleum-like odor, black staining.	
15	0	4	15-20'	50"	1.5 1.7 3.6 3.7			Brown SILT and CLAY, medium plasticity, stiff, dry to moist.	
20	-5	5	20-25'	22"	0.2 0.2 0.1 0.0 0.0			Brown rounded fine to coarse GRAVEL, some fine to coarse Sand, little Silt, medium dense, wet.	
25	-10							End of borehole at 25' bgs.	



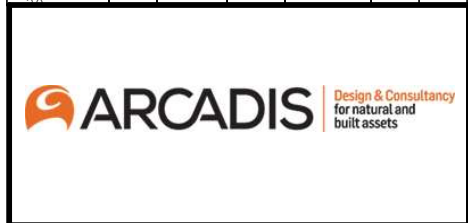
Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
 Analytical soil samples collected: S-157 (7-9), S-157 (23-25).

Date Start/Finish: 04/26/2019
 Drilling Company: Advanced Drilling
 Driller's Name: Craig Jablonski and Ron West
 Drilling Method: Direct Push
 Sampling Method: Macrocore
 Rig Type: Track-Mounted Geoprobe

Northing: 252608.441'
 Easting: 2720098.04'
 Surface Elevation: 16.3' NAVD88
 Borehole Depth: 20' bgs
 Descriptions By: Grayson Basalyga

Well/Boring ID: S-158
 Client: National Grid
 Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
1.5		1	0-5'	38"	0.0			Brown fine to coarse SAND and SILT, little Woody Debris, loose, moist.	<p>Borehole backfilled with bentonite chips.</p>
3.0					0.0			BRICK and CONCRETE FRAGMENTS, loose, dry to moist.	
4.5					0.0			Brown fine to medium SAND and SILT, some subangular fine to coarse Gravel, little Coal Fragments, medium dense, moist.	
6.0					0.0			BRICK and CONCRETE FRAGMENTS, loose, moist.	
7.5					0.0			Brown fine to medium SAND and SILT, some subangular fine to coarse Gravel, medium dense, moist.	
9.0		2	5-10'	46"	0.0			Red BRICK FRAGMENTS, some Coal Cinder, little subrounded fine Gravel, medium dense, moist.	
10.5					0.0			Black COAL CINDER, little Concrete Fragments, loose, moist, faint burnt odor.	
12.0					0.9			BRICK and CONCRETE FRAGMENTS, some fine to coarse Sand, little subrounded fine Gravel, little Brick Fragments, little low viscosity coal tar-like material, loose, moist, strong coal tar-like odor.	
13.5		3	10-15'	55"	38.6			Light blue and rainbow sheen at 11' bgs.	
15.0					1.7			Black COAL CINDER, loose, moist.	
16.5					1.2			Gray SILT and CLAY, little Woody Debris, medium plasticity, medium stiff, moist.	
18.0					0.1			Gray CLAY, high plasticity, stiff, moist.	
19.5		4	15-20'	56"	0.6			Dark gray SILT and CLAY, medium plasticity, stiff, moist.	
21.0					1.2				
22.5					0.3				
24.0					0.0				
25.5					0.0				
27.0					0.0			End of borehole at 20' bgs.	



Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

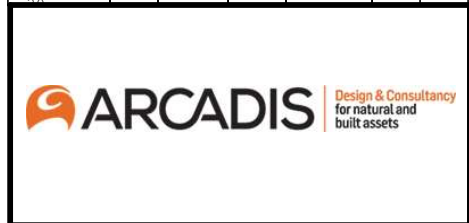
Analytical soil samples collected: S-158 (11-13), S-158 (18-20), S-158 (18-20) MS, S-158 (18-20) MSD.

Date Start/Finish: 04/26/2019
 Drilling Company: Advanced Drilling
 Driller's Name: Craig Jablonski and Ron West
 Drilling Method: Direct Push
 Sampling Method: Macrocore
 Rig Type: Track-Mounted Geoprobe

Northing: 252751.01'
 Easting: 2720148.792'
 Surface Elevation: 14.0' NAVD88
 Borehole Depth: 20' bgs
 Descriptions By: Grayson Basalyga

Well/Boring ID: S-159
 Client: National Grid
 Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
0		1	0-5'	49"	0.0			Gray fine to coarse SAND and SILT, some subangular fine to coarse Gravel, little Brick Fragments, medium dense, moist.	
5					0.0			Wet at 5' bgs.	
5		2	5-10'	32"	0.0			Black COAL CINDER, some Coal Ash, some fine to coarse Gravel, loose, moist.	
10					0.0			Yellow, red in part fine to coarse SAND, medium dense, moist.	
10		3	10-15'	40"	0.1 0.3 4.9 38.6 7.1			Gray subangular fine to coarse GRAVEL and fine to coarse SAND, little Coal Fragments, medium dense, moist. Light rainbow sheen over 11-13' bgs.	
15		4	15-20'	39"	0.6 0.3 0.1 0.0 0.0			Gray Peaty SILT and CLAY, medium plasticity, stiff, moist.	
20								End of borehole at 20' bgs.	



Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

 Analytical soil samples collected: S-159 (11-13), S-159 (18-20).

Date Start/Finish: 05/03/2019 Drilling Company: Advanced Drilling Driller's Name: Craig Jablonski and Ron West Drilling Method: Direct Push Sampling Method: Macrocore Rig Type: Track-Mounted Geoprobe	Northing: NA Easting: NA Surface Elevation: NA Borehole Depth: 15' bgs Descriptions By: Evan Green	Well/Boring ID: S-160 Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0							Boring hand cleared to 5' bgs.	
		1	0-5'	30"	0.0			Brown SILT, some fine Sand, loose, moist.	<p>Borehole backfilled with bentonite chips.</p>
					0.0			CONCRETE FRAGMENTS, loose, moist.	
					0.0			Brown SILT, some coarse Sand, little subangular fine Gravel, loose, moist.	
5	-5	2	5-10'	42"	0.0			Black COAL CINDER, little coarse Sand, loose, wet.	
					0.0			Brown fine to medium SAND, little coarse Sand, little Coal Cinder, medium dense, moist to wet.	
10	-10	3	10-15'	45"	27.5			Black low viscosity COAL TAR-like material, some fine Sand, medium dense, moist to wet.	
					3.5			Dark gray SILT and CLAY, some fine Sand, low plasticity, medium stiff, moist.	
					0.6				
					0.1				
					0.1				
15	-15							End of borehole at 15' bgs.	
20	-20								
25	-25								
30	-30								

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil samples collected: S-160 (6-8), S-160 (10-12).

Date Start/Finish: 05/03/2019 Drilling Company: Advanced Drilling Driller's Name: Craig Jablonski and Ron West Drilling Method: Direct Push Sampling Method: Macrocore Rig Type: Track-Mounted Geoprobe	Northing: NA Easting: NA Surface Elevation: NA Borehole Depth: 15' bgs Descriptions By: Evan Green	Well/Boring ID: S-161 Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0							Boring hand cleared to 5' bgs.	
		1	0-5'	45"	2.6 0.0 0.0 0.0 0.0			Brown SILT, some coarse Sand, some Brick Fragments, loose, moist.	<p>Borehole backfilled with bentonite chips.</p>
5	-5	2	5-10'	42"	23.3 1.0 1.8 0.0 0.0			Light brown medium SAND, little coarse Sand, medium dense, moist to wet, strong coal tar-like odor. Low viscosity coal tar-like material at 5' bgs.	
								Black COAL CINDER, some coarse Sand, little Coal Fragments, medium dense, wet.	
10	-10	3	10-15'	50"	0.0 0.0 0.0 0.0			Brown SILT, some Brick and Concrete Fragments, loose, wet.	
								Dark gray fine SAND, SILT and CLAY, low plasticity, wet, medium dense.	
								Dark gray SILT and CLAY, some fine Sand, low plasticity, soft to medium stiff, moist.	
15	-15							End of borehole at 15' bgs.	
20	-20								
25	-25								
30	-30								

	Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
	Analytical soil samples collected: S-161 (5-7), S-161 (10-12), S-161 (10-12) MS, S-161 (10-12) MSD.

Date Start/Finish: 05/03/2019 Drilling Company: Advanced Drilling Driller's Name: Craig Jablonski and Ron West Drilling Method: Direct Push Sampling Method: Macrocore Rig Type: Track-Mounted Geoprobe	Northing: NA Easting: NA Surface Elevation: NA Borehole Depth: 20' bgs Descriptions By: Evan Green	Well/Boring ID: S-162 Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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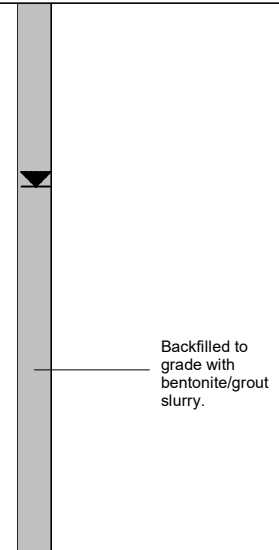
Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0							Boring hand cleared to 5' bgs.	
		1	0-5'	40"	0.0 0.0 0.0 0.0			Light brown SILT, little coarse Sand, trace Concrete and Brick Fragments, medium dense, moist.	 Borehole backfilled with bentonite chips.
5	-5	2	5-10'	30"	8.9 4.1 0.2 0.1 0.0			Brown fine SAND, little coarse Sand, trace Brick Fragments, dense, moist. Black solid COAL TAR-like material, some coarse Sand, little Coal Cinder, little Woody Debris (possible purifier waste), medium dense, moist to wet, strong coal tar-like odor.	
		3	10-15'	10"	0.0 0.0 0.0 0.0			Brown medium SAND, little Coal Cinder, little coarse Sand, medium dense, moist to wet.	
10	-10				0.0 0.0 0.0 0.0			Black COAL CINDER, some coarse Sand, soft, wet.	
15	-15	4	15-20'	55"	0.0 0.0 0.0 0.0			Brownish SILT and CLAY, low plasticity, gray, soft, moist.	
20	-20							End of borehole at 20' bgs.	

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil samples collected: S-162 (7-9), S-162 (15-17).



Date Start/Finish: 9/19/2019 Drilling Company: Advanced Drilling, Inc. Driller's Name: Craig Jablonksi Drilling Method: Geoprobe Sampling Method: 5' Macrocore Liner Rig Type: Track-mounted Geoprobe	Northing: 252797.477' Easting: 2719336.704' Surface Elevation: 10.989' NAVD88 Borehole Depth: 15' bgs Descriptions By: Chris Ortolano	Well/Boring ID: S-163 Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0									
10		NA	0-5	48"	0.0	X	•••••	Black Sandy SILT and fine to coarse GRAVEL, dry.	
5				0.0		•••••	Wet at 5 bgs.		
5		1	5-10	36"	0.0		•••••	Black Silty SAND, trace fine Gravel, wet.	
10					NA		•••••	Some Clay at 10 bgs.	
10					0.0		•••••	Gray Sandy CLAY, moist.	
15		2	10-15	60"	0.0		•••••	End of boring at 15' bgs.	
-5									
-20									
-10									
-25									
-15									

Remarks: NAVD88 = North American Vertical Datum of 1988; ags = above ground surface; bgs = below ground surface; HSA = hollow-stem auger; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot. Macrocore inner diameter = 1".

Analytical samples collected at 0.5-2' bgs and 2-4' bgs.

Soil boring was hand-cleared from 0-5' bgs. Descriptions for 0-5' bgs interval are based on soil cuttings.



Date Start/Finish: 9/19/2019 Drilling Company: Advanced Drilling, Inc. Driller's Name: Craig Jablonksi Drilling Method: Geoprobe Sampling Method: 5' Macrocore Liner Rig Type: Track-mounted Geoprobe	Northing: 252313.5032' Easting: 2720528.287' Surface Elevation: 6.74' NAVD88 Borehole Depth: 10' bgs Descriptions By: Chris Ortolano	Well/Boring ID: S-164 Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0					0.0			Dark brown SILT, some fine Gravel, dry.	<p>Backfilled to grade with bentonite/grout slurry.</p>
5		NA	0-5	48"	0.0			Brown Sandy SILT, some fine Gravel, moist.	
					96.4			Olive black Clayey SILT, moist, petroleum-like odor.	
5					98.1	NA		Wet at 6' bgs.	
0		1	5-10	42"	4.6			Dark brown GRAVEL, wet.	
10					2.0			End of boring at 10' bgs.	
					0.1				
					NA				
					NA				
-5									
-15									
-20									
-25									
-20									

Remarks: NAVD88 = North American Vertical Datum of 1988; ags = above ground surface; bgs = below ground surface; HSA = hollow-stem auger; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot. Macrocore inner diameter = 1".

Analytical sample collected at 4-6' bgs.

Soil boring was hand-cleared from 0-5' bgs. Descriptions for 0-5' bgs interval are based on soil cuttings.



Date Start/Finish: 9/19/2019 Drilling Company: Advanced Drilling, Inc. Driller's Name: Craig Jablonksi Drilling Method: Geoprobe Sampling Method: 5' Macrocore Liner Rig Type: Track-mounted Geoprobe	Northing: 252295.431' Easting: 2720502.78' Surface Elevation: 6.542' NAVD88 Borehole Depth: 5' bgs Descriptions By: Chris Ortolano	Well/Boring ID: S-165 Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0					0.0			Dark brown SILT, trace fine Gravel, dry.	
5		NA	0-5	36"	0.0			BRICK.	
5					NA			Dark brown Silty GRAVEL, wet.	
5					NA			End of boring at 5' bgs.	
10									
15									
20									
25									
30									

	Remarks: NAVD88 = North American Vertical Datum of 1988; ags = above ground surface; bgs = below ground surface; HSA = hollow-stem auger; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot. Macrocore inner diameter = 1".
	Soil boring was hand-cleared from 0-5' bgs. Descriptions for 0-5' bgs interval are based on soil cuttings.

Date Start/Finish: 9/19/2019 Drilling Company: Advanced Drilling, Inc. Driller's Name: Craig Jablonksi Drilling Method: Geoprobe Sampling Method: 5' Macrocore Liner Rig Type: Track-mounted Geoprobe	Northing: 252682.897' Easting: 2720115.393' Surface Elevation: 15.565' NAVD88 Borehole Depth: 15' bgs Descriptions By: Chris Ortolano	Well/Boring ID: S-166 Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0									
1.5	15	NA	0-5	60"	0.0			Brown Sandy SILT, some fine to coarse Gravel, trace Brick, dry.	<p>Backfilled to grade with bentonite/grout mix.</p>
5.0					0.0		Black Sandy SILT, some fine to coarse Gravel, dry.		
10.0		1	5-10	36"	0.0		Pink SANDSTONE and fine to coarse SAND, dry.		
10.0					0.0		Tan and brown Silty SAND, some fine to coarse Gravel, dry. Wet at 8 bgs.		
15.0		2	10-15	60"	0.0		Black Silty CLAY, moist.		
15.0					0.0			End of boring at 15' bgs.	
20.0									
25.0									
30.0									

<p>Design & Consultancy for natural and built assets</p>	Remarks: NAVD88 = North American Vertical Datum of 1988; ags = above ground surface; bgs = below ground surface; HSA = hollow-stem auger; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot. Macrocore inner diameter = 1". Soil boring was hand-cleared from 0-5' bgs. Descriptions for 0-5' bgs interval are based on soil cuttings.
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Date Start/Finish: 9/20/2019	Northing: 252762.087'	Well/Boring ID: S-167
Drilling Company: Advanced Drilling, Inc.	Easting: 2720248.622'	Client: National Grid
Driller's Name: Craig Jablonksi	Surface Elevation: 10.049' NAVD88	Location:
Drilling Method: Geoprobe	Borehole Depth: 20' bgs	Former Philadelphia Coke Plant
Sampling Method: 5' Macrocore Liner	Descriptions By: Chris Ortolano	4501 Richmond St.
Rig Type: Track-mounted Geoprobe		Philadelphia, PA


Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	10								
		NA	0-5	42"	0.0			Brown Sandy SILT, some fine to coarse Gravel, dry.	<p>Backfilled to grade with bentonite/grout slurry.</p>
					0.0			Dark brown Sandy SILT, some fine to coarse Gravel and Brick, dry.	
					0.0			Black Sandy SILT, some fine to coarse Gravel, trace Ash, dry.	
					0.0				
5	5				NA				
		1	5-10	48"	0.8			Black and tan Sandy Clayey SILT, some Gravel, trace Brick, sheen, moist at 7' bgs.	
					2.2			Silty CLAY.	
					13.4			Sandy SILT.	
					8.3				
					NA				
10	0				0.8			Black Silty SAND, some fine to coarse Gravel, wet.	
		2	10-15	60"	0.2				
					0.2				
					0.0			Gray and black fine to coarse GRAVEL, some Sand, wet.	
					0.0				
15	-5				0.0			Gray Silty CLAY, wet.	
		3	15-20	36"	0.0				
					0.0				
					NA				
					NA				
20	-10							End of boring at 20' bgs.	
25	-15								
30	-20								

	Remarks: NAVD88 = North American Vertical Datum of 1988; ags = above ground surface; bgs = below ground surface; HSA = hollow-stem auger; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot. Macrocore inner diameter = 1".
	Analytical sample collected at 7-9' bgs. Soil boring was hand-cleared from 0-5' bgs. Descriptions for 0-5' bgs interval are based on soil cuttings.







Date Start/Finish: 9/19/2019 Drilling Company: Advanced Drilling, Inc. Driller's Name: Craig Jablonksi Drilling Method: Geoprobe Sampling Method: 5' Macrocore Liner Rig Type: Track-mounted Geoprobe	Northing: 251954.1622' Easting: 2719839.388' Surface Elevation: 16.988' NAVD88 Borehole Depth: 15' bgs Descriptions By: Chris Ortolano	Well/Boring ID: S-168 Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0					0.0			Light brown Sandy SILT, some large Gravel and Concrete chunks, dry.	
1.5		NA	0-5	48"	0.0			BRICK.	
2.5					0.0			Brown trace fine to coarse SAND and Clayey SILT, some Gravel, dry.	
3.5					0.0				
4.5					NA				
5.5		1	5-10	60"	284.7	X		Black Sandy SILT, dry.	
6.5					1.6			CONCRETE and ROCK.	
7.5					0.8			Black and olive fine SAND and Clayey SILT, some Gravel, dry.	
8.5					0.4			Coal chunks at 9.2 bgs.	
9.5					0.6				
10.5					4.4			Gray Silty GRAVEL, wet.	
11.5					0.4			Gray Silty CLAY, moist.	
12.5		2	10-15	36"	0.6				
13.5					NA				
14.5					NA				
15								End of boring at 15' bgs.	
20									
25									
30									

Backfilled to grade with bentonite/grout slurry.

 <small>Design & Consultancy for natural and built assets</small>	Remarks: NAVD88 = North American Vertical Datum of 1988; ags = above ground surface; bgs = below ground surface; HSA = hollow-stem auger; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot. Macrocore inner diameter = 1". Analytical sample collected at 6-8' bgs. Soil boring was hand-cleared from 0-5' bgs. Descriptions for 0-5' bgs interval are based on soil cuttings.
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Date Start/Finish: 9/19/2019 Drilling Company: Advanced Drilling, Inc. Driller's Name: Craig Jablonksi Drilling Method: Geoprobe Sampling Method: 5' Macrocore Liner Rig Type: Track-mounted Geoprobe	Northing: 251902.6979 Easting: 2719877.123 Surface Elevation: 19.652' NAVD88 Borehole Depth: 15' bgs Descriptions By: Chris Ortolano	Well/Boring ID: S-169 Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	20								
		NA	0-5	54"	0.0		 Brown SILT, some Roots.		 Backfilled to grade with bentonite/grout mix.
					0.0		 BRICK, some Silt.		
					0.0		 Gray Sandy SILT, some Gravel and trace Brick, dry.		
					0.0				
5	15	1	5-10	60"	0.0		 Black Sandy SILT, some Gravel, dry to moist.		
					0.0		Wet from 10-12.2' bgs.		
10	10	2	10-15	60"	0.0		 Gray Silty CLAY, moist.		
15	5				0.0			End of boring at 15' bgs.	
20	0								
25	-5								
30	-10								


Remarks: NAVD88 = North American Vertical Datum of 1988; ags = above ground surface; bgs = below ground surface; HSA = hollow-stem auger; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot. Macrocore inner diameter = 1".

Soil boring was hand-cleared from 0-5' bgs. Descriptions for 0-5' bgs interval are based on soil cuttings.



Date Start/Finish: 9/19/2019 Drilling Company: Advanced Drilling, Inc. Driller's Name: Craig Jablonksi Drilling Method: Geoprobe Sampling Method: 5' Macrocore Liner Rig Type: Track-mounted Geoprobe	Northing: 251876.838' Easting: 2719818.66' Surface Elevation: 19.717' NAVD88 Borehole Depth: 15' bgs Descriptions By: Chris Ortolano	Well/Boring ID: S-170 Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction	
0	20	1	0-5	36"	0.0			Brown Sandy SILT, some Gravel, trace Roots, dry.		
	0.0						Gray GRAVEL and CONCRETE, dry.			
	0.0						Brown Sandy SILT, some Gravel, dry.			
5	15	2	5-10	29"	NA			Brown Sandy Silty CLAY, some Gravel, moist.		
	NA									
	NA									
10	10	3	10-15	42"	NA			Gray Sandy SILT, some Gravel, moist to wet.		
	NA									
	NA						Gray Silty CLAY, moist.			
15	5				NA					
					NA			End of boring at 15' bgs.		
20	0									
25	-5									
30	-10									

 <small>Design & Consultancy for natural and built assets</small>	Remarks: NAVD88 = North American Vertical Datum of 1988; ags = above ground surface; bgs = below ground surface; HSA = hollow-stem auger; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot. Macrocore inner diameter = 1". Soil boring was hand-cleared from 0-5' bgs. Descriptions for 0-5' bgs interval are based on soil cuttings.
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Date Start/Finish: 9/19/2019	Northing: 251848.494'	Well/Boring ID: S-171
Drilling Company: Advanced Drilling, Inc.	Eastings: 2719745.955'	Client: National Grid
Driller's Name: Craig Jablonksi	Surface Elevation: 16.96' NAVD88	Location:
Drilling Method: Geoprobe	Borehole Depth: 15' bgs	Former Philadelphia Coke Plant
Sampling Method: 5' Macrocore Liner	Descriptions By: Chris Ortolano	4501 Richmond St.
Rig Type: Track-mounted Geoprobe		Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0									
15		NA	0-5	60"	0.0			Brown SILT, some Roots, dry. Tan Sandy CLAY. Gray Sandy SILT, some Gravel, dry. Brown Sandy SILT, some Gravel, dry. BRICK. Grayish black Sandy SILT, some Gravel, dry.	
5					0.0			Brown Sandy SILT, some Gravel, trace Brick, dry. GRAVEL.	
10		1	5-10	60"	0.0			Blackish gray Sandy-Silty CLAY, some Gravel, dry. Black Sandy GRAVEL, wet.	
15					0.0			Black Silty CLAY.	
5		2	10-15	60"	0.0				
15					0.0			End of boring at 15' bgs.	
0									
20									
-5									
25									
-10									
30									

Remarks: NAVD88 = North American Vertical Datum of 1988; ags = above ground surface; bgs = below ground surface; HSA = hollow-stem auger; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot. Macrocore inner diameter = 1".

Analytical sample collected at 5-7' bgs.

Soil boring was hand-cleared from 0-5' bgs. Descriptions for 0-5' bgs interval are based on soil cuttings.




Date Start/Finish: 9/19/2019	Northing: 251823.855'	Well/Boring ID: S-172
Drilling Company: Advanced Drilling, Inc.	Easting: 2719691.72'	Client: National Grid
Driller's Name: Craig Jablonksi	Surface Elevation: 17.547' NAVD88	Location:
Drilling Method: Geoprobe	Borehole Depth: 15' bgs	Former Philadelphia Coke Plant
Sampling Method: 5' Macrocore Liner	Descriptions By: Chris Ortolano	4501 Richmond St.
Rig Type: Track-mounted Geoprobe		Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
20									
0					0.0			Brown and tan Sandy SILT, some Gravel and Brick, dry.	<p>Backfilled to grade with bentonite/grout slurry.</p>
1.5		NA	0-5	24"	NA				
5					0.0		Brown Sandy SILT, some Gravel and Brick, dry.		
10		1	5-10	48"	0.0		Brown Sandy Clayey SILT, some Gravel, dry.		
10					0.0		Moist at 10' bgs.		
5		2	10-15	60"	0.0			Gray and black Silty CLAY, moist.	
15					0.0			End of boring at 15' bgs.	
0									
20									
-5									
25									
-10									

	Remarks: NAVD88 = North American Vertical Datum of 1988; ags = above ground surface; bgs = below ground surface; HSA = hollow-stem auger; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot. Macrocore inner diameter = 1".
	<p>Analytical sample collected at 5-7' bgs.</p> <p>Soil boring was hand-cleared from 0-5' bgs. Descriptions for 0-5' bgs interval are based on soil cuttings.</p>

Date Start/Finish: 9/19/2019 Drilling Company: Advanced Drilling, Inc. Driller's Name: Craig Jablonksi Drilling Method: Geoprobe Sampling Method: 5' Macrocore Liner Rig Type: Track-mounted Geoprobe	Northing: 251870.674' Easting: 2719657.286' Surface Elevation: 17.598' NAVD88 Borehole Depth: 15' bgs Descriptions By: Chris Ortolano	Well/Boring ID: S-173 Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
20									
0					0.0			Brown Sandy SILT, some Gravel and Brick, dry.	
1.5		NA	0-5	36"	0.0				
5					NA				
10		1	5-10	60"	0.0	X		Brown Sandy Clayey SILT, some Gravel, moist.	Backfilled to grade with bentonite/grout slurry.
10					0.0			Moist at 10' bgs.	
10					0.0			Gray to black Silty CLAY, moist.	
15		2	10-15	60"	0.0				
15					0.0			End of boring at 15' bgs.	
0									
20									
-5									
25									
-10									

	Remarks: NAVD88 = North American Vertical Datum of 1988; ags = above ground surface; bgs = below ground surface; HSA = hollow-stem auger; PID = photoionization detector; NA = Not Applicable/Available; Coordinate System = NAD83 Penn South Zone US Foot. Macrocore inner diameter = 1". Analytical sample collected at 5-7' bgs. Soil boring was hand-cleared from 0-5' bgs. Descriptions for 0-5' bgs interval are based on soil cuttings.
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Date Start/Finish: 04/16/2019	Northing: 252547.94'	Well/Boring ID: TP-15R
Drilling Company: Advanced Drilling	Easting: 2719031.286'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 11.4' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 15' bgs	
Sampling Method: Macrocore	Descriptions By: Evan Green	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
1.0		1	0-5'	48"	0.1 0.2 0.0 0.0 0.0			Black COAL CINDER, little Coal Ash, little coarse Sand, trace subrounded fine Gravel, trace Coal Fragments, loose, moist.	
5.0					0.2 86.2	X		Black COAL ASH, some Coal Cinder, loose, wet, coal tar-like odor.	
10.0		2	5-10'	46"	1.0 0.6 0.0			Brownish gray fine SAND, some Silt, trace coarse Sand, medium dense, wet. Solid Coal tar-like material fragment at 7' bgs.	
15.0					0.0 0.0 0.2 0.3 0.4	X		Brownish gray SILT and CLAY, some fine Sand, low plasticity, soft, wet.	
15.0		3	10-15'	39"				End of borehole at 15' bgs.	Borehole backfilled with bentonite chips.

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil samples collected: TP-15R (5-7), TP-15R (10.5 - 12.5).



Date Start/Finish: 04/22/2019 Drilling Company: Advanced Drilling Driller's Name: Craig Jablonski and Ron West Drilling Method: Direct Push Sampling Method: Macrocore Rig Type: Track-Mounted Geoprobe	Northing: 252287.87' Eastings: 2720365.627' Surface Elevation: 11.0' NAVD88 Borehole Depth: 10' bgs Descriptions By: Grayson Basalyga	Well/Boring ID: TP-44R Client: National Grid Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
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Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
10		1	0-5'	33"	0.0			Dark brown fine to coarse SAND and SILT, trace subangular fine to coarse Gravel, loose, moist.	<p>Borehole backfilled with bentonite chips.</p>
					0.0			Tan fine to coarse SAND and SILT, some subrounded fine to coarse Gravel, loose, moist.	
					0.0			Dark gray, brown in part fine to coarse SAND and subangular fine to coarse GRAVEL, trace Silt, medium dense, moist.	
					0.0			Gray and tan fine Sandy SILT, medium plasticity, very stiff.	
					13.4			Dark gray fine to coarse SAND and subrounded fine to coarse GRAVEL, little Silt, medium dense, moist to wet, petroleum-like odor.	
5					31.8			Gray fine to coarse SAND, dense, wet, light rainbow sheen throughout interval.	
5		2	5-10'	35"	0.0			No sheen over 7-8' bgs interval.	
					0.0			Gray SILT and CLAY, high plasticity, medium stiff, moist.	
					0.0				
10								End of borehole at 10' bgs.	

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil samples collected: TP-44R (3-5), TP-44R (5-7), TP-44R (7-9).



Date Start/Finish: 04/18/2019	Northing: 252076.866'	Well/Boring ID: TP-63R
Drilling Company: Advanced Drilling	Easting: 2719747.858'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 14.9' NAVD88	Location:
Drilling Method: Direct Push	Borehole Depth: 15' bgs	Former Philadelphia Coke Plant
Sampling Method: Macrocore	Descriptions By: Grayson Basalyga	4501 Richmond St.
Rig Type: Track-Mounted Geoprobe		Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	1.5							Boring hand cleared to 5' bgs.	
		1	0-5'	28"	0.0			Brown fine to coarse SAND and SILT, loose, moist.	<p>Borehole backfilled with bentonite chips.</p>
					0.0			BRICK and CONCRETE Fragments, loose, dry to moist.	
					0.0				
					0.0				
5	10	2	5-10'	22"	0.0			Dark gray medium to coarse SAND, little subangular fine Gravel, little fine Sand, little Coal Fragments, trace Silt, medium dense, wet.	
					0.0				
					0.0				
					0.0				
					0.0				
					0.0				
10	5	3	10-15'	47"	0.0			Gray fine SAND and SILT, little Clay, medium plasticity, dense, moist to wet.	
					0.0			Dark gray SILT and CLAY, high plasticity, stiff, moist.	
					0.0				
					0.0				
15	0							End of borehole at 15' bgs.	

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil sample collected: TP-63R (7-9), TP-63R (11-13).



Date Start/Finish: 04/16/2019	Northing: 252547.94'	Well/Boring ID: TP-15R
Drilling Company: Advanced Drilling	Easting: 2719031.286'	Client: National Grid
Driller's Name: Craig Jablonski and Ron West	Surface Elevation: 11.4' NAVD88	Location: Former Philadelphia Coke Plant 4501 Richmond St. Philadelphia, PA
Drilling Method: Direct Push	Borehole Depth: 15' bgs	
Sampling Method: Macrocore	Descriptions By: Evan Green	
Rig Type: Track-Mounted Geoprobe		

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
1.0		1	0-5'	48"	0.1 0.2 0.0 0.0 0.0			Black COAL CINDER, little Coal Ash, little coarse Sand, trace subrounded fine Gravel, trace Coal Fragments, loose, moist.	
5.0					0.2 86.2	X		Black COAL ASH, some Coal Cinder, loose, wet, coal tar-like odor.	
10.0		2	5-10'	46"	1.0 0.6 0.0			Brownish gray fine SAND, some Silt, trace coarse Sand, medium dense, wet. Solid Coal tar-like material fragment at 7' bgs.	
15.0					0.0 0.0 0.2 0.3 0.4	X		Brownish gray SILT and CLAY, some fine Sand, low plasticity, soft, wet.	
15.0		3	10-15'	39"				End of borehole at 15' bgs.	Borehole backfilled with bentonite chips.

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil samples collected: TP-15R (5-7), TP-15R (10.5 - 12.5).

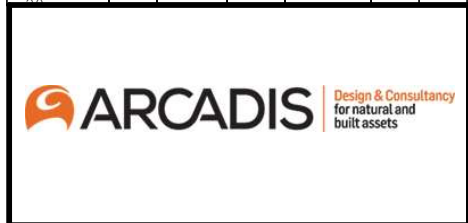


Date Start/Finish: 04/22/2019
 Drilling Company: Advanced Drilling
 Driller's Name: Craig Jablonski and Ron West
 Drilling Method: Direct Push
 Sampling Method: Macrocore
 Rig Type: Track-Mounted Geoprobe

Northing: 252287.87'
 Easting: 2720365.627'
 Surface Elevation: 11.0' NAVD88
 Borehole Depth: 10' bgs
 Descriptions By: Grayson Basalyga

Well/Boring ID: TP-44R
 Client: National Grid
 Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0								Boring hand cleared to 5' bgs.	
10		1	0-5'	33"	0.0			Dark brown fine to coarse SAND and SILT, trace subangular fine to coarse Gravel, loose, moist.	<p>Borehole backfilled with bentonite chips.</p>
					0.0			Tan fine to coarse SAND and SILT, some subrounded fine to coarse Gravel, loose, moist.	
					0.0			Dark gray, brown in part fine to coarse SAND and subangular fine to coarse GRAVEL, trace Silt, medium dense, moist.	
					0.0			Gray and tan fine Sandy SILT, medium plasticity, very stiff.	
					13.4			Dark gray fine to coarse SAND and subrounded fine to coarse GRAVEL, little Silt, medium dense, moist to wet, petroleum-like odor.	
5		2	5-10'	35"	31.8			Gray fine to coarse SAND, dense, wet, light rainbow sheen throughout interval.	
					0.0			No sheen over 7-8' bgs interval.	
					0.0			Gray SILT and CLAY, high plasticity, medium stiff, moist.	
					0.0				
10								End of borehole at 10' bgs.	



Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".

Analytical soil samples collected: TP-44R (3-5), TP-44R (5-7), TP-44R (7-9).

Date Start/Finish: 04/18/2019
 Drilling Company: Advanced Drilling
 Driller's Name: Craig Jablonski and Ron West
 Drilling Method: Direct Push
 Sampling Method: Macrocore
 Rig Type: Track-Mounted Geoprobe

Northing: 252076.866'
 Easting: 2719747.858'
 Surface Elevation: 14.9' NAVD88
 Borehole Depth: 15' bgs
 Descriptions By: Grayson Basalyga

Well/Boring ID: TP-63R
 Client: National Grid
 Location:
 Former Philadelphia Coke Plant
 4501 Richmond St.
 Philadelphia, PA

Depth (feet bgs)	Elevation (feet NAVD88)	Sample Run Number	Sample/Int/Type	Recovery (inches)	PID Headpace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	1.5							Boring hand cleared to 5' bgs.	
		1	0-5'	28"	0.0			Brown fine to coarse SAND and SILT, loose, moist.	<p>Borehole backfilled with bentonite chips.</p>
					0.0			BRICK and CONCRETE Fragments, loose, dry to moist.	
					0.0				
					0.0				
5	10	2	5-10'	22"	0.0			Dark gray medium to coarse SAND, little subangular fine Gravel, little fine Sand, little Coal Fragments, trace Silt, medium dense, wet.	
					0.0				
					0.0				
					0.0				
					0.0				
					0.0				
10	5	3	10-15'	47"	0.0			Gray fine SAND and SILT, little Clay, medium plasticity, dense, moist to wet.	
					0.0			Dark gray SILT and CLAY, high plasticity, stiff, moist.	
					0.0				
					0.0				
15	0							End of borehole at 15' bgs.	

Remarks: NAVD88 = North American Vertical Datum of 1988; bgs = below ground surface; ' = feet; " = inch; NA = not applicable/available. Coordinate system = NAD83 Penn South Zone US Foot. Vacuum excavator used to soft dig to 5' bgs. Soil boring advanced adjacent to soft dig to record lithology in first five feet. Macrocore length = 5'. Macrocore inner diameter = 1".
 Analytical soil sample collected: TP-63R (7-9), TP-63R (11-13).



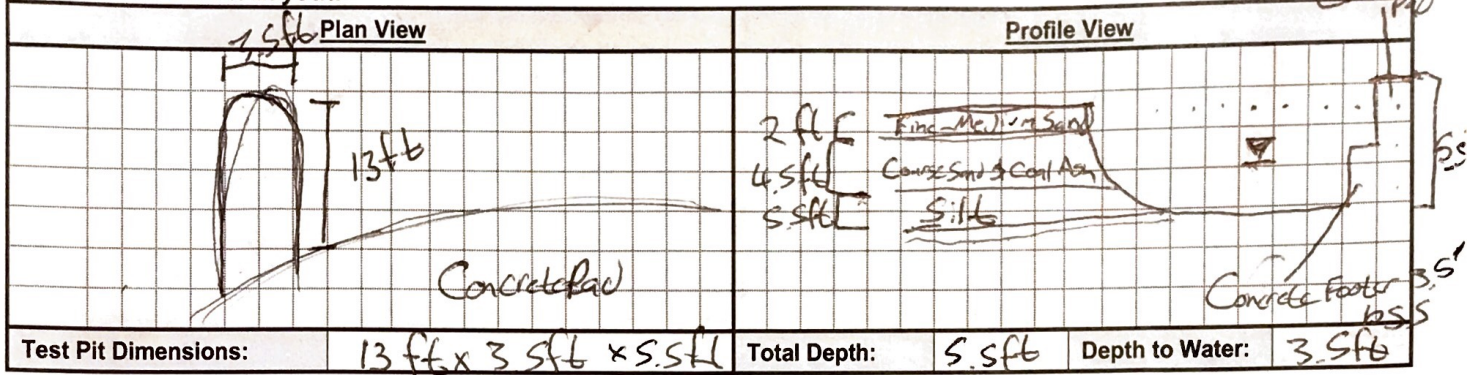


ARCADIS

Test Pit Log

		Test Pit ID: TP-44R	
Client:	National Grid	Date:	4/24/19
Project:	Philly Core	Weather:	Sunny
Location:	Philadelphia PA	Temperature:	70's
Project #:		Wind:	light
Geologist:	E Green	Subcontractor:	Advanced Drilling
Coordinates:		Equipment:	Back Hoe

Sketch of Test Pit Layout:



Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0-2	0.2	0-1 Dark brown SAND, some Coal Cinders, little coarse sand, moist, loose 1-2 Light brown medium SAND, little coarse sand, little subrounded fine gravel, moist, loose	
2-4	1.6	2-4 Brown coarse SAND, some Coal Ash, little Coal Clinker, loose, wet. water table at 3.5 ft bgs	
4-5.5	62.1	4-5.5 SAA water table at 3.5 ft bgs 4-5.5 Gray fine SAND, some silt, trace coarse sand, wet, loose petroleum like odor	

Notes:

NA = Not Available/Applicable; bgs = below ground surface.
 Concrete pad greater than 5.5 ft.
 Concrete footer to pad extends from 3.5 ft to more than 5.5 ft.
 * No samples collected because samples were collected during TP-44R boring

On 4/22/19

Photograph Summary:

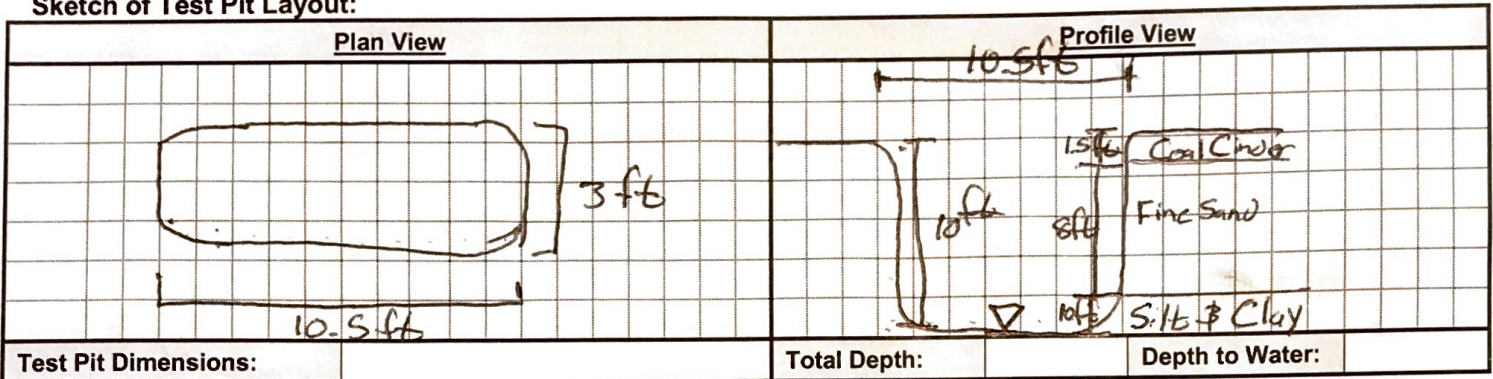


Test Pit Log 1 of 2

Test Pit ID: PCTP-66R

Client:	National Grid	Date:	4/24/19
Project:	Philly Coke	Weather:	sunny
Location:	Philadelphia PA	Temperature:	60's
Project #:		Wind:	Light
Geologist:	E Green	Subcontractor:	Advanced Drilling
Coordinates:		Equipment:	Back hoe

Sketch of Test Pit Layout:



Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0-2	3.6	0-1.5 Black COAL CINDER, little coal fragments, trace coal tar, very dense, solid, trace fine sand, brown sub rounded fine gravel, moist, loose, faint coal tar like odor 1.5-2 Tan Fine SAND, little Coal Cinder, trace coarse sand,	(0-0.5) ID PCTP-66R Time 0900 ID SO-DUP-0424 Time, -? -
2-4	0.1	loose, moist 2-4 Tan Fine sand, little sub rounded fine Gravel, little Coal Cinder, loose, moist	ID PCTP-66R (0.5-2.0) Time 0910
4-6	0.0	4-6 SAA	

Notes:

NA = Not Available/Applicable; bgs = below ground surface.

Test pit completed to 10ft due to cave in

Duplicate sample collected over 0-0.5 ft interval

Photograph Summary:

		Test Pit Log 2 of 2	
		Test Pit ID: <i>PCTP-66R</i>	
Client:	<i>National Grid</i>	Date:	<i>4/24/19</i>
Project:	<i>Philly Coke</i>	Weather:	<i>Sunny</i>
Location:	<i>Philadelphia PA</i>	Temperature:	<i>60's</i>
Project #:		Wind:	<i>Light</i>
Geologist:	<i>E Green</i>	Subcontractor:	<i>Advanced Drilling</i>
Coordinates:		Equipment:	<i>Back hoe</i>

Sketch of Test Pit Layout:

Plan View	Profile View
<p style="font-size: 24pt;"><i>See page 1</i></p>	
Test Pit Dimensions: 	Total Depth:
	Depth to Water:

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
<i>6-8</i>	<i>0.2</i>	<i>6-7.75 SAA 7.75-8 Gray Fine SAND, trace coarse sand, trace silt, loose, moist-wet</i>	
<i>8-10</i>	<i>21.6</i>	<i>8-10 Gray SILT & CLAY some fine sand low plasticity moderately strong petroleum like odor, water table at 10ft bgs.</i>	<i>PCTP-66R(8-10) Time 0930</i>

Notes:

NA = Not Available/Applicable; bgs = below ground surface.

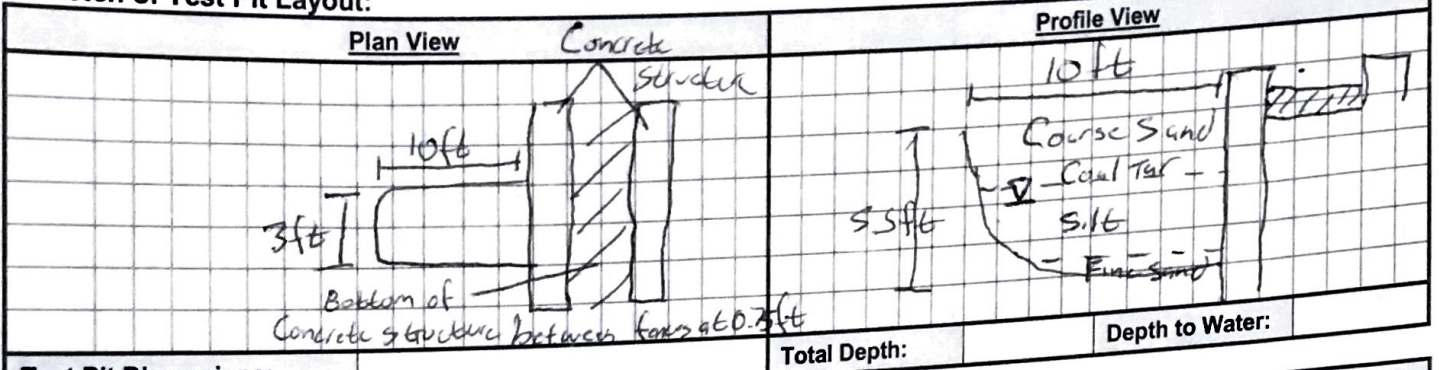
Photograph Summary:



Test Pit Log

Client: National Grid		Test Pit ID: S-107	
Project: Philly Coke		Date: 4/23/15	Weather: 80's Sunny
Location: Philadelphia PA		Temperature:	Wind: Light
Project #:		Subcontractor: Advanced Drilling	Equipment: Track Hoop
Geologist: E. Green			
Coordinates:			

Sketch of Test Pit Layout:



Test Pit Dimensions:

Total Depth:

Depth to Water:

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0-2	0.2	0-2 Brown Coarse SAND, little Fine-medium sand, little Coal Ash, loose, moist	
2-4	18.8	2-4 Light brown fine SAND, little subrounded fine sand, little Coal Clinker, Coal Tar at 3ft bgs, loose, wet Gw at 3.5ft bgs, very strong Coal Tar like odor	ID S-107 (2-4) Time 1335
4-5.5	0.4	4-5 Gray SILT, some fine Sand, little sub angular fine Gravel, Brick fragments, fine Coal Clinker, loose, wet 5-5.5 Light brown fine Sand, little coarse Sand, trace Coal Clinker, loose-medium dense, wet	ID S-107 (4-5.5) Time 1345

Notes:

NA = Not Available/Applicable; bgs = below ground surface.
 Test pit completed to 5.5ft bgs due to cave in. Concrete structure extend more than 5.5ft bgs. Floor of concrete structure between concrete walls is below 0.75ft of soil.

Photograph Summary:

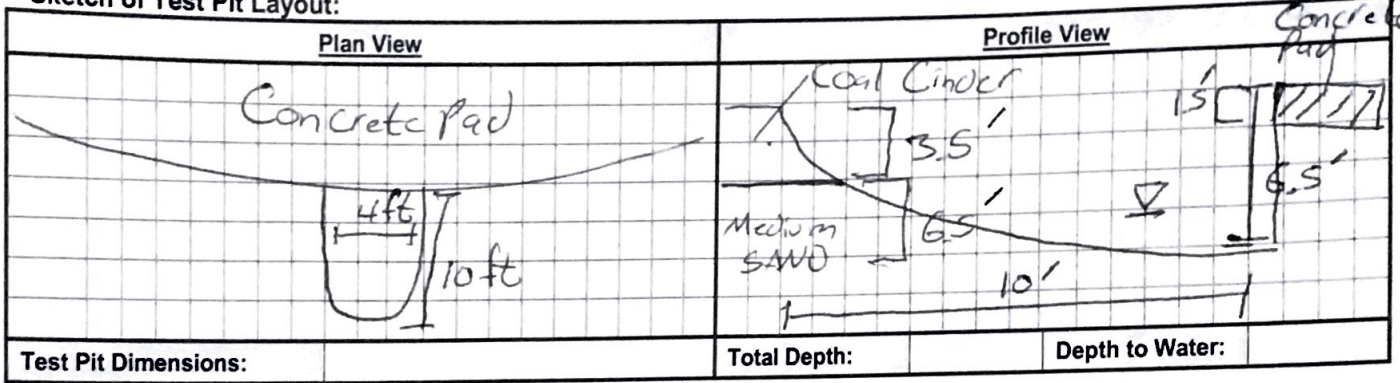


Test Pit Log

Test Pit ID: S-111

Client:	National Grid	Date:	4/23/19
Project:	Philly Coke	Weather:	Sunny
Location:	Philadelphia PA	Temperature:	70's
Project #:		Wind:	Light
Geologist:	EGreen	Subcontractor:	Advanced Drilling
Coordinates:		Equipment:	Back hoes

Sketch of Test Pit Layout:



Test Pit Dimensions:	Total Depth:	Depth to Water:
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Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0-2	0.1	0-2 Black COAL CINDER, some coarse sand, little coal ash, trace subangular fine gravel, moist, loose	
2-4	0.2	2-3.5 SAA 3.5-4 Light brown fine-medium sand, little coarse sand, little coal cinder, loose, moist-wet	ID S-111(2-4) TIME 1210
4-6.5	0.1	4-6.5 light brown fine-medium SAND, little coarse sand, little sub angular fine gravel & coal cinder, loose, wet. Water table at 6.5ft bgs	ID S-111(4.5-6.5) TIME 1220

Notes:

NA = Not Available/Applicable; bgs = below ground surface.

Test pit completed to 6.5ft bgs
Due to cave in

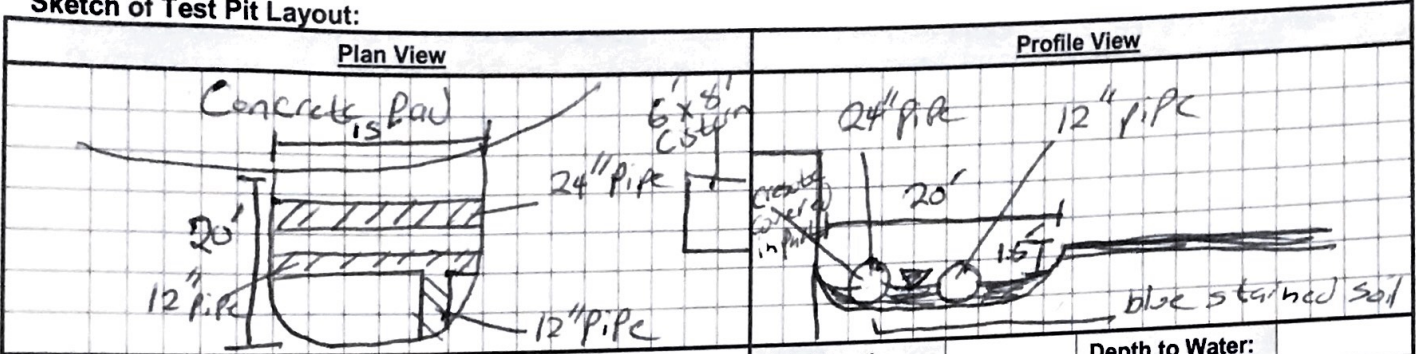
Photograph Summary:



Test Pit Log

Client:		Test Pit ID: S-113	
Project:	National Grid Philly Cove	Date:	4/23/19
Location:	Philadelphia PA	Weather:	Sunny
Project #:		Temperature:	70°
Geologist:	E. Green	Wind:	Light
Coordinates:		Subcontractor:	Advanced Drilling
		Equipment:	Back hoe

Sketch of Test Pit Layout:



Test Pit Dimensions:	Total Depth:	Depth to Water:
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Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
		0-1 Blue stain Coarse SAND, some sub-rounded fine gravel, 24" pipe covered in solid coat for found 1ft bgs wt at 1ft bgs, loose, wet, wet, loose	
		*Crescent wrapped pipe only located in some areas around 24" pipe. Blue staining stained sand only found in first 1 bgs immediately around the 24" pipe	

Notes:

NA = Not Available/Applicable; bgs = below ground surface.

3 Ppes located within test pit.
One 24" & two 12"

Photograph Summary:

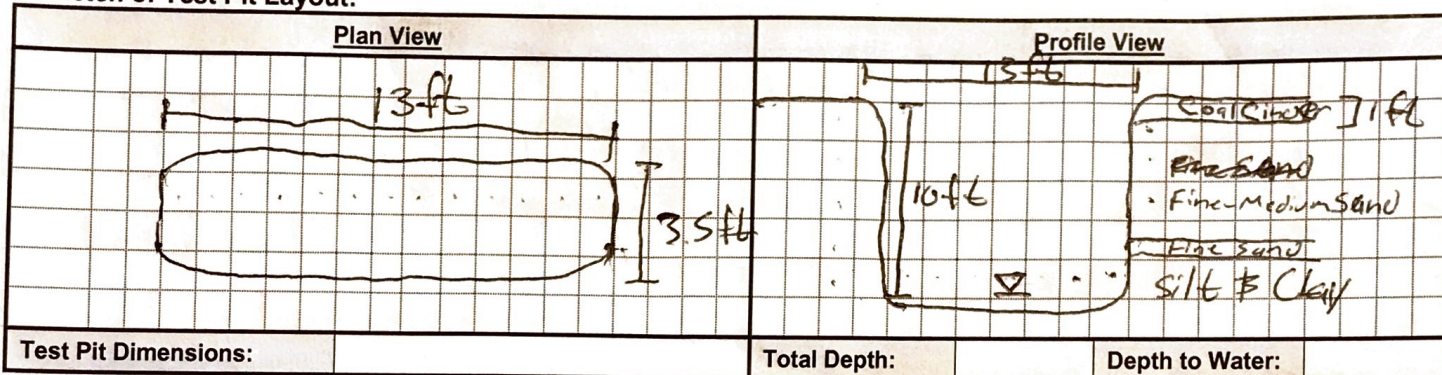


Test Pit Log 1 of 2

Test Pit ID: S-120

Client:	National Grid	Date:	4/24/19
Project:	Philly Core	Weather:	Sunny
Location:	Philadelphia PA	Temperature:	70's
Project #:		Wind:	Light
Geologist:	E Green	Subcontractor:	Advanced Drilling
Coordinates:		Equipment:	Backhoe

Sketch of Test Pit Layout:



Test Pit Dimensions:		Total Depth:		Depth to Water:	
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Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0-2	0.2	0-1 Black COAL CINDER, little Coal fragments, little Coarse Sand, loose, moist-dry. 1-2 Brown Fine-medium SAND, little rounded fine Gravel, little cinders	IO S-120 (0-1) Time 1050
2-4	0.1	loose, moist 2-4 SAND, red	
4-6	0.1	4-6 Brown medium SAND, little subrounded fine Gravel, loose, moist	

Notes:

NA = Not Available/Applicable; bgs = below ground surface.

Photograph Summary:

DRAFT

		<h1>Test Pit Log</h1>	
		2012	
Test Pit ID:			
Client:	National Grid	Date:	4/24/14
Project:	Phillix Core	Weather:	70's
Location:	Philadelphia PA	Temperature:	Sunny
Project #:		Wind:	Light
Geologist:	E Green	Subcontractor:	Advanced Drillings
Coordinates:		Equipment:	BUCK HOLE

Sketch of Test Pit Layout:

Plan View	Profile View
See Page 1	
Test Pit Dimensions:	Total Depth: Depth to Water:

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
6-8	0.8	6-7.0 SAA 7-7.5 Gray fine SAND, some silt, loose-medium dense, moist-wet 7.5-8 Gray low plasticity SILT & CLAY, medium stiff, moist-wet	
8-10	3.0	Some fine sand, very faint petroleum like odor 8-10 SAA	
		Water table at 9.5ft	

Notes:

NA = Not Available/Applicable; bgs = below ground surface.

Photograph Summary:

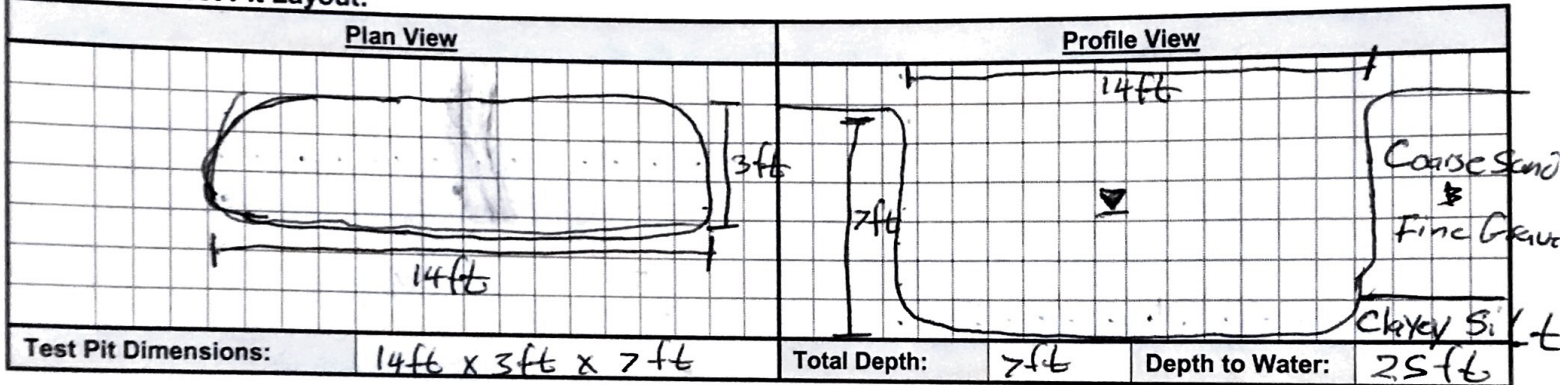


Test Pit Log

10 of 2

Client:		Test Pit ID: S-141	
Project:	National Grid Philly Coke	Date:	4/25/19
Location:	Philadelphia PA	Weather:	60's, Sunny
Project #:		Temperature:	Sunny
Geologist:	E Green	Wind:	None
Coordinates:		Subcontractor:	Advanced Drilling
		Equipment:	Back Hoe

Sketch of Test Pit Layout:



Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0-2	0.2	0-2 Gray Coarse SAND, some subrounded fine gravel, little coal cinder, little fine sand, trace coal clinker, wet, loose	
2-4	0.1	2-4 Brown Coarse SAND, some coal cinder, little subrounded fine gravel, little coal cinder, trace fine sand, wet, loose water table at 2.5ft bgs	
4-6	0.1	4-6 Gray medium-coarse SAND, some subrounded fine gravel, little coal cinder, little coal clinker, little fine sand, loose, wet	

Notes:

NA = Not Available/Applicable; bgs = below ground surface.

NO visual impacts or elevated PID readings noted in S-141 therefore no samples were collected

Photograph Summary:



Test Pit Log 2 of 2

Client:	National Grid	Test Pit ID:	S-141
Project:	Philly Cox	Date:	4/25/19
Location:	Philadelphia PA	Weather:	Sunny
Project #:		Temperature:	60's
Geologist:	E. Green	Wind:	Light
Coordinates:		Subcontractor:	Advanced Drillings
		Equipment:	Back Hoe

Sketch of Test Pit Layout:

Plan View	Profile View
See page 1	

Test Pit Dimensions:	14x3x7 ft	Total Depth:	> 7 ft	Depth to Water:	2.5 ft
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Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
6-7	6.2	6-7 Light gray silt, some very low plasticity clay, little fine sand, soft, wet	

Notes:

NA = Not Available/Applicable; bgs = below ground surface.

Photograph Summary:

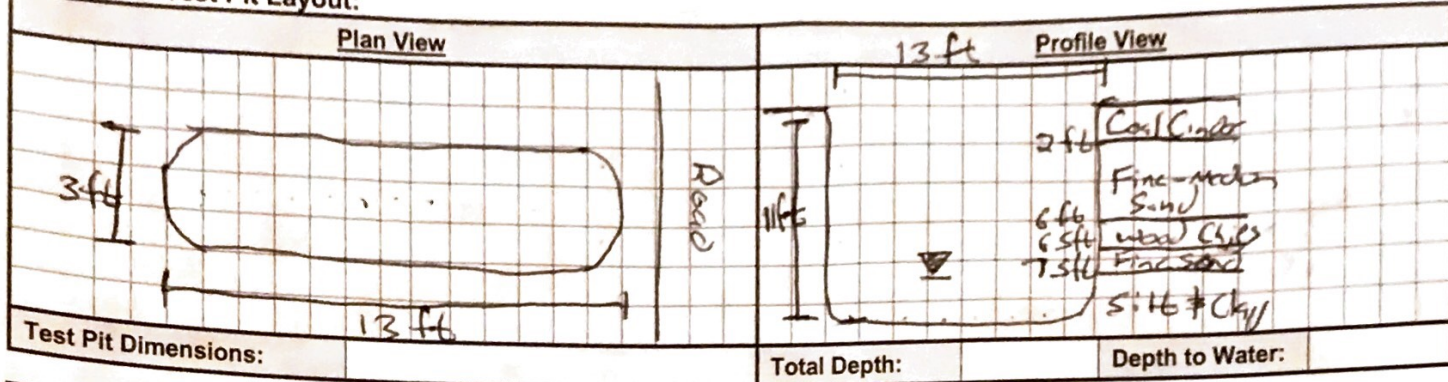
Photo No.	Description



Test Pit Log 1 of 2

Client: National Grid		Test Pit ID: 5-142	
Project: Philly ctc		Date: 4/25/14	Weather: Overcast
Location: Philadelphia PA		Temperature: 60's	Wind: Light
Project #:		Subcontractor: Advanced Drilling	Equipment: Back Hoe
Geologist: EGreen			
Coordinates:			

Sketch of Test Pit Layout:



Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0-2	0.2	0-2 Black COAL CINDER little coarse Sand, little sub rounded fine Gravel, little Coal fragments most, loose	
2-4	0.2	2-2.5 SAA 2.5-4 Brown fine-med. sm SAND, little Coal cinder little sub angular fine Gravel trace Coal Cinders, trace Coal fragments, loose, moist	
4-6	0.3	4-5 SAA 5.5-6 Dark gray SILT, little woody debris, little very low plasticity clay, high weathered/decomposed wood chips at 6 ft bgs No signs of blue staining	

Notes:

NA = Not Available/Applicable; bgs = below ground surface.
 Sample collected from wood chips, possible perforator waste, & first clean sample
 *MS/MSD collected over 2-4 ft interval
 * 6-6.5 ft sample only sampled for cyanide

Photograph Summary:



Test Pit Log

2022

Test Pit ID: S-142

Client:	National Grid	Date:	4/25/17
Project:	philly coke	Weather:	Over casts
Location:	Philadelphia PA	Temperature:	60's
Project #:		Wind:	Light
Geologist:	EGreen	Subcontractor:	Advanced Drilling
Coordinates:		Equipment:	Back Hoe

Sketch of Test Pit Layout:

Plan View	Profile View
See page 1	
Test Pit Dimensions:	Total Depth: Depth to Water:

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
6-8	0.4	6-6.5 Light tan highly decomposed wood CHIPS wet, loose 6.5-7.5 Gray fine SAND, little silt, loose, wet 7.5-8 Gray low plasticity SILT & CLAY, little fine sand	ID S-142(6-6.5) Time 1030
8-10	0.2	soft, moist - wet water table at 7.5ft bgs 8-11 Gray low-medium plasticity SILT & CLAY, trace fine sand, soft, wet	ID S-142(7-8) Time 1040 MS/MSD collected
10-11	0.2	* water Table at 7.5 ft bgs	ID S-142(7-8)MS ID S-142(7-8)MS

Notes:

NA = Not Available/Applicable; bgs = below ground surface.

Photograph Summary:

LOG of BORING No. B-1

DATE 10/15/86 SURFACE ELEVATION _____ LOCATION See Plate 2

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	HNU SOIL (ppm)
0								
29			Black coarse to fine SAND with some slag, brick fragments, little gravel, dry, dense - very dense - some coal, concrete fragments, saturated, strong odor, oily sheen, loose (FILL)					31
47								36
5	7							60
15								37
10		3	Dark gray CLAY, some silt, very soft					
15								

Completion Depth 12 Feet Water Depth 4.3 Feet Date 10/20/86
 Project Name Philadelphia Coke Plant, Philadelphia, PA Project Number 84C2145-A

WCC - RP 1

LOG of BORING No. B-2

DATE 10/15/86 SURFACE ELEVATION _____ LOCATION See Plate 2

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	HNU SOIL (ppm)
0		32	Black FILL, with coal, slag and brick fragments, some gravel, little silt and sand, dry, dense					15
		50						14
5		15	- with coarse to medium sand, moist, medium dense					27
		15	- saturated, bottom 3" silt some clay, oily sheen					
10		4	Light and dark gray laminated SILT and CLAY, increasing clay with depth					32
		2	- medium gray clay, some silty partings					
15								

Completion Depth 12' Feet Water Depth 6.5 Feet Date 10/20/86
 Project Name Philadelphia Coke Plant, Philadelphia, PA Project Number 84C2145-A

WCC - RP 1

LOG of BORING No. B-3

DATE 10/16/86 SURFACE ELEVATION _____ LOCATION See Plate 2

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	HNU SOIL (ppm)
0			Concrete					
16			Black coarse to fine SAND, some silt, some coal and rock fragments, dry, medium dense					1
29			-moist					1
5								
8			Medium to dark gray SILT with some clay, soft, saturated					
4			-increasing clay content with depth					
10								
15								

Completion Depth 9 Feet Water Depth 6 Feet Date 10/20/86
 Project Name Philadelphia Coke Plant, Philadelphia, PA Project Number 84C2145-A

WCC - RP 1

LOG of BORING No. B-4

DATE 10/16/86 SURFACE ELEVATION _____ LOCATION See Plate 2

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	HNU SOIL (ppm)
0		48	Black coarse to medium SAND, coal, cement fragments, some silt, dry, very dense -concrete 20 - 32"					*
5	1		Dark gray to black fine SAND with some silt very soft (2" recovery) -saturated					
10	2		Dark to medium gray CLAY with some silt, very soft					
15	0		* HNU readings not taken					

Completion Depth 12 Feet Water Depth 6.5 Feet Date 10/20/86
 Project Name Philadelphia Coke Plant, Philadelphia, PA Project Number 84C2145-A

WCC - RP 1

LOG of BORING No. B-5

DATE 10/16/86 SURFACE ELEVATION _____ LOCATION See Plate 2

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	HNU SOIL (ppm)
0								
7			Dark gray to black SAND, some silt, brick and coal fragments, dry, loose					*
6			-increasing coarse sand					
5	10		-dark gray to brown medium to fine sand					
13			-with some gravel, trace clay, saturated strong odor					
10	6		-black sand, some silt, oily sheen					
	3		Viscous, Tar-like material					
	1		Dark to medium gray CLAY with some silt					
15			* HNU readings not taken					

Completion Depth 14 Feet Water Depth 5.5 Feet Date 10/20/86
 Project Name Philadelphia Coke Plant, Philadelphia, PA Project Number 84C2145-A

LOG of BORING No. B-6

DATE 10/16/86 SURFACE ELEVATION _____ LOCATION See Plate 2

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	HNU SOIL (ppm)
0			Brown coarse to medium SAND, coal fragments, some silt					*
			CONCRETE					
26			Brown to dark gray coarse to medium SAND, some silt and coal fragments, dry, dense					
5	10		-saturated, oily sheen, strong odor					
6								
10	5		Dark to medium gray SILT, some clay					
			-increasing CLAY content					
15			* HNU readings not taken					

Completion Depth 10 Feet Water Depth 4.5 Feet Date 10/20/86
 Project Name Philadelphia Coke Plant, Philadelphia, PA Project Number 84C2145-A

WCC - RP 1

LOG of BORING No. B-7

DATE 10/16/86 SURFACE ELEVATION _____ LOCATION See Plate 2

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	HNU SOIL (ppm)
0								
33			Brown and gray mottled coarse to medium SAND some gravel, trace clay, concrete fragments dry, very dense					*
16			-with little coal fragments, moist strong odor					
5		8	-with slag fragments, saturated, strong odor					
8		8	-some black to dark gray silt					
4								
10		3	Medium to dark gray laminated SILT with some clay					
			Black CLAY some silt					
15			* HNU readings not taken					

Completion Depth 12 Feet Water Depth 5.5 Feet Date 10/20/86
 Project Name Philadelphia Coke Plant, Philadelphia, PA Project Number 84C2145-A

WCC - RP 1

LOG of BORING No. B-8

DATE 10/17/86 SURFACE ELEVATION _____ LOCATION See Plate 2

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	HNU SOIL (ppm)
0								
		28	Light brown coarse to medium SAND, some silt, little gravel					2
		24	-black to dark gray sand, with some brick, coal, and concrete fragments					2
5		37	very dense, dry					70
		8	-some wood fragments, moist					
		1	-saturated, oily sheen, bad odor					
10		WOH	Dark gray to black SILT and CLAY, very soft					
15								

Completion Depth 12 Feet Water Depth 6.5 Feet Date 10/20/86
 Project Name Philadelphia Coke Plant, Philadelphia, PA Project Number 84C2145-A

WCC - RP 1

LOG of BORING No. B-9

DATE 10/17/86 SURFACE ELEVATION _____ LOCATION See Plate 2

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	HNU SOIL (ppm)
0								
		22	Black and brown coarse to fine SAND, some brick and slag fragments, dry, dense					3
		5						11
5		8	-16" layer white to light gray coarse to medium sand sized material, cemented (lime)					4
		10						
		5	-black to dark gray medium to fine sand saturated					
10			-Black medium to fine sand and silt very strong odor					
15								

Completion Depth 10 Feet Water Depth 5.5 Feet Date 10/20/86
 Project Name Philadelphia Coke Plant, Philadelphia, PA Project Number 84C2145-A

WCC - RP 1

LOG of BORING No. W-3

DATE 3/26/85 SURFACE ELEVATION 11.5 Feet LOCATION See Plate 2

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	OTHER PPM TESTS SOILS
0								
7								ND
4			Black Fill. Coal, slag, very loose					ND
5		2		4.5				<1
2								ND
2			Very soft, black clay, trace silt, mica, and peat. Bad odor					18
10		4						880
2								>1000
2			Very soft, gray to black, clayey silt, trace mica	-2.5				220
15								
20								

Completion Depth 14 Feet Water Depth 3.5 Feet Date 3/26/85
 Project Name Philadelphia Coke Plant, Philadelphia, PA Project Number 84C2145

WC

LOG of BORING No. W-4

DATE 3/25/85 SURFACE ELEVATION 13.2 Feet LOCATION See Plate 2

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	OTHER PPM TESTS SOILS
0								
19			Brown to black, medium to fine sand, trace coarse sand, cement. (Fill) Trace clay at 2.5'					<1
13								ND ND
5			Small coal pocket at 5.5'					<1
3				4.2				350
10			Very soft, brown clay, trace sand, trace peat and shells	2.2				520
21								520 680
13			Dark gray, medium sand, some gravel and clay	-1.3				220
15			Soft brown clay, trace sand	-2.8				160
20								

Completion Depth 16 Feet Water Depth 6 Feet Date 3/25/85
 Project Name Philadelphia Coke Plant, Philadelphia, PA Project Number 84C2145

WCL

LOG of BORING No. W-5

DATE 10/15/86 SURFACE ELEVATION _____ LOCATION See Plate 2

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	HNU SOIL (ppm)
0								
		12	Black medium to fine SAND, some silt, little slag, moist, medium dense					0
		5	-little clay					1
5		10	-coarse to medium sand, some fine gravel					0
		10	-saturated					0
10		7	-gray to brown fine sand and silt little clay					2
		1	Medium brown to gray SILT, some clay					0
		4	-gray clay, little silt, soft					16
15		4						1
20								

Completion Depth 16 Feet Water Depth 6.5 Feet Date 10/20/86
 Project Name Philadelphia Coke Plant, Philadelphia, PA Project Number 84C2145-A

WCC - RP 1

LOG of BORING No. W-6

DATE 10/15/86 SURFACE ELEVATION 12.90 LOCATION See Plate 2

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	HNU SOIL (ppm)
0								
		36	Black to brown FILL, some medium to fine sand and gravel, little silt, dry very dense					198
		45						59
5		8	-black to gray coarse to medium sand, saturated, loose					180
		12	-black and brown mottled coarse to medium sand, some gravel, little silt					20
		10		3.40				16
10		4	Gray SILT, some clay, soft					12
		3	-dark gray clay, trace silt, little peat, silt partings, soft	-1.10				14
15								
20								

Completion Depth 14 Feet Water Depth 5 Feet Date 10/20/86
 Project Name Philadelphia Coke Plant Philadelphia, PA Project Number 84C2145-A

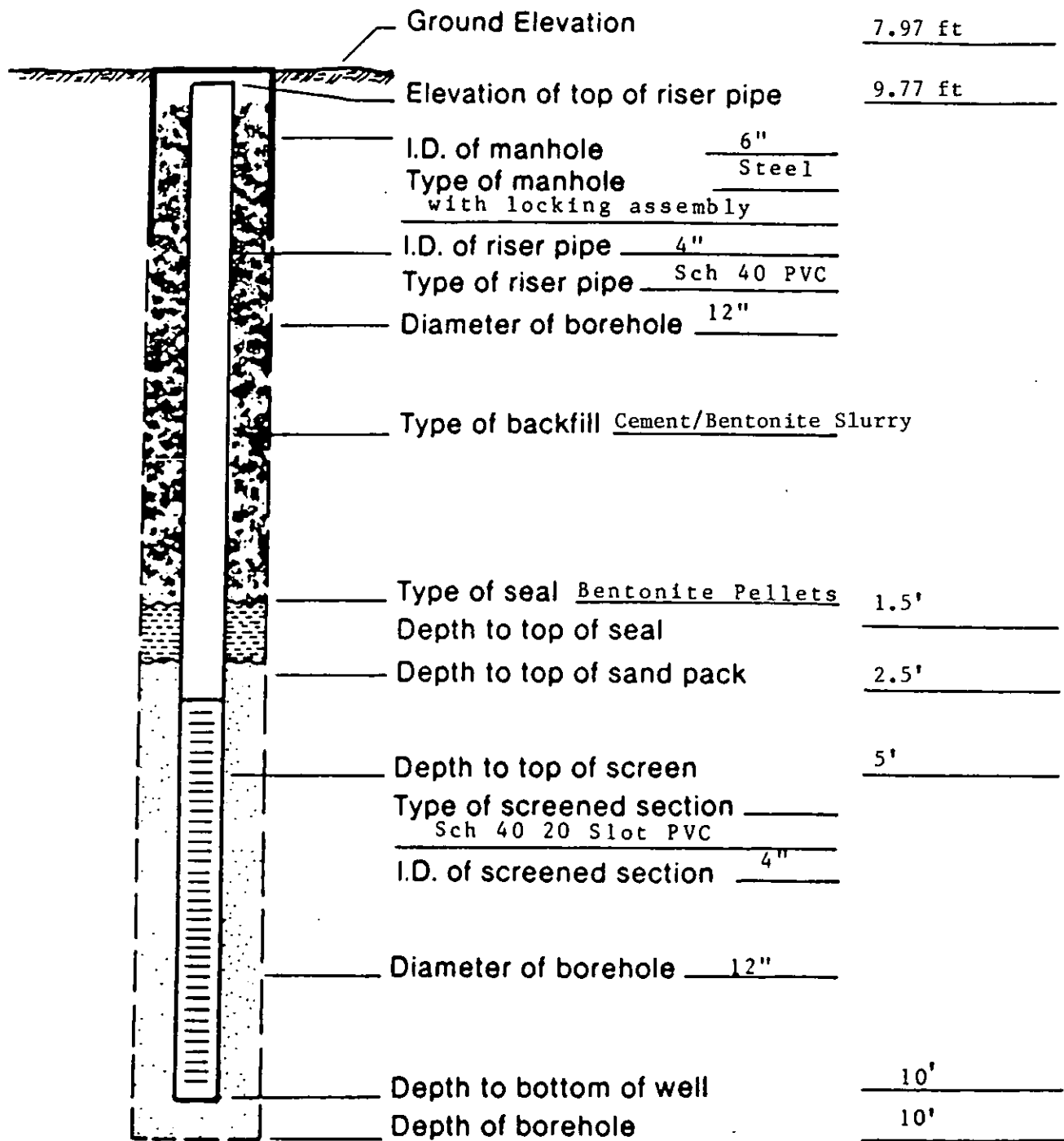
LOG of BORING No. MW-13

DATE 12/14/89 SURFACE ELEVATION 7.97' LOCATION N8504.36 E10,646.77

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	OTHER TESTS
0								
13			Dark brown/black silty fine to coarse sand with some gravel, cinders, some slag, red brick, moist, no odor.					
2								
8			Saturated at 3'					
4								
7								
6								
13								
8								
5								
10			Dark brown/black silty clay/clayey silt, moist, cohesive, organic debris (roots), no odor.					
3								
12			Augered to 12'					

Completion Depth 12 Feet Water Depth 3 Feet Date 12/14/89
 Project Name Philadelphia Coke Company Project Number 87C2839A-8

WCC - RP 1



Report of Monitoring Well

MW-13

Drawn by: T.P.

Project No.: 87C2839A-8

12/14/89

LOG of BORING No. MW-14

DATE 12/14/89

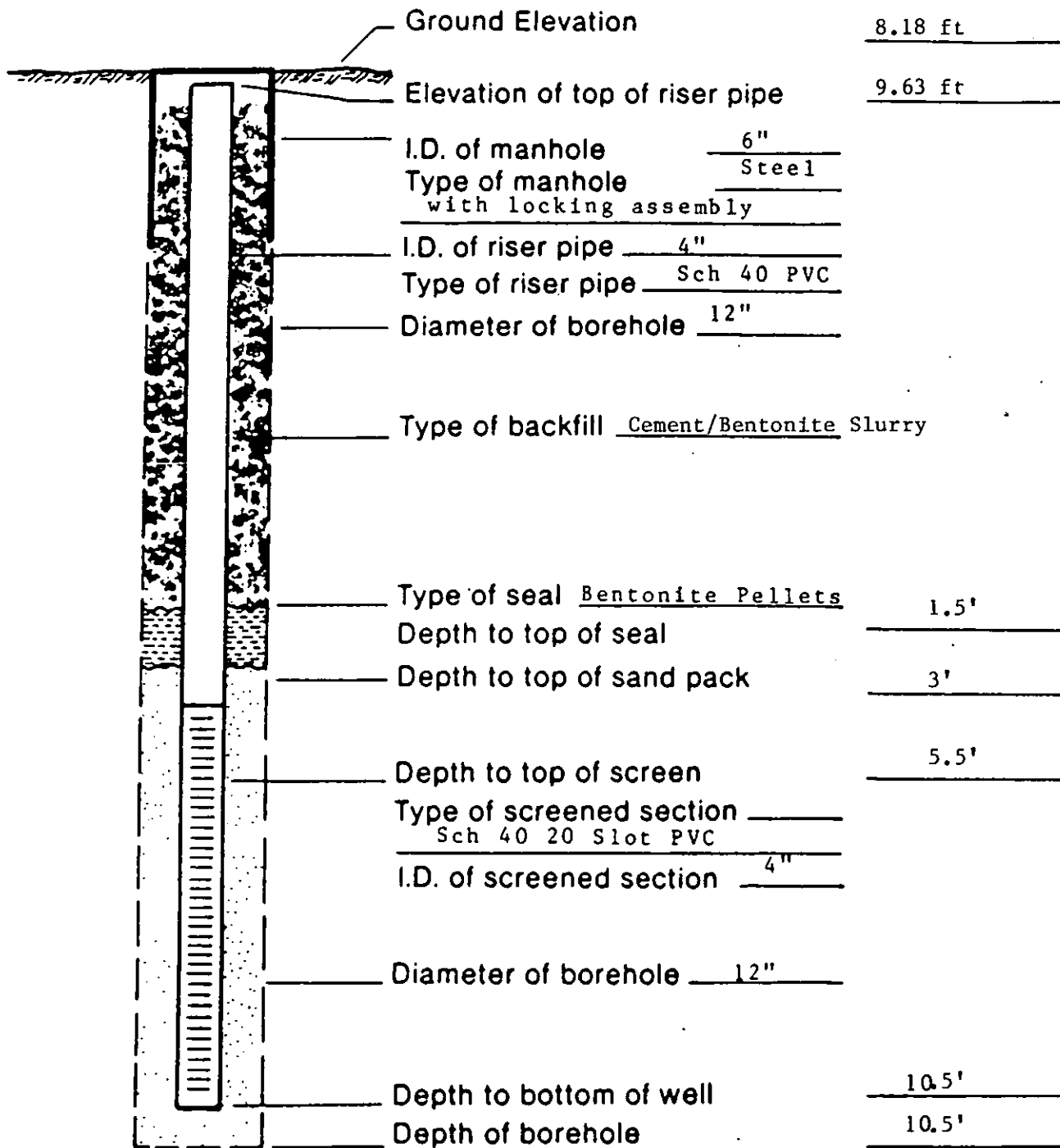
SURFACE ELEVATION 8.18'

LOCATION N 8341.35 E 10,274.58

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	OTHER TESTS
0								
2		33	Medium brown to black silty fine to coarse sand with some gravel (fill), cinders, coal fragments, some light gray pumice from cinder blocks, moist, no odor.					
4		60	Approximately 8" cinder layer.					
6		19	Saturated at 6'					
8		13						
9								
10			Dark brown cohesive silt in bottom of sample					
7			Dark brown black silty clay/clayey silt, moist, cohesive, some organic debris (roots), no odor.					
12			Augered to 12'					

Completion Depth 12 Feet Water Depth 6 Feet Date 12/14/89
 Project Name Philadelphia Coke Company Project Number 87C2839A-8

WCC - RP 1



Report of Monitoring Well

MW-14

Drawn by: T.P.

Project No.: 87C2839A-8

12/14/89

LOG of BORING No.

PW-1

DATE 3/15/90

SURFACE ELEVATION 9.34'

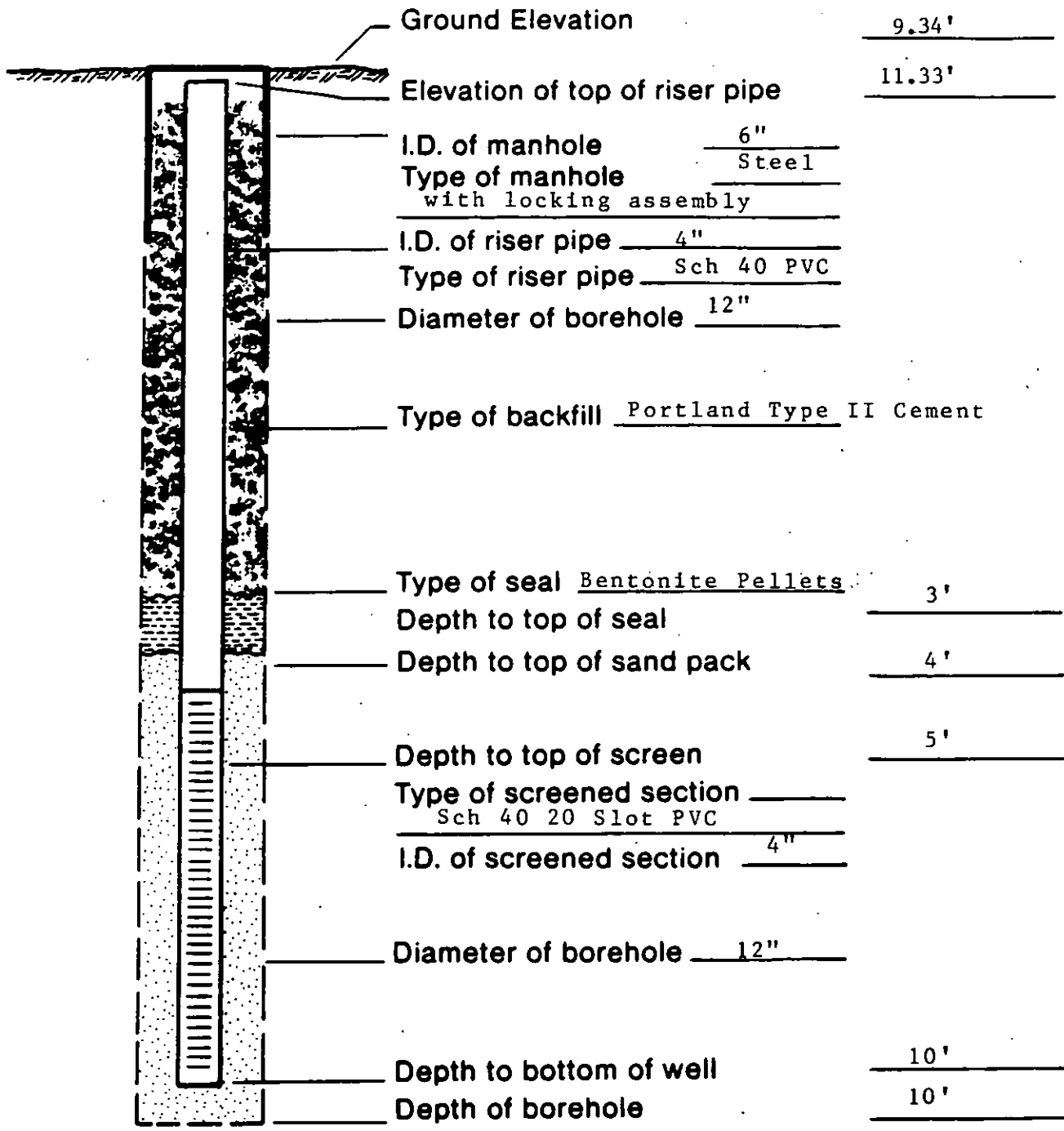
LOCATION N8513.46 E10,259.38

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	OTHER TESTS
0			Black, medium grained sand with gravel. Some black fines.					
16								
2			Moist, black, medium grained sand with gravel. Fewer fines.					
40								
4			Coarse grained sand with gravel, black, no fines.					
22			<div style="border-left: 1px solid black; padding-left: 5px;">Saturated at 5'.</div>					
6								
18								
8			Gravel graded downward to sand and silty sand. Gray-black in color.					
12								
10			Black silt layer at 9.5'.					
4								
12			Augered to 12'.					

Completion Depth 12 Feet Water Depth 5 Feet Date 3/15/90

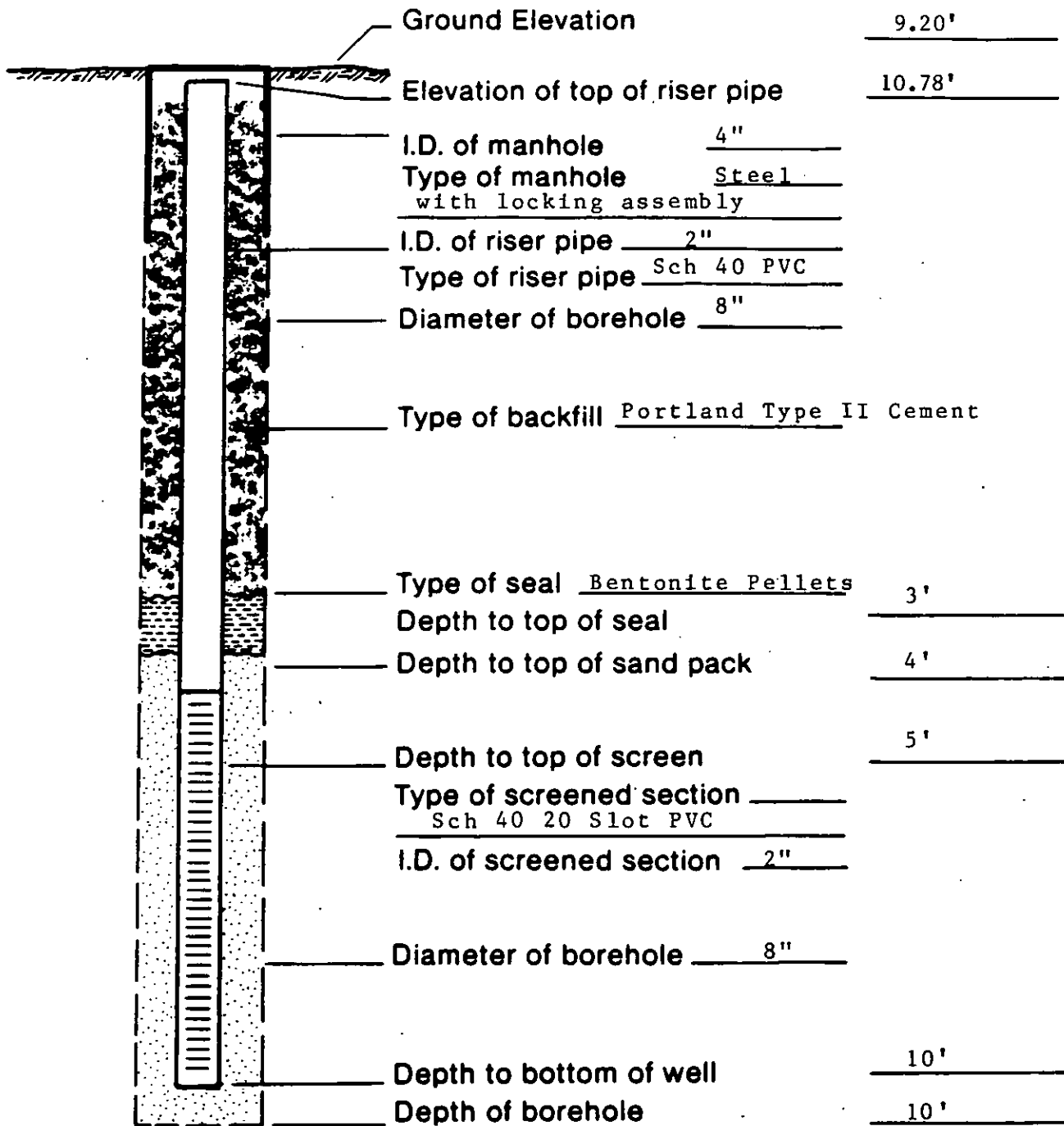
Project Name Philadelphia Coke Company Project Number 87C2839A-8

WCC - RP 1



Report of Monitoring Well

PW-1



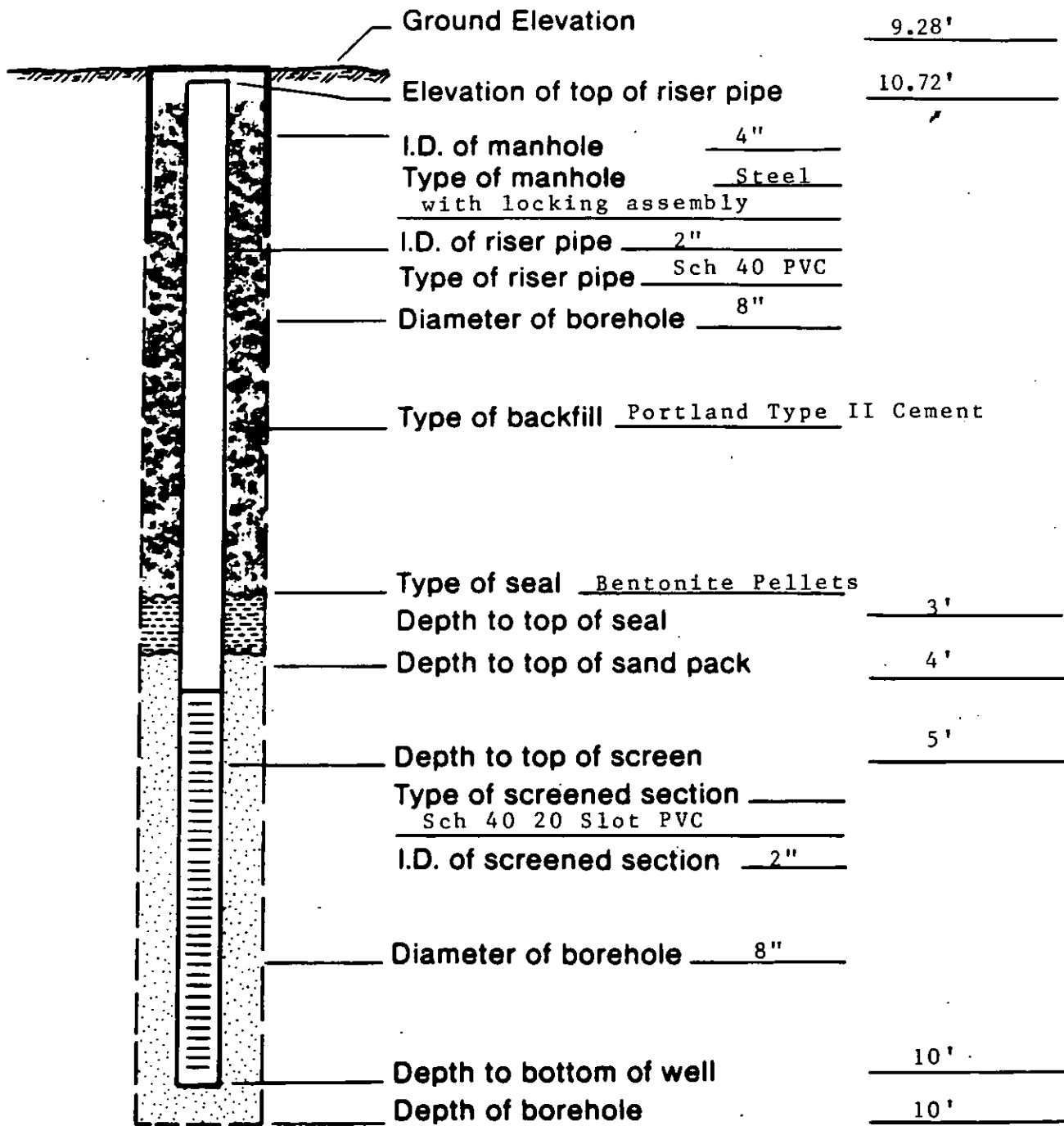
Report of Monitoring Well

P-1

Drawn by: T.P.

Project No.: 87C2839A-8

3/15/90



Report of Monitoring Well

P-2

Drawn by: T.P.

Project No.: 87C2839A-8

3/15/90

LOG of BORING No.

OB-1

DATE 3/15/90 SURFACE ELEVATION 8.58' LOCATION N8511.64 E10,460.56

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	OTHER TESTS
0								
		19	Moist, medium grained sand with gravel, black. Possible hardened product.					
2		6	Moist, medium grained sand and gravel. Some fines. Brown to black depending on oil staining.					
4		8	Fine to medium grained sand with silt. Some gravel. Brownish-black in color. Saturated at 5'.					
6		2	Very wet, fine to medium grained sand. Silt but less gravel. Black in color.					
8		3	No sample recovered.					
10		2	Black, fine to medium grained sand graded to silt.					
12			Silt at 11'. - Augered to 12'.					

Completion Depth 12 Feet Water Depth 5 Feet Date 3/15/90
 Project Name Philadelphia Coke Co. Project Number 87C2839A-8

WCC - RP 1

LOG of BORING No.

OB-2

DATE 3/15/90

SURFACE ELEVATION 8.57'

LOCATION N8662.44 E10,556.59

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	OTHER TESTS
0			Dry, black, fine grained sand to gravel.					
10								
2			Fine grained sand to gravel with fines, moist. Gray-black in color (Took sample off of auger possible product.)					
23								
4			No sample recovered.					
11								
6			Very wet, gray-black in color. Fine to medium grained sand and silt, little gravel.					
3								
8			Medium grained sand and gravel. A good percentage of fines, moist, black in color.					
3								
10			Fine to coarse grained sand & silt little gravel & black in color. Possible silt layer at 11'.					
3								
12			Fine to coarse grained sand & silt little gravel & black in color. Very wet, varied grain sizes from fines to gravels, black.					
3								
14			Augered to 14'.					

Completion Depth 14 Feet Water Depth approx 5 Feet Date 3/15/90
 Project Name Philadelphia Coke Co. Project Number 87C2839A-8

WCC - AP 1

LOG of BORING No.

OB-3

DATE 3/15/90

SURFACE ELEVATION 7.84'

LOCATION N8801.77 E10,743.63

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	OTHER TESTS
0								
17			Dry, hard, black, medium to coarse grained sand to gravel.					
2								
14			Fine to medium grained sand with little gravel. Higher percentage of fines, moist.					
4								
9			Saturated at 5.5' Wet, more milaceous fill with greenish-black color. Fine to medium grained sand.					
6								
6								
8								
18								
10			Silt layer at 9.8'. Augered to 10'.					

Completion Depth 10 Feet Water Depth 5.5 Feet Date 3/15/90
 Project Name Philadelphia Coke Company Project Number 87C2839A-8

WCC - RP 1

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 6'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 11, 2003
 DATE COMPLETED: March 11, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown fine to medium SAND, little silt, brick fragments (FILL)	FILL			
	PSSTP-01A (1'-2')	0.0	0.0						
2		0.0	0.0		Brown fine to medium SAND, little silt, Fill Material consisting of Brick, Concrete and Rebar (FILL)			Black Staining, Slight Petroleum-like Odor	
		0.0	0.0						
4		0.0	0.0						
	PSSTP-01B (5'-6')	0.0	0.0						
6		0.0	0.0				Concrete Foundation		

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 6'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 11, 2003
 DATE COMPLETED: March 11, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Light Brown fine to medium SAND, trace silt, brick fragments (FILL)	FILL			
	PSSTP-02A (1'-2')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0		Brown fine to medium SAND, little silt, little gravel, Fill Material consisting of Brick, Concrete and Wood (FILL)		Black Staining		
	PSSTP-02B (5'-6')	0.0	0.0						
6									

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 9'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 11, 2003
 DATE COMPLETED: March 11, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					Reddish Brown fine to medium SAND, little silt, Fill material consisting of Brick and Wood (FILL)	FILL			
1.2	PSSTP-03A (1'-2')	0.0	0.0						
2.0		0.0	0.0		Brown fine to medium SAND, trace silt, Fill Material consisting of Brick, Concrete and Wood (FILL)			Black Staining	
3.0		0.0	0.0						
4.0		0.0	0.0						
5.0		0.0	0.0						
6.0		0.0	0.0						
7.0		0.0	0.0						
8.0	PSSTP-03B (8'-9')	0.0	0.0						
8.5		0.0	0.0	▼					
10									

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 8'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 11, 2003
 DATE COMPLETED: March 11, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Light Brown fine to medium SAND, some silt, Fill material consisting of Brick and Rebar (FILL)	FILL			
1	PSSTP-04A (1'-2')	0.0	0.0						
2		0.0	0.0					Black Staining, Coal and Hardened Tar Fragments	
3		0.0	0.0						
4		0.0	0.0		Brown fine to medium SAND, Coal Fragments and Hardened Tar Fragments (FILL)				
5		0.0	0.0						
6		0.0	0.0						
7		0.0	0.0						
8	PSSTP-04B (8'-9')	5.3	0.0						

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 6'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 11, 2003
 DATE COMPLETED: March 11, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Light Brown fine to medium SAND, Fill material consisting of Ash and Cinders (FILL)	FILL			
	PSSTP-05A (1'-2')	0.0	0.0						
2		0.0	0.0		Brown fine to medium SAND, trace silt, little medium to coarse gravel (FILL)			Black Staining	
		0.0	0.0						
4		0.0	0.0						
	PSSTP-04B (5'-6')	0.0	0.0		Gray fine SAND, little medium to coarse gravel (FILL)				
6		0.0	0.0	▼					

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 6'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 11, 2003
 DATE COMPLETED: March 11, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Light Brown fine SAND, Fill material consisting of Ash and Cinders (FILL)	FILL		Black Staining	
1.5	PSSTP-06A (1'-2')	0.0	0.0						
2		0.0	0.0		Brown fine SAND, little silt (FILL)				
3.5		0.0	0.0						
4		0.0	0.0						
5.5	PSSTP-06B (5'-6')	0.0	0.0		Gray to Black fine SAND and silt (FILL)				
6		0.0	0.0	▼					

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

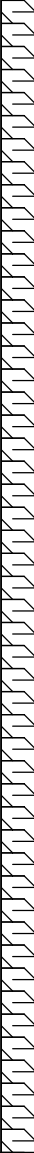
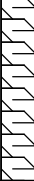

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 9'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 11, 2003
 DATE COMPLETED: March 11, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					Reddish Brown fine to medium SAND, trace silt, Fill material consisting of Brick, Concrete and Wood (FILL)		FILL		
1.5	PSSTP-07A (1'-2')	0.0	0.0						
2		0.0	0.0		Brown fine SAND, little silt (FILL)				
3		0.0	0.0						
4		0.0	0.0						
5		0.0	0.0						
6		0.0	0.0						
7		0.0	0.0						
8	PSSTP-07B (8'-9')	0.0	0.0		Gray to Black fine to medium SAND, trace silt, little fine ot medium gravel (FILL)				
9		0.0	0.0	▼					
10									

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 7'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 11, 2003
 DATE COMPLETED: March 11, 2003

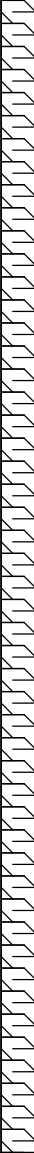

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Dark Brown fine to medium SAND, little silt, Fill material consisting of Brick, Concrete Metal and Wood (FILL)	FILL			
	PSSTP-08A (1'-2')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0						
6	PSSTP-08B (8'-9')	0.0	0.0		Ash and Cinders (FILL)				
		0.0	0.0						
8									

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 7'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 12, 2003
 DATE COMPLETED: March 12, 2003












DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Reddish Brown fine to medium SAND, trace silt, Fill material consisting of Brick, Concrete Metal and Wood (FILL)	FILL			
	PSSTP-09A (1'-2')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0						
6	PSSTP-09B (6'-7')	0.0	0.0						
		0.0	0.0						
8									

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 10'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 12, 2003
 DATE COMPLETED: March 12, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Dark Brown fine to medium SAND, some silt, topsoil (FILL)	FILL			
	PSSTP-10A (1'-2')	0.2	0.0		Reddish Brown fine to medium SAND and silt (FILL)				
2		0.4	0.0						
		0.4	0.0		Light Brown fine to medium SAND, little silt, some medium to coarse gravel (FILL)				
4		0.0	0.0						
		0.0	0.0						
6		0.0	0.0						
		0.0	0.0		Gray fine sand and silt, little fine gravel	SM			
8	PSSTP-10B (8'-9')	0.0	0.0						
		0.0	0.0	▼					
10		0.0	0.0						

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick


WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 9'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 12, 2003
 DATE COMPLETED: March 12, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					Asphalt and subbase				
					Brown fine to medium SAND, little silt (FILL)				
	PSSTP-11A (1'-2')	0.0	0.0		Fill Material consisting of Ash, Cinders, Coal and Hardened Tar Fragments (FILL)				
2		0.1	0.0						
					Brown fine to medium SAND, little silt (FILL)				
4		0.0	0.0						
6		0.0	0.0						
8	PSSTP-11B (8'-9')	0.0	0.0		Gray fine to medium SAND, some fine to medium gravel (FILL)				
		0.0	0.0	▼					
10									

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 8'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 12, 2003
 DATE COMPLETED: March 12, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Fill Material consisting of Ash, Cinders and Coal Fragments (FILL)	FILL			
	PSSTP-12A (1'-2')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0		Brown fine to medium SAND, trace silt, some fine to coarse gravel (FILL)				
4		0.0	0.0	▼					
		0.0	0.0						
6		0.0	0.0						
	PSSTP-12B (7'-8')	0.0	0.0						
8		0.0	0.0		Gray fine to medium SAND and fine to medium gravel (FILL)				

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 8'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 12, 2003
 DATE COMPLETED: March 12, 2003




DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown fine to medium SAND, trace silt (FILL)				
	PSSTP-13A (1'-2')	0.0	0.0		Fill Material consisting of Ash, Cinders and Coal Fragments (FILL)		FILL		
2		0.3	0.0						
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0						
6		0.0	0.0						
	PSSTP-13B (7'-8')	0.0	0.0		Gray fine to medium SAND and fine to medium gravel (FILL)				
8		0.0	0.0	▼					

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 8'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 12, 2003
 DATE COMPLETED: March 12, 2003




DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Fill Material consisting of Ash, Cinders and Coal Fragments (FILL)	FILL			
	PSSTP-14A (1'-2')	0.0	0.0						
2		0.0	0.0		Gray/Black fine to medium SAND, trace silt, little fine to medium gravel (FILL)				
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0						
6		0.0	0.0						
	PSSTP-14B (7'-8')	0.0	0.0						
8		0.0	0.0						

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 9'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 12, 2003
 DATE COMPLETED: March 12, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown fine to medium SAND, little silt, Fill Material consisting of Brick, Concrete, Metal and Wood (FILL)	FILL			
1	PSSTP-15A (1'-2')	0.0	0.0						
2		0.0	0.0						
3		0.0	0.0						
4		0.0	0.0		Fill Material consisting of Ash, Cinders and Coal fragments (FILL)				
5		0.0	0.0						
6		0.0	0.0						
7		0.0	0.0						
8	PSSTP-15B (8'-9')	4.0	0.0						
9		0.0	0.0						
10									

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 6'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 12, 2003
 DATE COMPLETED: March 12, 2003




DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Light Brown fine to medium SAND, some silt, organic material (FILL)	FILL			
1.5	PSSTP-16A (1'-2')	0.0	0.0						
2.0		0.0	0.0	▼	3/4" Stone and Brown fine to medium SAND, little silt (FILL)			Concrete Foundation (trapped water below foundation exhibits a sheen and a strong tar-like odor)	
3.5		0.0	0.0					Black Staining	
5.5	PSSTP-16B (5'-6')	0.0	0.0						
6.0		0.0	0.0						

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 11'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 12, 2003
 DATE COMPLETED: March 12, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Light Brown fine to medium SAND, some silt, Fill material consisting of Brick, Concrete, Metal and Wood (FILL)	FILL			
1	PSSTP-17A (1'-2')	0.0	0.0						
2		0.0	0.0						
3		0.0	0.0						
4		0.0	0.0						
5		0.0	0.0						
6		0.0	0.0						
7		0.0	0.0						
8	PSSTP-17B (8'-9')	0.0	0.0						
9		0.0	0.0		Gray silty sand	SM			
10		0.0	0.0						

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 7'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 12, 2003
 DATE COMPLETED: March 12, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown fine to medium SAND, little silt, Fill material consisting of Brick, Concrete, Metal and Wood (FILL)	FILL			
1	PSSTP-18A (1'-2')	0.0	0.0						
2		0.0	0.0						
3		0.0	0.0	▼			Foundation		
4		0.0	0.0						
5		0.0	0.0						
6	PSSTP-18B (6'-7')	0.0	0.0				Black Staining		
7		0.0	0.0						
8									

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick



WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 9'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 12, 2003
 DATE COMPLETED: March 12, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					Tan fine to medium SAND, little silt, Fill material consisting of Brick, Concrete, Metal and Wood (FILL)	FILL			
1	PSSTP-19A (1'-2')	0.0	0.0						
2		0.0	0.0						
3		0.0	0.0						
4		0.0	0.0						
5		0.0	0.0	▼	Brown fine to medium SAND, trace silt, Fill material consisting of Brick, Concrete, Metal and Wood (FILL)		Black Staining		
6		0.0	0.0						
7	PSSTP-19B (7'-8')	120	0.0						
8		0.0	0.0						
9		0.0	0.0						
10									

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick




WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 9'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 13, 2003
 DATE COMPLETED: March 13, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown fine to medium SAND, little silt, Fill material consisting of Brick, Concrete, Wood, Ash and Cinders (FILL)	FILL			
1.2	PSSTP-20A (1'-2')	0.0	0.0						
2		0.0	0.0						
4		0.0	0.0		Brown fine to medium SAND, little silt, little fine to medium gravel (FILL)				
6		0.0	0.0						
8	PSSTP-20B (8'-9')	0.0	0.0						
9		0.0	0.0						
10									

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 9'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 13, 2003
 DATE COMPLETED: March 13, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					Brown fine to medium SAND, little silt, Fill material consisting of Brick (FILL)	FILL			
1.2	PSSTP-21A (1'-2')	0.0	0.0						
2		0.0	0.0		Brown fine to medium SAND, little silt, Fill material consisting of Ash and Cinders (FILL)				
3		0.0	0.0						
4		0.0	0.0						
5		0.0	0.0						
6		0.0	0.0						
7		0.0	0.0						
8.8	PSSTP-21B (8'-9')	0.0	0.0						
9		0.0	0.0						
10									

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick











WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 8'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 13, 2003
 DATE COMPLETED: March 13, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown fine to medium SAND, little silt, Fill material consisting of Brick (FILL)	FILL			
	PSSTP-22A (1'-2')	0.0	0.0						
					Asphalt				
2		0.0	0.0		Fill material consisting of Ash and Cinders				
		0.0	0.0						
4		0.0	0.0	▼					
		0.0	0.0						
6		0.0	0.0				2" Layer of Tar		
		0.0	0.0						
8									

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

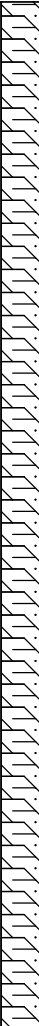
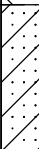
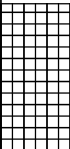

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 9'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 13, 2003
 DATE COMPLETED: March 13, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					Dark Brown fine to medium SAND, little silt, Fill material consisting of Brick, Concrete, Metal and Wood (FILL)	FILL			
1-2	PSSTP-23A (1'-2')	0.0	0.0		Tan sandy SILT, some medium to coarse gravel (FILL)				
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0		Fill material consisting of Ash, Cinders, Brick, Concrete, Metal and Wood (FILL)				
		0.0	0.0						
6		0.0	0.0						
	PSSTP-23B (7'-8')	0.0	0.0						
8		0.0	0.0						

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 8'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 13, 2003
 DATE COMPLETED: March 13, 2003


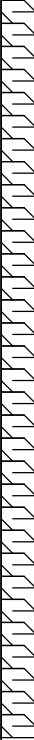

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Fill material consisting of Brick, Concrete, Metal, Wood, Ash, Cinders and Slag (FILL)	FILL			
	PSSTP-24A (1'-2')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0						
6		0.0	0.0		Cinders (FILL)				
		0.0	0.0						
	PSSTP-24B (7'-8')	0.0	0.0		Gray Sandy SILT	SC		Black Staining	
8		0.0	0.0						

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 8'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 13, 2003
 DATE COMPLETED: March 13, 2003




DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown fine to medium SAND, little silt, Fill material consisting of Brick (FILL)	FILL			
1	PSSTP-25A (1'-2')	0.0	0.0						
2		0.0	0.0						
3		0.0	0.0		Slag and Coke (FILL)				
4		0.0	0.0						
5		0.0	0.0						
6		0.0	0.0						
7	PSSTP-25B (7'-8')	0.0	0.0						
8		0.0	0.0						

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 8'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 13, 2003
 DATE COMPLETED: March 13, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown fine to medium SAND, little silt, Fill material consisting of Brick, Concrete, Metal and Wood (FILL)	FILL			
	PSSTP-26A (1'-2')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0						
6		0.0	0.0		Ash, Cinders, Hardened Tar Fragments (FILL)				
	PSSTP-26B (7'-8')	0.0	0.0						
8		0.0	0.0						

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 8'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 13, 2003
 DATE COMPLETED: March 13, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					Topsoil and Brick fragments (FILL)				
1-2	PSSTP-27A (1'-2')	0.0	0.0		Brown fine to medium SAND, some silt, Fill material consisting of Brick and Concrete (FILL)				
2		0.0	0.0						
3-5		0.0	0.0		Brown medium to coarse GRAVEL, some silt, Fill material consisting of Brick and Concrete (FILL)				
4		0.0	0.0						
5-6	PSSTP-27B (5'-6')	0.0	0.0					Sheen, Strong Petroleum-like Odor	
6		0.0	0.0	▼					
7		0.0	0.0						
8									

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 6'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 13, 2003
 DATE COMPLETED: March 13, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown fine to medium SAND, trace silt, little medium to coarse gravel	SP		Sheen, Slight Petroleum-like Odor	
	PSSTP-28A (1'-2')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0	▼					
	PSSTP-28B (5'-6')	0.0	0.0						
6		0.0	0.0						

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 6'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 13, 2003
 DATE COMPLETED: March 13, 2003

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown fine to medium SAND, trace silt, little medium to coarse gravel	SP		Sheen, Slight Petroleum-like Odor	
	PSSTP-28A (1'-2')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0	▼					
	PSSTP-28B (5'-6')	0.0	0.0						
6		0.0	0.0						

PROJECT NUMBER: 2522-212-074
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Target Environmental Co., Inc.
 EXCAVATION METHOD: Hydraulic Excavator
 OPERATOR:
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy 40 deg.
 TOTAL DEPTH: 6'
 GROUND SURFACE ELEVATION:
 DATE BEGUN: March 13, 2003
 DATE COMPLETED: March 13, 2003

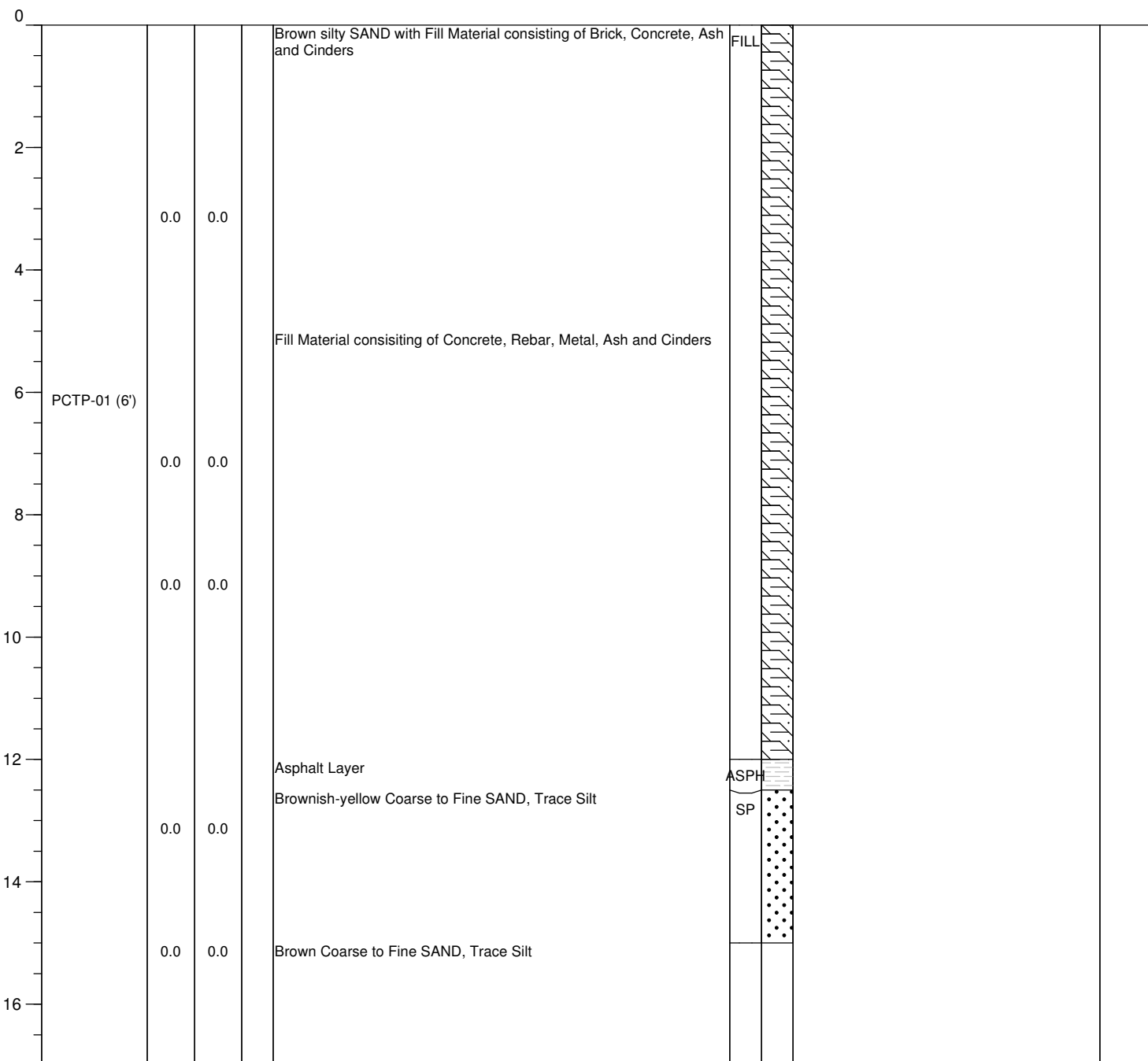
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown fine to medium SAND, trace silt, little medium to coarse gravel	SP		Sheen, Slight Petroleum-like Odor	
	PSSTP-28A (1'-2')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0	▼					
	PSSTP-28B (5'-6')	0.0	0.0						
6		0.0	0.0						

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Cloudy 35 deg. F
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 19.36'
 DATE BEGUN: February 8, 2005
 DATE COMPLETED: February 8, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Cloudy 35 deg. F
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 14.40'
 DATE BEGUN: February 8, 2005
 DATE COMPLETED: February 8, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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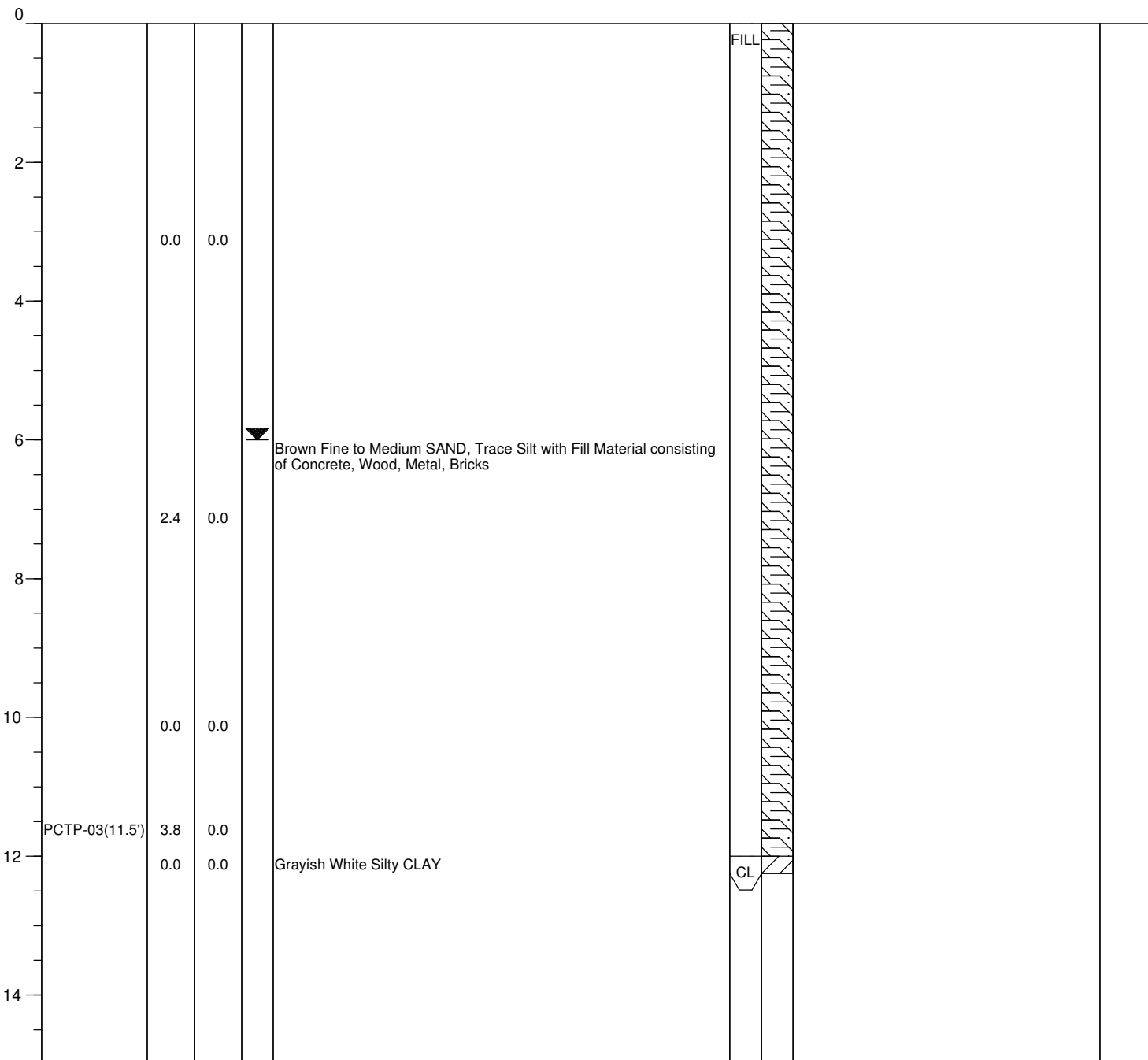
0					Brown Silty SAND with Fill Material consisting of Brick, Wood, Pipes and Concrete	FILL			
2		0.0	0.0						
4		0.0	0.0						
6	PCTP-02(5)			▼					
8		0.0	0.0		Pale Yellow Clayey SILT	ML			
10					Brownish-yellow Coarse to Fine SAND, trace Silt	SP			
12		0.0	0.0						
14									

8" Cast Iron Pipe

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Cloudy 50 deg. F
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 14.32'
 DATE BEGUN: February 15, 2005
 DATE COMPLETED: February 15, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Cloudy 50 deg. F
 TOTAL DEPTH: 13'
 GROUND SURFACE ELEVATION: 14.48'
 DATE BEGUN: February 15, 2005
 DATE COMPLETED: February 15, 2005

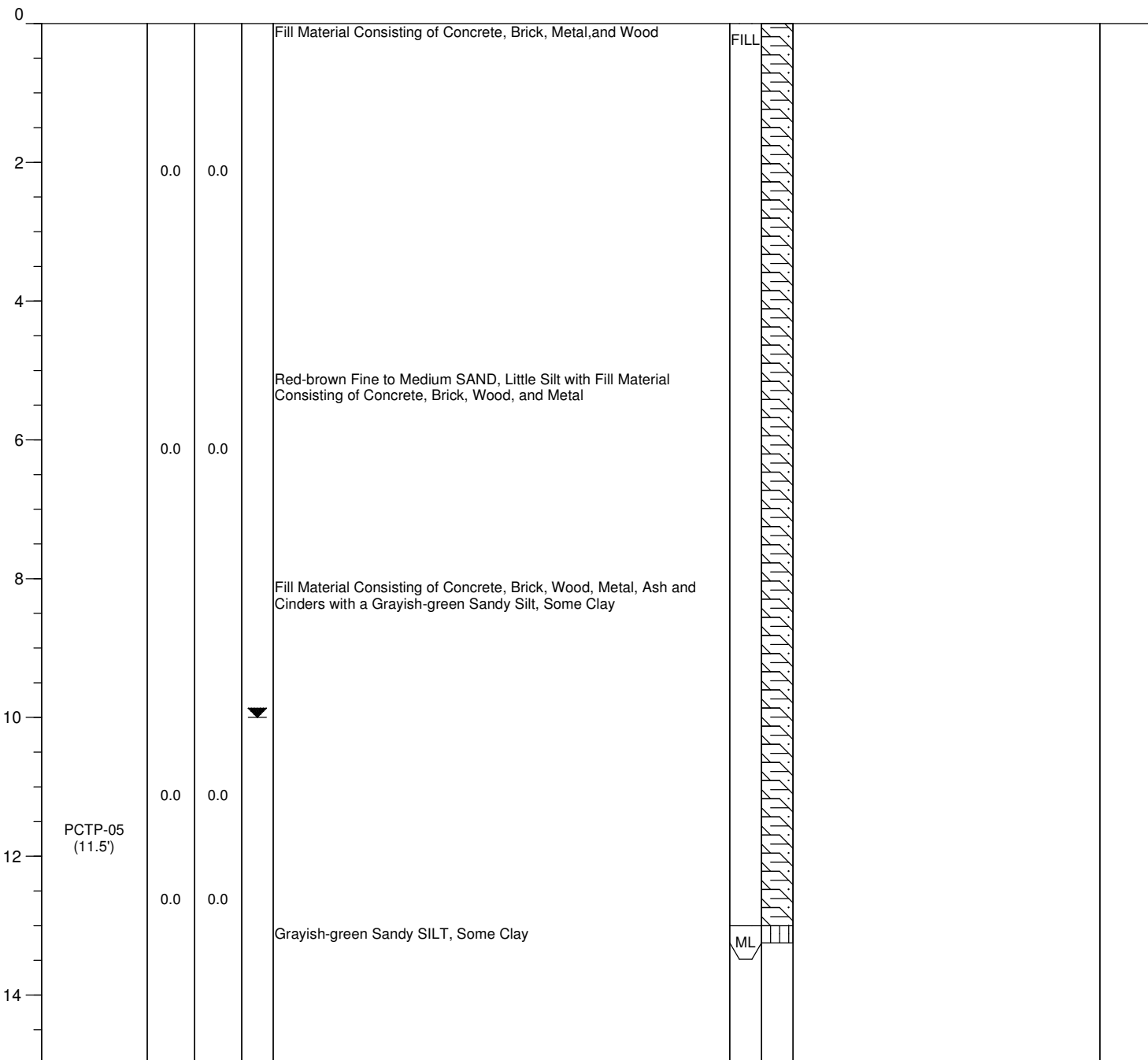
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0									
2					Red-brown Fine to Coarse SAND, Trace Silt with Fill Material Consisting of Concrete, Brick, Asphalt, Metal, Ash and Cinders		FILL		
4									
6		2.4	0.0						
8									
10									
12	PCTP-04 (12')	3.8	0.0		Tan Coarse to Fine SAND, Trace Silt				
14		0.0	0.0		Grayish white Silty CLAY	CL			

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Cloudy 50 deg. F
 TOTAL DEPTH: 13'
 GROUND SURFACE ELEVATION: 11.24'
 DATE BEGUN: February 15, 2005
 DATE COMPLETED: February 15, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Overcast 40 deg. F
 TOTAL DEPTH: 22'
 GROUND SURFACE ELEVATION: 13.79'
 DATE BEGUN: February 16, 2005
 DATE COMPLETED: February 16, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Light Brown Fine to Medium SAND, Little Silt with Fill Material Consisting of Concrete and Brick	FILL			
2		0.0	0.0		Red-brown Fine to Coarse SAND, Little Silt with Fill Material Consisting of Concrete, Brick, Wood, Metal, Ash and Cinders				
4					Concrete Slab				
6		1.1	0.0						
10				▼				Water Entering Test Pit Exhibits a Sheen	
12					Fill Material Consisting of Brick and Concrete with a mix of sand, silt and gravel			Moderate Petroleum-Like Odor and Slight Tar-Like Odor	
14								Moderate Petroleum-Like Odor and Slight Tar-Like Odor	
16	PCTP-06 (16')	24	0.0						
20		0.0	0.0		Gray Sandy Fine SILT with Schist fragments	MH		Moderate Petroleum-Like Odor and Slight Tar-Like Odor	
		0.0	0.0		Gray Fine to Medium SAND, Some Silt	OL			
22		0.0	0.0		Black Organic SILT				
24									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio










WEATHER: Windy 30 deg. F
 TOTAL DEPTH: 14'
 GROUND SURFACE ELEVATION: 13.70'
 DATE BEGUN: February 17, 2005
 DATE COMPLETED: February 17, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					Brown Fine to medium SAND, Some Silt with Fill Material consisting of Brick, Concrete and Rebar	FILL			
2		0.0	0.0		Ash and Cinders with 3/4" to 2" stone			Slight Combusted Petroleum-Like Odor	
4									
6		0.0	0.0						
8				▼				Strong Petroleum Odor, Sheen	
10								Strong Petroleum Odor, Sheen, Layer of Solidified Oil	
12	PCTP-07(12')	28.1	0.0					Strong Petroleum Odor, Sheen	
14	PCTP-07(14')	0.0	0.0		Gray Silty CLAY	CL			
16									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Cloudy 50 deg. F
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 12.34'
 DATE BEGUN: February 15, 2005
 DATE COMPLETED: February 15, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown Fine to Coarse SAND, Trace Silt with Fill material consisting of Wood, Metal, Concrete, Brick	FILL			
2		0.0	0.0						
4					Coal, Ash and Cinders				
5		0.0	0.0	▼					
6					Brown Fine to Medium SAND, Trace Silt with Fill Material consisting of Wood, Ash and Cinders				
8		0.0	0.0						
10									
10.5	PCTP-08(10.5')	0.0	0.0		Tan-gray Clayey SILT	CL			
12									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio





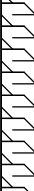
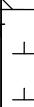

WEATHER: Cloudy/Rain 40 deg. F
 TOTAL DEPTH: 10'
 GROUND SURFACE ELEVATION: 13.19'
 DATE BEGUN: February 9, 2005
 DATE COMPLETED: February 9, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		0.0	0.0		Fill Material consisting of Ash, Cinders, Brick, Concrete, Metal and Glass	FILL		Combusted Petroleum-Like Odor	
2		0.0	0.0		Fill Material consisting of Ash, Cinders, Brick, Concrete, Metal and Glass with Brown Silty Sand			Combusted Petroleum-Like Odor	
4					Fill Material consisting of Ash, Cinders, Brick, Concrete, Metal and Glass			8" Cast Iron Pipe	
6		0.0	0.0	▼				Combusted Petroleum-Like Odor	
8	PCTP-09(7')				Gray Fine to Coarse SAND	CL			
10		0.0	0.0						
12									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Cloudy/Rain 40 deg. F
 TOTAL DEPTH: 11'
 GROUND SURFACE ELEVATION: 12.05'
 DATE BEGUN: February 9, 2005
 DATE COMPLETED: February 9, 2005

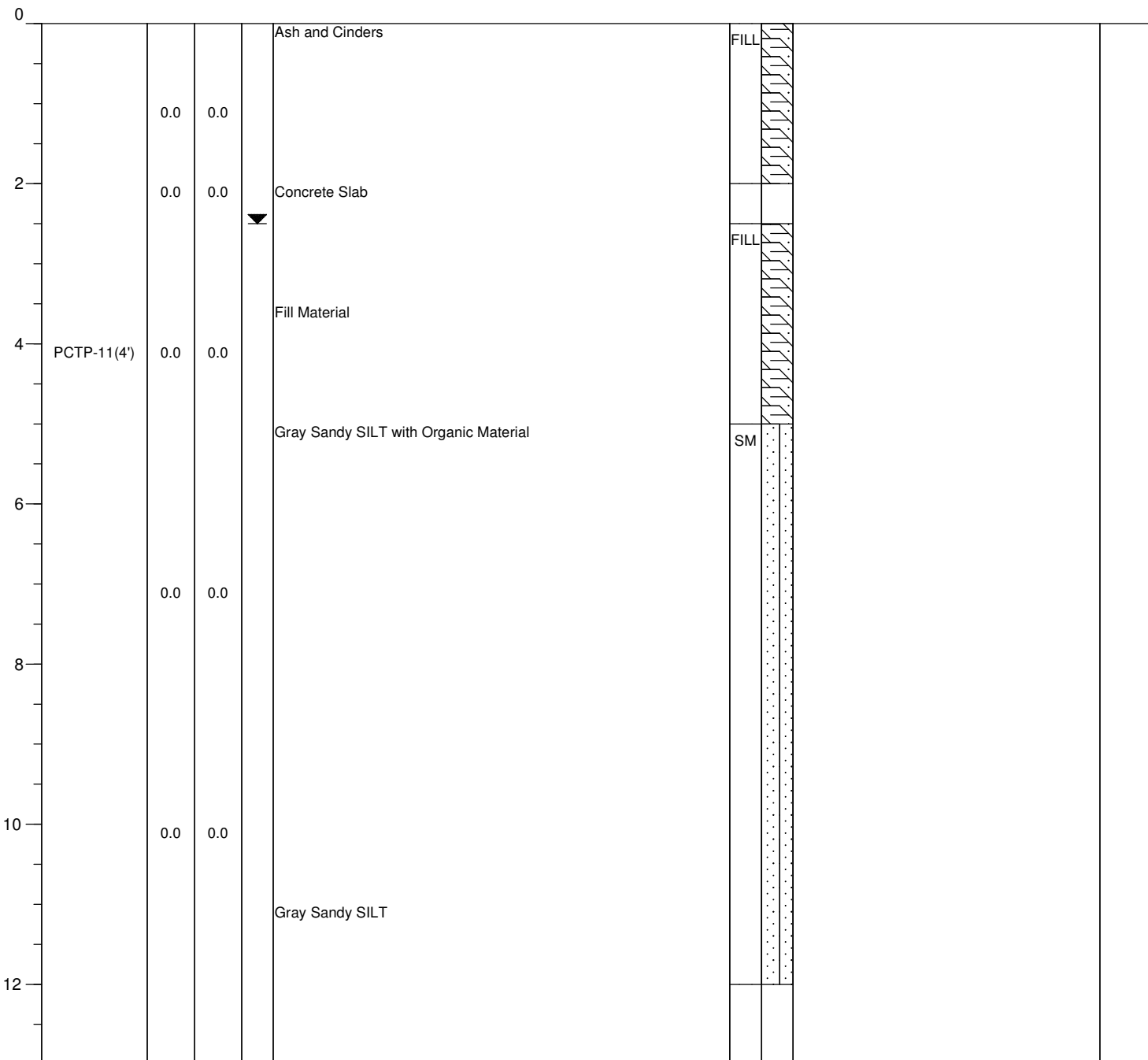
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Fill Material consisting of Ash, Cinders and Brick	FILL		Slight Petroleum-Like Odor	
2		0.0	0.0		Reddish-brown Sandy SILT	SM			
4		0.0	0.0		Light Brown Sandy SILT			2" Metal Pipe	
6		0.0	0.0		Fill Material consisting of Glass, Brick, Concrete, Wood, Metal, Ash and Cinders	FILL			
8	PCTP-10(8)			▼				Slight Petroleum-Like Odor	
10		0.0	0.0		Black Gray PEAT	PEAT		Water Entering Test Pit Exhibits a Sheen	
12									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Cloudy/Rain 40 deg. F
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 12.37'
 DATE BEGUN: February 9, 2005
 DATE COMPLETED: February 9, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Cloudy/Rain 40 deg. F
 TOTAL DEPTH: 8'
 GROUND SURFACE ELEVATION: 10.91'
 DATE BEGUN: February 9, 2005
 DATE COMPLETED: February 9, 2005

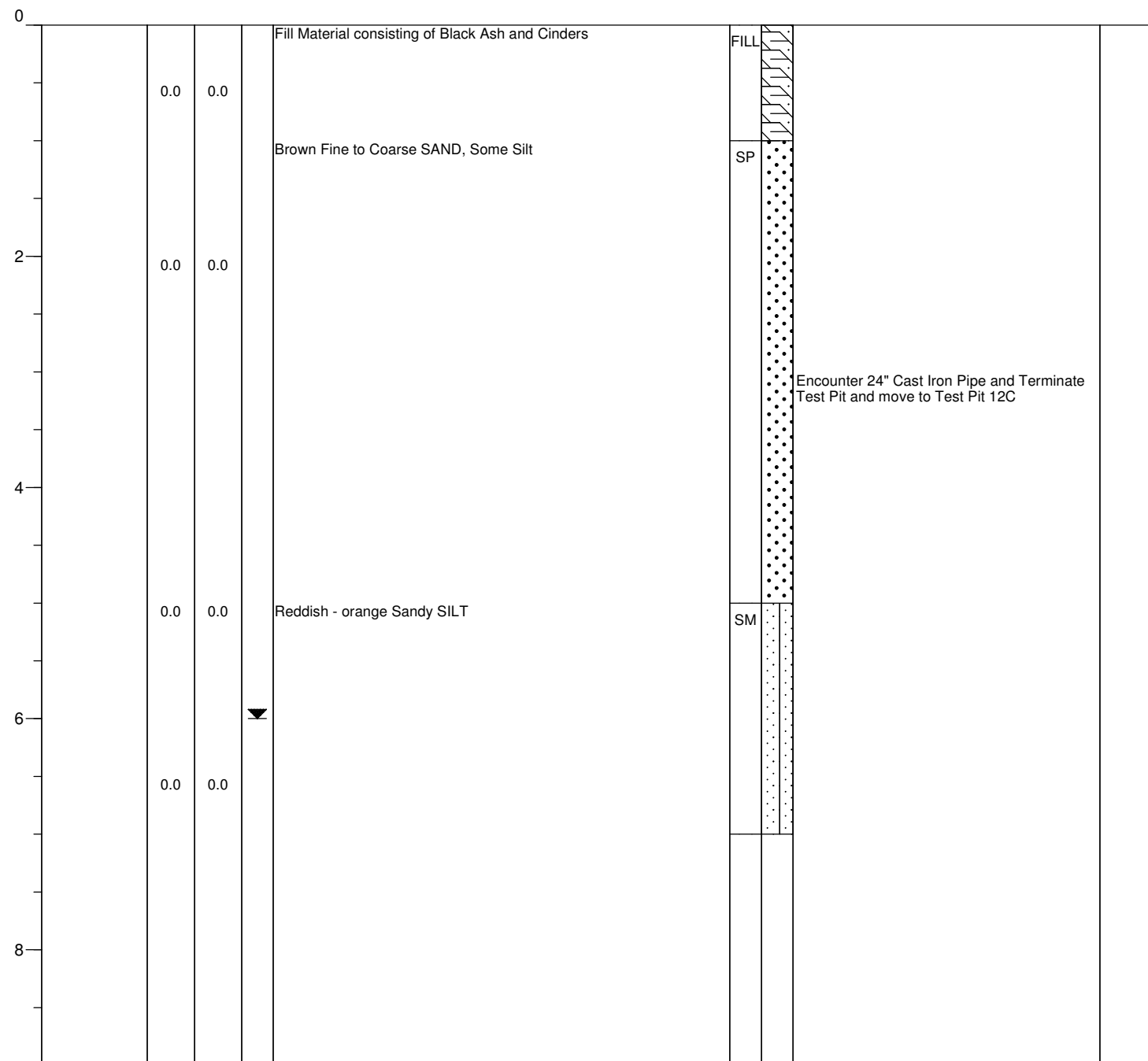
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Asphalt	ASPH			
		0.0	0.0		Brown Medium to Fine SAND, Some Silt	SM			
2		0.0	0.0						
								Encounter 8" Metal Pipe and Terminate Test Pit and move to Test Pit 12B	
4					Dark Brown Fine to Coarse SAND, Some Silt				
		0.0	0.0						
6				▼	Orange Sandy SILT	ML			
		0.0	0.0						
		0.0	0.0		Gray Medium to Fine SAND, Little Organic Material	SM			
8									
		0.0	0.0						
10									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Cloudy/Rain 40 deg. F
 TOTAL DEPTH: 7'
 GROUND SURFACE ELEVATION: 10.91'
 DATE BEGUN: February 9, 2005
 DATE COMPLETED: February 9, 2005

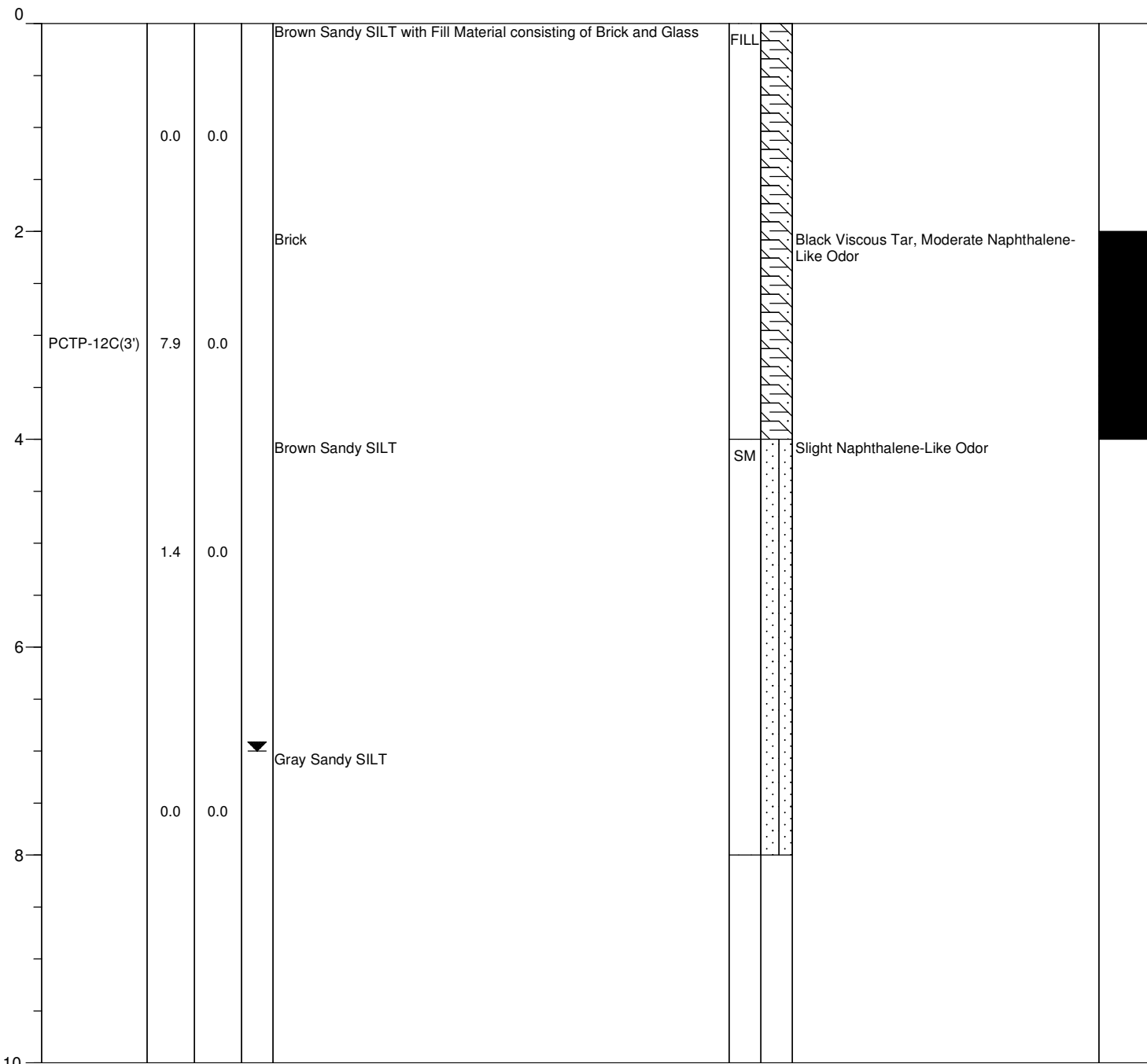
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Cloudy/Rain 40 deg. F
 TOTAL DEPTH: 8'
 GROUND SURFACE ELEVATION: 10.91'
 DATE BEGUN: February 9, 2005
 DATE COMPLETED: February 9, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

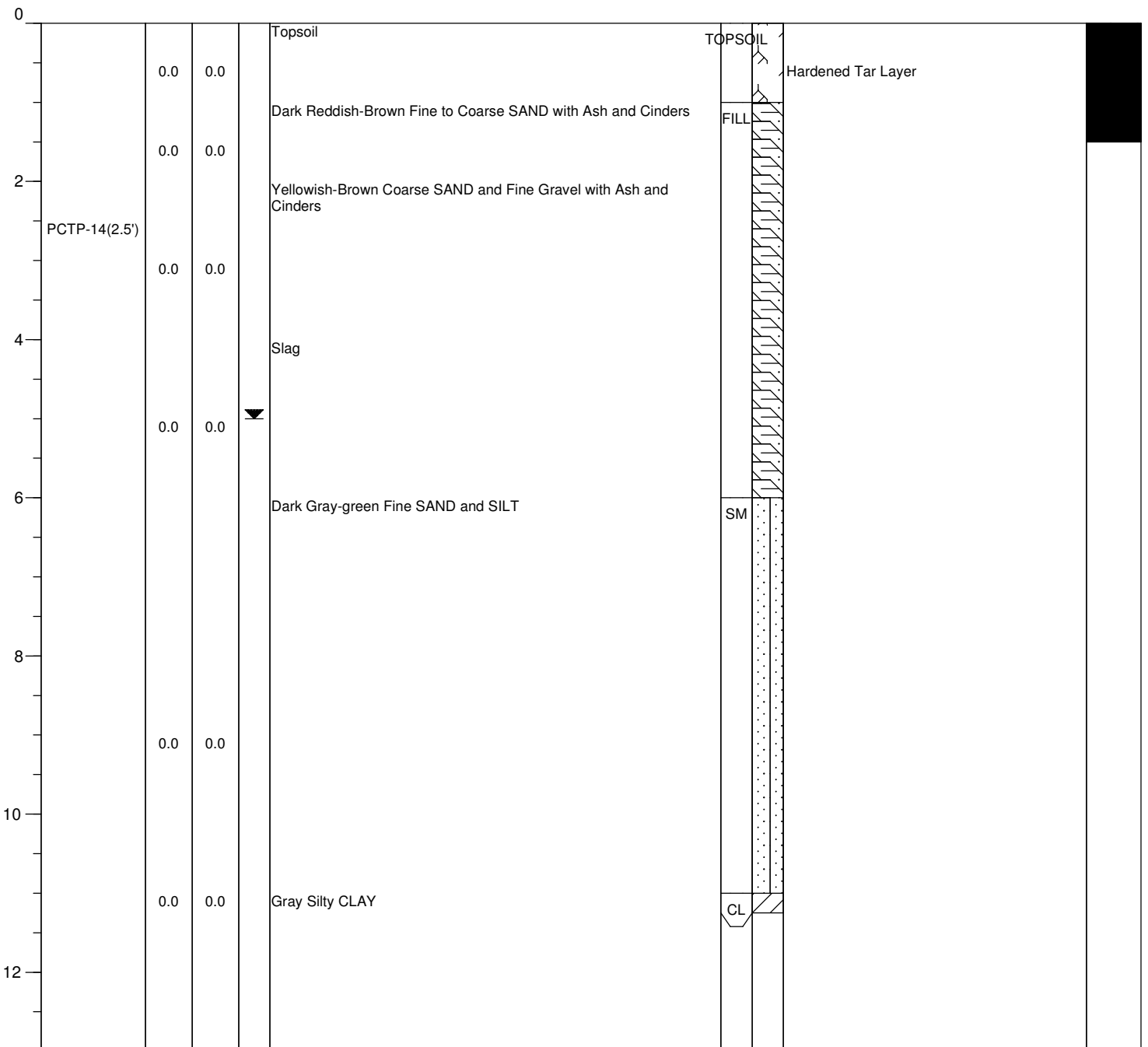
WEATHER: Windy/Cloudy 30 deg. F
 TOTAL DEPTH: 13'
 GROUND SURFACE ELEVATION: 11.95'
 DATE BEGUN: February 10, 2005
 DATE COMPLETED: February 10, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					Layered Fill Material consisting of Red-Brown Fine to Medium SAND, Little Silt and Fill Material Consisting of Ash and Cinders	FILL			
0.5		0.0	0.0					Slight Combusted Petroleum-Like Odor	
2									
3.5					Red-Brown Fine to Medium SAND and SILT, Some Medium to Very Coarse Gravel				
4.5		0.0	0.0						
6									
7.5					Fill Material Consisting of Concrete, Brick, Metal, Wood, Ash and Cinders				
8	PCTP-13(8')			▼				Water Entering Test Pit exhibits a Sheen	
8.5		0.0	0.0						
10								Slight Combusted Petroleum-Like Odor	
12		0.0	0.0		Grayish black Silty SAND	SM			
14									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Sunny/Windy 30 deg.F
 TOTAL DEPTH: 11'
 GROUND SURFACE ELEVATION: 12.42'
 DATE BEGUN: March 3, 2005
 DATE COMPLETED: March 3, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Cloudy/Windy 30 deg.F
 TOTAL DEPTH: 1'
 GROUND SURFACE ELEVATION: 12.42'
 DATE BEGUN: February 10, 2005
 DATE COMPLETED: February 10, 2005

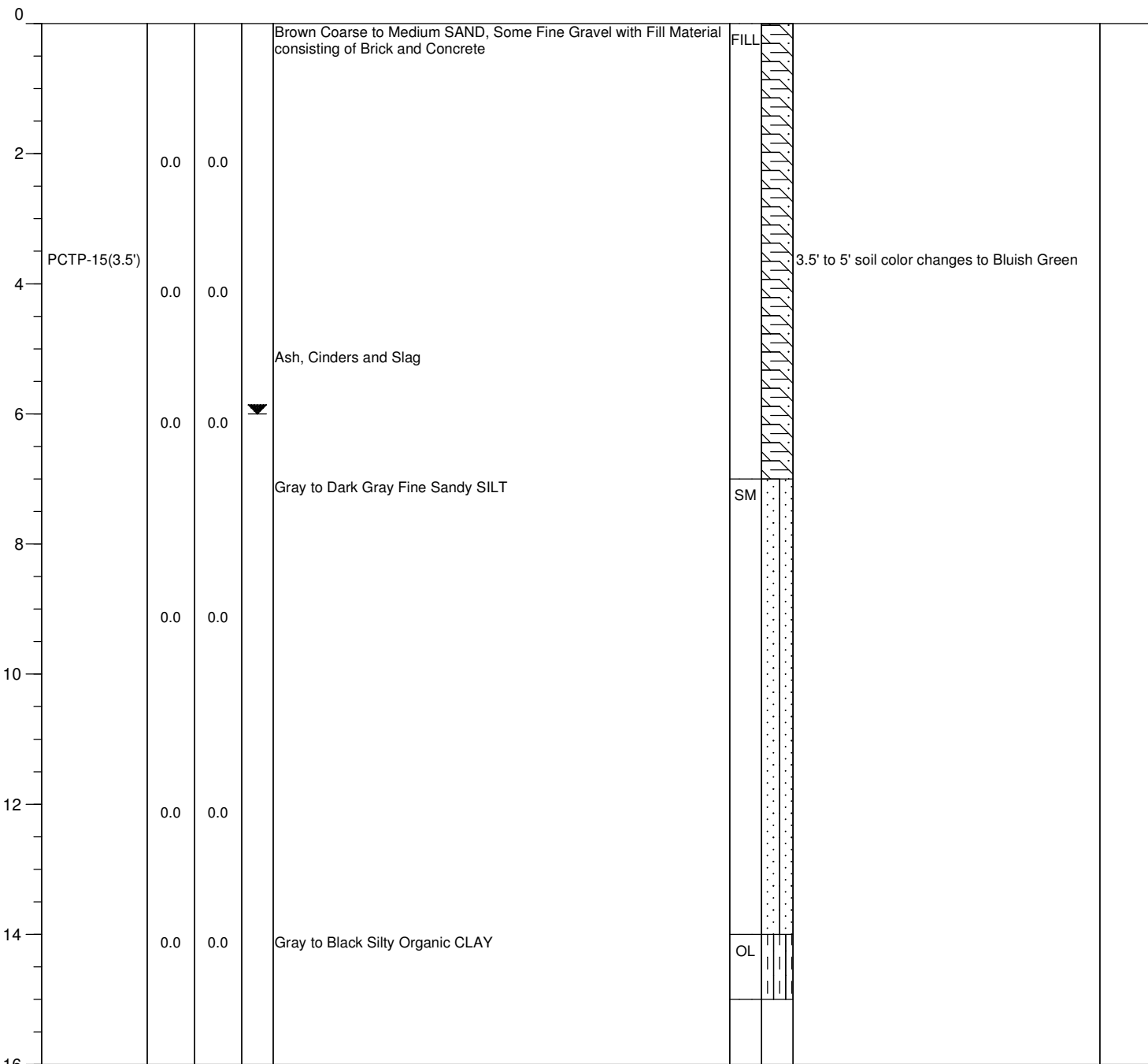
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0		24	0.0					Hardended Layer of Tar, Strong Tar-Like Odor, Strong Naphthalene-Like Odor	
2									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Sunny/Windy 30 deg.F
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 11.68'
 DATE BEGUN: March 3, 2005
 DATE COMPLETED: March 3, 2005

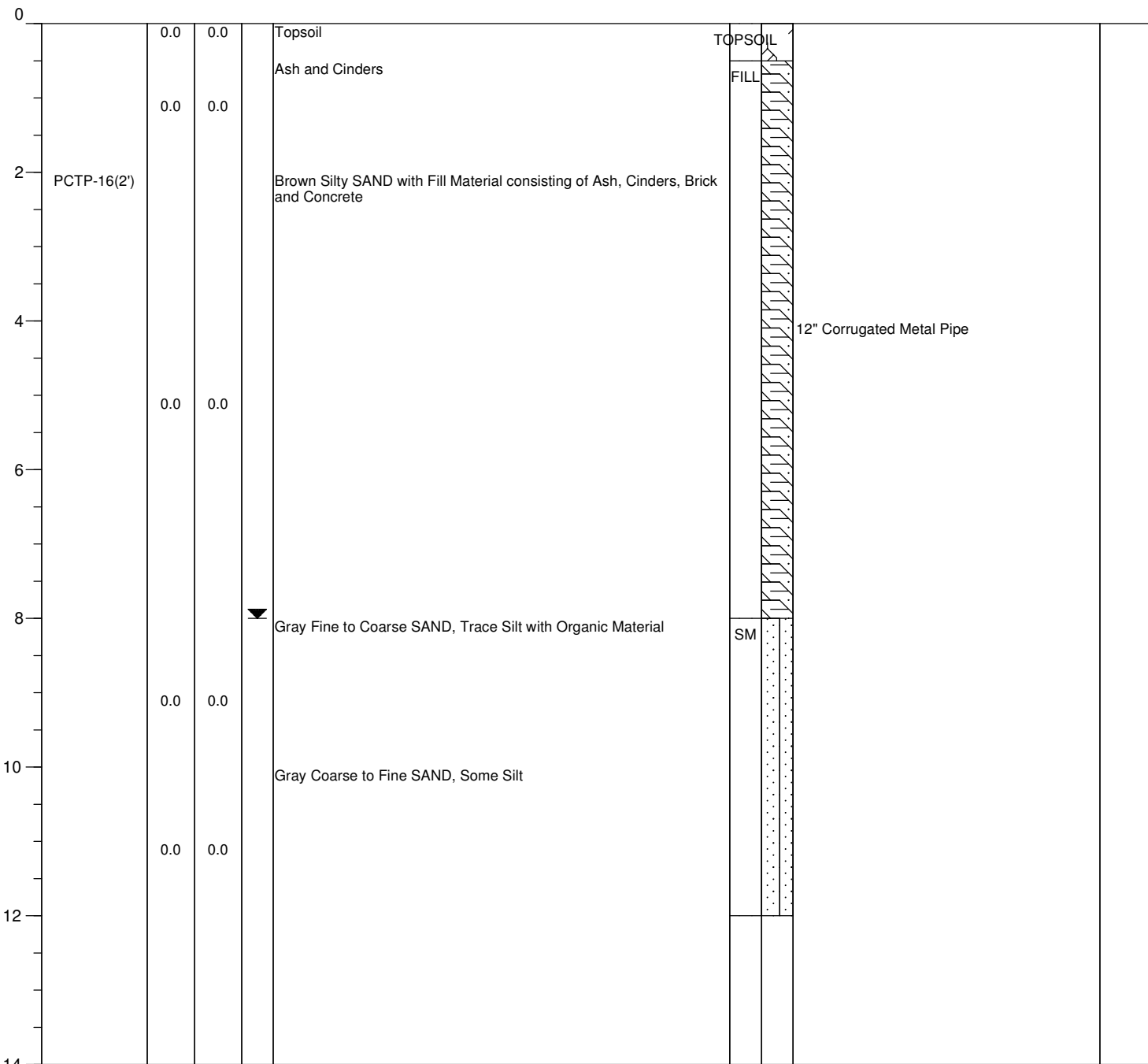
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Windy/Cloudy 30 deg.F
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 12.31'
 DATE BEGUN: February 10, 2005
 DATE COMPLETED: February 10, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Windy/Cloudy 30 deg.F
 TOTAL DEPTH: 10'
 GROUND SURFACE ELEVATION: 15.80'
 DATE BEGUN: February 10, 2005
 DATE COMPLETED: February 10, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					Red-Brown Fine to Medium SAND, Some Silt with Fill Material consisting of Brick, Concrete, Wood and Metal	FILL			
2		0.0	0.0						
4		0.0	0.0						
6					Gray to Black Fine to Medium SAND, Some Silt with Fill material consisting of Brick, Concrete, Ash and Cinders			Slight Petroleum-Like Odor	
8	PCTP-17(8')	4.2	0.0	▼				Tar with a Strong Tar-Like Odor, Strong Naphthalene-Like Odor	
10								Slight Petroleum-Like Odor	
12									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Overcast 40 deg. F
 TOTAL DEPTH: 22'
 GROUND SURFACE ELEVATION: 16.35'
 DATE BEGUN: February 16, 2005
 DATE COMPLETED: February 16, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Light Brown Fine to Medium SAND, Some Silt with Fill Material Consisting of Brick, Concrete, Piping, Metal		FILL	Slight Combusted Petroleum-Like Odor	
2		0.0	0.0						
4									
6	PCTP-18(6')				Ash and Cinders				
8		0.0	0.0		Fill Material Consisting of Sandy Silty CLAY with Metal, Glass Bottles, Ash and Cinders (Trash)			Water Entering Test Pit exhibits a Sheen	
10				▼				Slight Combusted Petroleum-Like Odor	
12		0.0	0.0						
14									
16									
18									
20		0.0	0.0		Gray Fine SAND, Some Silt	SP			
		0.0	0.0		Gray Sandy SILT, Shell Fragments	SM			
		0.0	0.0		Grayish-green Clayey SILT, Organic Banding	OL			
22									
24									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Sunny/Windy 20 deg.F
 TOTAL DEPTH: 22'
 GROUND SURFACE ELEVATION: 12.13'
 DATE BEGUN: February 18, 2005
 DATE COMPLETED: February 18, 2005

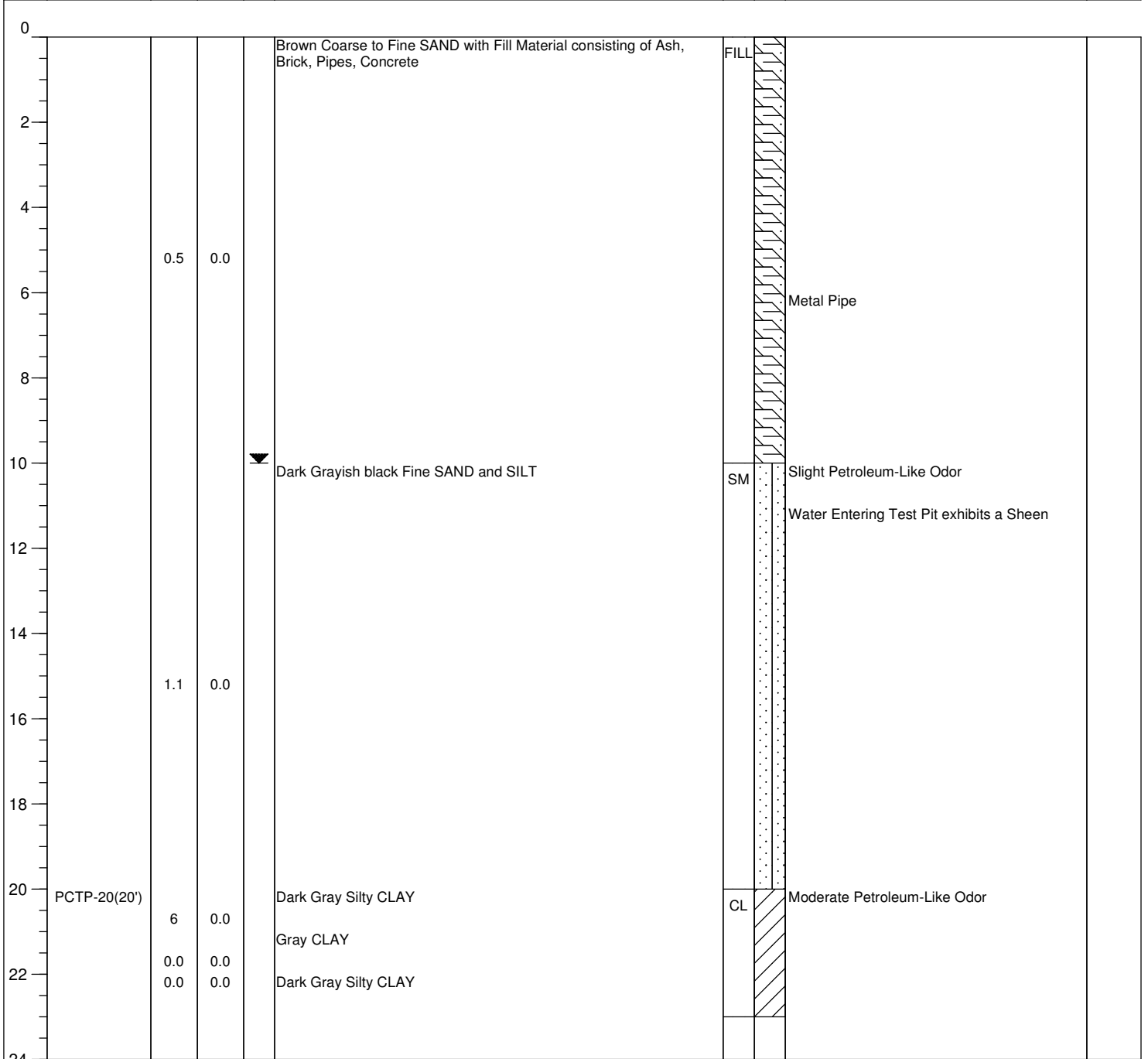
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Ash and Cinders	FILL			
2		0.0	0.0		Orange Fine to Medium SAND, Little Silt, Little Very Coarse Gravel				
4		0.0	0.0		Fill Material Consisting of Wood, Brick, Ash and Cinders				
6	PCTP-19(6')	1.3	0.0	▼	Orange-gray Silty CLAY	CL		Moderate Petroleum-Like Odor	
8		0.0	0.0		Black Organic Silty CLAY	OL		Slight Combusted Petroleum-Like Odor	
10		0.0	0.0		Black Fine Silty SAND	SM		Water Entering Test Pit exhibits a Sheen	
12	PCTP-19(11')	0.6	12		Fill Material consisting of Wood, Metal, Pots, Dishes, Glass Bottles and Black Sandy Silt (trash)	FILL			
16		0.0	0.0						
22		0.0	0.0		Dark Gray Clayey SILT with Organic Material	OL			
24									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Sunny/Windy 20 deg.F
 TOTAL DEPTH: 22'
 GROUND SURFACE ELEVATION: 16.55'
 DATE BEGUN: March 2, 2005
 DATE COMPLETED: March 2, 2005

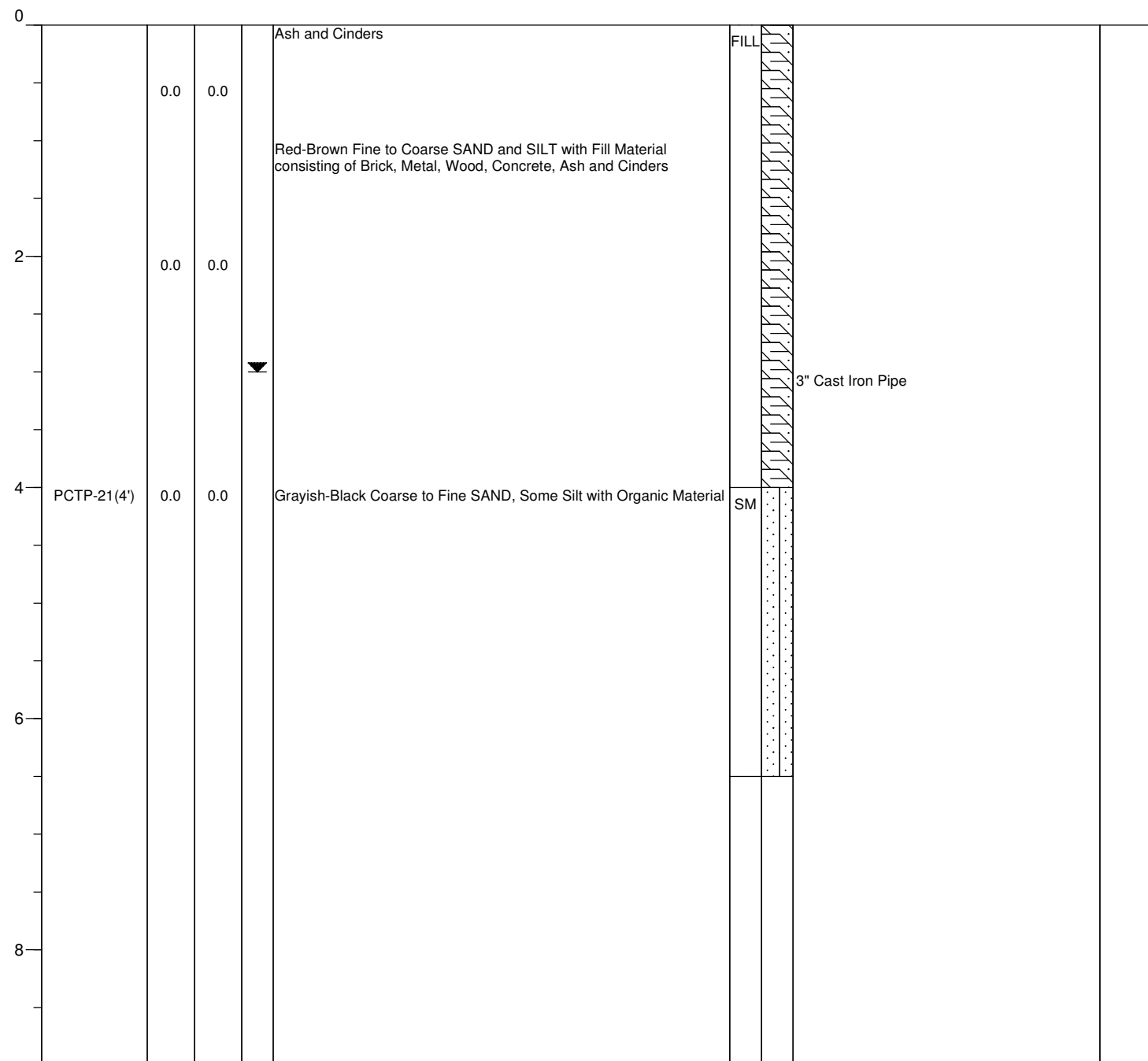
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Windy/Cloudy 30 deg.F
 TOTAL DEPTH: 6.5'
 GROUND SURFACE ELEVATION: 11.75'
 DATE BEGUN: February 11, 2005
 DATE COMPLETED: February 11, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Sunny/Windy 20 deg.F
 TOTAL DEPTH: 16'
 GROUND SURFACE ELEVATION: 12.97'
 DATE BEGUN: March 2, 2005
 DATE COMPLETED: March 2, 2005

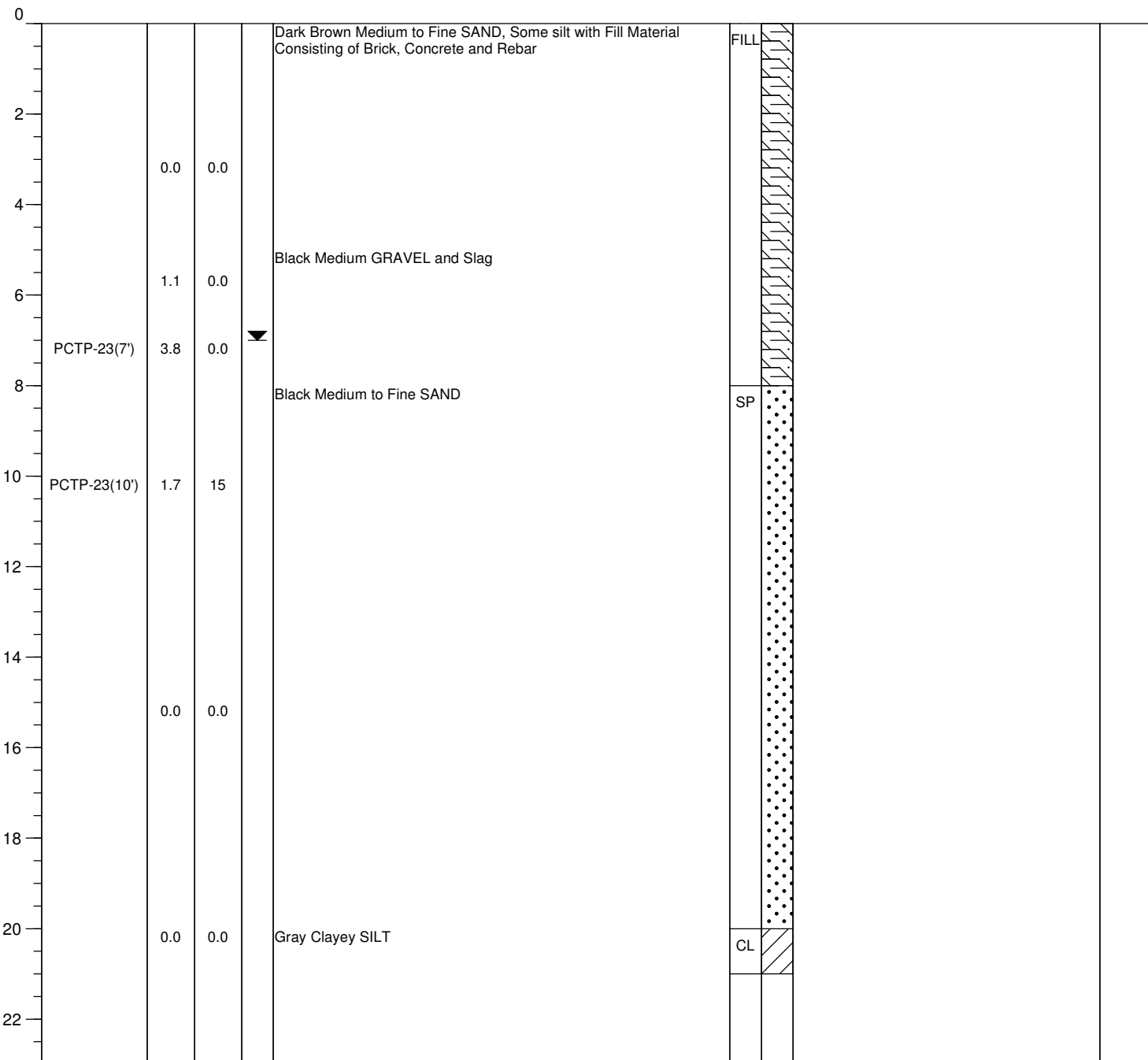
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Black to Bluish-green Coarse to Medium SAND, Little Fine Gravel	SP			
2		0.0	0.0						
4	PCTP-22(4.5')	3.3	3.3		Black Silty SAND	SM		Moderate Petroleum-Like Odor, Sheen	
6					Dark Gray Fine SAND with Silty Sand lenses	OL			
8									
10									
12		0.4	0 to 8						
14									
16		0.0	0.0		Gray Organic SILT				
18									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Windy/Cloudy 20 deg.F
 TOTAL DEPTH: 21'
 GROUND SURFACE ELEVATION: 13.42'
 DATE BEGUN: March 2, 2005
 DATE COMPLETED: March 2, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Cloudy/Windy 30 deg.F
 TOTAL DEPTH: 20'
 GROUND SURFACE ELEVATION: 15.56'
 DATE BEGUN: February 11, 2005
 DATE COMPLETED: February 11, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Red-Brown Fine to Coarse SAND and SILT with Fill Material consisting of Brick, Concrete, Pipes, Metal, Wood, Ash and Cinders	FILL			
2									
4									
6									
7.5				▼				Water entering Test Pit exhibits a sheen	
8		0.0	0.0					Slight Petroleum-Like Odor, Soils Stained	
10								Slight Combusted Petroleum-Like Odor	
12					Black Fine to Coarse SAND and SILT with Fill Material consisting of Brick, Concrete, Pipes, Metal, Wood, Ash and Cinders				
14									
16		0.0	0.0						
18									
20	PCTP-24(19.5')	0.0	0.0		Gray Sandy SILT and PEAT	OL			
22									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Windy/Cloudy 20 degF
 TOTAL DEPTH: 9'
 GROUND SURFACE ELEVATION: 15.34'
 DATE BEGUN: February 18, 2005
 DATE COMPLETED: February 18, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					Brown Fine to Medium SAND, Little Silt with Fill material consisting of Brick, Concrete and Metal		FILL		
2		0.0	0.0		Ash and Cinders				
4		0.0	0.0	▼			Two - 6" Cast Iron Pipes		
4								Water entering Test Pit exhibits a Sheen	
6	PCTP-25(4')							Solid Tar Fragments	
8		0.0	0.0		Black Organic Sandy SILT	SM			
10		0.0	0.0						

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Windy/Sunny 20 deg.F
 TOTAL DEPTH: 13'
 GROUND SURFACE ELEVATION: 13.66'
 DATE BEGUN: February 18, 2005
 DATE COMPLETED: February 18, 2005



DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown Silty SAND with Fill Material consisting of Brick, Concrete, Ash and Cinders	FILL			
2		0.0	0.0						
4					Pale Yellow Medium to Fine SAND				
6		0.0	0.0		Concrete Slab Fill Material consisting of Wood, Ash and Cinders			Two - 8" PVC Pipes	
8				▼	Black Silty CLAY	CL			
10		1.7	1.7		Trash	FILL			
12	PCTP-26(12')	20.7	20.7		Black Organic Silty CLAY	OL			
14									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Overcast 40 deg.F
 TOTAL DEPTH: 22'
 GROUND SURFACE ELEVATION: 17.72'
 DATE BEGUN: February 16, 2005
 DATE COMPLETED: February 16, 2005

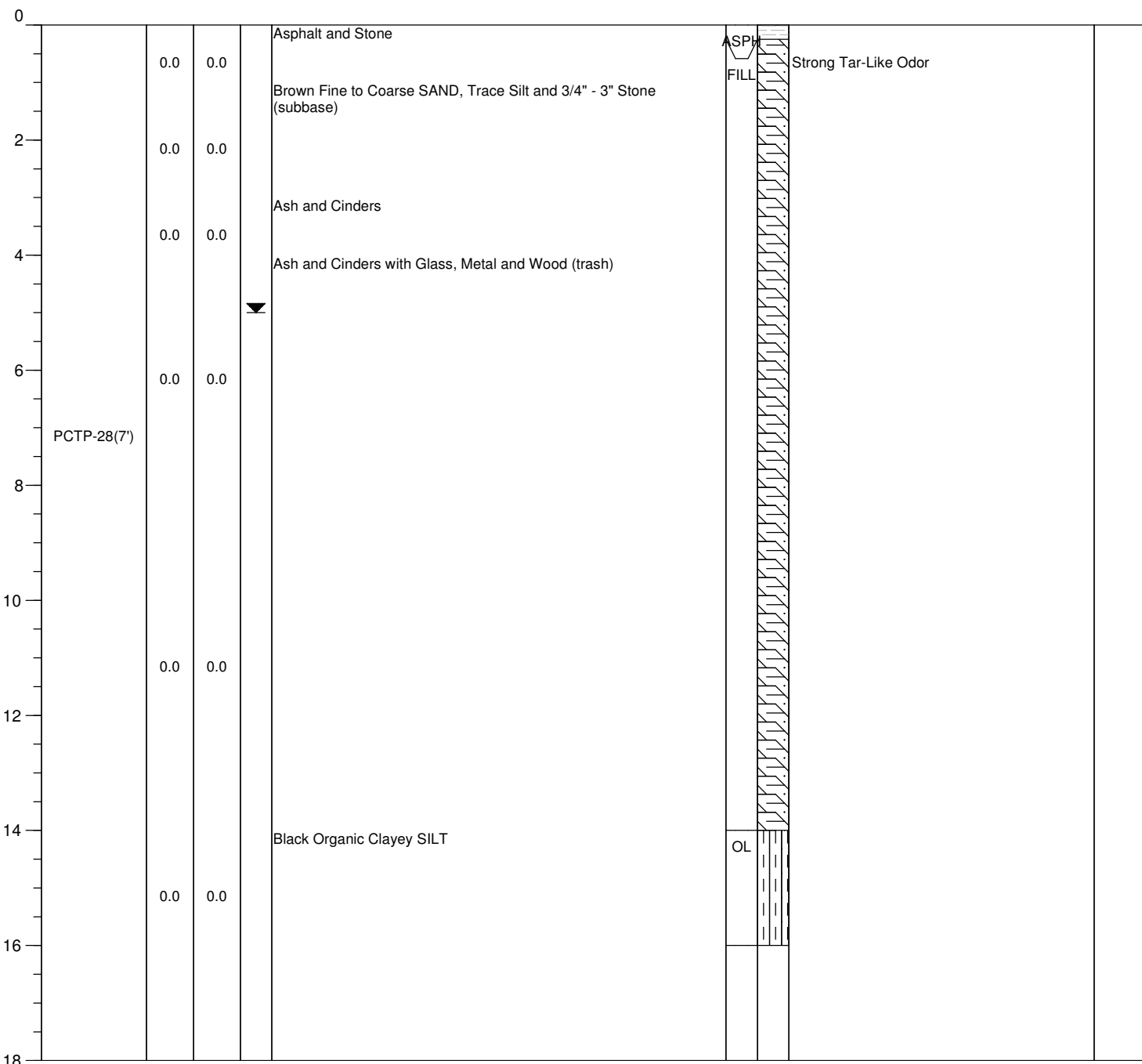
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown Fine to Medium SAND, Trace Silt with Fill Material consisting of Brick, Concrete, Metal, Insulation, Pipes	FILL			
2		0.0	0.0						
4		0.0	0.0						
6				▼					
8		0.0	0.0		Wood Timbers, Metal, Glass (trash)				
10		0.0	0.0					Wood Timbers have a Creosote-Like Odor	
12	PCTP-27(11')								
14									
16		0.0	0.0						
18									
20		0.0	0.0						
22		0.0	0.0		Gray Clayey SILT with Black Organic Bands	OL			
24									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Cloudy/Windy 30 deg.F
 TOTAL DEPTH: 16'
 GROUND SURFACE ELEVATION: 17.51'
 DATE BEGUN: February 17, 2005
 DATE COMPLETED: February 17, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Sunny/Windy 20 deg.F
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 14.10'
 DATE BEGUN: February 18, 2005
 DATE COMPLETED: February 18, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Ash and Cinders with 3/4" to 4" Stone	FILL			
2		0.0	0.0						
4		0.3	0.0		Processed Coke				
6					Fill Material consisting of Bricks, Metal and Concrete mixed with red-brown sand, silt and clay				
8		0.0	0.0						
10		1.2	0.0	▼	Ash				
12					Ash and Cinders with Glass, Metal (trash)				
14	PCTP-29(13')	16.9	0.0					Sheen Moderate Petroleum -Like Odor	
16		28.5	0.0						
18									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Cloudy 35 deg. F
 TOTAL DEPTH: 8'
 GROUND SURFACE ELEVATION: 15.61'
 DATE BEGUN: February 22, 2005
 DATE COMPLETED: February 22, 2005


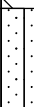
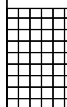
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Red-Brown Sandy SILT with Fill Material consisting of Brick, Concrete, Metal and Wood	FILL			
2		0.0	0.0						
4		0.0	0.0		Black Fine to Medium SAND, Little Silt, Some Medium to Coarse Gravel with Ash and Cinders			Strong Petroleum-Like Odor, Staining, Sheen	
6				▼				Slight Tar-Like Odor	
8	PCTP-30(7)	0.0	0.0					12" Ductile Pipe	
10								Slight Naphthalene-Like Odor	

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Cloudy/Windy 30 deg.F
 TOTAL DEPTH: 11.5'
 GROUND SURFACE ELEVATION: 14.73'
 DATE BEGUN: February 11, 2005
 DATE COMPLETED: February 11, 2005

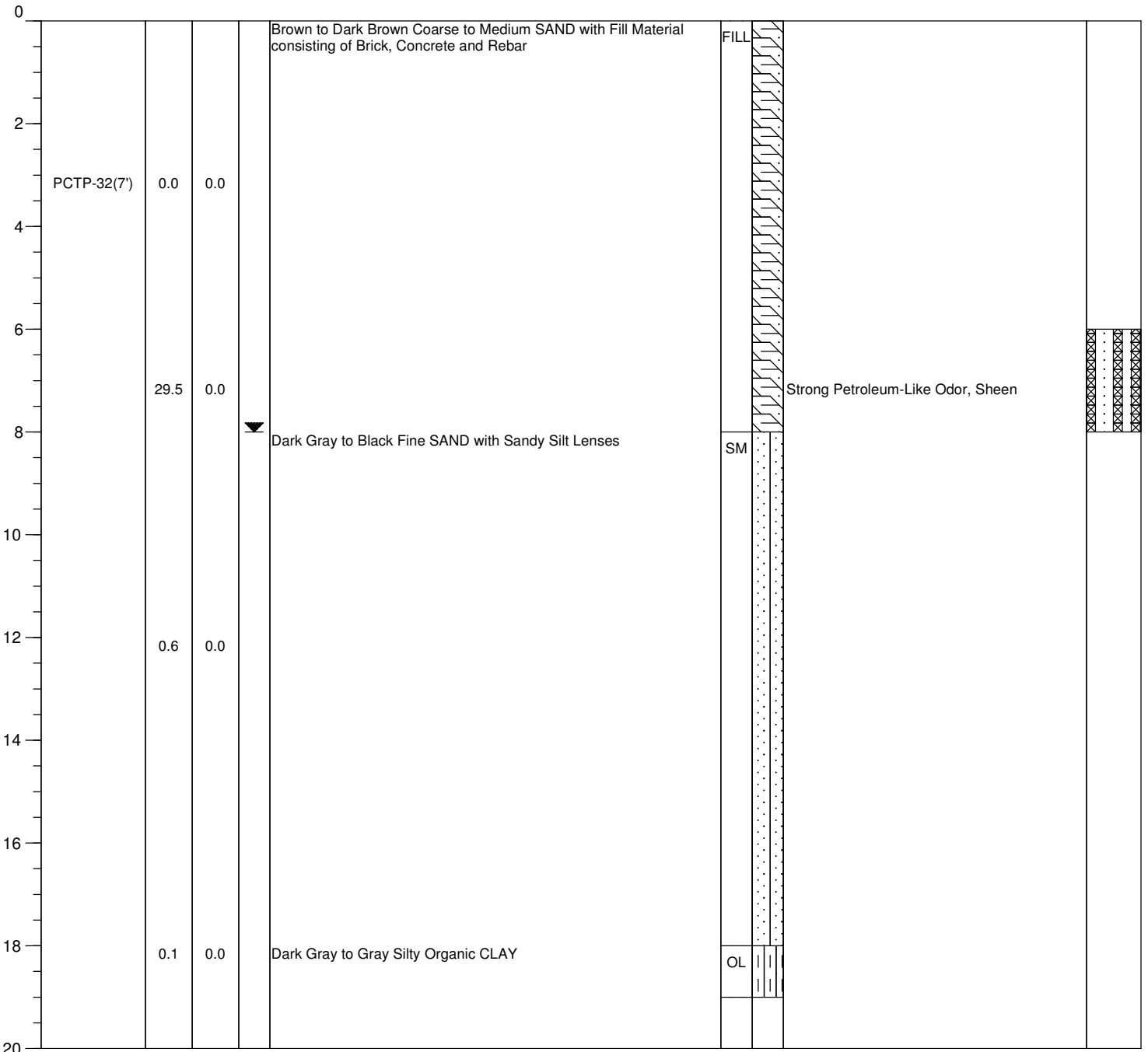
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Red-Brown Fine to Medium SAND, Some Silt with Fill Material consisting of Brick, Concrete, Wood and Metal	FILL			
2		0.0	0.0						
4		0.0	0.0						
6				▼					
8		0.0	0.0						
10		0.0	0.0		Gray-Black Sandy SILT, Little Medium Gravel	SM		Moderate Petroleum-Like Odor, Soils Stained	
11.5	PCTP-31(11')	0.0	0.0						
12									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Sunny/Windy 20 deg.F
 TOTAL DEPTH: 19'
 GROUND SURFACE ELEVATION: 12.57'
 DATE BEGUN: March 2, 2005
 DATE COMPLETED: March 2, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Sunny/Windy 20 deg. F
 TOTAL DEPTH: 17'
 GROUND SURFACE ELEVATION: 13.16'
 DATE BEGUN: March 2, 2005
 DATE COMPLETED: March 2, 2005






DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown Coarse to Medium SAND with Fill Material consisting of Brick and Concrete	FILL			
2		0.0	0.0						
4					Black Coarse to Fine SAND with Fill Material consisting of Brick and Concrete			Slight Petroleum-Like Odor	
6		0.0	0.0	▼	Dark Gray Sandy SILT	SM		12" Terra Cotta Pipe Slight Petroleum-Like Odor	
8									
10		0.0	0.0		Black Sandy SILT			Moderate Petroleum-Like Odor	
12	PCTP-33(12')	0.0	0.0		Dark Gray to Black SILT with Fine Sand Lenses				
14		0.0	0.0						
16		0.0	0.0		Gray Sandy CLAY	CL			
18									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Snow 20 deg. F
 TOTAL DEPTH: 18'
 GROUND SURFACE ELEVATION: 12.67'
 DATE BEGUN: February 28, 2005
 DATE COMPLETED: February 28, 2005

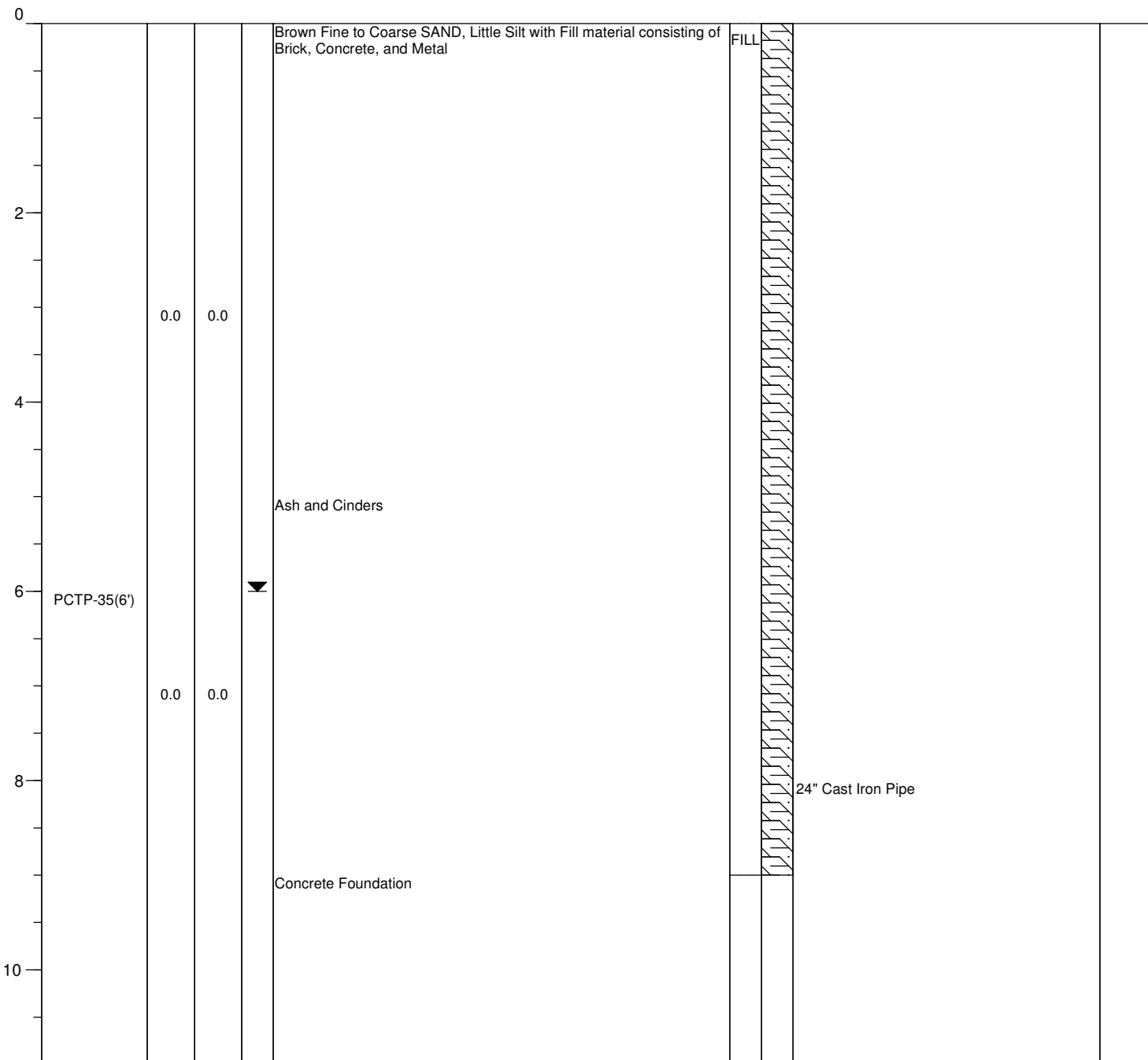
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown Coarse to Medium SAND with Fill Material consisting of Brick, Metal and Concrete	FILL			
2		0.0	0.0						
4		0.0	0.0						
6					Coarse to Fine SAND and GRAVEL	SP			
8		0.0	0.0	▼	Grayish Black Fine SAND				
10	PCTP-34(10')	1.7	200		Gray to Dark Gray Sandy SILT			Slight Petroleum-Like Odor	
14	PCTP-34(14')	2.4	0.0		Gray to Black Fine SAND	SM			
16		0.0	0.0			PEAT			
18		0.0	0.0		Gray Organic Silty CLAY	OL			

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Overcast 40 deg. F
 TOTAL DEPTH: 9'
 GROUND SURFACE ELEVATION: 16.63'
 DATE BEGUN: February 16, 2005
 DATE COMPLETED: February 16, 2005

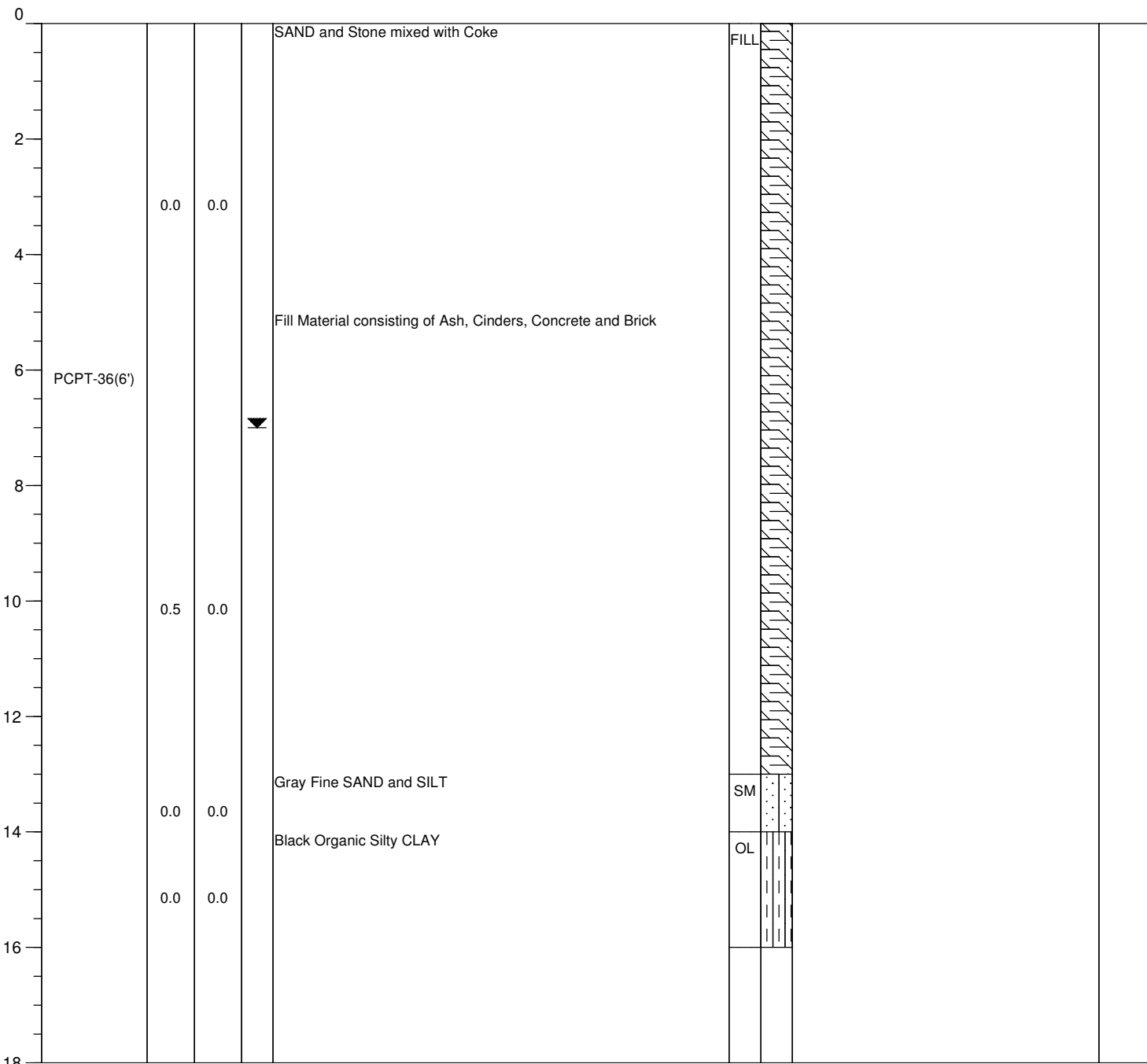
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Overcast 30 deg. F
 TOTAL DEPTH: 16'
 GROUND SURFACE ELEVATION: 16.59'
 DATE BEGUN: February 18, 2005
 DATE COMPLETED: February 18, 2005

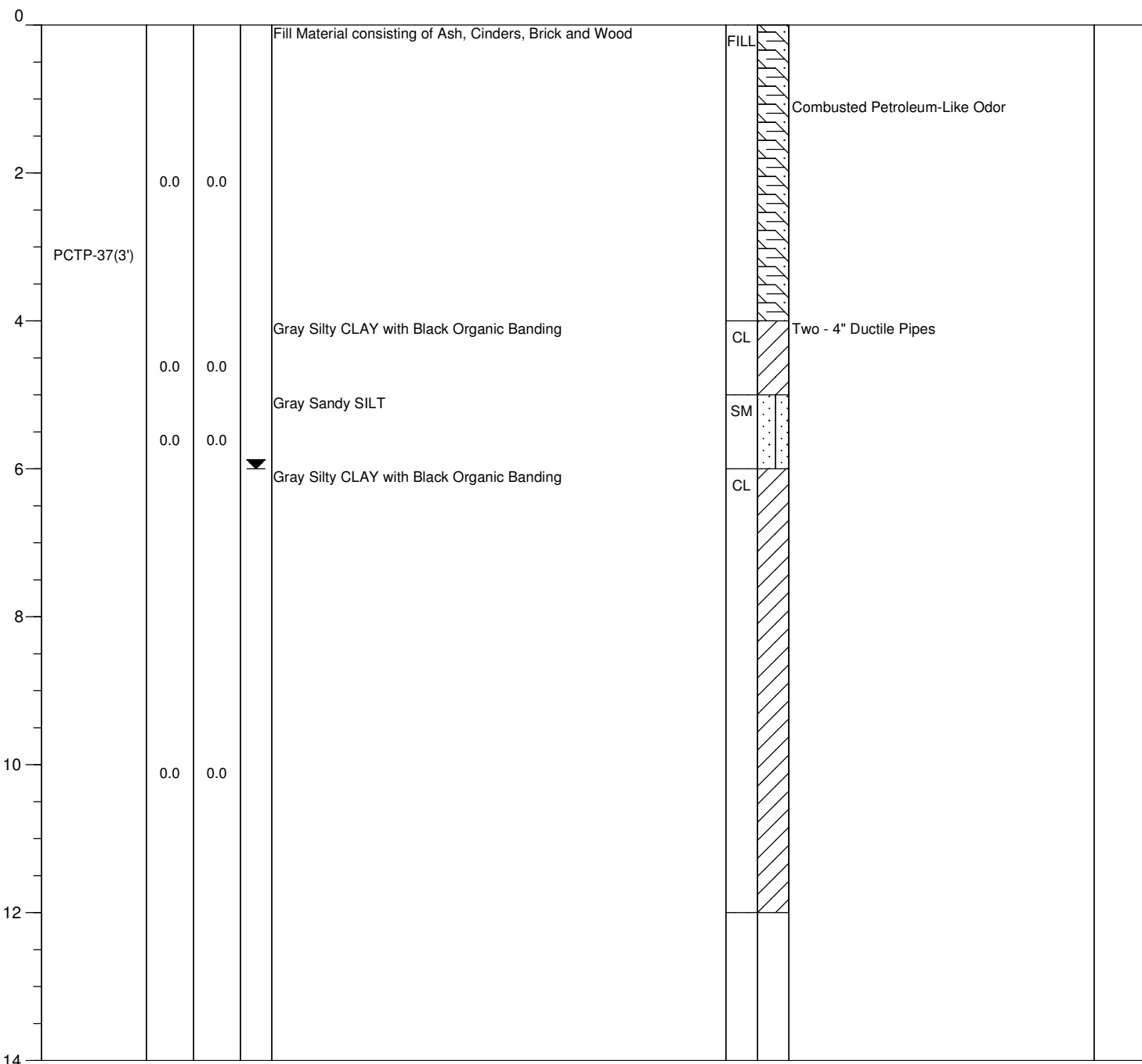
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Windy 30 deg. F
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 14.44'
 DATE BEGUN: February 17, 2005
 DATE COMPLETED: February 17, 2005

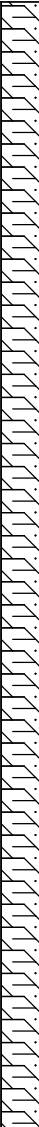

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio


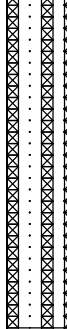

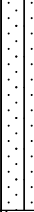

WEATHER: Cloudy 35 deg. F
 TOTAL DEPTH: 13'
 GROUND SURFACE ELEVATION: 16.40'
 DATE BEGUN: February 22, 2005
 DATE COMPLETED: February 22, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown Fine to Coarse SAND with Fill Material consisting of Concrete, Brick, Wood, Ash and Cinders	FILL			
2									
4		0.5	0.0						
6									
8				▼					
10	PCTP-38(10')	1	0.0						
12	PCTP-38(12')	0.8	0.0		Gray SILT	SM			
14									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Snow 30 deg. F
 TOTAL DEPTH: 11'
 GROUND SURFACE ELEVATION: 15.15'
 DATE BEGUN: February 24, 2005
 DATE COMPLETED: February 24, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					Brown Coarse to Medium SAND, Some silt with Fill Material consisting of Brick, Concrete and Wood	FILL			
2		0.0	0.0						
4					Dark Brown to Black Fine SAND with Ash and Cinders			Slight Petroleum-Like Odor, Sheen	
6		1.7	2						
8	PCTP-39(8')				Gray to Dark Gray Sandy SILT	SM			
10		0.0	0.0		Dark Gray Clayey SILT	SC			
12		0.0	0.0						

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Snow/Rain 30 deg. F
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 13.03'
 DATE BEGUN: February 14, 2005
 DATE COMPLETED: February 14, 2005

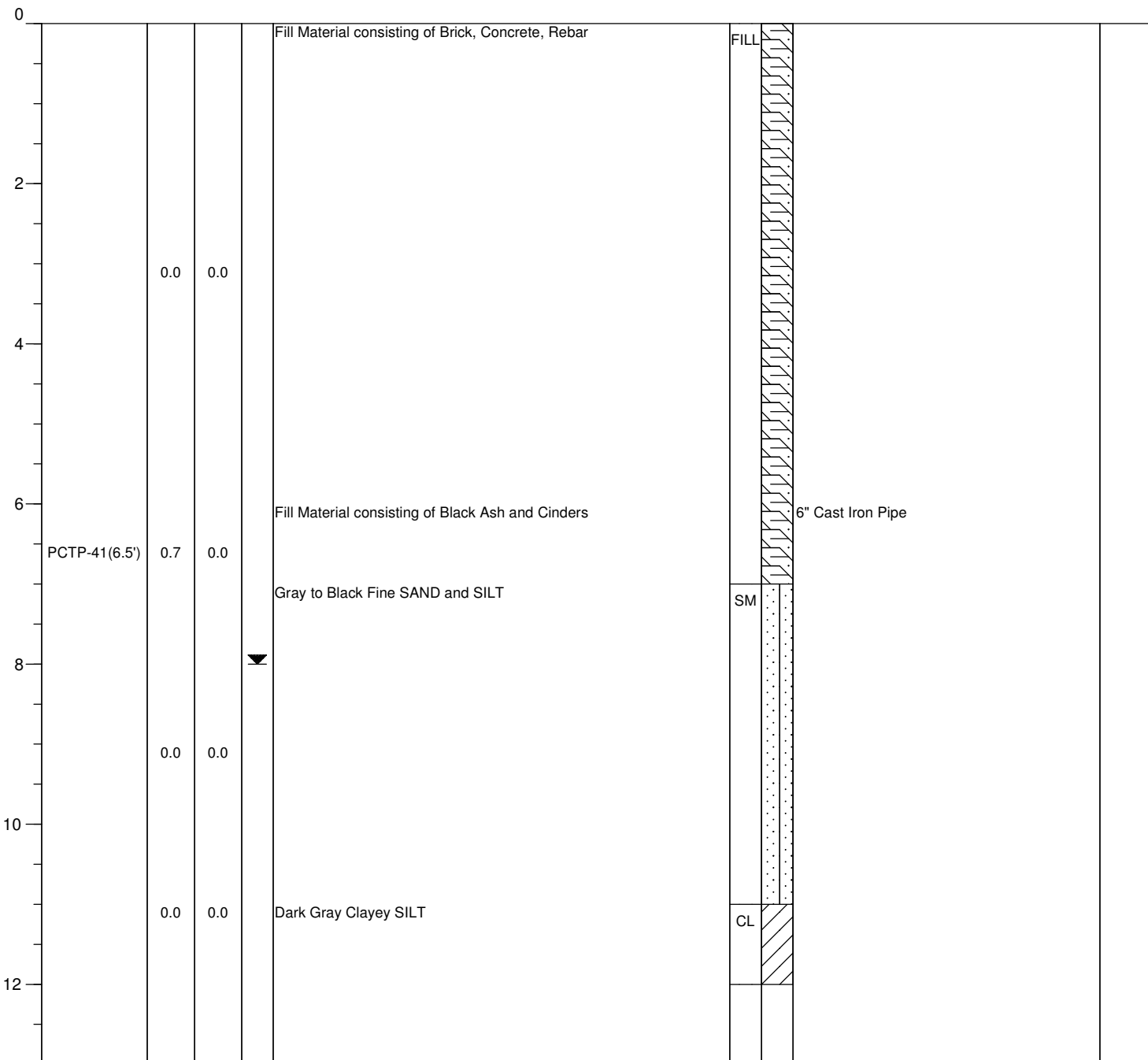
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown Coarse to Fine SAND, Little Silt and Brick		FILL		
2		0.0	0.0		Brown Coarse to Fine SAND, Little Silt, Some Medium to Fine Gravel with Ash and Cinders			Combusted Petroleum-Like Odor	
4		1.7	0.0						
6				▼	Reddish-Brown Fine to Coarse SAND with Fill Material consisting of Brick, Concrete, Wood, Cinders and Slag			Combusted Petroleum-Like Odor, Sheen	
8									
10	PCTP-40(9')	3.7	0.0		Black to Dark Gray SILT	ML			
12	PCTP-40(10')	13.9	200						
14									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Snow 30 deg. F
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 15.54'
 DATE BEGUN: February 24, 2005
 DATE COMPLETED: February 24, 2005






DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Overcast 30 deg. F
 TOTAL DEPTH: 14'
 GROUND SURFACE ELEVATION: 15.94'
 DATE BEGUN: February 23, 2005
 DATE COMPLETED: February 23, 2005



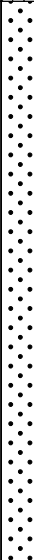

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Fill consisting of Brick and Concrete	FILL			
2		0.0	0.0						
4									
6		0.0	0.0	▼					
8									
10		0.2	1						
12		75.5	0.0		Gray Sandy SILT	ML		Moderate Naphthalene-Like Odor, Lenses of NAPL Saturation	
14	PCTP-42(13.5')	0.0	0.0		Dark Gray Silty CLAY	CL			
16									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Overcast 30 deg. F
 TOTAL DEPTH: 13'
 GROUND SURFACE ELEVATION: 12.19'
 DATE BEGUN: February 23, 2005
 DATE COMPLETED: February 23, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Black Ash, Cinders and Clinker	FILL			
2		0.0	0.0						
4				▼	Black Clayey SILT	SC			
6		1.4	40		Black Medium to Fine SAND	SP		Slight Petroleum-Like Odor	
8	PCTP-43(7')	2.2	82						
12		2.3	43		Black Clayey SILT	SC			
14									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

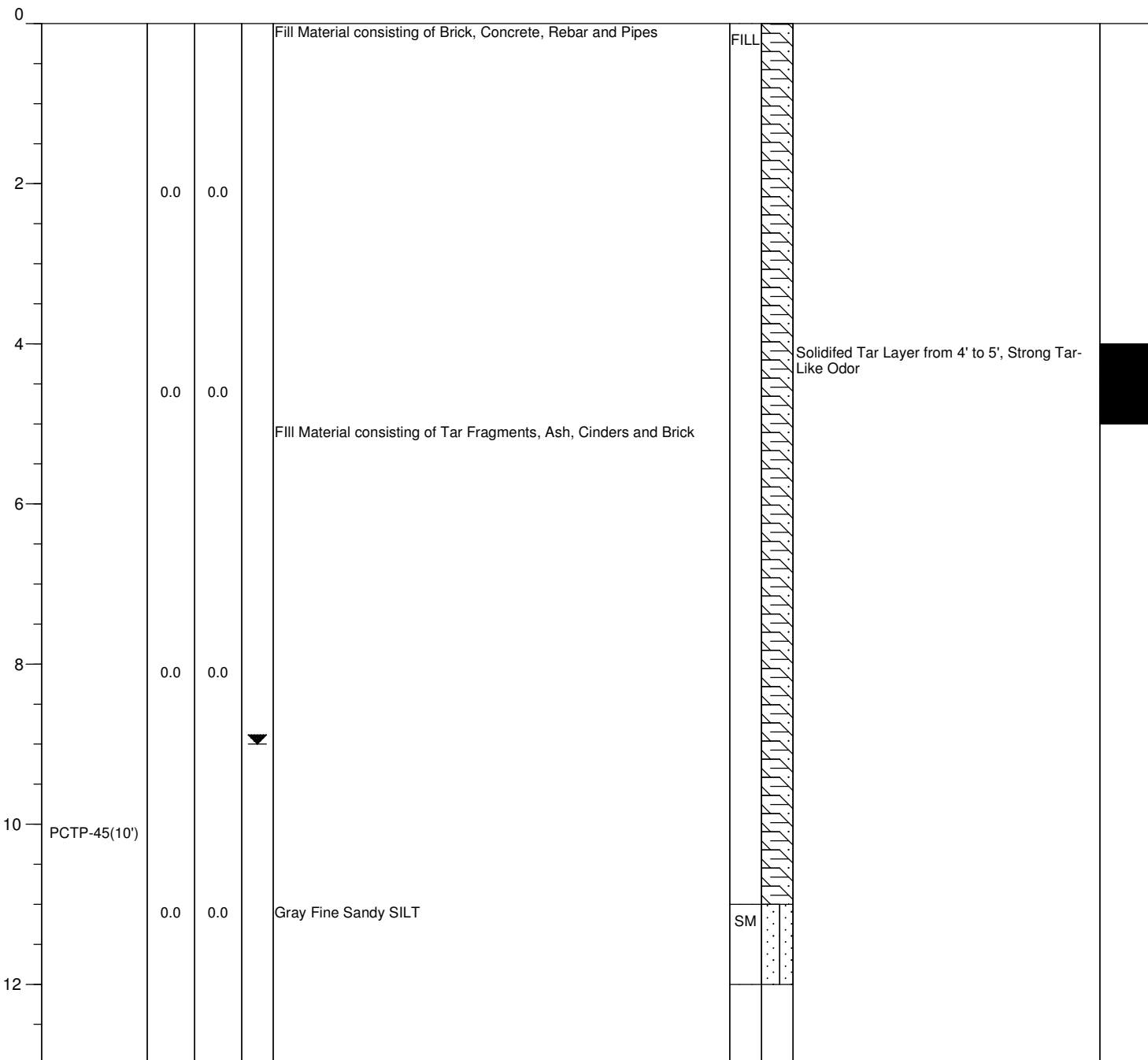
WEATHER: Snow/Rain 30 deg. F
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 12.21'
 DATE BEGUN: February 14, 2005
 DATE COMPLETED: February 14, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					Brown Coarse to Fine SAND with Fill Material consisting of Brick, Concrete and Rebar	FILL			
2		0.0	0.0		Bluish Green Material			Spent Iron Oxide Material	
4	PCTP-44(4')	0.0	0.0		Olive Green Material			Spent Iron Oxide Material	
6		1.3	0.0	▼				Spent Iron Oxide Material	
8					Black Organic SILT	SM		Slight Petroleum-Like Odor	
10	PCTP-44(9')	1.7	10					Slight Petroleum-Like Odor	
12								Slight Petroleum-Like Odor	
14									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Snow/Rain 30 deg. F
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 13.37'
 DATE BEGUN: February 14, 2005
 DATE COMPLETED: February 14, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Cloudy 35 deg. F
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 15.47'
 DATE BEGUN: February 22, 2005
 DATE COMPLETED: February 22, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					Red-Brown Fine to Medium SAND, Trace Silt with Fill Material consisting of Concrete, Brick, Metal and Pipes	FILL			
2		0.0	0.0						
4					Brown Fine to Medium SAND, Trace Silt with Ash and Cinders				
6		0.0	0.0						
8		5.4	3	▼				Strong-Petroleum-Like Odor, Soils Stained and Saturated, Sheen Water entering excavation contains free-phase product	
10	PCTP-46(9') PCTP-46(10.5')	21.5	14		Gray Silty CLAY	CL		Tar-Like Material, Strong Tar-Like Odor, Strong Naphthalene-Like Odor	
12									
14									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio




WEATHER: Windy 30 deg. F
 TOTAL DEPTH: 12.5'
 GROUND SURFACE ELEVATION: 15.87'
 DATE BEGUN: February 17, 2005
 DATE COMPLETED: February 17, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Red-Brown Fine to Medium SAND with Fill material consisting of Brick, Concrete, Rebar, Pipes and Metal	FILL			
2		0.0	0.0						
4		0.0	0.0						
6	PCTP-47(6')	0.0	0.0	▼	Ash and Cinders				
8		0.0	0.0						
10		0.0	0.0				12" Concrete Pipe		
12		0.0	0.0		Gray Sandy SILT	SM			
14									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

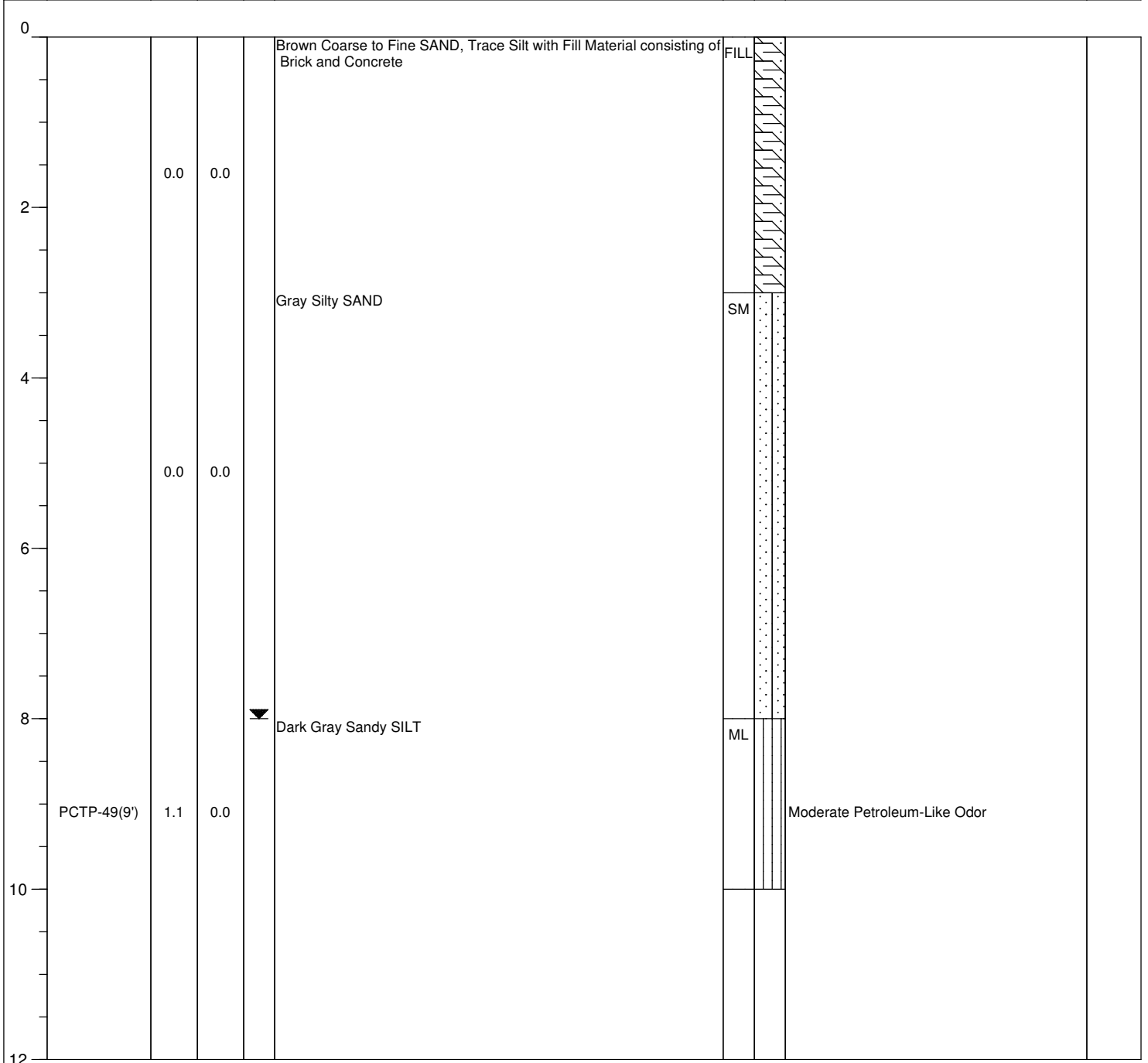
WEATHER: Overcast 30 deg. F
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 11.78'
 DATE BEGUN: February 23, 2005
 DATE COMPLETED: February 23, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					Brown Coarse to Fine SAND and Medium to Coarse Gravel, Trace Silt	FILL			
2		0.0	0.0						
4		0.0	0.0						
6		0.0	0.0						
7.5				▼					
8		0.0	0.0		Gray Medium to Fine SAND, Little Silt	SM			
10		0.0	0.0		Dark Gray Clayey SILT	CL			
12		0.0	0.0						
14									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Overcast 30 deg. F
 TOTAL DEPTH: 10'
 GROUND SURFACE ELEVATION: 10.79'
 DATE BEGUN: February 23, 2005
 DATE COMPLETED: February 23, 2005

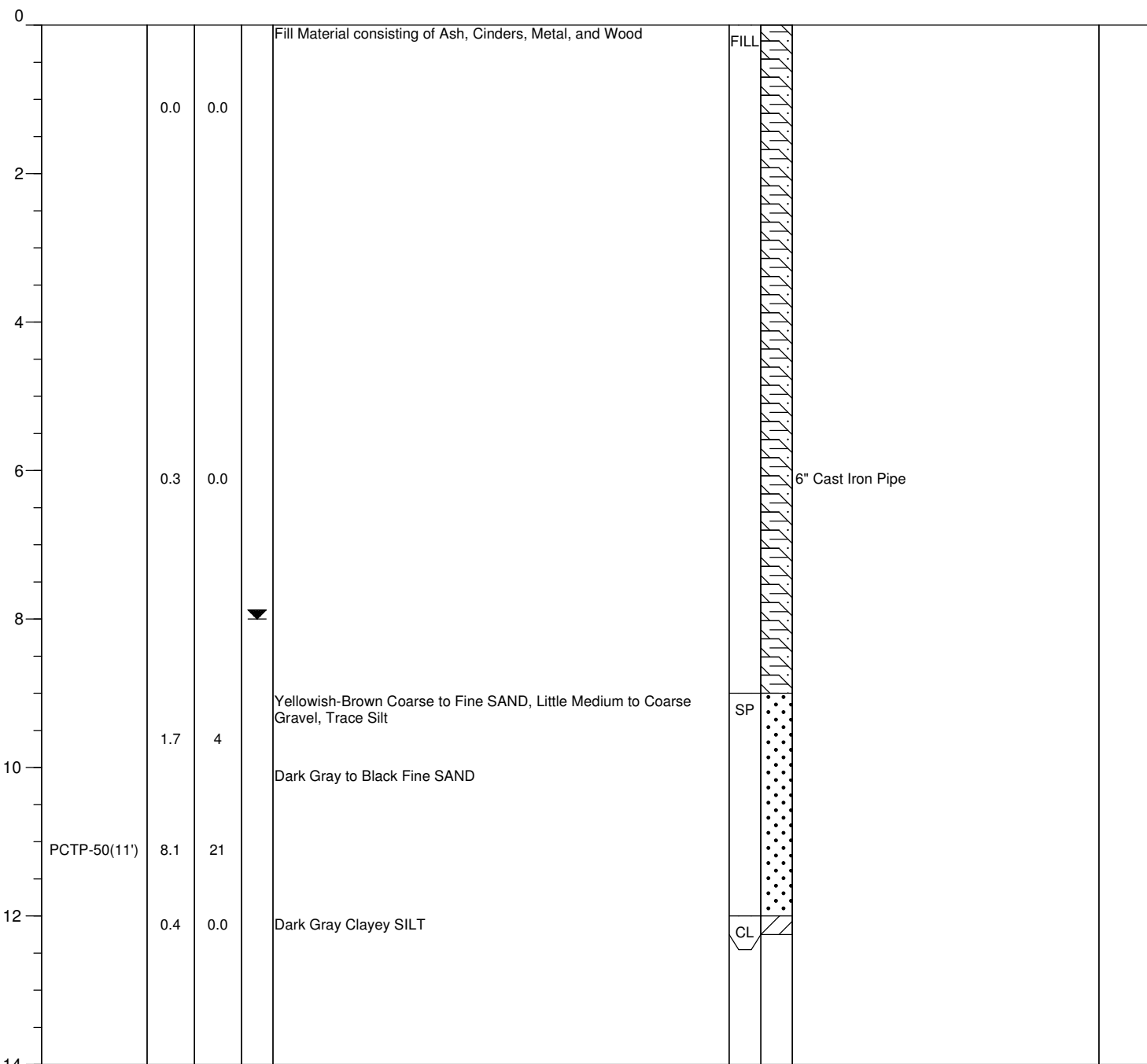
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Overcast 30 deg. F
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 12.68'
 DATE BEGUN: February 23, 2005
 DATE COMPLETED: February 23, 2005




DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Cloudy 35 deg. F
 TOTAL DEPTH: 13'
 GROUND SURFACE ELEVATION: 15.50'
 DATE BEGUN: February 22, 2005
 DATE COMPLETED: February 22, 2005











DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Red-Brown Fine to Medium SAND, Little Silt with Fill Material consisting of Brick, Concrete, Rebar, Pipes, Tires, Tile, Wood, Ash and Cinders	FILL			
2		0.0	0.0						
4		0.0	0.0	▼					
6		0.0	0.0						
8					Gray Fine to Coarse SAND, Trace Silt	SM			
10	PCTP-51(11')	5.2	13					Slight Petroleum-Like Odor	
12		0.0	0.0		Gray Silty Sandy CLAY with Black Organic Material	MH			
14									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Cloudy 35 deg. F
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 13.84'
 DATE BEGUN: February 22, 2005
 DATE COMPLETED: February 22, 2005


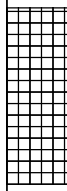


DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Red-Brown Fine to Medium SAND, Trace Silt with Fill Material consisting of Brick, Concrete, Metal and Wood	FILL			
2		0.0	0.0						
4		0.0	0.0						
6					Fill Material consisting of Brick, Concrete, Metal, Wood, Ash and Cinders				
7.5	PCTP-52(7')	0.1	0.0	▼					
10		0.0	0.0						
12		0.0	0.0		Grayish Black Silty SAND	SP			
13		0.0	0.0		Gray Fine SAND, Little Silt, Some Fine to Very Coarse Gravel				
14		0.1	0.0		Brown Fine to Coarse GRAVEL	GP			
15		0.0	0.0		Grayish Black Silty CLAY	CL			
16									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Cloudy 35 deg. F
 TOTAL DEPTH: 13'
 GROUND SURFACE ELEVATION: 15.44'
 DATE BEGUN: February 22, 2005
 DATE COMPLETED: February 22, 2005

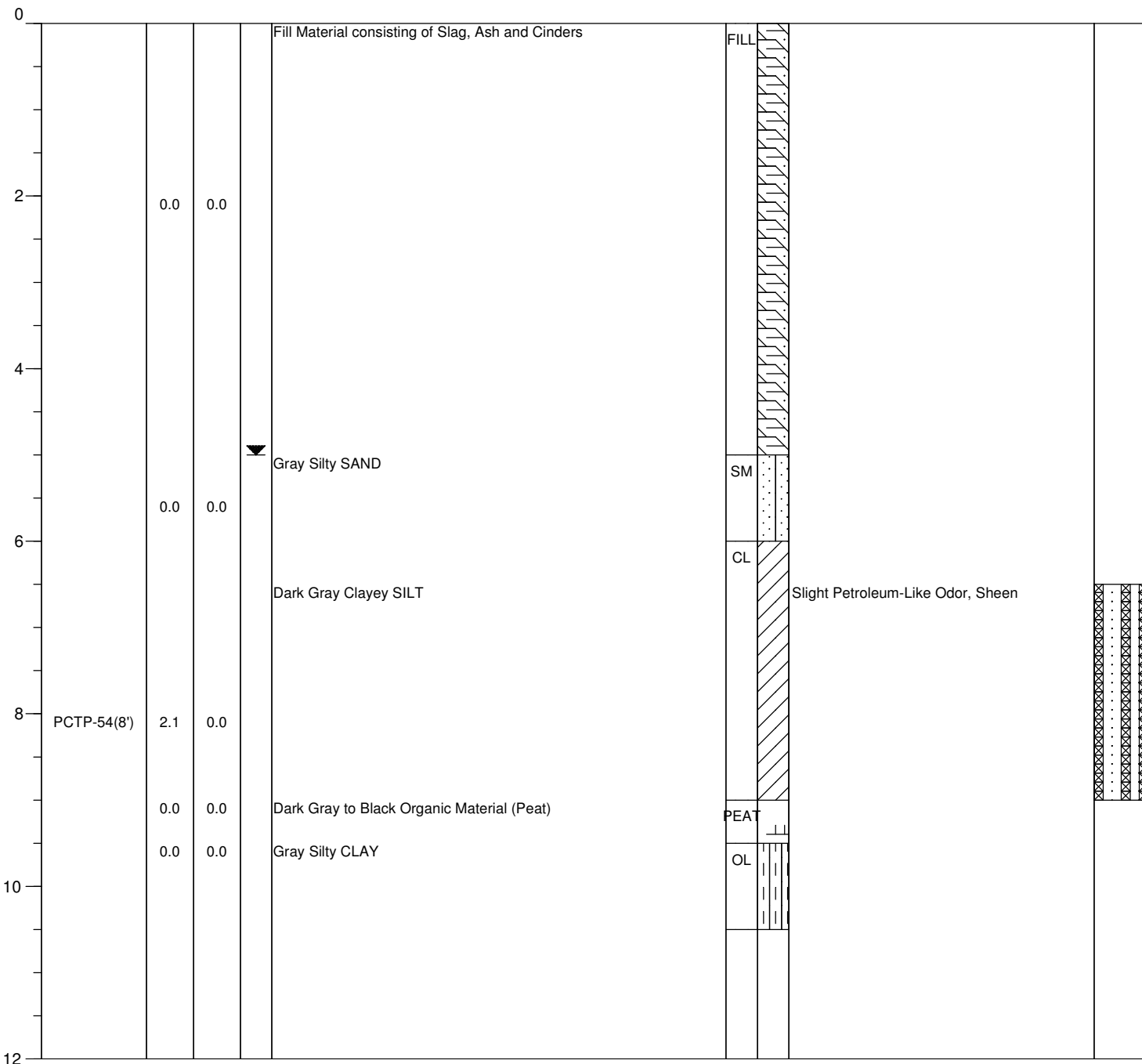
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Red-Brown Fine To Medium SAND, Little Silt with Fill Material consisting of Brick, Concrete, Metal and Pipe	FILL			
2		0.0	0.0						
4		0.5	0.0						
6									
8		0.9	0.0	▼	Fill Material consisting of Ash, Cinders, Wood, Brick, Coal and Concrete				
10	PCTP-53(10')	0.8	0.0		Brown Fine to Coarse SAND, Little Coarse Gravel with Ash and Cinders			Slight Petroleum-Like Odor, Soil stained and exhibits a Sheen	
12		0.8	0.0		Gray Fine SAND, Little Silt	SP			
14					Black Organic Clayey SILT	OL			

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Snow 20 deg. F
 TOTAL DEPTH: 10.5'
 GROUND SURFACE ELEVATION: 8.68'
 DATE BEGUN: February 28, 2005
 DATE COMPLETED: February 28, 2005

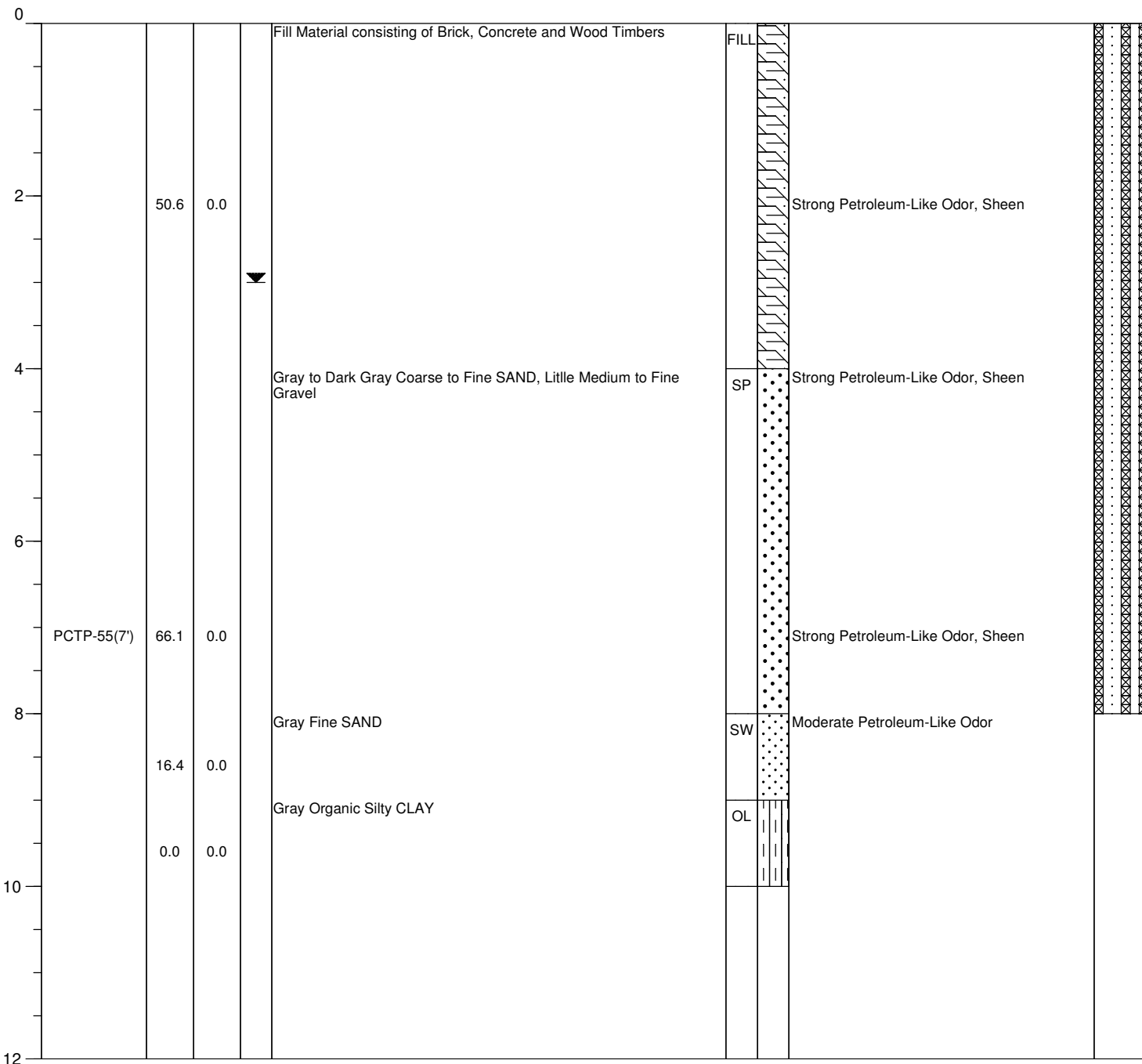
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Snow 20 deg. F
 TOTAL DEPTH: 10'
 GROUND SURFACE ELEVATION: 8.51'
 DATE BEGUN: February 28, 2005
 DATE COMPLETED: February 28, 2005







DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Snow 20 deg. F
 TOTAL DEPTH: 13'
 GROUND SURFACE ELEVATION: 8.46'
 DATE BEGUN: February 28, 2005
 DATE COMPLETED: February 28, 2005

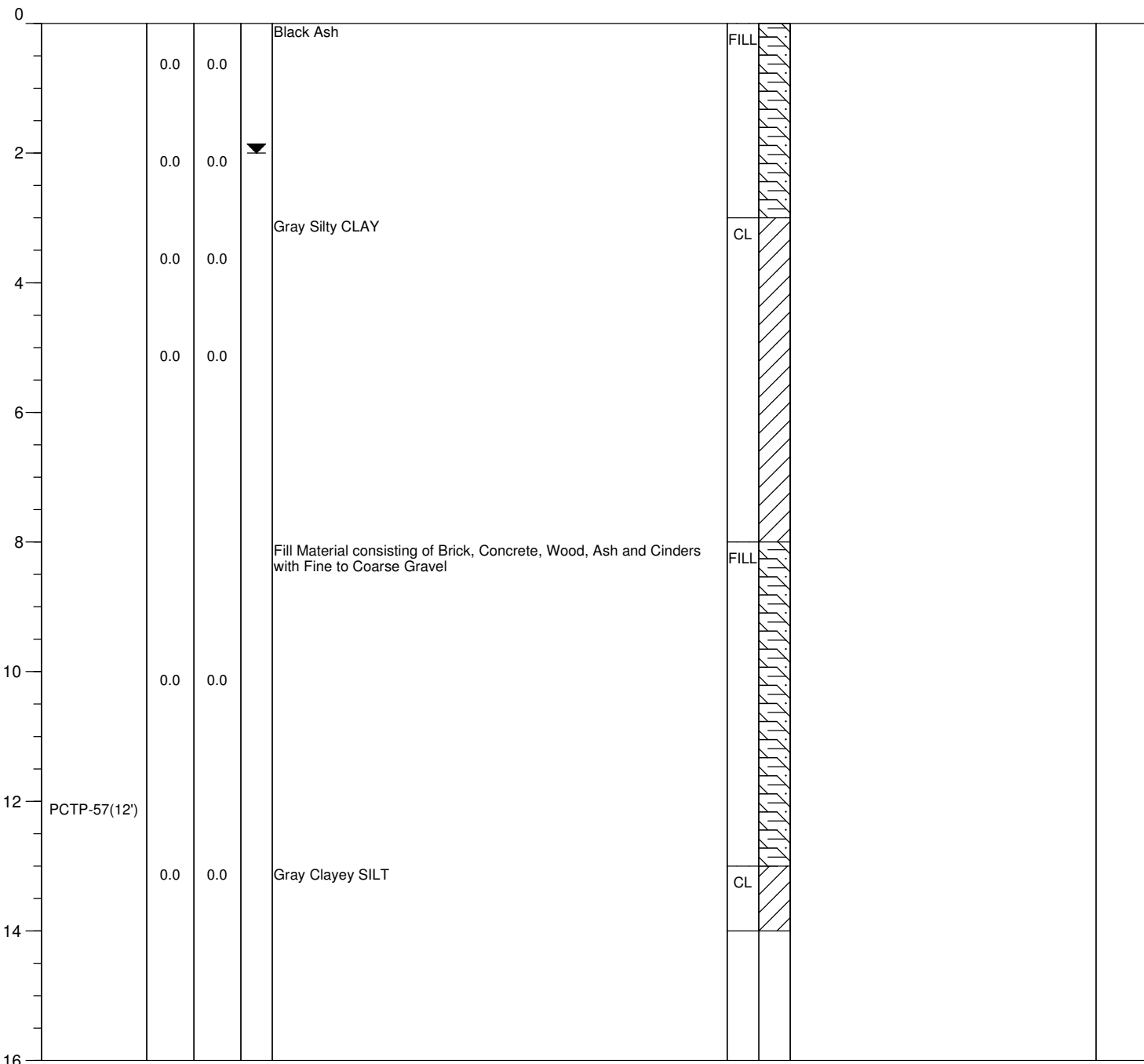
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Black Ash, Cinders and Slag	FILL			
2		0.0	0.0	▼				Water Entering Test Pit Exhibits a Sheen	
4									
6		2.1	0.0		Orange Coarse to Medium SAND, Little Medium to Fine Gravel	SP			
8	PCTP-56(8')	0.0	0.0		Fill material consisting of Wood Timbers, Ash and Cinders	FILL		Moderate Creosote-Like Odor, Sheen	
10					Cork				
10		0.0	0.0		Dark Gray to Black Organic Material	PEAT			
12		0.0	0.0		Gray Silty CLAY	OL			
14									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Overcast 30 deg. F
 TOTAL DEPTH: 14'
 GROUND SURFACE ELEVATION: 7.38'
 DATE BEGUN: February 25, 2005
 DATE COMPLETED: February 25, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Snow 30 deg. F
 TOTAL DEPTH: 8'
 GROUND SURFACE ELEVATION: 7.51'
 DATE BEGUN: February 24, 2005
 DATE COMPLETED: February 24, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					Black Fine SAND with Ash and Cinders		FILL		
2	PCTP-58(2')	3.6	0.0						
4		0.0	0.0	▼					
6		0.0	0.0						
8		0.0	0.0		Dark Gray Silty CLAY	CL			
10									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

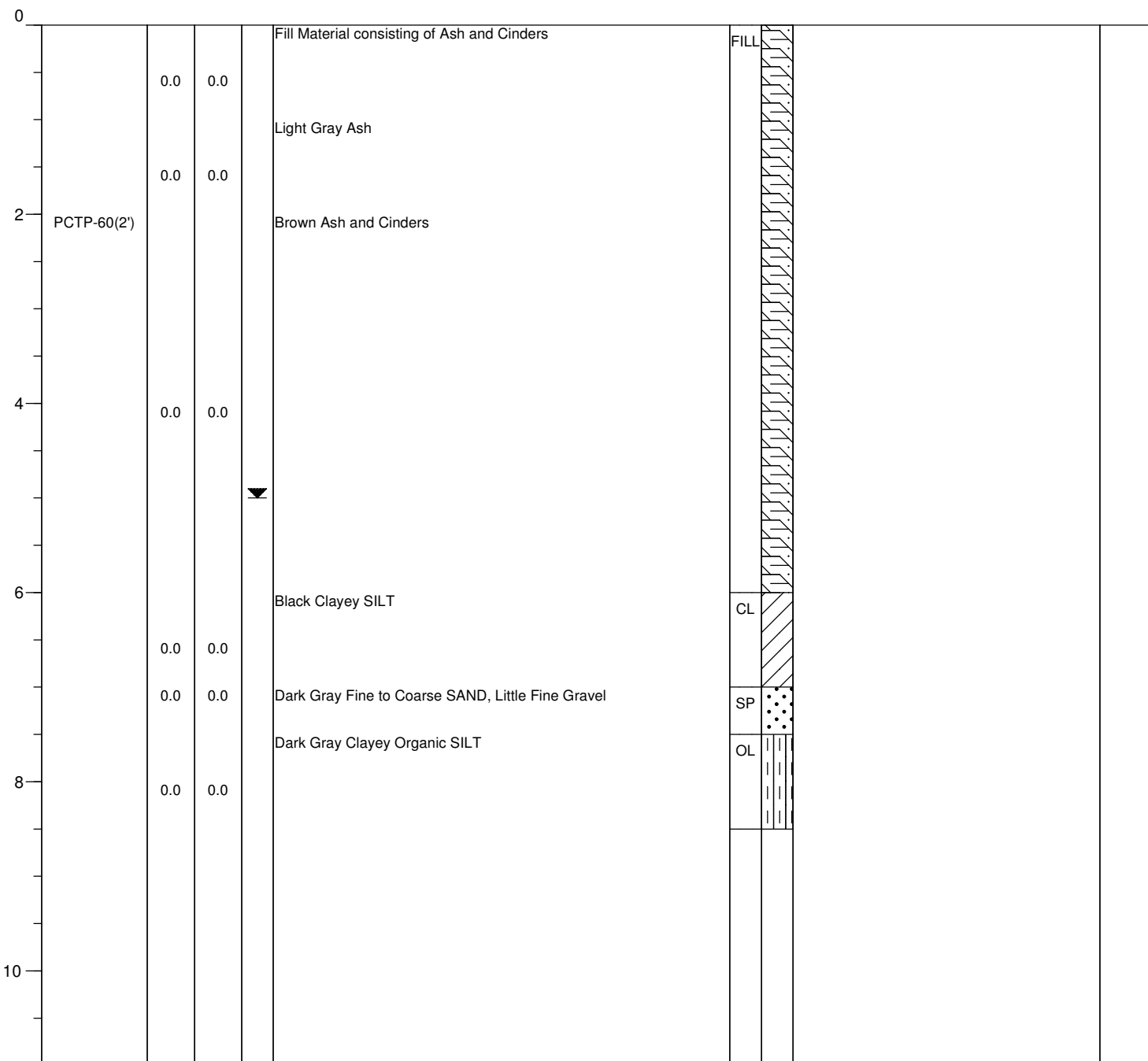
WEATHER: Overcast 30 deg. F
 TOTAL DEPTH: 9'
 GROUND SURFACE ELEVATION: 9.15'
 DATE BEGUN: February 25, 2005
 DATE COMPLETED: February 25, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					Black Fine SAND with Ash and Cinders		FILL		
2		0.0	0.0						
5.5	PCTP-59(5)	10.4	0.0					Moderate Petroleum-Like Odor, Sheen	
6				▼					
7	PCTP-59(7)	6.3	0.0						
8		0.0	0.0		Dark Gray Organic Clayey SILT	CL			
10									

PROJECT NUMBER: 2522-212-92
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: John Pastorick/Joe Trocchio

WEATHER: Overcast 30 deg. F
 TOTAL DEPTH: 9'
 GROUND SURFACE ELEVATION: 5.72'
 DATE BEGUN: February 25, 2005
 DATE COMPLETED: February 25, 2005

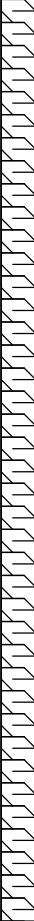
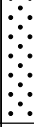
DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny, Hot & Humid
 TOTAL DEPTH: 8'
 GROUND SURFACE ELEVATION: 20.63267'
 DATE BEGUN: September 8, 2005
 DATE COMPLETED: September 8, 2005








DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Fill: Brown F-SAND, some f-m Gravel, trace brick fragments, dry.	Fill			
	PCTP-61(0.5')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0		Fill: Ash and Cinders, little f-m SAND and GRAVEL, dry.				
4		0.0	0.0						
		0.0	0.0						
6		0.0	0.0						
		0.0	0.0						
		0.0	0.0		Gray m-c SAND, some f-m Gravel, moist to wet.	SP			
8	PCTP-61(7.5')	0.0	0.0	▼					
10									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny, Hot & Humid
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 15.33164'
 DATE BEGUN: September 8, 2005
 DATE COMPLETED: September 8, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Fill: Brown F-SAND, GRAVEL, BRICK, CONCRETE, trace metal fragments and former wood railroad tie, dry.	Fill			
	PCTP-62(0.5')	0.0	0.0						
2		0.0	0.0		Fill: SLAG and Gray f-SAND, dry.				
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0						
6		0.0	0.0						
		0.0	0.0						
8		0.0	0.0						
		0.0	0.0						
10		0.0	0.0						
	PCTP-62(10.5')	0.0	0.0						
		0.0	0.0	▼	Gray f-m SAND, little f-Gravel, wet.	SM			
12		0.0	0.0						
14									


PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny, Hot & Humid
 TOTAL DEPTH: 11'
 GROUND SURFACE ELEVATION: 15.33164'
 DATE BEGUN: September 8, 2005
 DATE COMPLETED: September 8, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					Fill: Brown f-m SAND, some brick, concrete, gravel and scrap metal, dry.		Fill		
	PCTP-63(0.5')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0		Fill: DO 0-3', increase municipal trash and cobble.				
4		0.0	0.0						
		0.0	0.0						
6		0.0	0.0						
		0.0	0.0						
8		0.0	0.0						
		0.0	0.0		Gray f-Sand, trace Silt, moist to wet a 11'.	SM			
10	PCTP-63(10.5')	0.0	0.0						
		0.0	0.0	▼					
12									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny, Hot & Humid
 TOTAL DEPTH: 10'
 GROUND SURFACE ELEVATION: 15.89326'
 DATE BEGUN: September 8, 2005
 DATE COMPLETED: September 8, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					Fill: Brown f-m SAND, little Silt and Gravel, trace concrete and brick, dry.	Fill			
	PCTP-64(0.5')	0.0	0.0						
					Fill: Brown f-m SAND and Gravel, dry.				
2		0.0	0.0		Fill: Orange f-m SAND, some Gravel, little Silt, dry.				
		0.0	0.0						
4		0.0	0.0		Fill: Gray f-m SAND, little c-Sand and Gravel, trace coal fragments.				
		0.0	0.0						
6		0.0	0.0						
	PCTP-64(7.0')	0.0	0.0						
				▼					
		0.0	0.0						
		0.0	0.0						
10		0.0	0.0						
		0.0	0.0						
12									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny, Hot & Humid
 TOTAL DEPTH: 9'
 GROUND SURFACE ELEVATION: 17.72435'
 DATE BEGUN: August 9, 2005
 DATE COMPLETED: August 9, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Fill: Crushed stone		Fill		
	PCTP-65(0.5')	0.0	0.0		Fill: Ash, slag and Gravel, dry.				
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0						
6		0.0	0.0						
		0.0	0.0		Gray f-SAND, trace Silt, moist to wet.	SM			
8	PCTP-65(7.5')	0.0	0.0	▼					
		0.0	0.0						
10									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny, Hot & Humid
 TOTAL DEPTH: 8'
 GROUND SURFACE ELEVATION: 14.83369'
 DATE BEGUN: August 9, 2005
 DATE COMPLETED: August 9, 2005

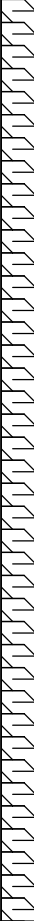


DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Fill: Gray f-SAND, some slag, gravel and ash.	Fill		Liquid Tar-like material entering into test pit at 1.0' bgs.	
	PCTP-66(0.5')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0						
6		0.0	0.0						
		0.0	0.0						
8	PCTP-66(7.5')	0.0	0.0	▼	Gray f-SAND, wet.	SP			
10									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny, Hot & Humid
 TOTAL DEPTH: 8.5'
 GROUND SURFACE ELEVATION: 14.6043'
 DATE BEGUN: September 12, 2005
 DATE COMPLETED: September 12, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Fill: Ash, cinder, slag, some black f-Sand, dry.	Fill			
	PCTP-67(0.5')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0						
6		0.0	0.0						
		0.0	0.0						
		0.0	0.0		Gray f-Sand, some Silt.	SM			
8	PCTP-67(8.0')	0.0	0.0						
									
10									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny, Hot & Humid
 TOTAL DEPTH: 6.5'
 GROUND SURFACE ELEVATION: 4.183468'
 DATE BEGUN: September 9, 2005
 DATE COMPLETED: September 9, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Fill: Ash, coal, trace f-m gravel, dry	Fill			
	PCTP-68(0.5')							Semi-solidified tar-like material	
		79	0.0		Slag, ash, black f-SAND, with wood and metal fragments				
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0						
6	PCTP-68(6.0')	0.0	0.0						
				▼					
8									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny, Hot & Humid
 TOTAL DEPTH: 18'
 GROUND SURFACE ELEVATION: 4.77542'
 DATE BEGUN: September 9, 2005
 DATE COMPLETED: September 9, 2005


DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Fill: Ash, slag, asphalt, pieces of coal, concrete and brick, dry.		Fill		
	PCTP-69(0.5')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0						
6		0.0	0.0						
		0.0	0.0						
8		0.0	0.0						
		0.0	0.0						
10		0.0	0.0						
		0.0	0.0						
12		0.0	0.0		White-brown Silty CLAY, moist.	CL			
		0.0	0.0						
14		0.0	0.0						
		0.0	0.0						
16		0.0	0.0						
		0.0	0.0						
18	PCTP-69(17.5')	0.0	0.0	▼	Red-brown sandy CLAY				
20									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny, Hot & Humid
 TOTAL DEPTH: 18.5'
 GROUND SURFACE ELEVATION: 4.77542'
 DATE BEGUN: September 9, 2005
 DATE COMPLETED: September 9, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Fill: Orange-black f-SAND, some f-c Gravel, trace cobble, dry (decreasing gravel and cobbles with depth)	FILL			
	PCTP-70(0.5')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0						
6		0.0	0.0						
		0.0	0.0						
8		0.0	0.0						
		0.0	0.0						
10		0.0	0.0						
	PCTP-70(18')	0.0	0.0						
12		0.0	0.0						
		0.0	0.0						
14		0.0	0.0						
		0.0	0.0						
16		0.0	0.0						
		0.0	0.0						
18		0.0	0.0	▼					
20									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny, Hot & Humid
 TOTAL DEPTH: 18'
 GROUND SURFACE ELEVATION: 12.85062'
 DATE BEGUN: September 9, 2005
 DATE COMPLETED: September 9, 2005


DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Fill: Orange-brown f-SAND, some f-c Gravel, little cobble, dry.				
0.5	PCTP-71(0.5')	0.0	0.0						
2		0.0	0.0						
4		0.0	0.0						
6		0.0	0.0						
8		0.0	0.0						
10		0.0	0.0						
12		0.0	0.0						
14		0.0	0.0						
16		0.0	0.0						
17.5	PCTP-71(17.5')	0.0	0.0	▼					
18									
20									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny, Hot & Humid
 TOTAL DEPTH: 13'
 GROUND SURFACE ELEVATION: 10.63713'
 DATE BEGUN: September 9, 2005
 DATE COMPLETED: September 9, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown f-SAND, some f-Gravel, trace brick, concrete, rebar and tree roots, dry.	Fill			
	PCTP-72(0.5')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0		COAL and SLAG				
6		0.0	0.0						
		0.0	0.0						
8		0.0	0.0		DO 0-5', increase in municipal trash, ash and f-m Gravel.				
		0.0	0.0						
10		0.0	0.0						
		0.0	0.0						
12	PCTP-72(12.0')	0.0	0.0	▼					
		0.0	0.0						
14									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny, Hot & Humid
 TOTAL DEPTH: 10'
 GROUND SURFACE ELEVATION: 7.269102'
 DATE BEGUN: September 9, 2005
 DATE COMPLETED: September 9, 2005


DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown f-SAND, some brick, wood, metal, trace tree root fragments and f-m Gravel, dry.		Fill		
	PCTP-73(0.5')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0						
6		0.0	0.0						
		0.0	0.0						
8		0.0	0.0		SLAG and ASH				
		0.0	0.0						
10	PCTP-73(9.5')	0.0	0.0	▼					
12									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny, Hot & Humid
 TOTAL DEPTH: 13'
 GROUND SURFACE ELEVATION: 9.298543'
 DATE BEGUN: September 9, 2005
 DATE COMPLETED: September 9, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown f-SAND, some concrete and brick, trace f-m Gravel and rebar, loose, dry.	Fill			
	PCTP-74(0.5')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0						
6		0.0	0.0						
		0.0	0.0						
8		0.0	0.0						
		0.0	0.0						
10		0.0	0.0						
		0.0	0.0						
12		0.0	0.0		SLAG				
	PCTP-74(12.5')	0.0	0.0	▼					
14									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio


WEATHER: Sunny, Hot & Humid
 TOTAL DEPTH: 13'
 GROUND SURFACE ELEVATION: 7.426466'
 DATE BEGUN: September 9, 2005
 DATE COMPLETED: September 9, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					Fill: Concrete, brown to black f-SAND and ASH, trace brick and plastic fragments, dry		Fill		
	PCTP-75(0.5')	0.0	0.0						
2		0.0	0.0		SLAG, COAL and WOOD, dry.				
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0						
6		0.0	0.0						
		0.0	0.0						
8		0.0	0.0						
		0.0	0.0						
10		12.1	0.0		Black f-SAND (tight), potentially solidified tar, some orange-brown f-Sand			Slight to moderate yellow-brown oil-like saturation	
	PCTP-75(11.0')	0.0	0.0						
12		0.0	0.0	▼					
14									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny, Hot & Humid
 TOTAL DEPTH: 6.5'
 GROUND SURFACE ELEVATION: 7.426466'
 DATE BEGUN: September 12, 2005
 DATE COMPLETED: September 12, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown f-SAND and f-c Gravel, some cobble, trace brick fragments, dry	Fill			
	PCTP-76(0.5')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0						
6		0.0	0.0						
	PCTP-76(6.5')				Refusal at 6.5'; GW not encountered				
8									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio


WEATHER: Sunny, Hot & Humid
 TOTAL DEPTH: 11'
 GROUND SURFACE ELEVATION: 14.12213'
 DATE BEGUN: September 12, 2005
 DATE COMPLETED: September 12, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown f-SAND, cobble, concrete, brick, pipe, wood, plastic and tires		FILL		
	PCTP-77(0.5')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0						
6		0.0	0.0						
		0.0	0.0						
8		0.0	0.0						
		0.0	0.0						
10		0.0	0.0						
	PCTP-77(10.5')	0.0	0.0		Ash, cinders and slag				
12		0.0	0.0	▼					

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny, Hot & Humid
 TOTAL DEPTH: 10'
 GROUND SURFACE ELEVATION: 17.29974'
 DATE BEGUN: September 12, 2005
 DATE COMPLETED: September 12, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0					BRICK, some brown f-Sand, dry				
	PCTP-78(0.5')	0.0	0.0			Fill			
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0						
6		0.0	0.0						
		0.0	0.0						
8		0.0	0.0						
		0.0	0.0						
10	PCTP-78(9.5')	0.0	0.0	▼					
12									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny, Hot & Humid
 TOTAL DEPTH: 10.5'
 GROUND SURFACE ELEVATION: 14.99253'
 DATE BEGUN: September 12, 2005
 DATE COMPLETED: September 12, 2005


DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					Brown f-SAND, some concrete, brick and f-m Gravel, dry		Fill		
	PCTP-79(0.5')	0.0	0.0						
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0						
		0.0	0.0		Ash, cinder, trace f-Gravel, and wood.				
6		0.0	0.0						
		0.0	0.0						
8		0.0	0.0						
		0.0	0.0						
10	PCTP-79(10.0')	0.0	0.0						
				▼					
12									

PROJECT NUMBER: 2522-212-920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, Pennsylvania
 EXCAVATION CO: Haines & Kibblehouse, Inc.
 EXCAVATION METHOD: CAT 325 Trackhoe
 OPERATOR: Jim Spiece
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny, Hot & Humid
 TOTAL DEPTH: 8.5'
 GROUND SURFACE ELEVATION: 19.60699'
 DATE BEGUN: September 12, 2005
 DATE COMPLETED: September 12, 2005

DEPTH	SAMPLE NUMBER	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0					BRICK, trace rubber tires, dry. (No surface sample collected due to presence of brick foundation)	Fill			
		0.0	0.0						
2		0.0	0.0						
		0.0	0.0						
4		0.0	0.0		Concrete, dry.				
		0.0	0.0						
6		0.0	0.0						
		0.0	0.0						
8	PCTP-79(8.0')	0.0	0.0		BRICK, some Silt, moist to wet.				
				▼					
10									

























PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling, Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Windy 20 deg. F
 TOTAL DEPTH: 44'
 GROUND SURFACE ELEVATION: 18.76'
 DATE BEGUN: February 18, 2005
 DATE COMPLETED: February 18, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		12	0	0		Brown fine SAND, trace fine gravel with Fill Material consisting of Brick	FILL			
2		7	0	0		Orange-brown fine SAND, and Fill Material consisting of Brick and Concrete fragments, dry				
4		15	0	0						
6		4	0	0		Gray medium to fine, angular to subangular GRAVEL, 0.25 - 0.5 diameter, dry.				
8		3	0	0		Yellow-brown fine SAND and fine Gravel, and Fill material consisting of Brick fragments, silt and mica, dry				
10		18	0	0						
12		16	244	0					Saturated, Moderate Petroleum-Like Odor	
14		14	1050	0	▼	Black SILT, moist.	ML		Strong Petroleum-Like Odor	
16	PCSB-01 (14.5')	24	308	0		Gray fine SAND, wet.	SP		Strong Petroleum-Like Odor	
18		12	0	0		Light brown sandy SILT, trace clay, slightly plastic, moist	OL			
20	PCSB-01 (18.5')	11	0	0		Light brown to tan fine SAND, wet	SP			
22		18	0	0		Light brown SILT, some sand, increase in clay and plasticity from 6-18", wet	OL			
24		18	0	0		Orange-brown sandy SILT, 0.5-inch lenses of fine sand, moist				
26		10	0	0						
28		14	0	0		Silty SAND, wet				
30		20	0	0		Orange-brown SILT, trace fine Sand and mica, wet.				
32		18	0	0						
34		1	0	0		Orange-brown fine SAND, wet	SW			
36		18	0	0		Orange-brown fine SAND, trace of fine to medium gravel, lens of iron mottling at 10 and 14 inches, fine to medium gravel in bottom 3-inches, some silty Sand, wet				
38		1	0	0						
40		13	0	0						
42		1	0	0						
44										
46										











PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny 35 deg. F
 TOTAL DEPTH: 50'
 GROUND SURFACE ELEVATION: 12.28'
 DATE BEGUN: March 4, 2005
 DATE COMPLETED: March 4, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		14	0	0		Black fine SAND, and Fill Material consistng of Brick, Ash, Slag, moist	FILL			
2		12	0	0		Orange-brown fine SAND, and Fill Material consisting of Slag, moist				
4		12	0	0		Brown fine SAND, trace Silt, moist to wet @ 5 ft-bgs. Dark brown silty SAND, wet				
6		3	0	0		Dark gray silty SAND, trace mica, wet, coal fragments				
8		11	0	0		Dark gray silty SAND, increase in silt content at bottom of spoon				
10		7	0	0		Dark gray clayey SILT, moist to wet Dark gray silty CLAY, trace peat, moist	SP			
12		10	0	0		Dark gray clayey SILT, moist to wet Dark gray silty CLAY, trace peat, moist	OL		Strong Hydrogen Sulfide Odor	
14		0	0	0		Clayey SILT, slightly plastic				
16	PCSB-02 (16')	12	0	0		Dark brown clayey SILT, trace peat fibers.				
18		6	0	0		Gray fine SAND, trace silt, moist to wet.	SP			
20		6	0	0		Brown fine SAND and fine/medium Gravel, wet				
22		8	0	0		Orange-brown fine/coarse SAND, some fine/medium gravel, wet.				
24		0	0	0		Yellow-brown fine SAND and clayey SILT, tight.	SM			
26		2	0	0		Yellow-brown fine SAND, clayey Silt, dry to moist.				
28		12	0	0						
30		0	0	0						
32		10	0	0						
34		1	0	0						
36		8	0	0						
38		0	0	0						
40		10	0	0						
42		6	0	0						
44		1	0	0						
46		8	0	0						
48		7	0	0						
50										
52										

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny 40 deg. F
 TOTAL DEPTH: 50'
 GROUND SURFACE ELEVATION: 14.61'
 DATE BEGUN: March 4, 2005
 DATE COMPLETED: March 7, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		18				Black fine SAND, and Fill Material consisting of Brick and Slag	FILL			
2		10	0	0						
4		0	0	0						
6		6	0	0		Gray fine SAND, trace medium - coarse Sand, wet				
8		18	0	0						
10		6	0	0		Gray fine SAND, and Fill Material consisting of Slag and Ash, wet				
12		3	0	0		Sandy SILT, wet	SM			
14	PCSB-03 (14')	10	0	9.3		Gray silty CLAY, trace organics	OL		Moderate Petroleum-Like Odor	
16		0	4.1	0						
18		0								
20		5				Gray clayey SILT, trace mica and organics (peat), moist	MH			
22		18	.2	0						
24		12	3.4	0		CLAY, trace silt	OL			
26	PCSB-03 (25')	12	0	0						
28		14	0	0		Silty CLAY, trace fine-medium gravel				
30		12	0	0		Yellow-brown fine SAND, some fine-medium gravel, trace medium-coarse sand, wet	SW			
32		1	0	0						
34		16	0	0						
36		7	0	0						
38		4	0	0						
40		12	0	0		Light gray SILT, trace fine sand, slightly plastic, tight	SM			
42		14	0	0						
44		12	0	0						
46		15	0	0						
48		18	0	0						
50		7	0	0						
52										

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny 45 deg. F
 TOTAL DEPTH: 50'
 GROUND SURFACE ELEVATION: 15.61'
 DATE BEGUN: March 7, 2005
 DATE COMPLETED: March 7, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		18				Black fine SAND, trace fine gravel, and Fill Material consisting of Slag, dry	FILL			
2		10	0	0						
4	PCSB-04 (4')	0	0	0		Dark brown to brown silty SAND, trace fine gravel, moist to wet			Blue-green coloration of soil	
6		6	0	0		Black fine SAND, trace fine gravel, with Fill material consisting of Slag, dry				
8		18	0	0		Dark gray sandy SILT, trace mica, wet	OL			
10		6	0	0						
12	PCSB-04 (12')	3	1.4	0		Black to Dark brown sandy SILT, trace root fragments, wet			Slight Petroleum-like Odor	
14		10								
16		0								
18		0								
20		5	2.1	0		Dark gray sandy SILT, moist				
22		18	0	0		Silty CLAY, lenses of fine sand, some to little peat and organic fragments, moist				
24		12	0	0						
26	PCSB-04 (25')	14	0	6						
28		12	0	0		Silty CLAY, increase of fine sand lenses, decrease of silty clay, trace to no organics				
30		1	0	0		Orange-brown to yellow-brown fine to coarse SAND, some fine-coarse gravel, tight, wet	SW			
32		16	0	0						
34		7	0	0						
36		4	0	0						
38		12	0	0						
40		14	0	0		Light gray to white fine SAND, wet				
42		12	0	0		Light gray to white fine SAND, increase in fine to medium gravel from 8-14" at bottom of spoon, wet				
44		15	0	0		Orange-yellow sandy SILT, some clay slightly plastic, moist to dry (white mottling - most likely clay throughout)				
46		18	0	0						
48		7	0	0						
50										
52										










PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Windy 25 deg. F
 TOTAL DEPTH: 92'
 GROUND SURFACE ELEVATION: 8.09'
 DATE BEGUN: March 2, 2005
 DATE COMPLETED: March 2, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0						White silty SAND				
2	6	0	0	0		Fill Material consisting of Ash, clinker, brick, concrete fragments	FILL			
4	0	0	0	0		Brown fine SAND, some fine to medium gravel, moist				
6	4	0	0	0		Brown fine SAND, some fine to medium gravel, wet				
8	12	0	0	0		Gray sandy SILT, trace mica	SM			
10	12	0	0	0		Gray sandy SILT, trace mica, trace peat fiber				
12	14	0	0	0		Gray to red-brown silty CLAY	CL			
14	17	0	0	0		Brown fine-coarse SAND, some fine-medium gravel, silt, wet	SW			
16	14	0	0	0		Brown fine SAND, 1-inch lens of fine gravel at top of spoon, wet				
18	16	6	6	6		Red-brown fine SAND, trace fine-medium gravel, wet				
20	22	0	0	0		Red-brown fine SAND, trace silt, wet				
22	12	0	0	0		Red-brown fine SAND, trace silt, wet				
24	0	0	0	0		Gray fine SAND, wet				
26	10	0	0	0		Red-brown fine SAND, some fine-medium gravel, trace silt, wet				
28	12	0	0	0		Fine-medium SAND and gravel, wet				
30	6	0	0	0						
32	7	0	0	0						
34	12	0	0	0						
36	0	0	0	0						
38	12	0	0	0						
40	0	0	0	0						
42	12	0	0	0						
44	0	0	0	0						
46	12	0	0	0		Gray fine SAND				
48	12	0	0	0						
50	14	0	0	0						
52										
54										
56	10	0	0	0		Brown fine-coarse SAND and fine Gravel, wet				
58										
60	7	0	0	0						
62										
64										
66	12	0	0	0		Orange-yellow to gray Schist, weathered, tight, dry	SCHIST			
68										
70	12	0	0	0		Weathered gray schist with garnett				
72										
74										
76	18	0	0	0						
78										
80										
82	12	0	0	0						
84										
86	12	0	0	0						
88										
90										
92	12	0	0	0						
94										

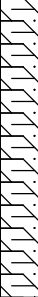





PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Rain/Windy 40 deg. F
 TOTAL DEPTH: 50'
 GROUND SURFACE ELEVATION: 15.89'
 DATE BEGUN: March 7, 2005
 DATE COMPLETED: March 8, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		3				Black fine SAND, with Fill Material consisting of Brick fragments, dry	FILL			
2		11	0	0	▼	Black fine SAND, trace fine gravel with Fill Material consisting of Slag, wet				
4		6	0	0		Black fine SAND, some fine gravel, with Fill Material consisting of Slag (1-inch lense of silty sand from 4-5 inches), wet				
6		13	0	0		Black fine SAND, trace fine gravel, with Fill Material consisting of Slag and Coal fragments, wet,				
8		18	0	0		Dark gray sandy SILT, trace mica, wet	ML			
10		12	0	0		Dark gray sandy SILT, trace clay, wet				
12		18	0	0		Dark gray clayey SILT, moist			Moderate Petroleum-Like Odor	
14	PCSB-06 (13')	0	2.9	0					Moderate Petroleum-Like Odor	
16		12	0	0		Gray silty CLAY, moist	OL			
18		12	0	0		Gray silty CLAY, trace organics and fine gravel, moist				
20		16	.7	0		Gray silty CLAY and organics (peat and root mass), moist				
22		16	0	0		Gray CLAY, trace organics, moist				
24	PCSB-06 (23.5')	21	0	0						
26		20	0	6						
28		6	0	0		Red-brown sandy SILT, wet	ML			
30		2	0	0		Brown fine to coarse SAND, trace gravel, wet	SW			
32		10	0	0						
34		5	0	0						
36		9	0	0						
38		10	0	0						
40		7	0	0		Light gray to white fine SAND, some silt and clay, trace fine-medium gravel, mica, tight, moist	SM			
42		6	0	0						
44		12	0	0						
46		7	0	0						
48		10	0	0						
50			0							
52										


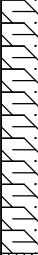

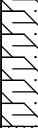





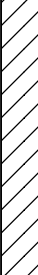


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Rain/Windy 40 deg. F
 TOTAL DEPTH: 34'
 GROUND SURFACE ELEVATION: 11.26'
 DATE BEGUN: March 8, 2005
 DATE COMPLETED: March 8, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		14	0	0		Brown silty SAND, little gravel, with Fill Material consisting of Ash and Cinders	FILL			
2		12	0	0						
4		14	0	0	▼					
6		6	0	0						
8		6	0	0		Gray sandy SILT	ML			
10		10	0	0		Gray clayey SILT				
12		14	0	0		Gray sandy SILT, trace gravel				
14	PCSB-07 (14')	14	0	0					Sheen, Slight Petroleum-Like odor	
16		12	0	0						
18		0	0	0						
20		18	0	0		Gray SILT, trace organics (peat)	OL			
22	PCSB-07 (21.5')	14	0	0						
24		10	0	0						
26		16	0	6						
28		12	0	0						
30		12	0	0		Gray sandy SILT	ML			
32		14	0	0		Brown SAND and Gravel, little silt	SW			
34			0							
36										
























PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Windy 20 deg. F
 TOTAL DEPTH: 40'
 GROUND SURFACE ELEVATION: 13.51'
 DATE BEGUN: March 9, 2005
 DATE COMPLETED: March 9, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		11				Black silty SAND, with Fill Material consisting of Brick and Coal	FILL			
2		9	0	0						
4		13	0	0		Black fine SAND, trace medium-coarse Sand, moist				
6		12	0	0		Black silty SAND, with Fill Material consisting of Brick and Coal, dry				
8		10	0	0	▼	Gray to light brown fine SAND, trace medium gravel, wet				
10		14	0	0		Black fine SAND, with Fill Material consisting of Slag and Wood				
12	PCSB-08 (10.5')	12	5.9	0		Gray silty SAND, trace fine gravel, wet	OL			
14		0	.1	0						
16		18	0	0		Dark gray clayey SILT, moist				
18		18	0	0		Dark gray clayey SILT, trace peat fibers, moist				
20	PCSB-08 (19')	11	0	0		Brown SILT, less clay, moist				
22		12	0	0						
24		12	0	0		Brown to gray CLAY, some silt, moist, increase in clay stiffness at bottom of spoon	CL			
26		12	0	0		Light brown CLAY, some fine sand and silt, moist				
28		22	0	0						
30		20	0	0						
32		12	0	0						
34		6	0	0		Brown fine-medium SAND, some fine gravel, wet	SW			
36		10	0	0						
38		14	0	0						
40		3	0	0						
42										

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny 30 deg. F
 TOTAL DEPTH: 40'
 GROUND SURFACE ELEVATION: 16.12'
 DATE BEGUN: March 9, 2005
 DATE COMPLETED: March 10, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		12				Brown SILT, some fine sand, trace fine gravel with Fill Material consisting of Brick fragments	FILL			
2		6	0	0		Fill Material consisting of Brick, Concrete, Ash, Cinders				
4		12	0	0						
6		14	0	0		Dark gray to black fine SAND, with Fill Material consisting of Ash, Slag, Cinders, wet				
8		11	0	0		Dark gray to black fine SAND, with Fill Material consisting of Ash, Slag, Cinders, wet				
10	PCSB-09 (10')	6	0	0		Dark gray sandy SILT, wet	SM			
12		12	.4	0		Black silty CLAY, trace organics, moist	OL			
14		22		0					Slight Naphthalene-Like Odor	
16	PCSB-09 (15.5')	20	8.4	0					Slight Naphthalene-Like Odor	
18		20	2	0					Slight Naphthalene-Like Odor	
20		20	3.1	0					Slight Naphthalene-Like Odor	
22		10	1.7	0					Slight Naphthalene-Like Odor	
24		12	1.3	0					Slight Naphthalene-Like Odor	
24		0		0		Brown SILT, organic odor				
26		22		0		Light gray CLAY, some silt, trace peat, dry to moist				
28	PCSB-09 (27.5')	16	0	0						
30		0	0	0						
32		0	0	0						
34		0	0	0						
36		14	0	0		Orange-brown fine-medium SAND, little fine-medium gravel, wet	SW			
38		14	0	0						
40		0	0	0						
42		0	0	0						

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Windy 50 deg. F
 TOTAL DEPTH: 38'
 GROUND SURFACE ELEVATION: 12.09'
 DATE BEGUN: March 22, 2005
 DATE COMPLETED: March 22, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		5				Brown Fine SAND, Some Fine Gravel with Ash and Slag		FILL		
2		12	0.0	0.0		Brown fine SAND, Some fine Gravel				
4		12	0.0	0.0	▼	Black Ash and Slag				
6		12	0.0	0.0		Dark gray to black fine SAND, trace Silt	SP			
8		12	0.0	0.0		Dark gray to black fine SAND, trace Silt				
10		13	0.0	0.0		Dark gray SILT, trace fine sand	SM			
12		18	0.0	0.0		Dark gray SILT				
14		6	2.5	0.0		Dark gray fine SAND	SP		Slight Naphthalene-Like Odor	
16		14	0.1	0.0		Dark gray SILT				
16	PCSB-10 (16.5')	14	4.0	0.0		Gray clayey SILT	SM		Slight Naphthalene-Like Odor	
18		2	0.0	0.0		Gray organic SILT	OL			
20		4	0.0	0.0		Brown SILT, trace organic material				
20	PCSB-10 (20')	4	0.0	0.0		Brown SILT, trace organic material				
22		10	0.0	0.0		Brown SILT, trace organic material				
24		0								
26		0								
28		10				Gray SILT, trace clay	ML			
30		0	0.0	0.0						
32		12				Brown fine to coarse SAND, some fine to coarse gravel	SW			
34		6	0.0	0.0		Brown fine to coarse SAND, some fine to coarse gravel				
36			0.0	0.0						
38										
40										

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny 30 deg. F
 TOTAL DEPTH: 39.3'
 GROUND SURFACE ELEVATION: 15.56'
 DATE BEGUN: March 10, 2005
 DATE COMPLETED: March 10, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		12				Brown Silty SAND, some fine to medium Gravel with Fill Material consisting of Concrete	FILL			
2		4	0.0	0.0		Fill Material consisting of Brick				
4		6	0.0	0.0		Brown fine to medium Gravel with Fill Material consisting of Brick and Concrete				
6		NR	0.0	0.0		Fill Material consisting of Concrete				
8		10	0.0	0.0		▼ Fill Material consisting of Brick and Concrete Ash and Slag				
10		8	0.0	0.0		Gray SILT, Trace Clay, Schist Fragments	OL			
12		9	0.0	0.0		Gray clayey SILT, trace Peat Fibers				
14		9	0.0	0.0		Gray silty CLAY			Slight Petroleum-Like Odor	
16		20	0.6	0.0					Slight Petroleum-Like Odor	
18	PCSB-11 (17.5')	3	9.0	0.0		Gray silty CLAY, trace fine Gravel			Slight Petroleum-Like Odor	
20		NR	0.0	0.0					Slight Petroleum-Like Odor	
22		18	0.0	0.0						
24	PCSB-11 (23.5')	18	0.0	0.0		Gray Clayey Organic SILT				
26		14	0.0	0.0		Reddish-brown sandy SILT	SM			
28		4	0.0	0.0		Reddish-brown fine to medium GRAVEL, some silt	GM			
30		8	0.0	0.0		Gray clayey SILT, trace Peat, little fine gravel	OL			
32		14	0.0	0.0		Brown fine to medium SAND, some fine to medium gravel	SW			
34		12	0.0	0.0		Gray fine to medium SAND				
36		6	0.0	0.0		Gray fine to medium SAND, trace fine gravel				
38		15	0.0	0.0		Gray fine to medium SAND, trace fine gravel				
40			0.0	0.0						

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny 30 deg. F
 TOTAL DEPTH: 40'
 GROUND SURFACE ELEVATION: 12.97'
 DATE BEGUN: March 16, 2005
 DATE COMPLETED: March 16, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		4	0			Brown silty SAND, some medium gravel and Fill Material consisting of Brick	FILL			
2		10	0			Black fine SAND, some fine gravel with Fill Material consisting of Slag, wet.				
4		5	0			Dark gray sandy SILT, trace fine gravel, wet	SM			
6		13	1		▼	Gray fine SAND	SP			
8		18	13	13		Gray sandy SILT, thin organic lens, more dense, moist	ML			
10	PCSB-12 (9')	15	9	69						
12		12	0	33		Gray sandy SILT, lenses of fine sand, moist	SM			
14		0	0	0						
16		0	0	0						
18		12	0	0		Gray silty CLAY, moist	OL			
20		20	0	0						
22	PCSB-12 (21.5')	18	0	0						
24		15	0	0		Brown silty SAND, moist	SM			
26		16	0	0						
28		20	0	0		Brown fine-medium SAND, some fine gravel, wet	SW			
30		24	0	0		Gray to brown SILT, trace organic (peat)	ML			
32		20	0	0		Brown fine-medium SAND, wet	SW			
34		0	0	0						
36		16	0	0		Orange-brown fine-coarse SAND, trace fine gravel, wet				
38		12	0	0						
40										
42										

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Windy 40 deg. F
 TOTAL DEPTH: 40'
 GROUND SURFACE ELEVATION: 12.49'
 DATE BEGUN: March 15, 2005
 DATE COMPLETED: March 15, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		16	0	0		Brown silty SAND, with Fill Material consisting of Asphalt and Concrete fragments, trace fine gravel, moist	FILL			
2		10	0	0		Orange-brown to black fine SAND, some fine gravel.				
4		6	0	0						
6		13	0	0	▼	Gray silty SAND, wet	SM			
8		14	0	0		Gray fine SAND, trace mica, moist	SP			
10		10	0	0		Gray SILT, trace clay, moist, slightly plastic	OL			
12		12	0	0						
14		12	0	0						
16		24	0	0						
18	PCSB-13 (17.5')	17	0	0		Gray CLAY, trace silt, dry				
20		0	0	0						
22		8	0	0		Brown SILT, trace organics, dry				
24		0	0	0						
26		8	0	0		Light brown to tan fine-medium SAND, trace coarse sands, fine-medium gravel (subangular), wet	SW			
28		17	0	0						
30		3	0	0						
32		8	0	0						
34		12	0	0						
36		6	0	0		Schist	ML			
38		18	0	0						
40										
42										

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Overcast 40 deg. F
 TOTAL DEPTH: 38'
 GROUND SURFACE ELEVATION: 13.16'
 DATE BEGUN: March 16, 2005
 DATE COMPLETED: March 17, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0						Brown fine SAND, some fine gravel with Fill Material consisting of Concrete		FILL		
2			0.0	0.0		Fill Material consisting of Concrete and Brick				
4		14	0.0	0.0						
6		3	0.0	0.0	▼					
8		12	0.0	0.0		Brown silty SAND, with Fill Material consisting of Concrete and Brick				
10		12	0.0	0.0		Gray silty SAND, trace mica				
12	PCSB-14 (11')	9	0.0	0.0			SM		NAPL Saturated, Strong Petroleum-Like Odor	
14		NR	41	0.0					Sheen, Moderate Petroleum-Like Odor	
16		1	0.0	0.0		Black SILT, moist			Moderate Petroleum-Like Odor	
18		2	2.1	0.0			OL		Slight Petroleum-Like Odor	
20		12	0.5	0.0					Slight Petroleum-Like Odor	
22		12	2.7	0.0		Gray CLAY, some silt			Slight Petroleum-Like Odor	
24		6	1.0	0.0		Gray CLAY, trace silt and peat				
26	PCSB-14 (25')	14	0.0	0.0						
28		12	0.0	0.0		Brown CLAY, trace silt and peat				
30		14	0.0	0.0						
32		NR	0.0	0.0						
34		2	0.0	0.0		Medium to coarse GRAVEL, some brown fine sand, wet		SW		
36		4	0.0	0.0		Brown fine to coarse SAND, some fine to coarse gravel, wet				
38		14	0.0	0.0						
40										

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Joseph Trocchio

WEATHER: Windy/Cloudy 30 deg. F
 TOTAL DEPTH: 6'
 GROUND SURFACE ELEVATION: 12.60'
 DATE BEGUN: March 11, 2005
 DATE COMPLETED: March 11, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		12				Dark brown SILT with brick fragments				
2		6	0	0						
4	PCSB-15 (4'-5')	0	0	0					Tar-Like Material, Moderate Naphthalene-Like Odor	
6			1.4	0	▼	Concrete Fragments and Foundation				
8										

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Cloudy/Snow 35 deg. F
 TOTAL DEPTH: 87'
 GROUND SURFACE ELEVATION: 16.43'
 DATE BEGUN: February 22, 2005
 DATE COMPLETED: February 24, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0										
2		12	0.0	0.0		Brown fine SAND, trace silt, moist		FILL		
4		12	0.0	0.0		Fill Material consisting of Slag, Concrete, Brick and Gravel				
6		6	0.0	0.0		Brown fine SAND, some fine gravel, with Fill Material consisting of Concrete, Brick and slag				
8		6	0.0	0.0						
10		11	0.0	0.0						
12		18	0.0	0.0		Brown silty fine to medium SAND, moist				
14		12	0.0	0.0		Black fine SAND, moist				
16		3	0.0	0.0		▼ Wood				
18		24	0.0	0.0		Gray fine SAND, trace silt, wet	SP			
20		12	0.0	0.0		Gray sandy SILT, wet	SM			
22	TUBE	12	0.0	0.0		Gray clayey SILT, trace Peat	ML			
24		5	0.0	0.0		Reddish-brown silty SAND, trace fine gravel, moist	SM			
26		5	0.0	0.0		Reddish-brown sandy SILT, moist	SM			
28		18	0.0	0.0		Reddish-brown fine to coarse SAND and fine gravel, wet	SW			
30		12	0.0	0.0						
32		6	0.0	0.0						
34		14	0.0	0.0						
36		12	0.0	0.0						
38		14	0.0	0.0		Brown fine to coarse SAND, some fine to medium gravel, wet				
40		6	0.0	0.0						
42		18	0.0	0.0		Brown fine to coarse SAND, some fine to medium gravel, with muscovite, wet				
44		12	0.0	0.0		Brown fine to medium SAND, trace fine gravel, wet				
46		6	0.0	0.0		Orange-brown fine to medium SAND and gravel				
48		18	0.0	0.0						
50		19	0.0	0.0						
52										
54										
56		1	0.0	0.0		Yellowish-brown fine to coarse SAND, some fine to medium gravel, trace silt, wet	SP			
58										
60		11	0.0	0.0						
62										
64										
66		11	0.0	0.0		Tan fine to medium SAND				
68			0.0	0.0		Tan silty SAND, trace clay, moist	SM			
70										
72		10	0.0	0.0		White to grey fine to coarse SAND and gravel	SW			
74										
76		5	0.0	0.0						
78										
80										
82		2	0.0	0.0						
84										
86		12	0.0	0.0		Weathered Schist	SCHIST			
88										





















PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Overcast 30 deg. F
 TOTAL DEPTH: 36'
 GROUND SURFACE ELEVATION: 14.10'
 DATE BEGUN: March 17, 2005
 DATE COMPLETED: March 17, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		18				Black fine SAND with Fill Material consisting of Slag, Concrete, Brick and Ash	FILL		Slight Naphthalene-Like Odor	
2		15	0.0	0.0						
4	PCSB-17 (4')	16	7.4	0.0					Slight Naphthalene-Like Odor	
6		15	12.5	0.0	▼				Slight Petroleum-Like Odor	
8		12	0.3	0.0		Brown fine SAND, trace silt, trace fine gravel, wet			Slight Petroleum-Like Odor	
10		8	0.3	0.0		Black fine SAND, Slag, wet				
12		NR	0.0	0.0						
14		5	0.0	0.0		Gray CLAY, trace silt, organic material	OL			
16		5	0.0	0.0						
18	PCSB-17 (18')	3	0.0	0.0		Grayish-brown CLAY, trace silt with organic material, dry				
20		14	0.0	0.0		Gray silty CLAY	CL			
22		18	0.0	0.0						
24		18	0.0	0.0		Reddish-brown clayey fine SAND, wet	SC			
26		14	0.0	0.0		Brown fine to coarse SAND, trace fine gravel, wet	SW			
28		17	0.0	0.0		Tan to reddish-brown fine to coarse SAND, wet				
30		16	0.0	0.0		Brown fine SAND, trace silt, wet				
32		16	0.0	0.0		Brown fine to medium SAND, wet				
34		18	0.0	0.0		Brown coarse SAND, wet				
36			0.0	0.0						
38										
40										

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny 30 deg. F
 TOTAL DEPTH: 40'
 GROUND SURFACE ELEVATION: 12.57'
 DATE BEGUN: March 14, 2005
 DATE COMPLETED: March 14, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0										
1	14		0.0	0.0		Brown fine SAND, some fine gravel with Fill Material consisting of Concrete and Brick	FILL			
2	13		0.0	0.0						
3	24		0.0	0.0						
4	10		0.0	0.0		Brown fine SAND, some fine gravel with Fill Material consisting of Concrete and Brick, wet				
5	NR		0.0	0.0	▼					
6	13		0.0	0.0		Gray fine Sand, trace silt, lens of gray silty clay, moist	SM			
7	15		0.0	0.0						
8	14	PCSB-18 (13')	0.4	0.0		Gray silty CLAY	CL			
9	12		0.0	0.0						
10	18		0.0	0.0		Gray silty organic CLAY	OL			
11	NR		0.0	0.0						
12	10		0.0	0.0		Gray clayey SILT, trace organic material, moist				
13	8		0.0	0.0						
14	3		0.0	0.0		Brownish-red SILT and fine to medium gravel, wet	ML			
15	18		0.0	0.0		Light brown fine SAND, little fine to medium gravel, wet	SW			
16	11		0.0	0.0						
17	10		0.0	0.0						
18	18		0.0	0.0		Gray fine SAND, trace fine to medium gravel, wet				
19	14		0.0	0.0						
20	16		0.0	0.0						
21										
22										
23										
24										
25										
26										
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34										
35										
36										
37										
38										
39										
40										
41										
42										

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Overcast/Windy 40 deg. F
 TOTAL DEPTH: 40'
 GROUND SURFACE ELEVATION: 11.89'
 DATE BEGUN: March 21, 2005
 DATE COMPLETED: March 21, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0						Reddish-brown silty SAND, some gravel and Fill Material consisting of Brick	FILL			
2		10	0.0	0.0		Fill Material consisting of Ash and Slag				
4		10	0.0	0.0		CLAY and fine SAND, some fine gravel, wood fragments, dry				
6		24	0.0	0.0		Orange-brown fine SAND, trace medium sand, wet				
8		13	0.0	0.0		Gray fine SAND, trace fine gravel, wet	SP			
10		15	0.0	0.0		Brown sandy CLAY, trace organics, moist	CL			
12		11	0.0	0.0		Black silty SAND, wet	SM		Slight Petroleum-Like Odor	
14		12	0.7	0.0					Slight Petroleum-Like Odor	
16		12	1.6	0.0						
18		NR								
20	PCSB-19 (19')	20	0.0	0.0		Gray CLAY	CL			
22		10	0.2	0.0		Dark gray silty CLAY, moist				
24		12	0.1	0.0						
26	PCSB-19 (26.5')	NR								
28		10	0.0	0.0		Reddish-brown fine to coarse SAND, some fine gravel, tan to green schist, wet	SW			
30		17	0.0	0.0		Reddish-brown fine to coarse SAND, some fine to medium gravel, wet				
32		8	0.0	0.0						
34		13	0.0	0.0		Reddish-brown fine to coarse SAND, trace fine to coarse gravel, wet				
36		20	0.0	0.0		Reddish-brown fine to coarse SAND, trace fine to medium gravel, wet				
38		12	0.0	0.0		Orange-brown fine to coarse SAND, trace fine to medium gravel, wet				
40		8	0.0	0.0						
42										

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Windy 50 deg. F
 TOTAL DEPTH: 40'
 GROUND SURFACE ELEVATION: 15.90'
 DATE BEGUN: March 22, 2005
 DATE COMPLETED: March 22, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		14				Brown sandy SILT with Fill Material consisting of Concrete	FILL			
2		6	0.0	0.0		Fill Material consisting of Slag, Brick and Concrete, dry				
4		18	0.0	0.0		Fill Material consisting of Concrete Brown fine SAND with Fill Material consisting of Brick, dry				
6		18	0.0	0.0		Brown silty SAND, trace fine gravel, moist			Coal Fragments	
8		6	0.0	0.0		Orange-brown fine SAND, some fine Gravel, Fill Material consisting of Plastic			Trash Material	
10		3	0.0	0.0	▼	Brown silty SAND, wet	SM		Trash Material	
12		10	0.0	0.0		Gray sandy SILT, moist				
14		14	0.0	0.0		Gray SILT, moist	ML			
16		18	0.0	0.0					Slight Petroleum-Like Odor	
18	PCSB-20 (17)	16	7	0.0		Gray silty CLAY	CL			
20		1	0.0	0.0						
22	PCSB-20 (22)	22	0.0	0.0						
24		24	0.0	0.0						
26		20	0.0	0.0		Gray clayey SILT, trace fine sand, dry	ML			
28		12	0.0	0.0		Reddish-brown fine to coarse SAND, some fine to coarse gravel, wet	SW			
30		12	0.0	0.0						
32		12	0.0	0.0		Reddish-brown fine SAND, wet				
34		18	0.0	0.0		Reddish-brown fine SAND, trace fine to medium gravel, wet				
36		14	0.0	0.0		Reddish-brown fine SAND, some fine to medium gravel, wet				
38		17	0.0	0.0						
40										
42										

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: John Pastorick

WEATHER: Cloudy/Windy 30 deg. F
 TOTAL DEPTH: 40'
 GROUND SURFACE ELEVATION: 14.82'
 DATE BEGUN: March 11, 2005
 DATE COMPLETED: March 11, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		17				Dark brown fine to medium SAND, trace silt with Fill Material consisting of Brick and Concrete, dry	FILL			
2		14	0.2	0.0		Tan fine to coarse SAND, some silt, little medium to coarse gravel, dry				
4		NR	0.0	0.0						
6		14	0.4	0.0		Tan silty CLAY with Fill Material consistng of Brick				
8		24	0.2	0.0		Tan fine to medium SAND, trace silt, wet				
10	PCSB-21 (10'-11')	18	0.0	0.0		Dark Gray silty CLAY, wet	CL			
12		4	0.0	0.0						
14	PCSB-21 (14'-15')	22	0.0	0.0		Grayish- tan silty CLAY, wet			Slight Petroleum-Like Odor	
16		24	4.5	0.0					Slight Petroleum-Like Odor	
18		18	0.0	0.0		Gray fine SAND and SILT, wet	SM			
20		10	0.0	0.0		Grayish- tan silty CLAY, wet Gray silty organic CLAY, wet	CL			
22		9	0.0	0.0						
24		11	0.0	0.0						
26		8	0.0	0.0		Red medium to very coarse GRAVEL, some fine sand, wet	SW			
28		7	0.5	0.0		Red fine to coarse SAND				
30		8	0.0	0.0						
32		8	0.0	0.0		Grayish-brown fine to medium SAND, wet				
34		2	0.0	0.0						
36		8	0.0	0.0		Red-brown coarse to very coarse GRAVEL, some fine sand, wet				
38	PCSB-21 (38'-40')	8	0.0	0.0						
40										
42										

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Windy 40 deg. F
 TOTAL DEPTH: 40'
 GROUND SURFACE ELEVATION: 15.15'
 DATE BEGUN: March 15, 2005
 DATE COMPLETED: March 15, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		6	0.0	0.0		Brown fine SAND with Fill Material consisting of Concrete and Brick	FILL			
2		5	0.0	0.0						
4		3	0.0	0.0						
6		12	12.1	0.0	▼	Dark gray to black SILT with Fill Material consisting of Slag			Moderate Petroleum-Like Odor	
8	PCSB-22 (8.5')	6	5.1	0.0					Petroleum-Like Sheen, Moderate Petroleum-Like Odor	XXXXXX
10		4	4.9	0.0					Petroleum-Like Sheen, Moderate Petroleum-Like Odor	
12		20	9.7	0.0		Dark gray to black silty CLAY, wet	CL		Moderate Petroleum-Like Odor	
14		1	1.6	0.0					Moderate Petroleum-Like Odor	
16		8	1.7	0.0						
18		12	0.5	0.0		Gray CLAY, trace silt, moist				
20		0	0.0	0.0						
22	PCSB-22 (23')	12	0.0	0.0		Gray CLAY, trace silt, Peat, moist	OL			
24		16	0.0	0.0		Brownish-red sandy SILT, wet	SM			
26		14	0.0	0.0		Brownish-red sandy SILT, trace fine gravel, wet				
28		20	0.0	0.0						
30		0	0.0	0.0		Brown fine to medium SAND, some fine to medium gravel, wet	SW			
32		0	0.0	0.0						
34		8	0.0	0.0		Gray fine SAND, wet				
36		12	0.0	0.0		Gray fine to coarse SAND, wet				
38		12	0.0	0.0		Grayish-brown fine to medium SAND, trace fine gravel				
40										
42										

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny 30 deg. F
 TOTAL DEPTH: 40'
 GROUND SURFACE ELEVATION: 13.03'
 DATE BEGUN: March 14, 2005
 DATE COMPLETED: March 14, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0						Brown silty SAND, trace fine gravel		FILL		
2		18	0.0	0.0		Brown silty SAND, trace fine gravel with Fill Material consisting of Concrete				
4		12	0.0	0.0	▼	Fill Material consisting of Ash and Slag				
6		12	0.0	0.0						
8		6	2.2	5		Dark gray to black sandy SILT	SM			
10	PCSB-23 (8.5')	8	50.2	200						
12		12	25	200						
14		24	3.5	200						
16		NR								
18		18	0.6	0.0		Gray silty CLAY, dry	CL			
20		3	0.0	0.0						
22	PCSB-23 (21')	12	0.0	0.0		Gray CLAY, some silt, little organic material				
24		24	0.0	0.0						
26		6	0.0	0.0		Tan to pink fine to coarse SAND, trace fine gravel, wet	SW			
28		14	0.0	0.0						
30		18	0.0	0.0						
32		8	0.0	0.0						
34		16	0.0	0.0						
36		12	0.0	0.0						
38		14	0.0	0.0		Brown fine to coarse SAND, trace coarse gravel, wet				
40		16	0.0	0.0						
42										

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Windy 50 deg. F
 TOTAL DEPTH: 36'
 GROUND SURFACE ELEVATION: 13.25'
 DATE BEGUN: March 18, 2005
 DATE COMPLETED: March 21, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		18				Orange-brown fine SAND, trace fine gravel with Fill Material consisting of Concrete and Brick, dry	FILL			
2		6	0.0	0.0		Fill Material consisting of Concrete and Brick, dry				
4		NR	0.0	0.0						
6		8	0.0	0.0		Brown fine to coarse SAND, trace silt with Fill Material consisting of Brick, wood and Concrete				
8		11	0.0	0.0	▼	Brown fine to coarse SAND, trace silt with Fill Material consisting of Brick, wood and Concrete, wet			Moderate Petroleum-Like Odor, Staining	
10	PCSB-24 (9)	2	0.0	0.0		Fill Material consisting of Concrete, wet			Slight Petroleum-Like Odor, Sheen	
12		NR	0.0	0.0					Slight Petroleum-Like Odor, Sheen	
14		24	0.0	0.0		Gray clayey SILT, wet	ML		Moderate Petroleum-Like Odor, Sheen	
16	PCSB-24 (15)	4	0.4	0.0			CL		Slight Petroleum-Like Odor, Sheen	
18		14	0.7	0.0					Slight Petroleum-Like Odor	
20		12	0.3	0.0						
22		NR	0.3	0.0						
24		NR	0.0	0.0						
26		16	0.0	0.0		Reddish-brown SILT, little fine sand	SW			
28	PCSB-24 (26.5)	18	0.0	0.0		Reddish-brown fine to coarse SAND, some fine to coarse gravel, wet				
30		5	0.0	0.0		Reddish brown fine to medium SAND, wet				
32		NR	0.0	0.0						
34			0.0	0.0						
36										


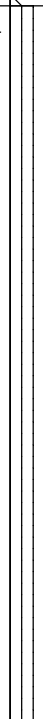
PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Unitech Drilling Co., Inc.
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Jay Blemmings/Kinard/Aarron
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Windy 40 deg. F
 TOTAL DEPTH: 40'
 GROUND SURFACE ELEVATION: 13.37'
 DATE BEGUN: March 18, 2005
 DATE COMPLETED: March 18, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		3	0.0	0.0		Fill Material consisting of Wood	FILL			
2		5	0.0	0.0		Fill Material consistng of Wood, Ash and Slag				
4		10	0.0	0.0		Brown fine SAND with Fill material consisting of Brick				
6		6	0.0	0.0		Fill Material consisting of Slag, wet			Strong Petroleum-Like Odor, Sheen	
8	PCSB-25 (8')	10	0.0	0.0		Brown fine SAND, wet			Strong Petroleum-Like Odor, Soils Saturated	
10		10	0.0	0.0		Fill Material consisting of Slag, wet				
12		12	0.0	0.0		Gray SILT with lenses of fine sand, wet	SM		Strong Petroleum-Like Odor, Sheen	
14	PCSB-25 (13')	12	0.0	0.0		Gray SILT, moist				
16		12	0.0	0.0		Gray sandy SILT, trace mica, moist				
18		4	0.0	0.0		Gray CLAY	CL			
20		14	0.0	0.0		Gray SILT, some clay	ML			
22		15	0.0	0.0						
24		NR	0.0	0.0						
26		18	0.0	0.0		Brown SILT, trace peat fibers				
28		16	0.0	0.0		Reddish-brown clayey SAND	SW			
30		10	0.0	0.0		Reddish-brown fine to coarse SAND and medium to coarse Gravel				
32		6	0.0	0.0						
34		7	0.0	0.0						
36		13	0.0	0.0						
38		10	0.0	0.0		Reddish-brown fine to coarse SAND, trace fine gravel				
40		6	0.0	0.0						
42		6	0.0	0.0						


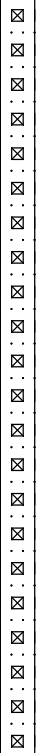

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 8.16'
 DATE BEGUN: 7/26/05
 DATE COMPLETED: 7/26/05

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		24	0	0		Fill consisting of ash, cinder, some dark brown to black f-SAND, dry to moist.	FILL			
0.5	PCSB-26 (0.5')		7.8	0						
2			0	0						
4		44	0	0		Gray Silty CLAY, trace organics, wet.	CL			
6	PCSB-26 (6.0')		0	0						
7.8			0	0	▼					
8	PCSB-26 (8.0')	48	0	0						
10			0	0						
12			0	0						
14										


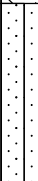

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 8.16'
 DATE BEGUN: July 26, 2005
 DATE COMPLETED: July 26, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		24	0	0		Fill consisting of black ash, dry.	FILL			
0.5	PCSB-27 (0.5)		0	0						
1.5	PCSB-27 (1.5)		0	0		Brown f-m GRAVEL, some f-sand, trace silt, wet.	GM			
2			0	0						
4		0	0	0						
6			0	0						
8		48	0	0		Yellow-brown GRAVEL and f-c SAND, wet.				
10			0	0		Gray SILT, trace to some organic clay, moist.	ML			
10.5	PCSB-27 (10.5)		0	0						
12			0	0						
14										



PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 16'
 GROUND SURFACE ELEVATION: 8.16'
 DATE BEGUN: July 26, 2005
 DATE COMPLETED: July 26, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		30	0	0		Fill consisting of black ash, dry.	FILL			
0.5	PCSB-28 (0.5)		0	0		Brown f-SAND, some f-gravel, wet @ 2.5'				
2.0	PCSB-28 (2.0)		0	0	▼					
4.0		24	0	0		Brown f-SAND, trace f-gravel, wet.				
8.0		24	0	0						
12.0		48	0	0		Gray f-SAND, trace m-c sand and trace silt	SM			
14.5			0	0		Gray silty CLAY, some peat fibers	CL		Confining Layer @ 14.5' bsg.	
15.0	PCSB-28 (15.0)		0	0						
18.0			0	0						

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 6.45'
 DATE BEGUN: July 26, 2005
 DATE COMPLETED: July 26, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		36	0	0		Fill consisting of ash and cinders, dry.	FILL			
0.5	PCSB-29 (0.5)		0	0						
2			0	0		Orange-brown f-SAND, trace f-Gravel, moist to wet.				
2.0	PCSB-29 (2.0)		0	0	▼					
4		36	0	0		Orange-brown f-m SAND, trace c-Sand and f-Gravel, wet.				
8		48	0	0						
11.5	PCSB-29 (11.5)		0	0		Gray silty CLAY.	CL		Confining Layer @ 11.0' bsg.	
14										



PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 16'
 GROUND SURFACE ELEVATION: 2.97'
 DATE BEGUN: July 26, 2005
 DATE COMPLETED: July 26, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		36	0	0		Fill consisting of ash and cinders, dry.		FILL		
0.5	PCSB-30 (0.5)		0	0						
2.0	PCSB-30 (2.0)		0	0		Red-brown silty SAND, some fill consisting of brick, wet @ 2.5'.				
4.0		24	0	0		Brown f-m SAND, wet.				
8.0		18	0	0						
12.0		48	0	0						
14.0			0	0		Gray silty CLAY with some f-sand	CL			
15.0	PCSB-30 (15)		0	0		Gray silty CLAY				
16.0			0	0						
18.0										

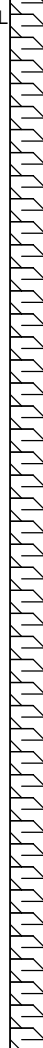

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul BeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 7.59'
 DATE BEGUN: July 28, 2005
 DATE COMPLETED: July 28, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		42	0	0		Fill consisting of blackish-tan ash, cinder and f-SAND, trace Gravel, brick and wood fragments.	FILL			
0.5	PCSB-31 (0.5')		0	0						
2			0	0						
3.5	PCSB-31 (3.5')	36	0	0	▼	Brown f-SAND, some f-gravel, 1-inch lens of silty SAND, wet.				
4			0	0						
6			0	0						
8		36	0	0						
10			0	0		Gray silty CLAY.	CL		Confining Layer @ 10.0' bgs.	
10.5	PCSB-31 (10.5')		0	0						
12			0	0						

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 6.65'
 DATE BEGUN: July 28, 2005
 DATE COMPLETED: July 28, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		42	0	0		Fill consisting of ash, cinder and f-SAND, moist.	FILL			
0.5	PCSB-32 (0.5)		0	0						
2			0	0						
3.5	PCSB-32 (3.5)		0	0		Brown f-m SAND, trace c-sand and f-m gravel, wet.				
4		42	0	0	▼	Brown f-c SAND, trace f-m gravel, wet.				
6			0	0						
8		48	0	0		Brown f-m SAND, some f-m gravel from 8'-9'.				
10			0	0						
11.5	PCSB-32 (11.5)		0	0		Gray silty CLAY, moist.	CL		Confining Layer @ 11.0' bgs.	
12			0	0						
14										


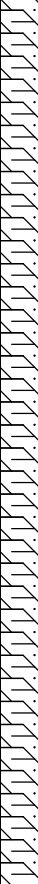







PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 0.95'
 DATE BEGUN: July 28, 2005
 DATE COMPLETED: July 28, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		48	0	0		Fill consisting of black ash and f-sand		FILL		
0.5	PCSB-33 (0.5)		0	0						
2			0	0						
4	PCSB-33 (4.0)	42	0	0	▼	Brown f-SAND with trace f-gravel				
6			0	0		Red-brown f-m SAND, some f-m gravel				
8		48	0	0						
10			0	0						
11.5	PCSB-33 (11.5)		0	0		Gray silty CLAY	CL			
12			0	0						
14										

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 20'
 GROUND SURFACE ELEVATION: 7.06'
 DATE BEGUN: July 27, 2005
 DATE COMPLETED: July 27, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		24	0	0		Fill consisting of ash, cinder and black f-sand, dry	FILL			
0.5	PCSB-34 (0.5)		0	0						
2			0	0		Brown f-SAND, trace f-gravel, dry				
4		36	0	0		SILT, some f-sand with little f-gravel				
5.0	PCSB-34 (5.0)		0	0	▼					
8		30	0	0		Brown f-c SAND, trace f-gravel, wet				
10			0	0		Brown f-SAND, trace silt, wet				
12		12	0	0						
14			0	0		f-c SAND, trace gravel, wet				
16		24	0	0		Gray silty CLAY, trace organics and f-sand, moist	CL			
16.5	PCSB-34 (16.5)		0	0		Gray silty CLAY, some to little f-sand, trace gravel, moist				
18			0	0						
20										
22										








PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Tony Perylis
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 20'
 GROUND SURFACE ELEVATION: 6.33'
 DATE BEGUN: August 2, 2005
 DATE COMPLETED: August 2, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0						Topsoil and fill consisting of brown-tan f-SAND and GRAVEL				
0.5	PCSB-35 (0.5)	42	0	0		Dark brown f-SAND and cinders, wet				
2.5	PCSB-35 (2.5)	42	0	0	▼				Slight Petroleum-like Odor	
4			12.4	0						
6		42	0	0		Ash and subangular cinders, wet			Slight Petroleum-like Odor	
8			22.9	0					Slight Petroleum-like Odor	
10		24	0	0					Slight Petroleum-like Odor	
12			41.5	0						
14			0	0						
15.5	PCSB-35 (15.5)	24	0	0		Gray sandy CLAY, moist	CL			
16			0	0		Red-brown f-SAND and f-m GRAVEL, wet	SP			
18			3.4	0						
20										
22										

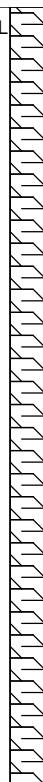
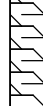

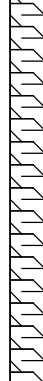

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 17.5'
 GROUND SURFACE ELEVATION: 7.38'
 DATE BEGUN: July 27, 2005
 DATE COMPLETED: July 27, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		36	0	0		Fill consisting of black ash, cinder and f-SAND, dry.	FILL			
0.5	PCSB-36 (0.5)	0	0	0						
2		0	0	0		Brown f-c SAND, trace f-Gravel, wet.				
4	PCSB-36 (4.0)	48	0	0		Brown-gray f-c SAND, trace f-gravel, wet				
8		30	0	0		Brown f-m SAND, little f-gravel, wet				
12		0	0	0		No Recovery				
16	PCSB-36 (16.0)	18	0	0		Gray silty CLAY	CL			
			0	0		Light gray f-c SAND, trace f-gravel, wet	SP			
18			0	0						

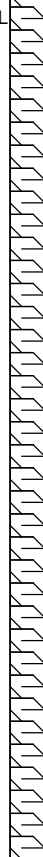
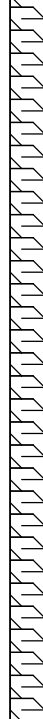
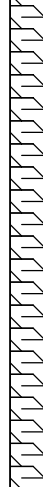

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Tony Perylis
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 6.36'
 DATE BEGUN: August 2, 2005
 DATE COMPLETED: August 2, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		48				Fill consisting of ash and cinder, dry	FILL			
0.5	PCSB-37 (0.5)	1.2	0	0						
2			0	0		Brown f-SAND, trace gravel				
4			0	0		Gray-brown silt, moist				
4.0	PCSB-37 (4.0)		0	0						
24		24	0	0	▼	Fill consisting of black ash and cinders, some coal and silt, wet				
10			0	0		Gray silty CLAY, moist	CL			
10.5	PCSB-37 (10.5)	10	0	0						
12			0	0						
14										
16										

PROJECT NUMBER: 02522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 6.03'
 DATE BEGUN: July 27, 2005
 DATE COMPLETED: July 27, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		36	0	0		Fill consisting of black f-SAND and ash, trace f-gravel	FILL			
0.5	PCSB-38 (0.5')		0	0						
2			0	0		Brown f-c SAND, trace f-m gravel, moist				
3.5	PCSB-38 (3.5')		0	0						
4		48	0	0	▼	Brown f-m SAND, wet				
8		24	0	0						
9.5	PCSB-38 (9.5')		0	0		Gray sitly CLAY, trace organics	CL			
14										

PROJECT NUMBER: 02522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 6.71'
 DATE BEGUN: July 27, 2005
 DATE COMPLETED: July 27, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		48	0	0		Ash and cinders				
	PCSB-39 (0.5')		0	0		White to gray f-SAND and GRAVEL, dry				
			0	0						
2			0	0						
			0	0		Ash and cinders				
			0	0						
4	PCSB-39 (4.0')	36	0	0		Brown f-c SAND, little gravel, trace silt				
			0	0						
			0	0						
			0	0						
			0	0						
			0	0						
			0	0						
			0	0						
8		48	0	0						
			0	0						
			0	0						
			0	0						
10			0	0		Gray silty CLAY	CL			
			0	0						
	PCSB-39 (11.0')		0	0						
			0	0						
12			0	0						
14										



PROJECT NUMBER: 02522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 7.83'
 DATE BEGUN: July 28, 2005
 DATE COMPLETED: July 28, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		48	0	0		Fill consisting of brown to black ash and f-c SAND, trace f-gravel, dry.	FILL			
0.5	PCSB-40 (0.5')		0	0						
2			0	0						
4	PCSB-40 (4.0')	42	0	0		Fill consisting of black f-SAND, trace f-gravel and wood fragments				
6			0	0		Brown f-c SAND, trace f-gravel, wet				
8		48	0	0						
10	PCSB-40 (10.5')		0	0		Gray silty CLAY, moist	CL		Confining Layer @ 10.0' bgs	
12			0	0						
14										

PROJECT NUMBER: 02522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 6.89'
 DATE BEGUN: July 28, 2005
 DATE COMPLETED: July 28, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		42	0	0		Fill consisting of black ash, cinder and brick fragments, little f-sand	FILL			
0.5	PCSB-41 (0.5')		0	0						
2			0	0						
3.5	PCSB-41 (3.5')	24	0	0	▼					
4			0	0						
6			0	0						
8		30	0	0						
9.0			0	0		Gray silty CLAY	CL		Confining Layer @ 9.0' bgs	
9.5	PCSB-41 (9.5')		0	0						
10			0	0						
12			0	0						
14										

PROJECT NUMBER: 02522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 16'
 GROUND SURFACE ELEVATION: 7.09'
 DATE BEGUN: August 1, 2005
 DATE COMPLETED: August 1, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		48	0	0		Topsoil and brown f-SAND, dry loose		TOPSOIL		
0.5	PCSB-42 (0.5')		0	0		Fill consisting of black f-SAND, ash, cinder, trace f-gravel		FILL		
2.5	PCSB-42 (2.5')		0	0					Slight Petroleum-Like Odor	
4.0		42	179	0		Brown f-SAND, trace silt and f-gravel, wet			Slight Petroleum-Like Odor	
8.0		24	29	0		Gray silty CLAY, moist, some peat from 12 -14' bgs.		CL	Slight Petroleum-Like Odor	
13.0	PCSB-42 (13.0')		0	0						
14.0			0	0						
18.0										

PROJECT NUMBER: 02522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 12'
 GROUND SURFACE ELEVATION: 6.62'
 DATE BEGUN: August 1, 2005
 DATE COMPLETED: August 1, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		48	0	0		Topsoil		TOPSOIL		
0.5	PCSB-43 (0.5')		0	0						
1.5			0	0		Fill consisting of black-brown f-SAND, some ash and f-m gravel, loose and dry	FILL		Slight Petroleum-Like Odor	
3.5	PCSB-43 (3.5')	42	142	0		Gray f-SAND, trace f-gravel, wet	SP		Slight Petroleum-Like Odor	
4.5			275	0					Slight Petroleum-Like Odor	
8.0		24	9.2	0		Gray sandy SILT, wet	ML		Slight Petroleum-Like Odor	
9.0	PCSB-43 (9.0')		0	0		Gray silty CLAY, trace organics, moist	CL			
10.0			0	0						
12.0			0	0						
14.0			0	0						

PROJECT NUMBER: 02522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Tony Perylis
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 8.94'
 DATE BEGUN: August 3, 2005
 DATE COMPLETED: August 3, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		54	0	0		Fill consisting of black-brown topsoil and f-SAND, some coal, wood and ash fragments, dry and loose.	FILL			
0.5	PCSB-44 (0.5')	0	0	0					Slight Petroleum-Like Odor	
2		0	0	0					Slight Petroleum-Like Odor	
4		117	0	0					Slight Petroleum-Like Odor	
4.5	PCSB-44 (4.5')	48	90	0	▼	Gray f-SAND, some m-sand, trace f-gravel, wet	SP		Slight Petroleum-Like Odor	
6		0	0	0					Slight Petroleum-Like Odor	
8		0	0	0					Slight Petroleum-Like Odor	
10		18	0	0		Gray silty CLAY, trace organics	CL		Slight Petroleum-Like Odor	
11.5	PCSB-44 (11.5')	0	0	0						
14										
16										


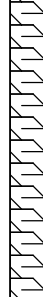

PROJECT NUMBER: 02522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Tony Perylis
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 7.89'
 DATE BEGUN: August 3, 2005
 DATE COMPLETED: August 3, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		42	0	0		Brown f-SAND and GRAVEL				
0.5	PCSB-45 (0.5')	0	0	0			FILL		Slight Petroleum-Like Odor	
2		0	0	0		Fill consisting of brick and cinders, f-m gravel, some f-sand, wet				
3.0	PCSB-45 (3.0')	45	0	0	▼				Slight Petroleum-Like Odor	
4		0	0	0						
5.4		54	0	0		Gray f-m SAND, wet.	SP		Slight Petroleum-Like Odor	
6		0	0	0						
6.37		370	0	0					Slight Petroleum-Like Odor	
8		0	0	0		Gray f-SAND, trace silt, wet				
9		0	0	0			SM		Slight Petroleum-Like Odor	
10		0	0	0		Gray silty CLAY, trace organics	CL			
10.5	PCSB-45 (10.5')	12	0.3	0						
12		0	0	0						
14										
16										

PROJECT NUMBER: 02522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 16'
 GROUND SURFACE ELEVATION: 10.02'
 DATE BEGUN: July 27, 2005
 DATE COMPLETED: July 27, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		42	0	0		Fill consisting of black f-SAND, some f-gravel, dry	FILL			
0.5	PCSB-46 (0.5')	0	0	0						
2		0	0	0						
4	PCSB-46 (4.0')	48	0	0	▼	Brown f-m SAND, trace f-gravel, moist to wet				
6		0	0	0						
8		0	-	0		No Recovery from 8' to 12'				
10		-	-	0						
12		24	-	0						
13	PCSB-46 (13.0')	0	0	0		Gray silty CLAY, trace organics	CL			
14		0	0	0						
16										
18										






PROJECT NUMBER: 02522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Tony Perylis
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 9.66'
 DATE BEGUN: August 3, 2005
 DATE COMPLETED: August 3, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		48	0	0		Fill consisting of ash, cinders, coal fragments and brown f-SAND	FILL			
0.5	PCSB-47 (0.5')	0	0	0					Moderate Petroleum-Like Odor	
2		0	0	0					Moderate Petroleum-Like Odor	
4	PCSB-47 (4.0')	102	0	0	▼	Gray f-SAND, 1/2-inch lens of silt from 8.5' to 9.0' bgs	SP		Moderate Petroleum-Like Odor	
6		36	0	0					Moderate Petroleum-Like Odor	
8		0	0	0					Moderate Petroleum-Like Odor	
10	PCSB-47 (10.5')	12	0	0		Gray silty CLAY	CL		Moderate Petroleum-Like Odor	
12		0	0	0						
14		0	0	0						
16		0	0	0						

PROJECT NUMBER: 02522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Tony Perylis
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 9.66'
 DATE BEGUN: August 3, 2005
 DATE COMPLETED: August 3, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		48	0	0		Fill consisting of brown f-SAND, ash and coal fragments, trace concrete, dry	FILL		Moderate Petroleum-Like Odor	
0.5	PCSB-48 (0.5')		0	0						
2			0	0		Dark brown-black f-SAND and ash, trace f-gravel and coal fragments, moist			Moderate Petroleum-Like Odor	
4	PCSB-48 (4.0')		0	0						
4.0		186	0	0						
5.0		30	46	0	▼	Gray f-SAND, wet	SM		Moderate Petroleum-Like Odor	
6			0	0						
7.0			0	0		Gray f-SAND with silt, wet	SM		Moderate Petroleum-Like Odor	
8			0	0						
10		30	0	0		Gray silty CLAY, moist	CL			
11.0	PCSB-48 (11.0')		0	0						
12			0	0						
14			0	0						
16										

PROJECT NUMBER: 02522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Tony Perylis
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 9.05'
 DATE BEGUN: August 3, 2005
 DATE COMPLETED: August 3, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		48	0	0		Fill consisting of brown f-SAND, trace concrete, ash and coal fragments	FILL			
0.5	PCSB-49 (0.5')	0	0	0					Moderate Petroleum-Like Odor	
2		0	0	0						
4	PCSB-49 (4.0')	102	0	0					Saturated, Moderate Petroleum-Like Odor	
4.5		42	34	0	▼	Gray f-SAND, wet	SM		Moderate Petroleum-Like Odor	
6		0	0	0						
8		0	0	0		Gray sandy SILT, moist	ML		Moderate Petroleum-Like Odor	
10		18	0	0		Gray silty CLAY, trace organic, moist	CL			
11	PCSB-49 (11.0')	0	0	0						
12		0	0	0						
14										
16										

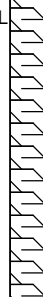
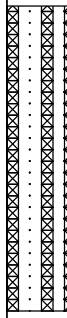

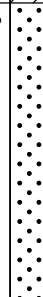
PROJECT NUMBER: 02522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Tony Perylis
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 6.41'
 DATE BEGUN: August 3, 2005
 DATE COMPLETED: August 3, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		48	0	0		Fill consisting of ash and cinder, trace f-gravel, dry				
0.5	PCSB-50 (0.5')		0	0			FILL		Slight Petroleum-Like Odor	
2			0	0						
2.5			0	0					Slight Petroleum-Like Odor	
3			100.7	0		Brown f-SAND, trace f-gravel, moist			Slight Petroleum-Like Odor	
4	PCSB-50 (4.0')		0	0						
4.5			0	0					Slight Petroleum-Like Odor	
5		42	0	0	▼	Brown-gray f-SAND, trace f-m gravel, wet			Slight Petroleum-Like Odor	
6			0	0						
6.5			128	0					Slight Petroleum-Like Odor	
8			0	0						
8.5			0	0					Slight Petroleum-Like Odor	
10		36	0	0		Gray fine SAND	SP		Saturated, Moderate Petroleum-Like Odor	
10.5			55	0						
11			0	0		Gray silty CLAY, trace organics, wet	CL			
12			0	0						
12.5	PCSB-50 (12.5')		0	0						
14			0	0						
16										

PROJECT NUMBER: 02522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Tony Perylis
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 20'
 GROUND SURFACE ELEVATION: 9.35'
 DATE BEGUN: August 2, 2005
 DATE COMPLETED: August 2, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0						Fill consisting of f-SAND, ash and cinder, trace f-gravel, wet @3.5' bgs	FILL			
0.5	PCSB-51 (0.5)	42	0	0						
3.0	PCSB-51 (3.0)	1.8	0	0	▼					
3.5		36	51	0					Sheen, Moderate Petroleum-Like Odor	
6.0			0	0					Sheen, Moderate Petroleum-Like Odor	
8.0			0	0					Sheen, Moderate Petroleum-Like Odor	
10.0		18	74	0		No Recovery from 10' to 15' bgs	CL		Moderate Petroleum-Like Odor	
12.0			0	0					Moderate Petroleum-Like Odor	
14.0			0	0					Moderate Petroleum-Like Odor	
15.5		0.1	0.8	0		Red-brown f-c SAND, trace f-m gravel, wet	SP			
16.0										
18.0										
20.0										
22.0										

PROJECT NUMBER: 02522.212.920 PROJECT NAME: Former Philadelphia Coke Plant Site LOCATION: Philadelphia, PA DRILLING CO: Environmental Remediation Contractors DRILLING METHOD: GeoProbe DRILLER / HELPER: Tony Perylis ENVIRONMENTAL SCIENTIST: Paul DeBlasio	WEATHER: Sunny/Hot and Humid TOTAL DEPTH: 20' GROUND SURFACE ELEVATION: 9.07' DATE BEGUN: August 2, 2005 DATE COMPLETED: August 2, 2005
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DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
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0	PCSB-52 (0.5)	57	0 0 0 0	0 0 0 0		Fill consisting of topsoil and f-gravel, dry Brown f-SAND and f-m gravel, dry Light Brown f-SAND, some gravel, dry	FILL				
2			1.3	0 0 0 0	0 0 0 0						
4				0 0	0 0		Fill consisting of black f-SAND and ash and cinders, trace f-gravel, dry				
6		PCSB-52 (5.5)	36	0 0 0 0	0 0 0 0	█	Fill consisting of gravel, brick and coal fragments with gray silt, dry				
8					0 0 0 0	0 0 0 0					
10				18	0 0 0 0	0 0 0 0		Black f-SAND with ash and cinders, wet			
12					0 0 0 0	0 0 0 0					
14			0 0 0 0	0 0 0 0							
16	PCSB-52 (15.5)	42	0 0 0 0	0 0 0 0		Gray silty CLAY, trace organics	CL				
18				0 0 0 0	0 0 0 0						
20				0 0	0 0		Red-brown f-m SAND and f-m GRAVEL, wet	SP			
22				0	0						

PROJECT NUMBER: 02522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 20'
 GROUND SURFACE ELEVATION: 10.25'
 DATE BEGUN: August 1, 2005
 DATE COMPLETED: August 1, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		48	0	0		Fill consisting of brown f-SAND, trace f-gravel and brick and concrete fragments	FILL			
0.5	PCSB-53 (0.5')		0	0						
2			0	0		Fill consisting of ash, cinders and f-gravel, moist			Strong Petroleum-Like Odor	
3.5	PCSB-53 (3.5')	30	107	0	▼	Black-gray silty SAND			Strong Petroleum-Like Odor	
4			0	0						
6			0	0					Petroleum-like sheen and staining, Strong Petroleum-Like Odor	
8		0	58	0		No Recovery			Strong Petroleum-Like Odor	
10			0	0			CL			
12		24	0	0		Gray-brown silty CLAY, trace peat				
14			0	0						
16		36	0	0						
16.5	PCSB-53 (16.5')		1.3	0		Red-brown f-SAND and silt, some f-m gravel	SM			
18			0	0						
20			0	0						
22			0	0						

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Tony Perylis
 ENVIRONMENTAL SCIENTIST: PCSB-54

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 9.45'
 DATE BEGUN: August 2, 2005
 DATE COMPLETED: August 2, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0						Fill consisting of black ash and brown f-SAND, trace f-gravel, loose and dry				
0.5	PCSB-54 (0.5')	48	0	0						
2			0	0						
4			0	0						
4.5	PCSB-54 (4.5')	54	0	0		Brown f-m SAND, trace f-gravel, wet				
6			0	0						
8			0	0						
10		18	0	0		Gray silty CLAY	CL			
11.5	PCSB-54 (11.5')		0	0						
14										
16										



PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Tony Perylis
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 9.37'
 DATE BEGUN: August 3, 2005
 DATE COMPLETED: August 3, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		42	0	0		Brown f-m SAND, trace f-gravel, dry and loose				
0.5	PCSB-55 (0.5')	0	0	0			FILL			
2		0	0	0		Fill consisting of ash, cinders, some f-SAND, moist			Moderate Petroleum-Like Odor	
3.5	PCSB-55 (3.5')	127	0	0					Moderate Petroleum-Like Odor	
4		0	0	0		No Recovery				
6		-	-	-						
8		-	-	-						
10		36	0	0		Gray silty CLAY, moist	CL			
11.0	PCSB-55 (11.0')	0	0	0						
12		0	0	0						
14		0	0	0						
16										




PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul BeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 10'
 GROUND SURFACE ELEVATION: 9.45'
 DATE BEGUN: August 15, 2005
 DATE COMPLETED: August 15, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		30	0	0		Fill consisting of black and brown f-SAND and coal fragments, little ash and cinders, trace f-gravel, dry	FILL			
0.5	PCSB-56 (0.5')		0	0						
2			0	0						
2.0	PCSB-56 (2.0')		0	0						
4			0	0						
5.5		36	0	0	▼	Brown f-m SAND, wet				
6			0	0		Gray silty CLAY, trace organics, moist	CL			
6.5	PCSB-56 (6.5')		0	0						
8			0	0						
10			0	0						

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 10'
 GROUND SURFACE ELEVATION: 9.45'
 DATE BEGUN: August 15, 2005
 DATE COMPLETED: August 15, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		36	0	0		Fill consisting of brown f-SAND, trace coal fragments and f-m gravel, dry to moist	FILL			
0.5	PCSB-57 (0.5')		0	0						
2			0	0						
2.5	PCSB-57 (2.5')		0	0	▼	Gray f-SAND, some silt, wet.				
4			0	0						
5.5	PCSB-57 (5.5')	24	0	0		Gray silty CLAY, trace organics.	CL			
6			0	0						
8			0	0						
10			0	0						
12										

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 13.70'
 DATE BEGUN: August 15, 2005
 DATE COMPLETED: August 15, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0						Fill consisting of coal fragments and ash, brown f-SAND, trace f-m Gravel, dry				
0.5	PCSB-58 (0.5')	30	0	0			FILL			
2			0	0						
5.0	PCSB-58 (5.0')	36	0	0		Fill consisting of orange-brown f-SAND, some f-c sand, trace f-gravel and silt, wet				
10		24	0	0		Gray silty CLAY, trace organics, moist	CL			
11.0	PCSB-58 (11.0')		0	0						
12			0	0						
14										
16										

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 8.76'
 DATE BEGUN: August 15, 2005
 DATE COMPLETED: August 15, 2005

DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		18	0	0		Fill consisting of light brown to black f-SAND and ash, some f-m Gravel, trace brick fragments, dry				
0.5	PCSB-59 (0.5')	0	0	0						
2		0	0	0						
4		0	0	0						
5.5	PCSB-59 (5.5')	48	2.8	0	▼	Brown to gray f-SAND, little silt at bottom of sample, wet			Slight Petroleum-Like Odor	
6		0	0	0					Slight Petroleum-Like Odor	
8		0	0	0					Slight Petroleum-Like Odor	
10	PCSB-59 (10.5')	42	0	0		Gray silty CLAY, trace organics				
12		0	0	0						
14		0	0	0						
16		0	0	0						

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant Site
 LOCATION: Philadelphia, PA
 DRILLING CO: Environmental Remediation Contractors
 DRILLING METHOD: GeoProbe
 DRILLER / HELPER: Doug Turner
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER: Sunny/Hot and Humid
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 9.90'
 DATE BEGUN: August 15, 2005
 DATE COMPLETED: August 15, 2005

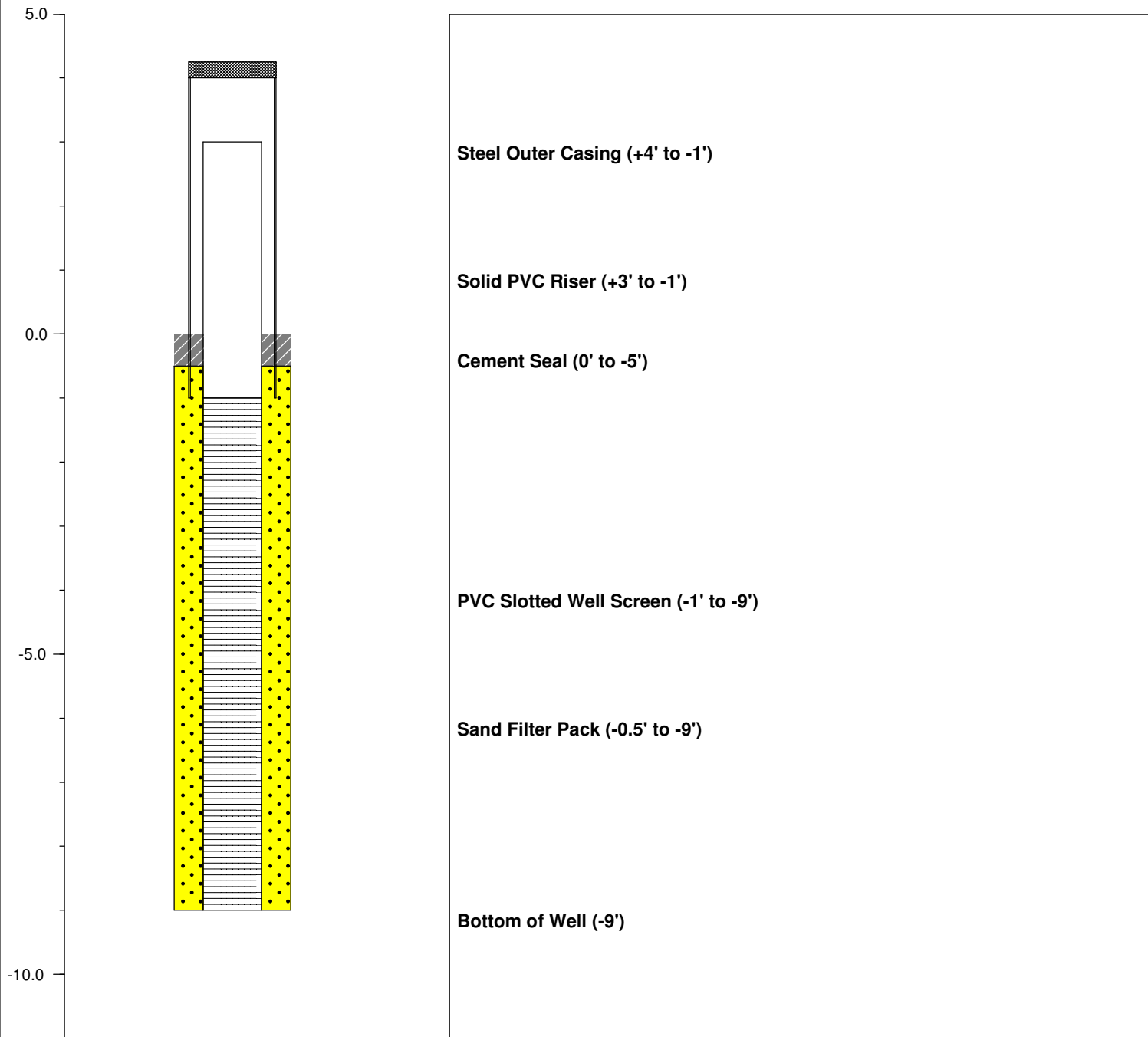
DEPTH	SAMPLE NUMBER	RECOVERY (in)	PID (ppm)	HCN (ppm)	WATER LEVEL	SOIL DESCRIPTION	USCS SYMBOL	LITHOLOGY	ENVIRONMENTAL DESCRIPTIONS	VISUAL OBSERVATIONS
0		54	0	0		Fill consisting of brown f-SAND, brick and gravel, dry				
0.5	PCSB-60 (0.5')	0	0	0			FILL			
2		0	0	0						
4	PCSB-60 (4.0')	11	0	0						
5		0	0	0	◀	No Recovery				
6		0	0	0						
8		0	0	0			CL			
10		36	0	0		Gray silty CLAY, trace organics, moist				
11	PCSB-60 (11.0')	0	0	0						
12		0	0	0						
14		0	0	0						
16										

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : D. Hans
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Sunny, High 80's
 TOTAL DEPTH: 9'
 GROUND SURFACE ELEVATION: 7.17'
 DATE BEGUN: August 4, 2005
 DATE COMPLETED: August 4, 2004

PVC CASING (DIA.) - 4"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 4'
SCREEN (DIA.) - 4"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 8'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 5'

DEPTH BGS	WELL CONSTRUCTION	WELL SCHEMATICS
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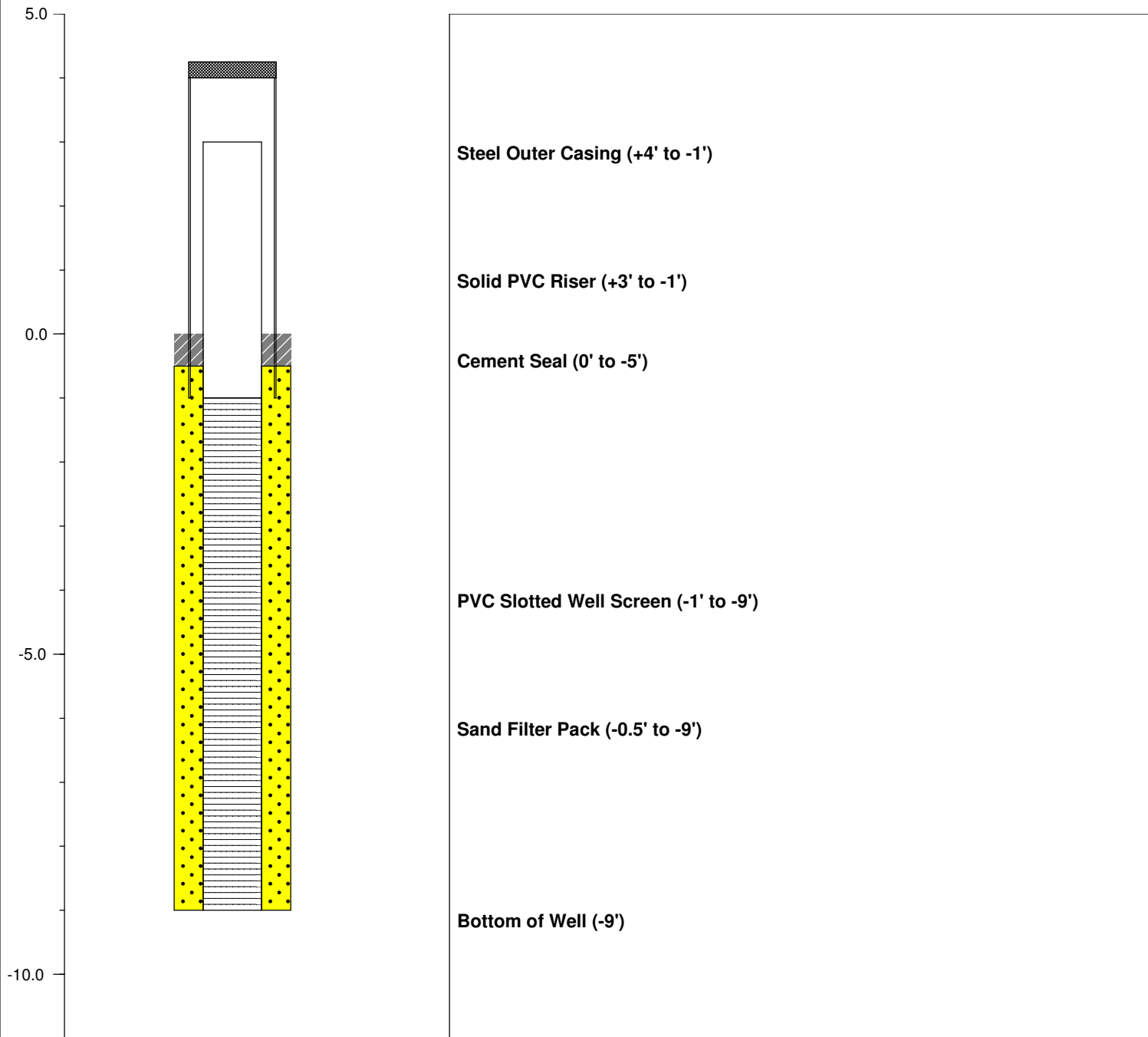


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : D. Hans
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Sunny, Mid 80's
 TOTAL DEPTH: 9'
 GROUND SURFACE ELEVATION: 6.98'
 DATE BEGUN: August 4, 2005
 DATE COMPLETED: August 4, 2005

PVC CASING (DIA.) - 4"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 4'
SCREEN (DIA.) - 4"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 8'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 5'

DEPTH BGS	WELL CONSTRUCTION	WELL SCHEMATICS
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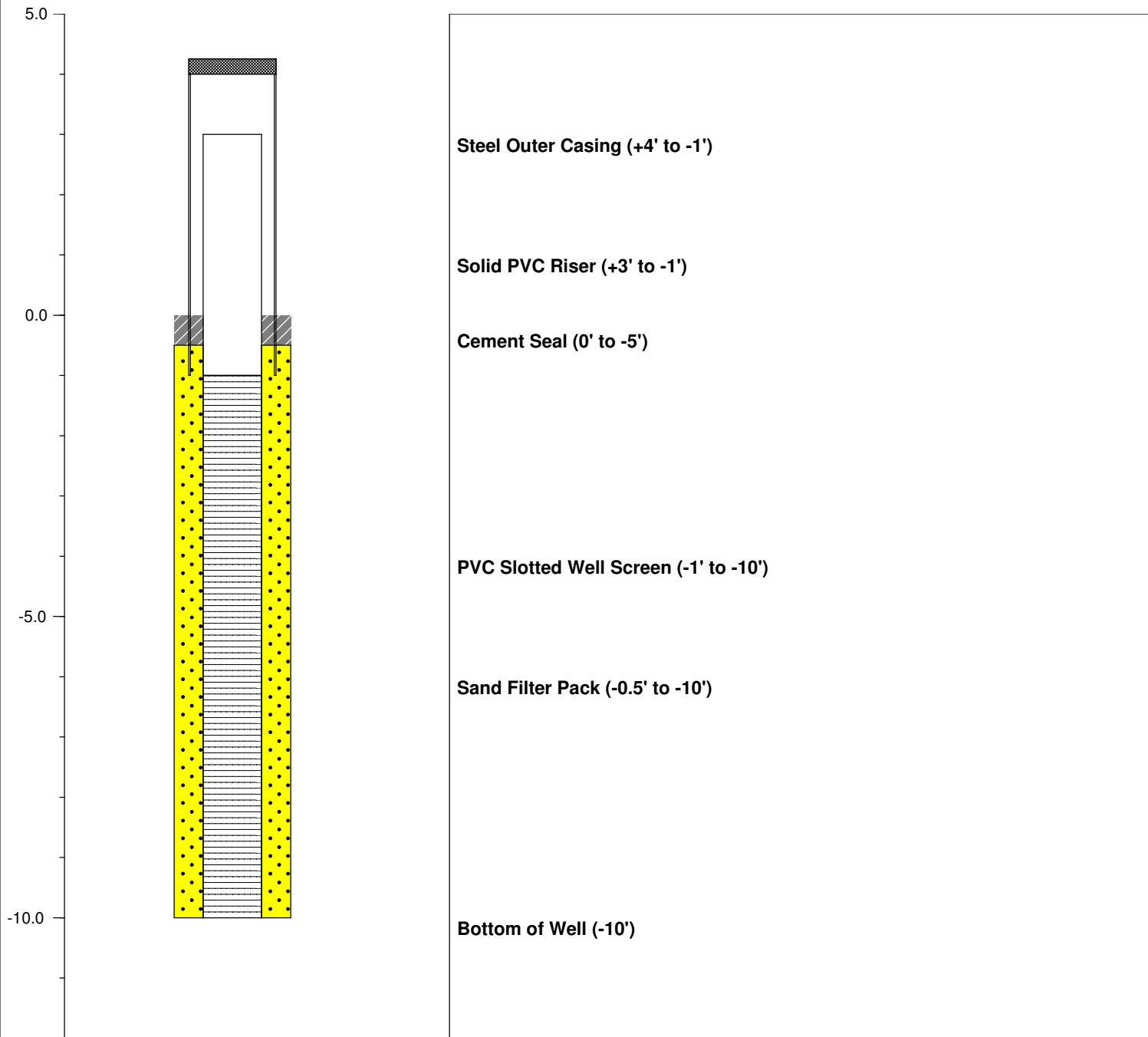


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : D. Hans
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Sunny, Mid 80's
 TOTAL DEPTH: 10'
 GROUND SURFACE ELEVATION: 6.64'
 DATE BEGUN: August 4, 2005
 DATE COMPLETED: August 4, 2005

PVC CASING (DIA.) - 4"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 4'
SCREEN (DIA.) - 4"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 9'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 5'

DEPTH BGS	WELL CONSTRUCTION	WELL SCHEMATICS
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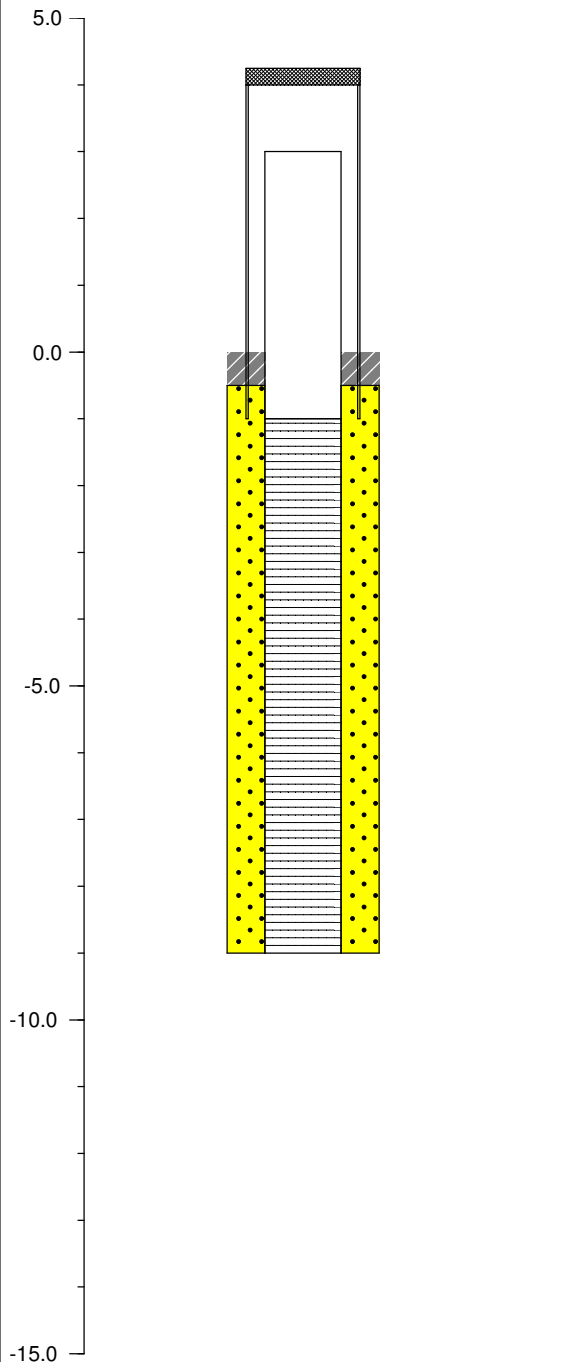


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : Bob
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Sunny, Mid 80's
 TOTAL DEPTH: 9'
 GROUND SURFACE ELEVATION: 11.11'
 DATE BEGUN: August 5, 2005
 DATE COMPLETED: August 5, 2005

PVC CASING (DIA.) - 4"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 4'
SCREEN (DIA.) - 4"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 8'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 5'

DEPTH BGS	WELL CONSTRUCTION	WELL SCHEMATICS
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Steel Outer Casing (+4' to -1')

Solid PVC Riser (+3' to -1')

Cement Seal (0' to -5')

PVC Slotted Well Screen (-1' to -9')

Sand Filter Pack (-0.5' to -9')

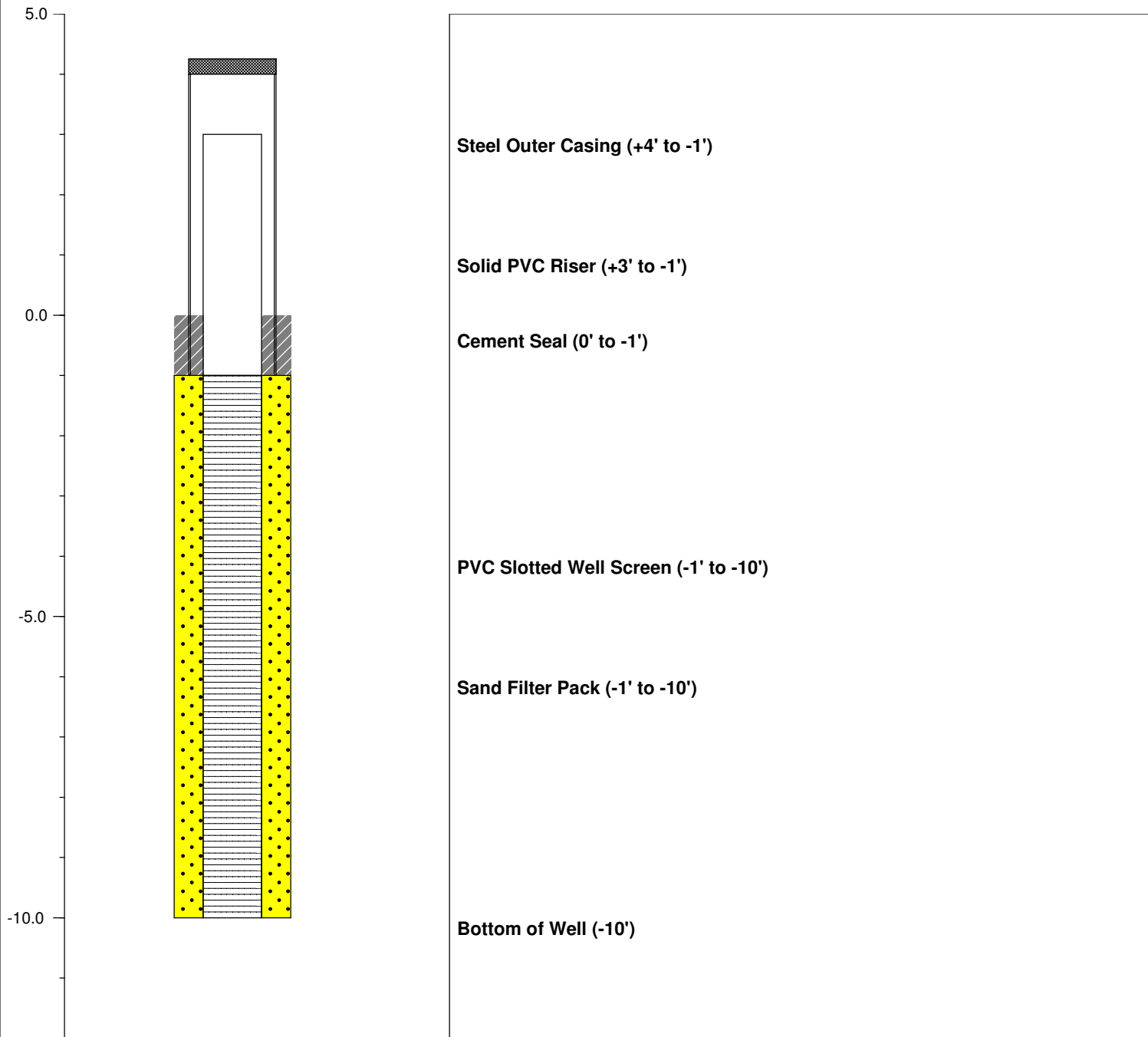
Bottom of Well (-9')

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : D. Hans
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Sunny, Mid 80's
 TOTAL DEPTH: 10'
 GROUND SURFACE ELEVATION: 7.57'
 DATE BEGUN: August 5, 2005
 DATE COMPLETED: August 5, 2005

PVC CASING (DIA.) - 4"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 4'
SCREEN (DIA.) - 4"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 9'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 5'

DEPTH BGS	WELL CONSTRUCTION	WELL SCHEMATICS
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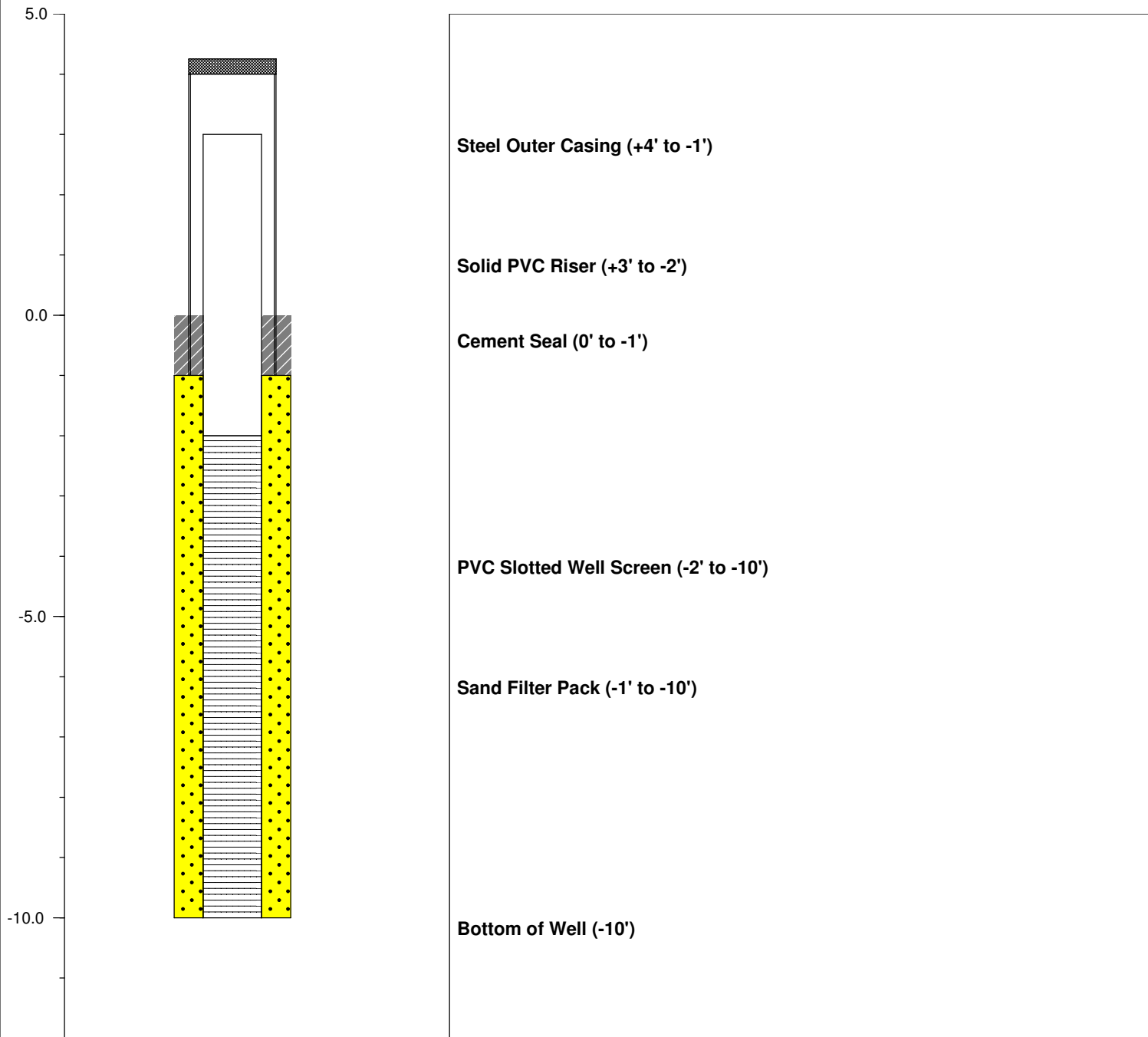


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : D. Hans
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Sunny, Mid 80's
 TOTAL DEPTH: 10'
 GROUND SURFACE ELEVATION: 8.33'
 DATE BEGUN: August 5, 2005
 DATE COMPLETED: August 5, 2005

PVC CASING (DIA.) - 4"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 5'
SCREEN (DIA.) - 4"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 8'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 5'

DEPTH BGS	WELL CONSTRUCTION	WELL SCHEMATICS
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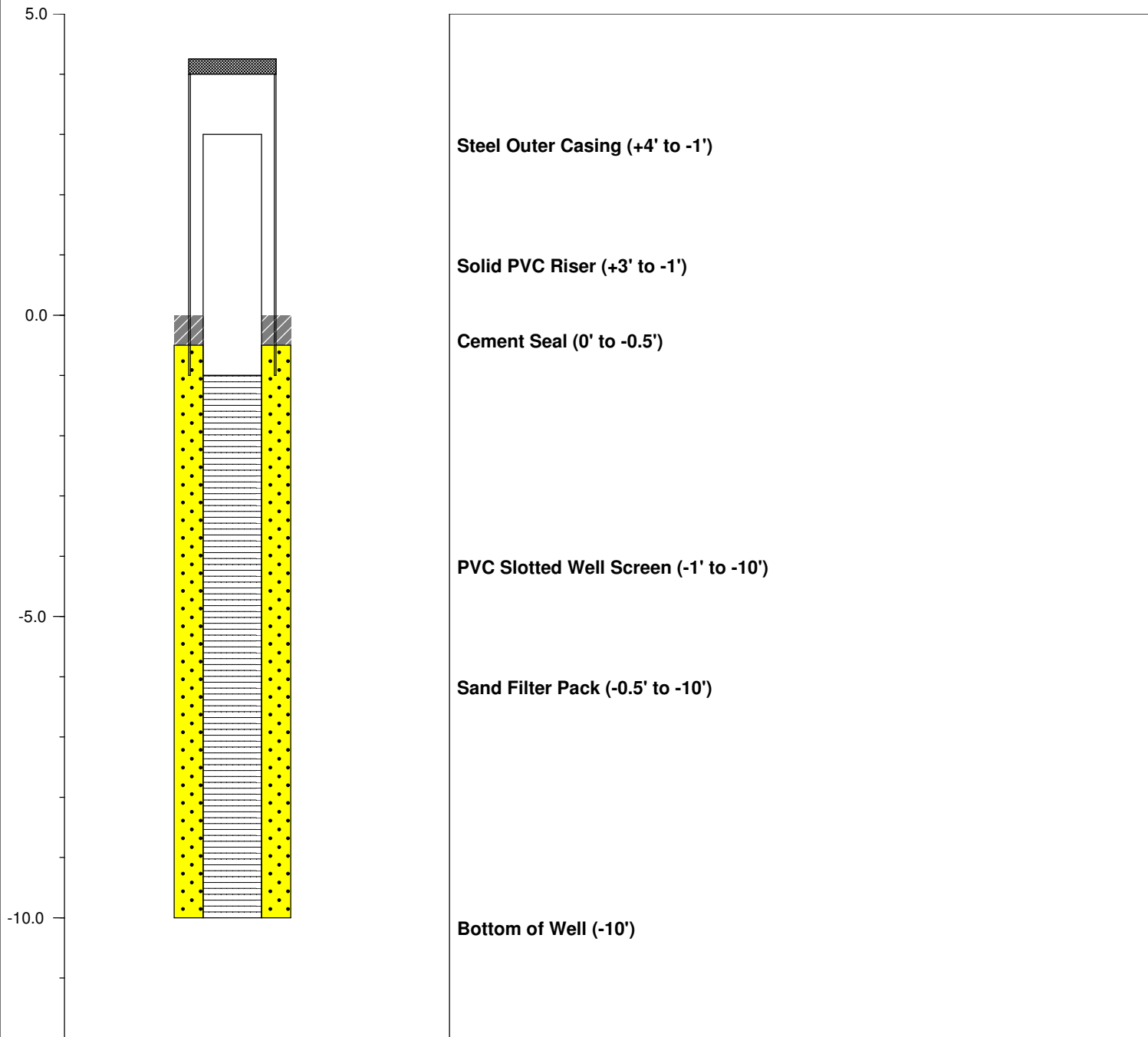


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : D. Hans
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Sunny, Mid 80's
 TOTAL DEPTH: 10'
 GROUND SURFACE ELEVATION: 9.60'
 DATE BEGUN: August 18, 2005
 DATE COMPLETED: August 18, 2005

PVC CASING (DIA.) - 4"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 4'
SCREEN (DIA.) - 4"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 9'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 5'

DEPTH BCS	WELL CONSTRUCTION	WELL SCHEMATICS
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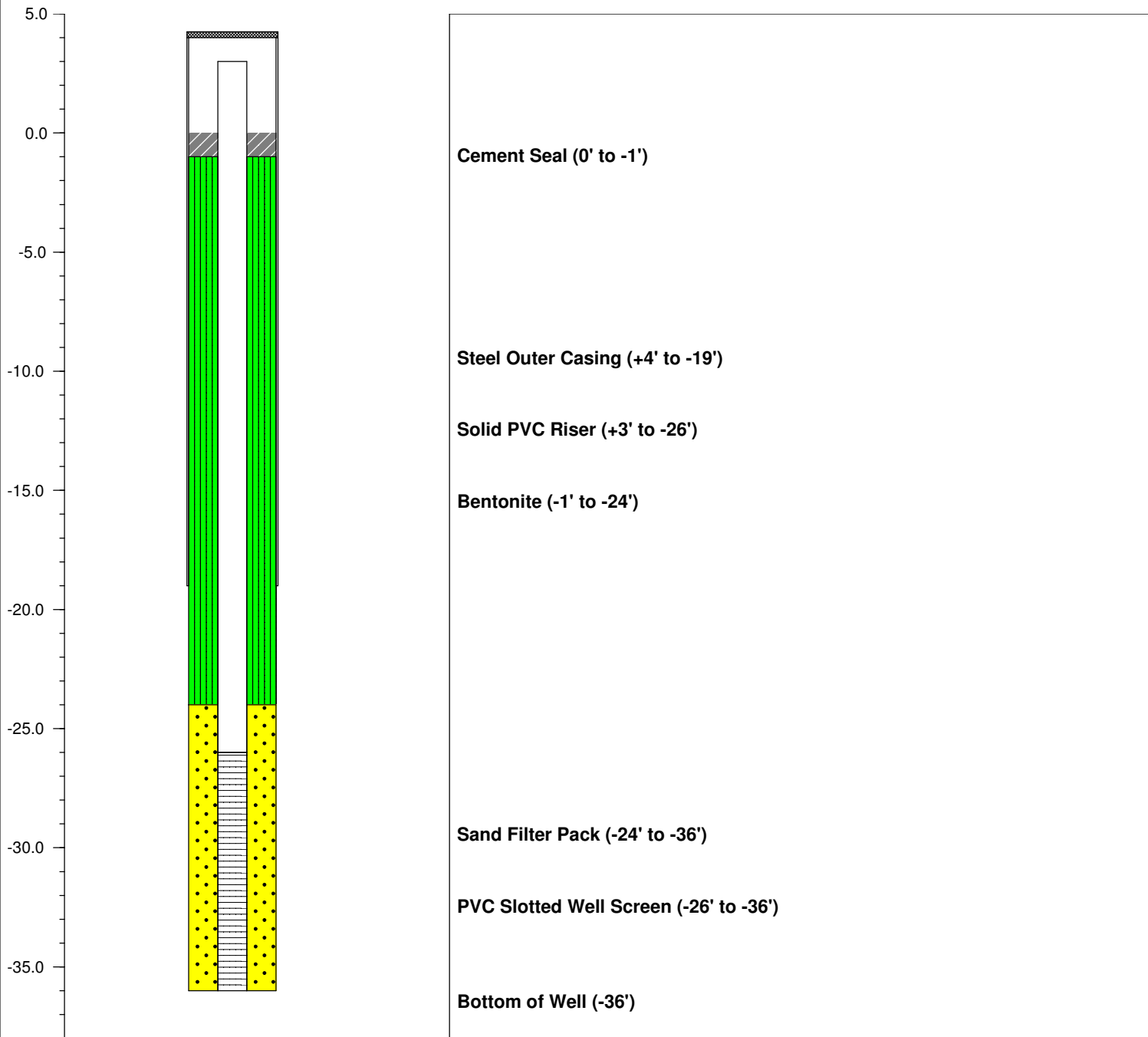


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: Tabasco Drilling
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : B. Woodington
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Clear, High 40's
 TOTAL DEPTH: 36'
 GROUND SURFACE ELEVATION: 15.85'
 DATE BEGUN: September 30, 2005
 DATE COMPLETED: October 26, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 29'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 23'

DEPTH BGS	WELL CONSTRUCTION	WELL SCHEMATICS
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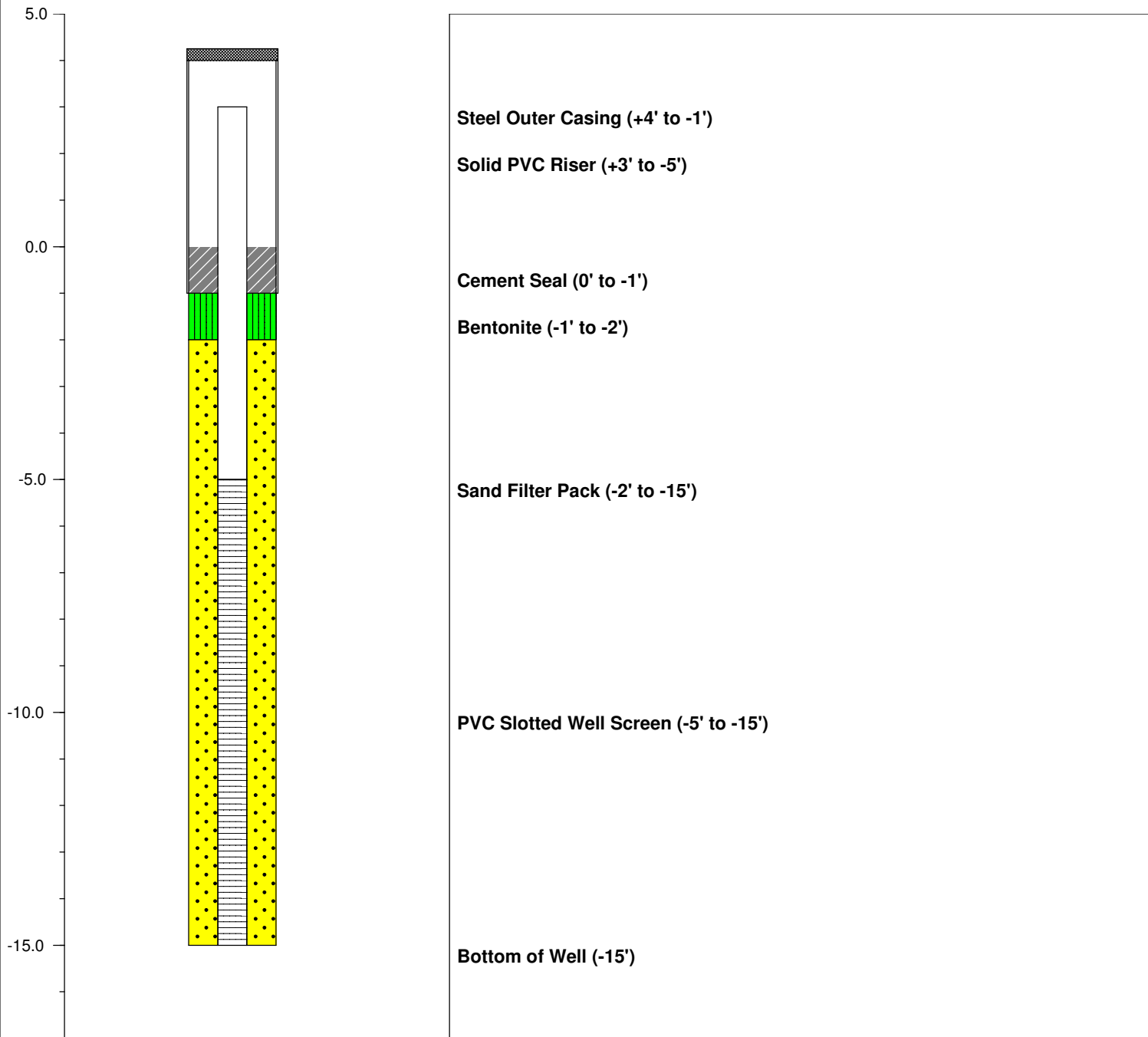


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : D. Hans
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Sunny, Mid 80's
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 15.79'
 DATE BEGUN: August 30, 2005
 DATE COMPLETED: August 30, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 8'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 5'

DEPTH BCS	WELL CONSTRUCTION	WELL SCHEMATICS
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PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: Tabasco Drilling
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : B. Woodington
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

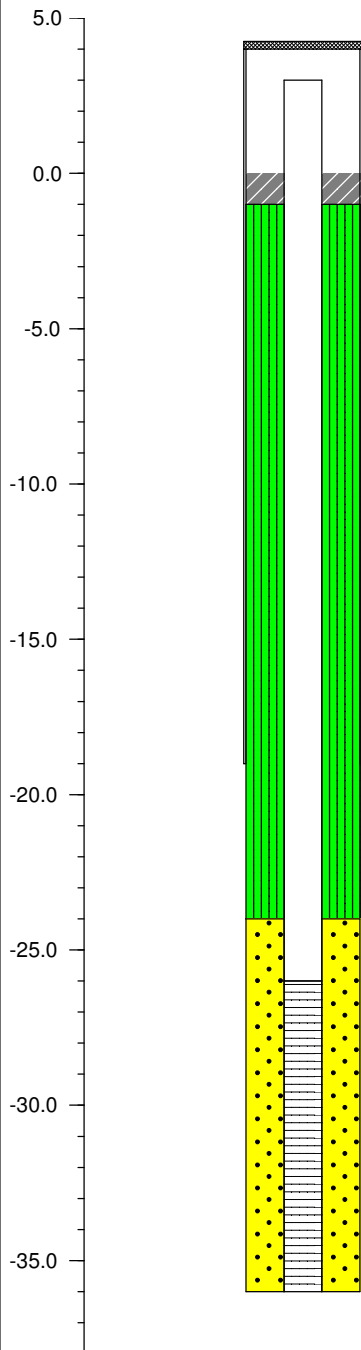
WEATHER : Clear, High 40's
 TOTAL DEPTH: 36'
 GROUND SURFACE ELEVATION: 15.97'
 DATE BEGUN: September 30, 2005
 DATE COMPLETED: October 26, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 29'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 23'

**DEPTH
BCS**

**WELL
CONSTRUCTION**

WELL SCHEMATICS



Cement Seal (0' to -1')

Steel Outer Casing (+4' to -19')

Solid PVC Riser (+3' to -26')

Bentonite (-1' to -24')

Sand Filter Pack (-24' to -36')

PVC Slotted Well Screen (-26' to -36')

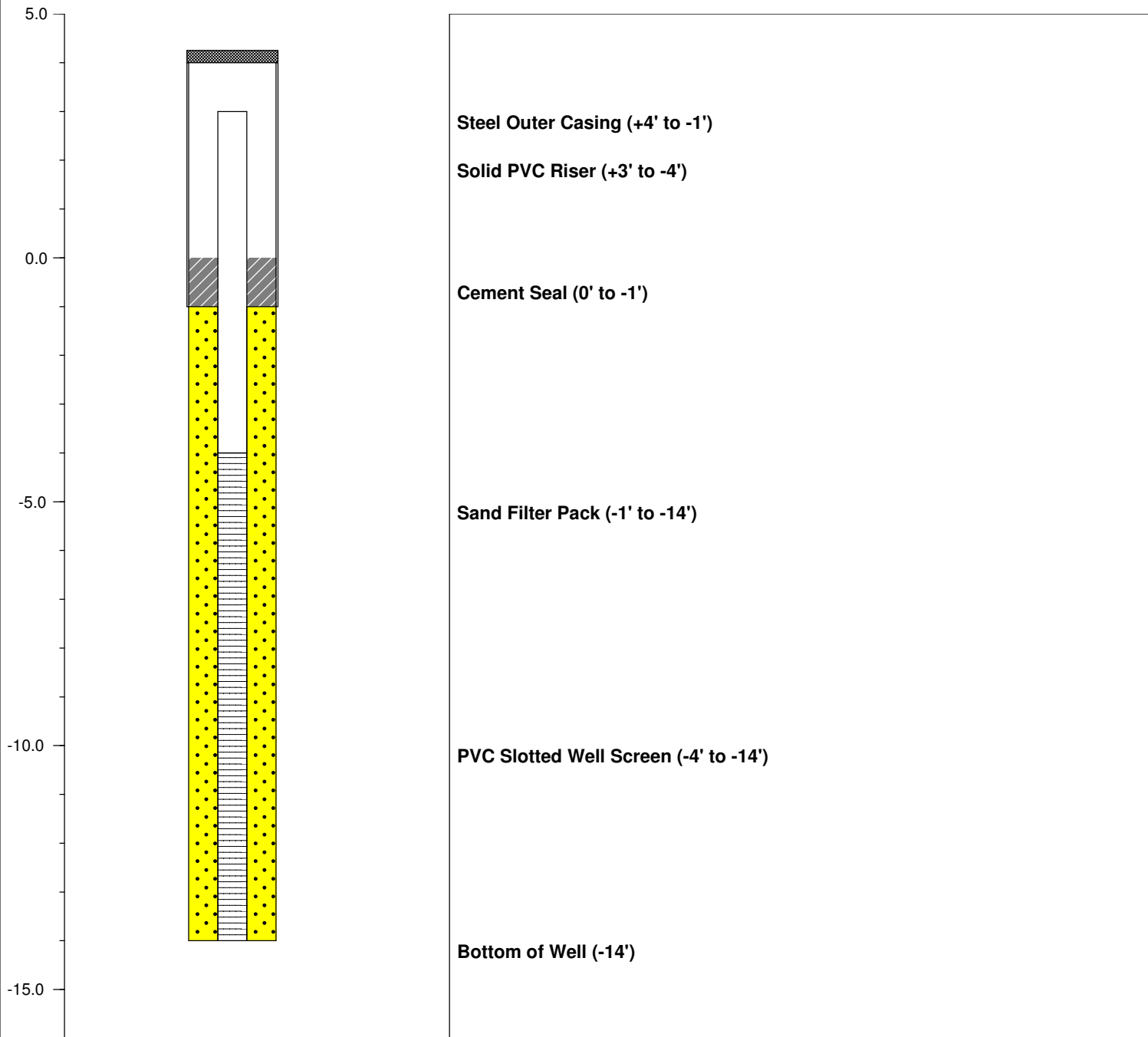
Bottom of Well (-36')

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : D. Hans
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Sunny, Mid 80's
 TOTAL DEPTH: 14'
 GROUND SURFACE ELEVATION: 16.64'
 DATE BEGUN: August 31, 2005
 DATE COMPLETED: August 31, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 7'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 5'

DEPTH BGS	WELL CONSTRUCTION	WELL SCHEMATICS
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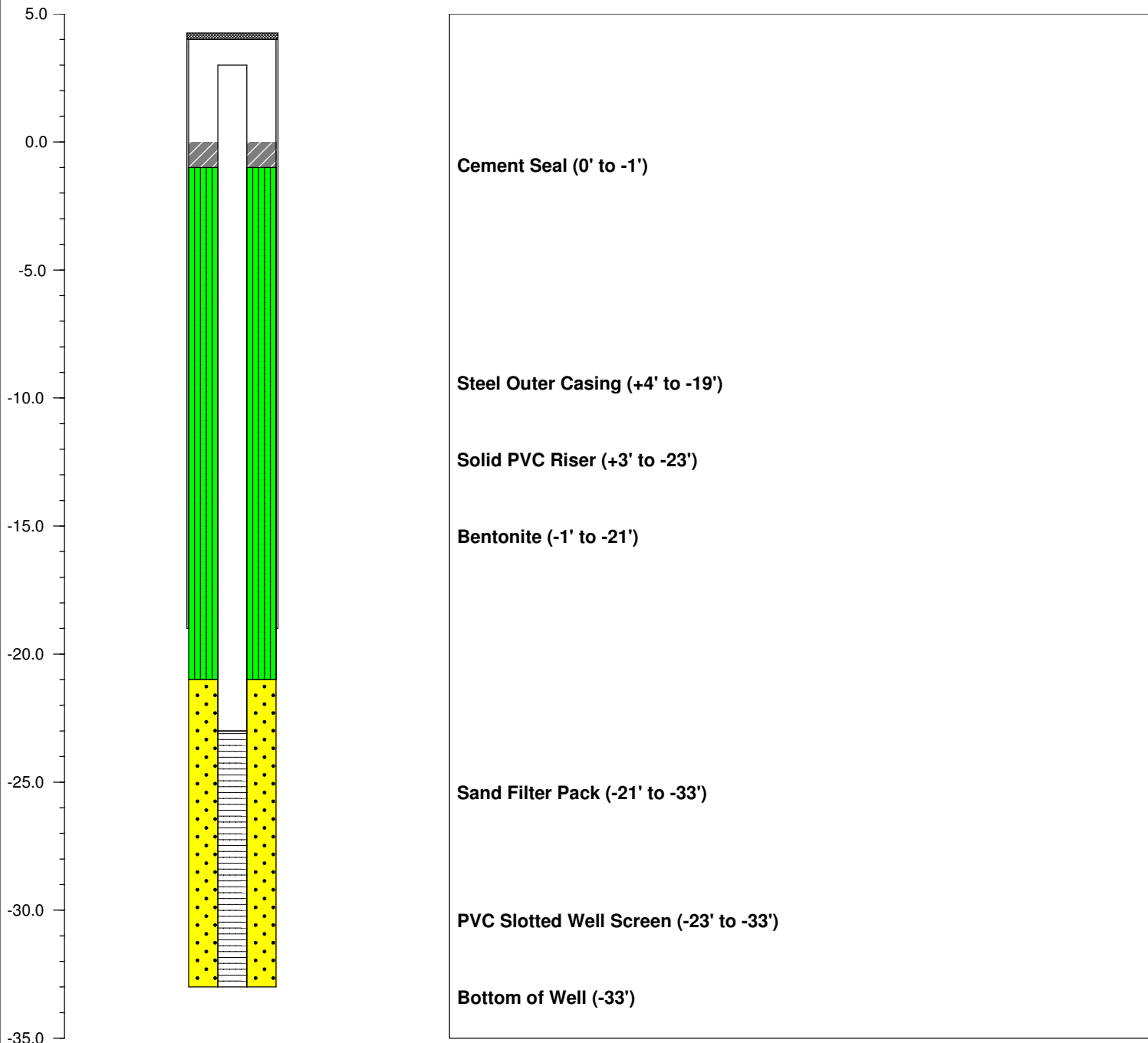


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: Tabasco Drilling
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : B. Woodington
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Sunny, Low 70's
 TOTAL DEPTH: 33'
 GROUND SURFACE ELEVATION: 12.83'
 DATE BEGUN: September 28, 2005
 DATE COMPLETED: September 28, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 26'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 23'

DEPTH BGS	WELL CONSTRUCTION	WELL SCHEMATICS
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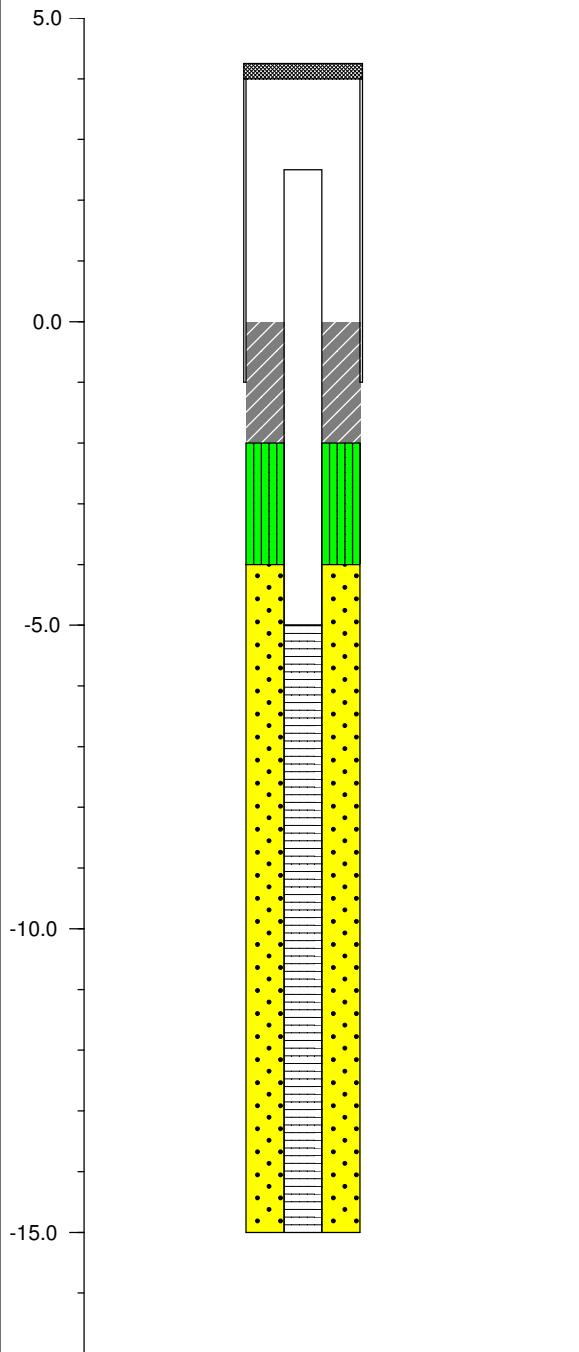


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : D. Hans
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Sunny, Mid 80's
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 12.87'
 DATE BEGUN: August 23, 2005
 DATE COMPLETED: August 23, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 7.5'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 5'

DEPTH BGS	WELL CONSTRUCTION	WELL SCHEMATICS
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Steel Outer Casing (+4' to -1')

Solid PVC Riser (+2.5' to -5')

Cement Seal (0' to -2')

Bentonite (-2' to -4')

Sand Filter Pack (-4' to -15')

PVC Slotted Well Screen (-5' to -15')

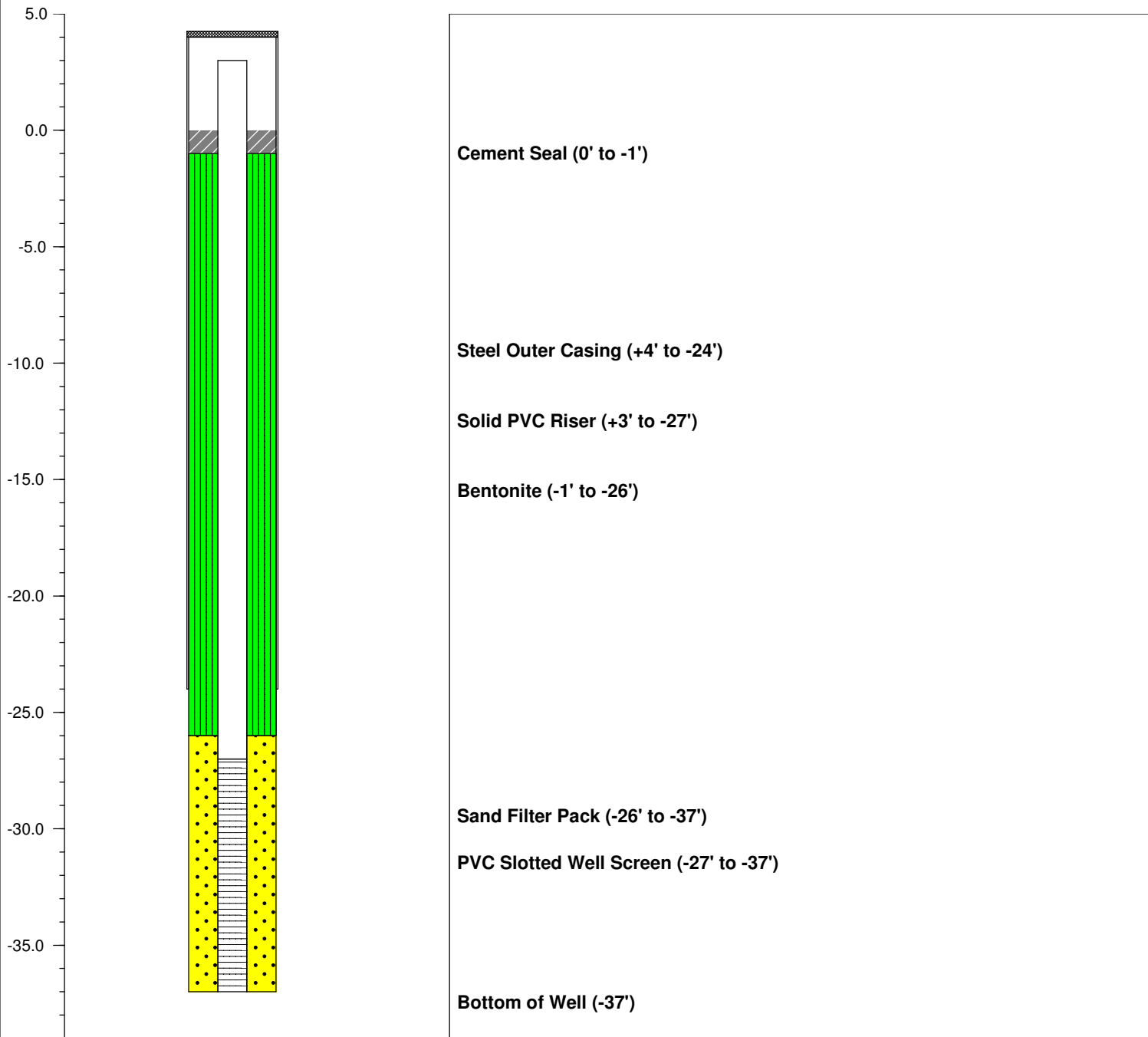
Bottom of Well (-15')

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: Tabasco Drilling
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : B. Woodington
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Cloudy, Drizzle
 TOTAL DEPTH: 37'
 GROUND SURFACE ELEVATION: 16.04'
 DATE BEGUN: September 22, 2005
 DATE COMPLETED: October 5, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 30'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 28'

DEPTH BGS	WELL CONSTRUCTION	WELL SCHEMATICS
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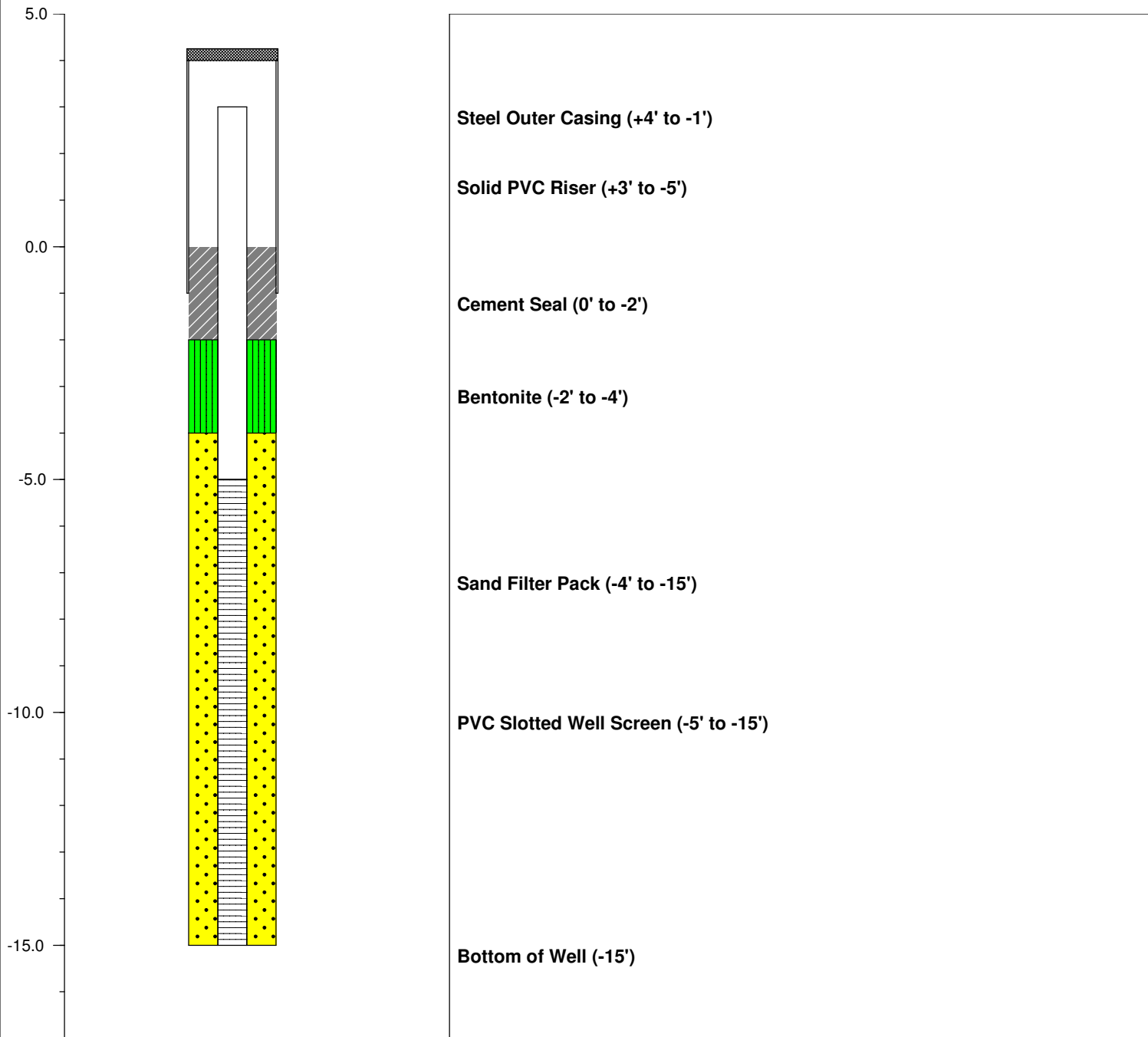


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : D. Hans
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Sunny, Mid 80's
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 16.20'
 DATE BEGUN: August 30, 2005
 DATE COMPLETED: August 30, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 8'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 5'

DEPTH BCS	WELL CONSTRUCTION	WELL SCHEMATICS
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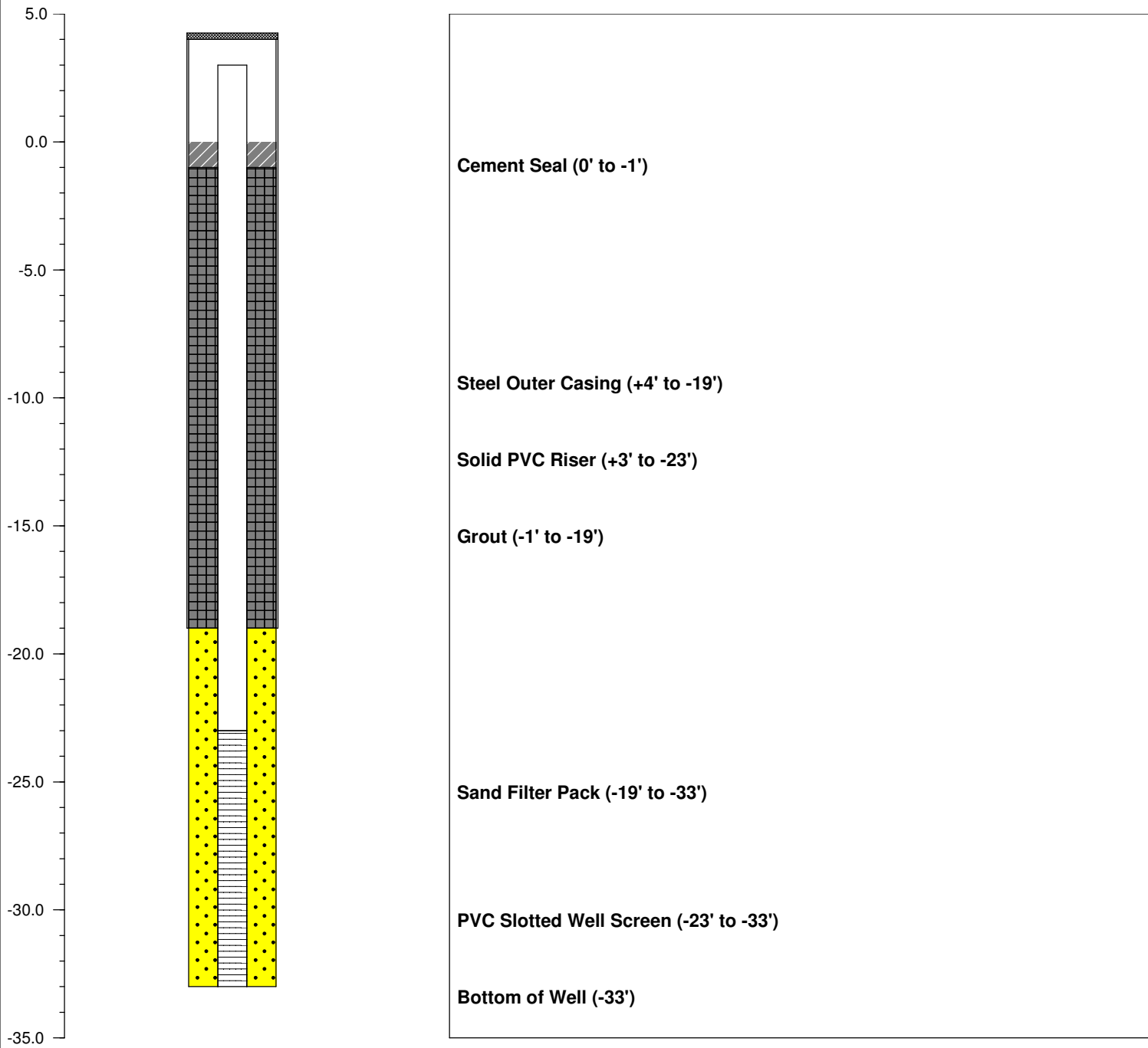


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: Tabasco Drilling
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : B. Woodington
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Sunny, Mid 50's
 TOTAL DEPTH: 33'
 GROUND SURFACE ELEVATION: 11.26'
 DATE BEGUN: September 28, 2005
 DATE COMPLETED: October 27, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 26'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 23'

DEPTH BGS	WELL CONSTRUCTION	WELL SCHEMATICS
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PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : D. Hans
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

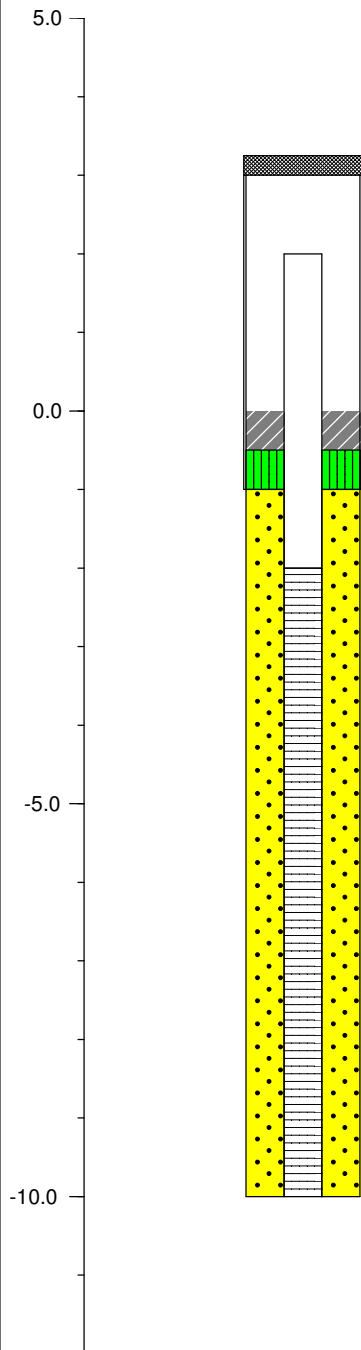
WEATHER : Sunny, Mid 80's
 TOTAL DEPTH: 10'
 GROUND SURFACE ELEVATION: 11.38'
 DATE BEGUN: August 18, 2005
 DATE COMPLETED: August 19, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 4'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 8'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 4'

DEPTH
BGS

WELL
CONSTRUCTION

WELL SCHEMATICS



Steel Outer Casing (+3' to -1')

Solid PVC Riser (+2' to -2')

Cement Seal (0' to -0.5')

Bentonite (-0.5' to -1')

Sand Filter Pack (-1' to -10')

PVC Slotted Well Screen (-2' to -10')

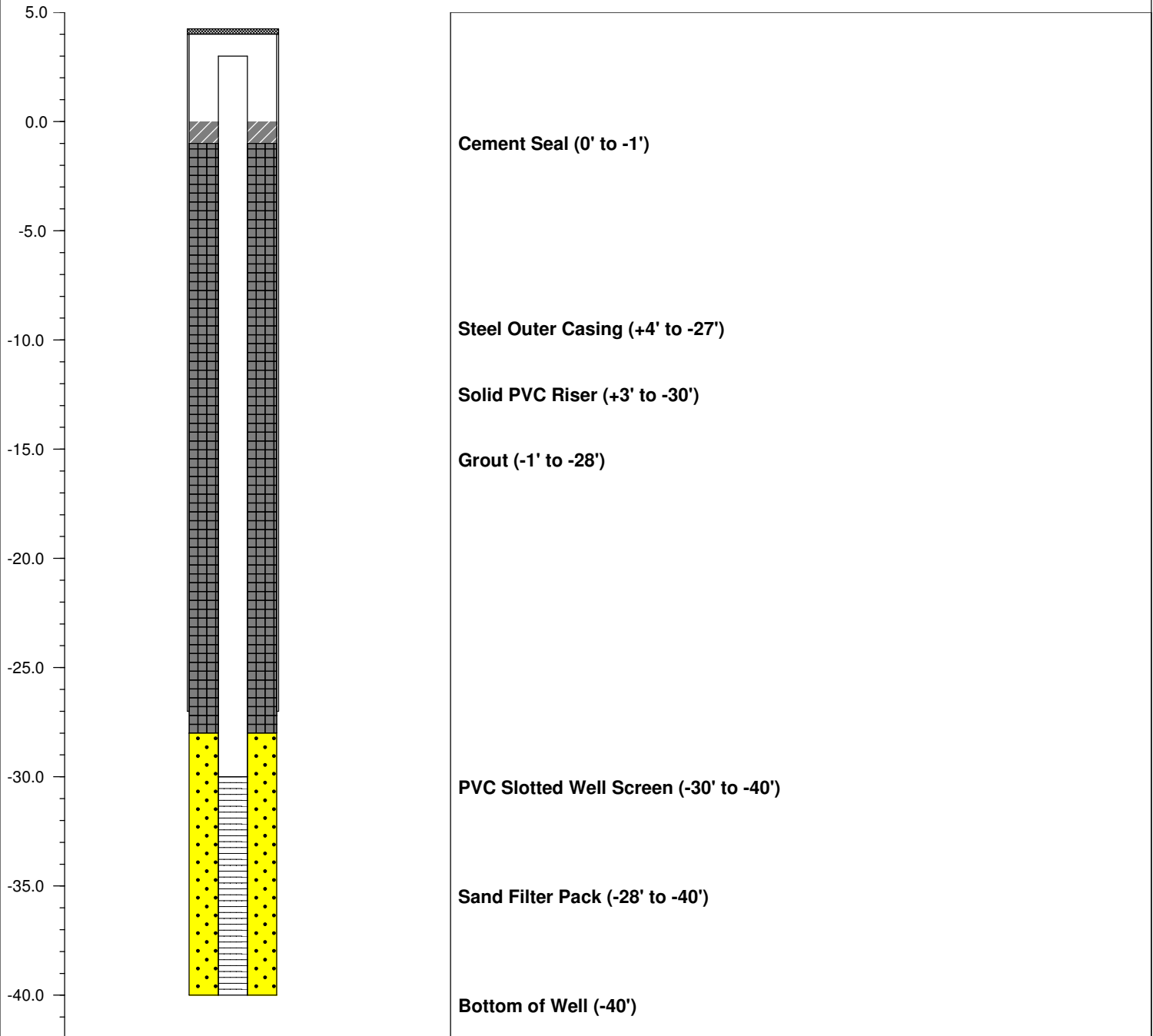
Bottom of Well (-10')

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: Tabasco Drilling
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : B. Woodington
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Clear, Low 50's
 TOTAL DEPTH: 40'
 GROUND SURFACE ELEVATION: 12.68'
 DATE BEGUN: September 26, 2005
 DATE COMPLETED: October 18, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 33'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 31'

DEPTH BGS	WELL CONSTRUCTION	WELL SCHEMATICS
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PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : D. Hans
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

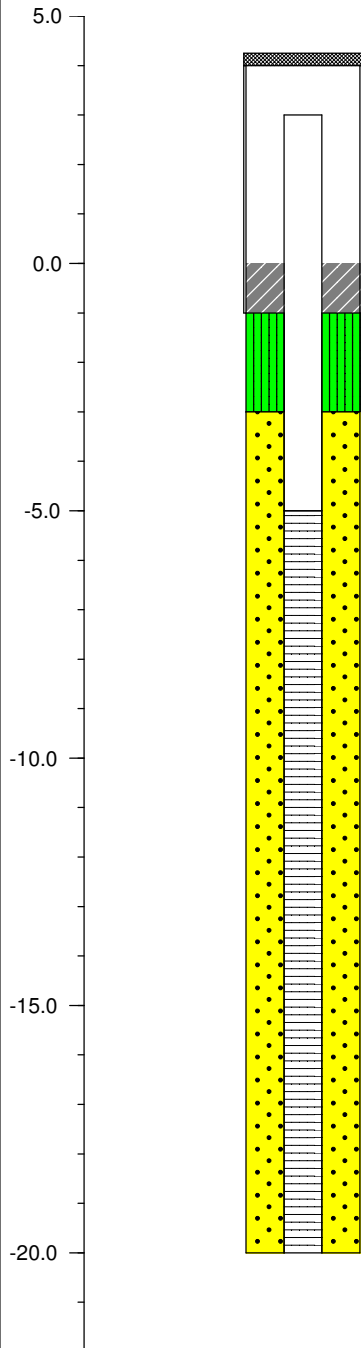
WEATHER : Sunny, Mid 80's
 TOTAL DEPTH: 20'
 GROUND SURFACE ELEVATION: 12.99'
 DATE BEGUN: August 26, 2005
 DATE COMPLETED: August 26, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 8'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 15'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 5'

**DEPTH
BGS**

**WELL
CONSTRUCTION**

WELL SCHEMATICS



Steel Outer Casing (+4' to -1')

Solid PVC Riser (+3' to -5')

Cement Seal (0' to -1')

Bentonite (-1' to -3')

Sand Filter Pack (-3' to -20')

PVC Slotted Well Screen (-5' to -20')

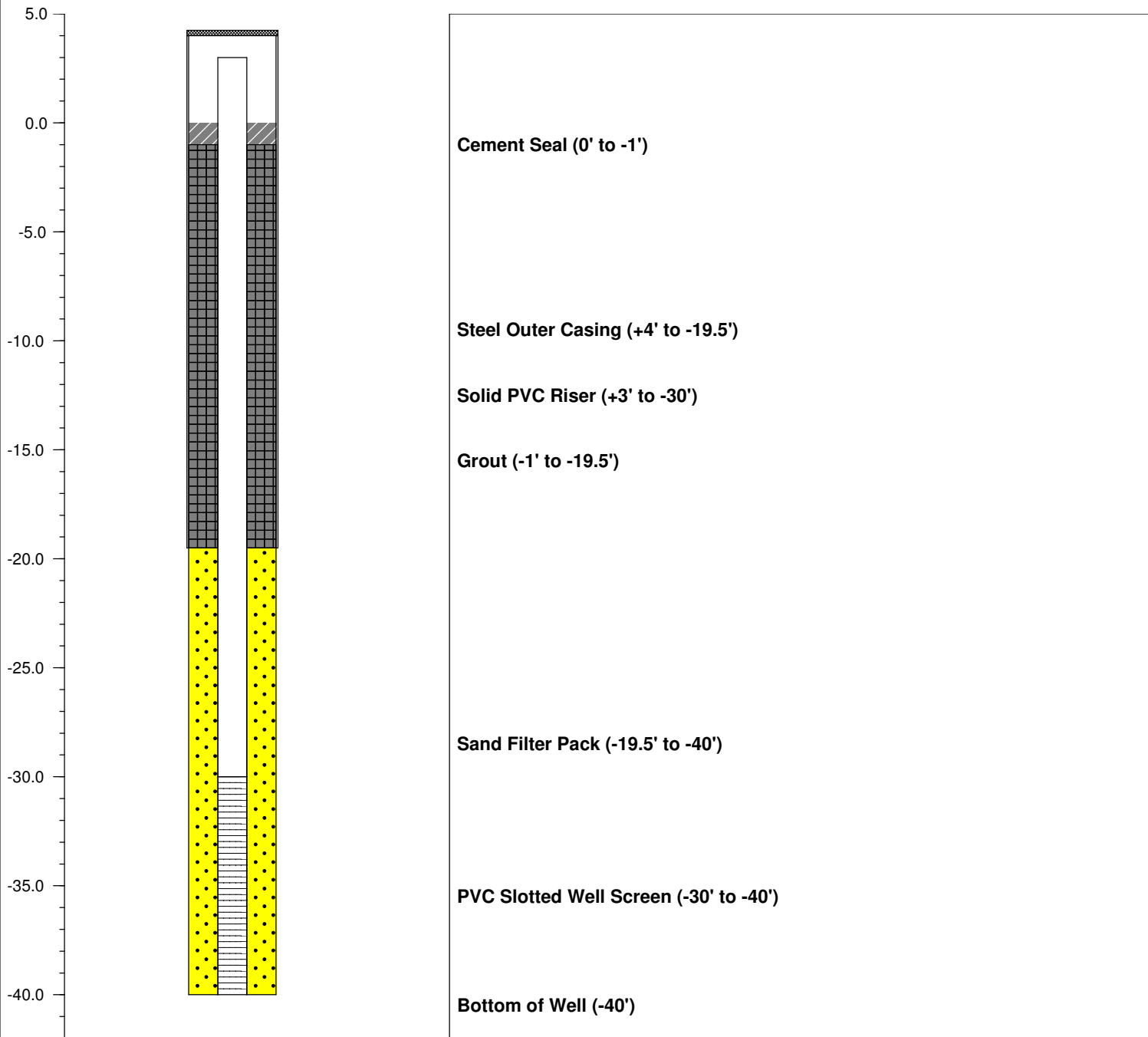
Bottom of Well (-20')

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: Tabasco Drilling
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : B. Woodington
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Rain, High 50's
 TOTAL DEPTH: 40'
 GROUND SURFACE ELEVATION: 12.38'
 DATE BEGUN: September 23, 2005
 DATE COMPLETED: October 12, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 33'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 23.5'

DEPTH BGS	WELL CONSTRUCTION	WELL SCHEMATICS
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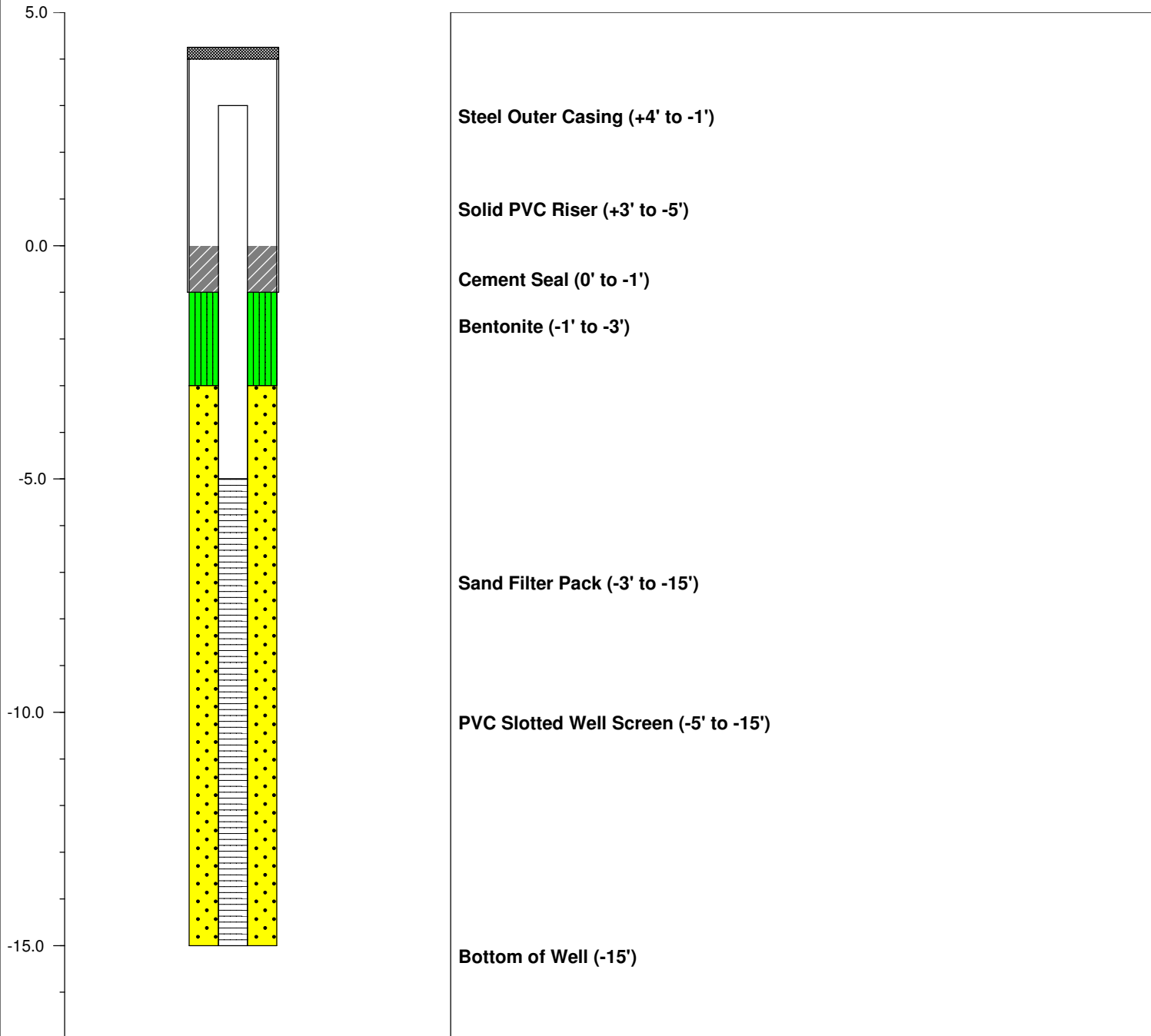


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : D. Hans
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Sunny, Mid 80's
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 12.91'
 DATE BEGUN: August 29, 2005
 DATE COMPLETED: August 29, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 8'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 5'

DEPTH BCS	WELL CONSTRUCTION	WELL SCHEMATICS
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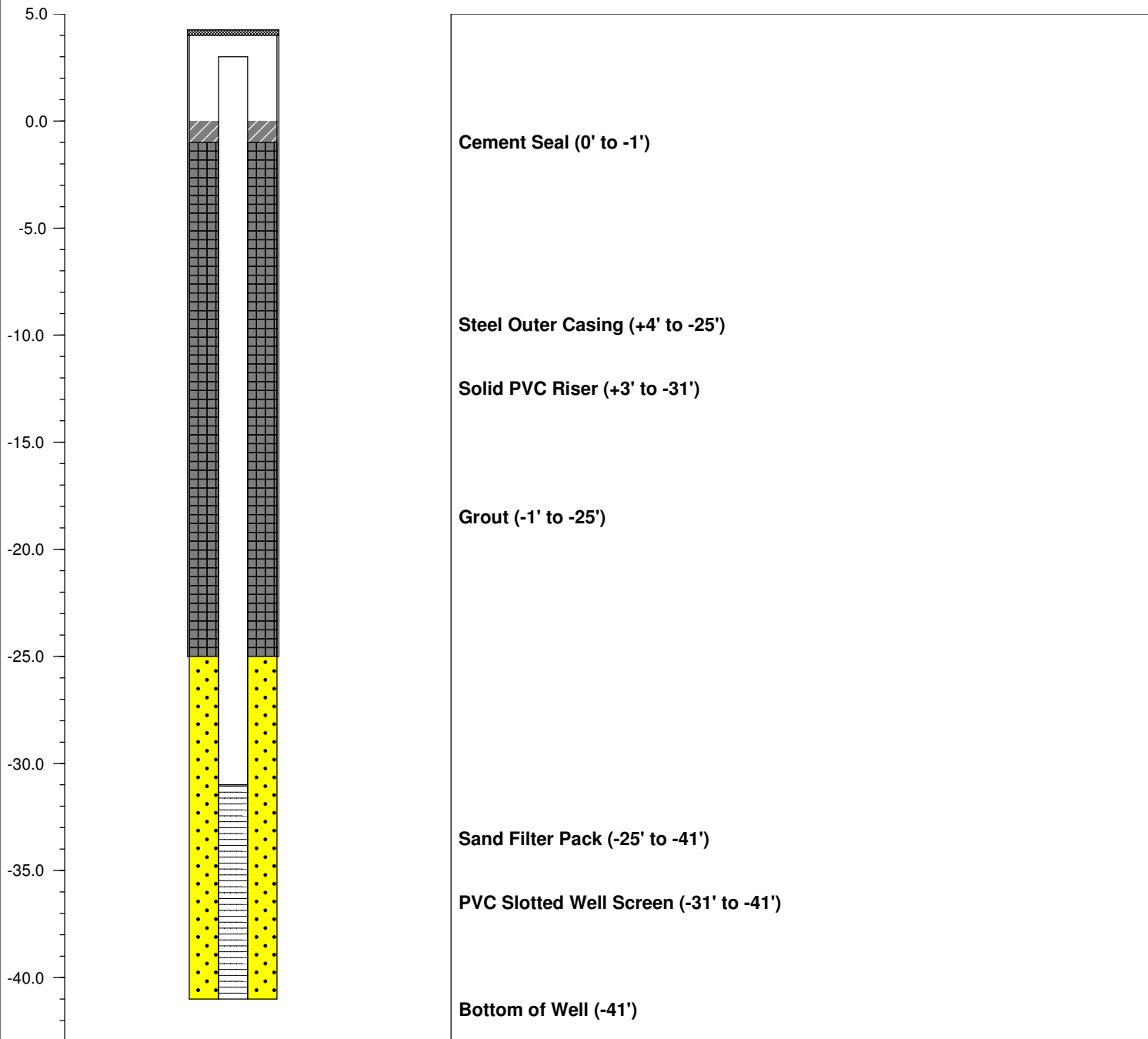


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: Tabasco Drilling
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : B. Woodington
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Overcast/Drizzle, Low 60's
 TOTAL DEPTH: 41'
 GROUND SURFACE ELEVATION: 15.24'
 DATE BEGUN: September 19, 2005
 DATE COMPLETED: October 14, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 34'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 29'

DEPTH BGS	WELL CONSTRUCTION	WELL SCHEMATICS
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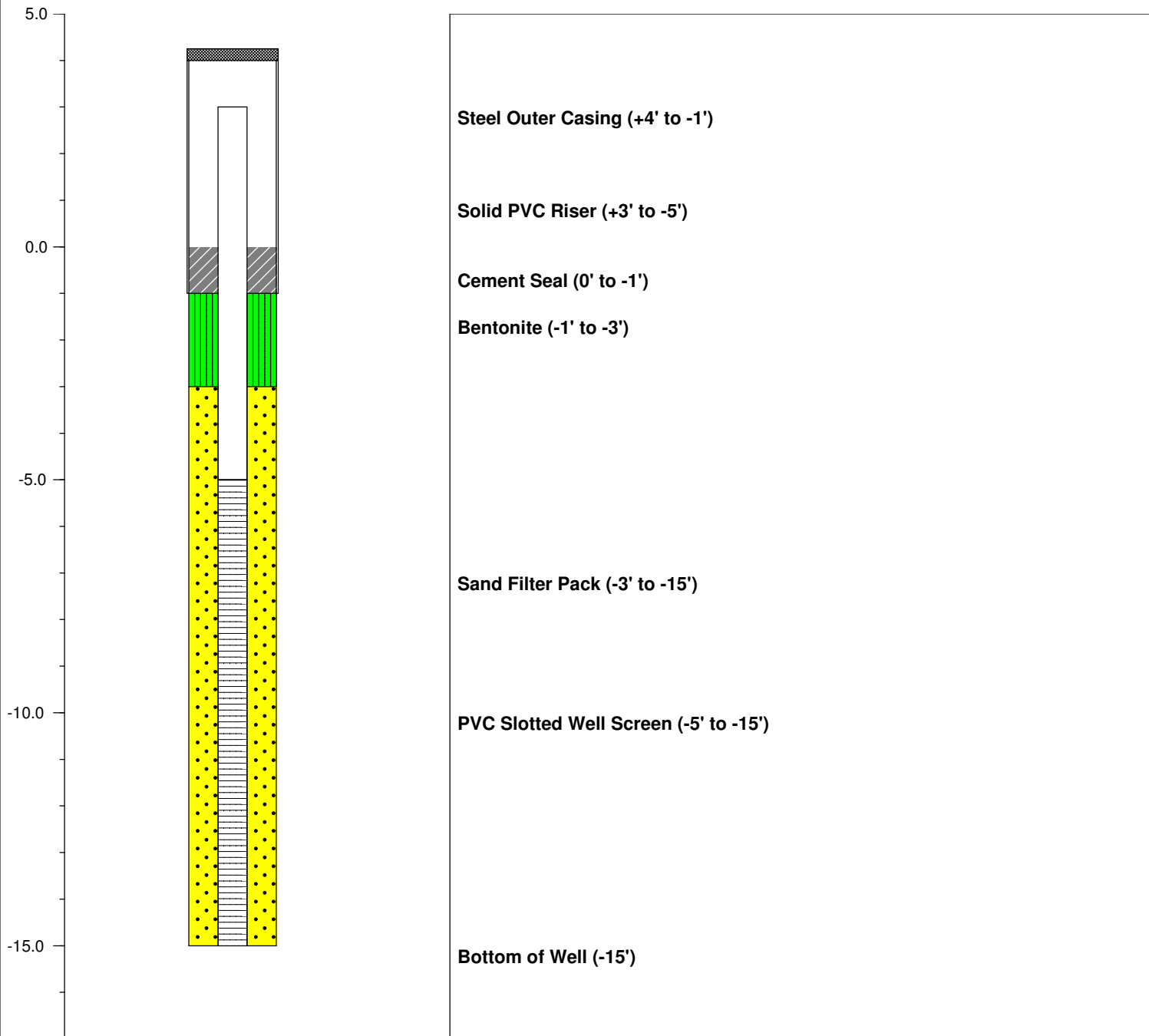


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : D. Hans
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Sunny, Mid 80's
 TOTAL DEPTH: 15'
 GROUND SURFACE ELEVATION: 15.32'
 DATE BEGUN: August 25, 2005
 DATE COMPLETED: August 25, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 8'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 5'

DEPTH BCS	WELL CONSTRUCTION	WELL SCHEMATICS
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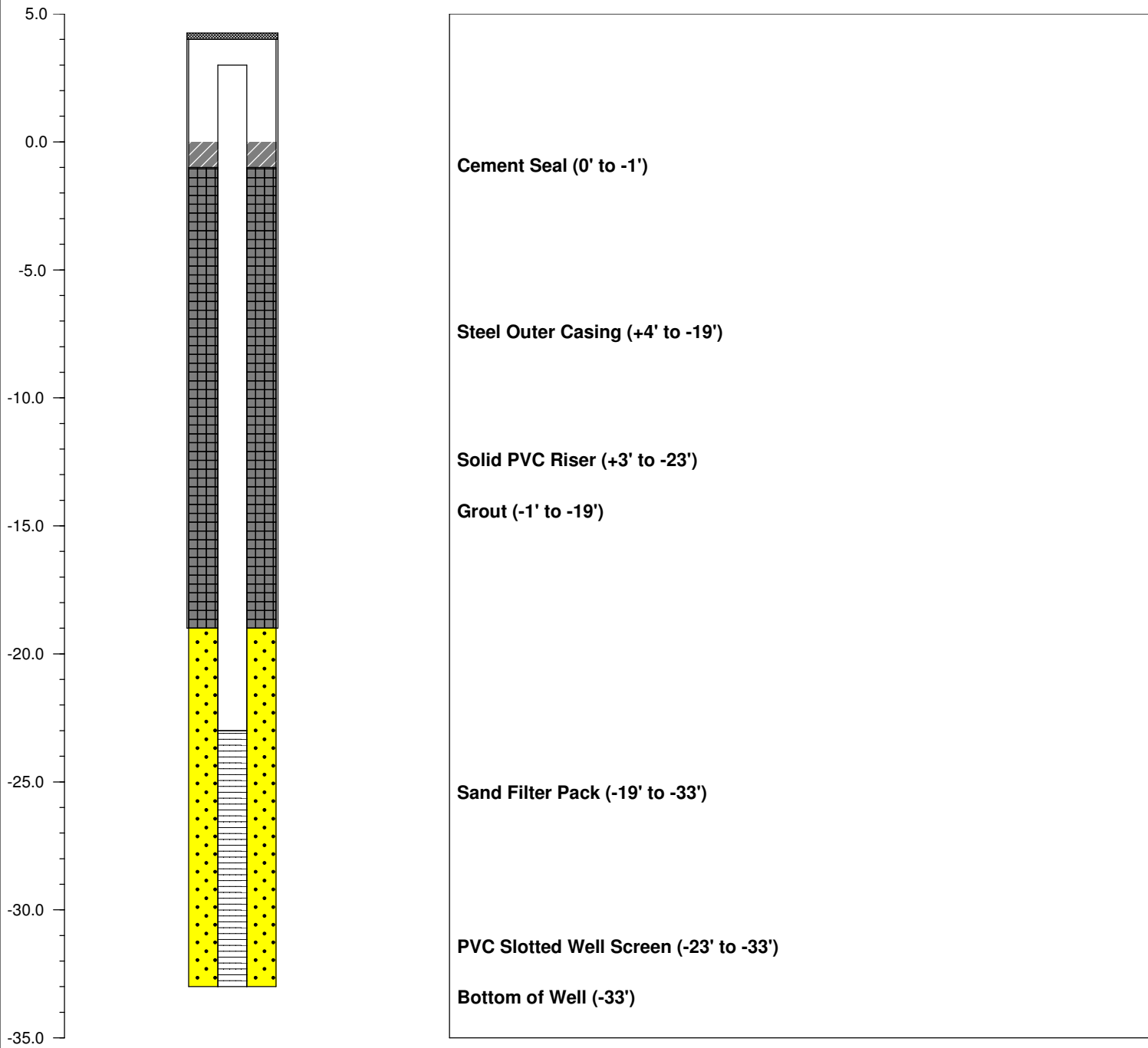


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: Tabasco Drilling
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : B. Woodington
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Overcast, Low 50's
 TOTAL DEPTH: 33'
 GROUND SURFACE ELEVATION: 11.25'
 DATE BEGUN: September 20, 2005
 DATE COMPLETED: October 24, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 26'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 23'

DEPTH BGS	WELL CONSTRUCTION	WELL SCHEMATICS
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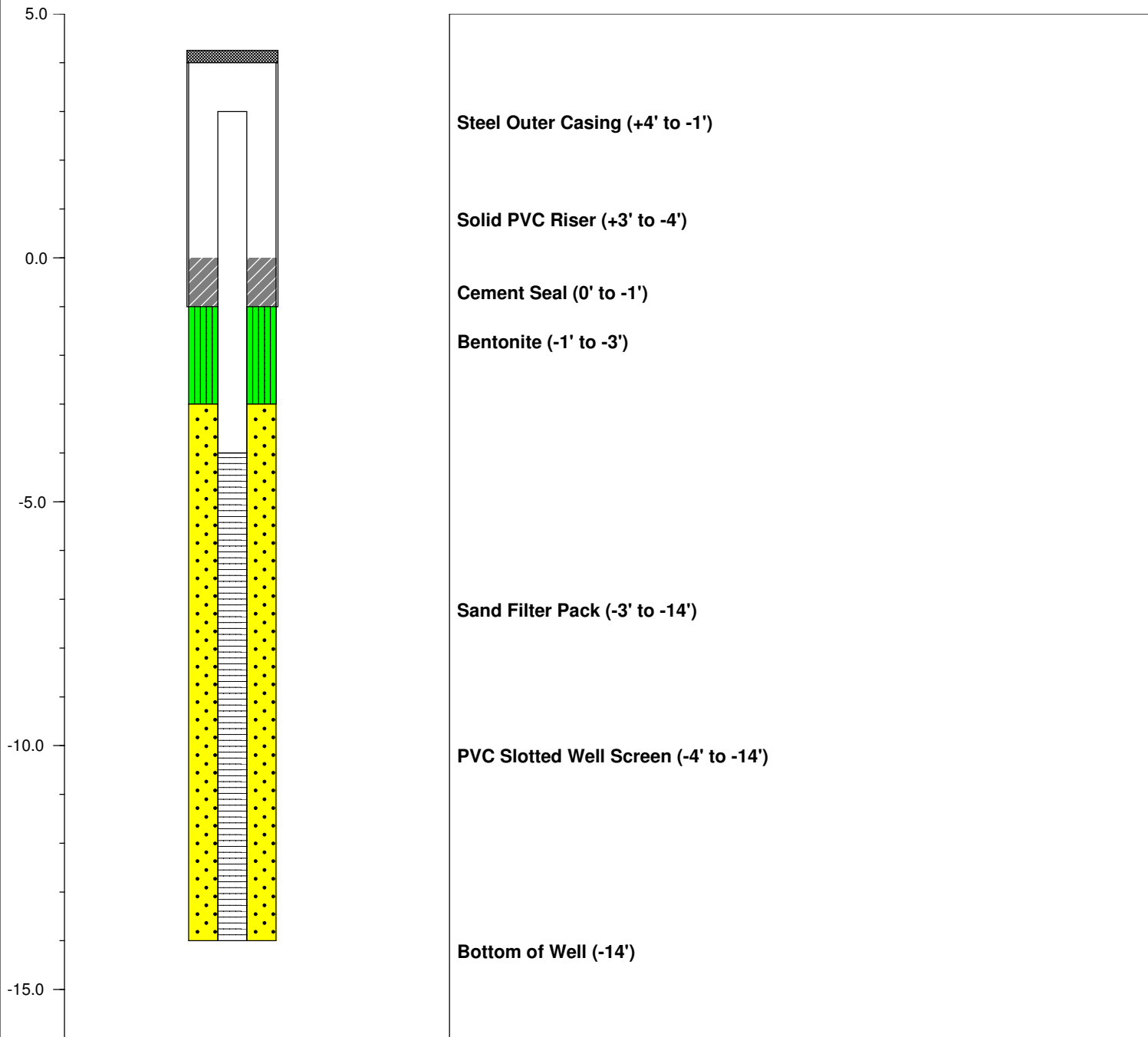


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : D. Hans
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Sunny, Mid 80's
 TOTAL DEPTH: 14'
 GROUND SURFACE ELEVATION: 11.79'
 DATE BEGUN: August 23, 2005
 DATE COMPLETED: August 23, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 7'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 5'

DEPTH BCS	WELL CONSTRUCTION	WELL SCHEMATICS
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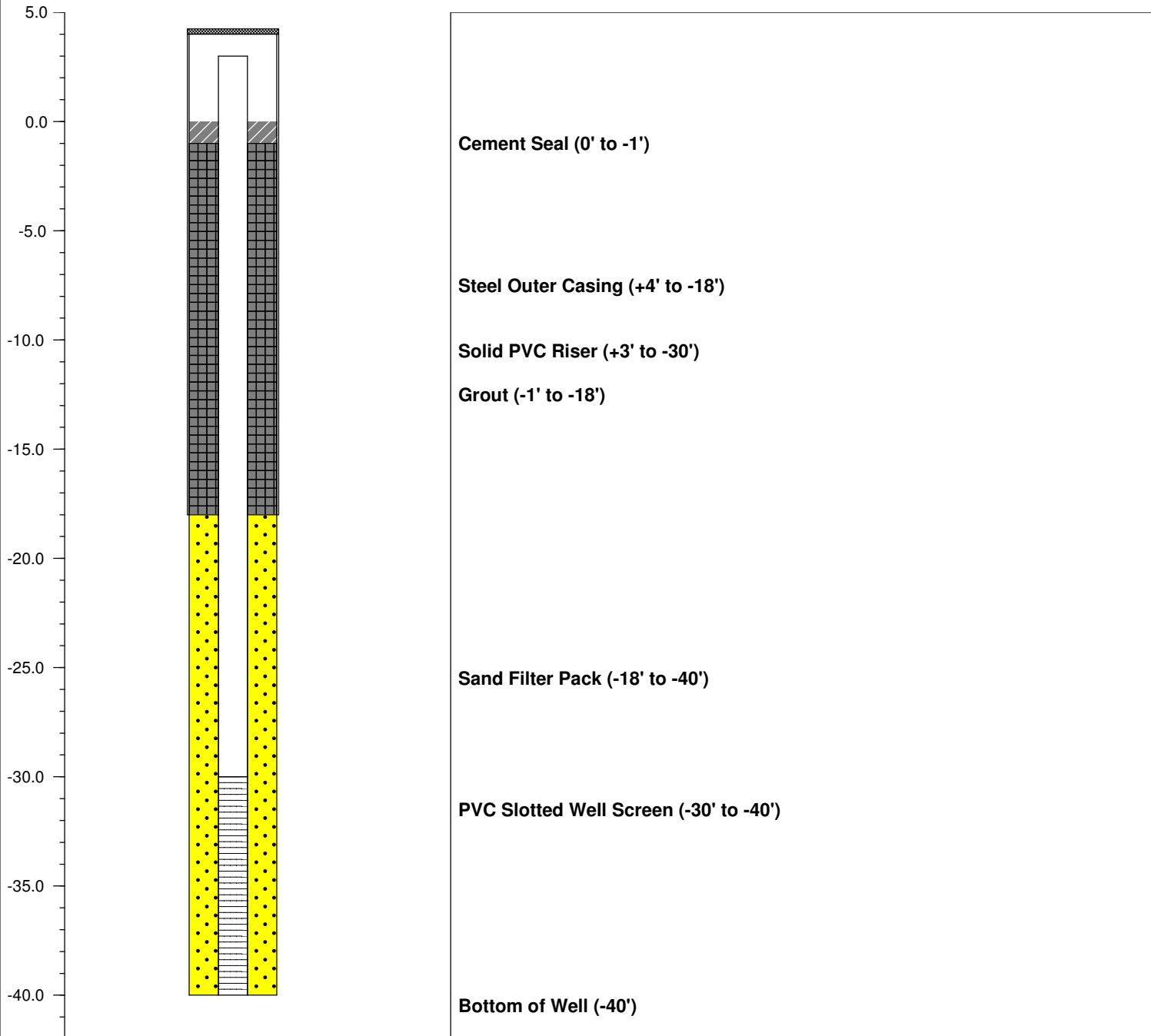


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: Tabasco Drilling
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : B. Woodington
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Overcast, Low 50's
 TOTAL DEPTH: 40'
 GROUND SURFACE ELEVATION: 11.77'
 DATE BEGUN: September 16, 2005
 DATE COMPLETED: October 20, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 33'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 22'

DEPTH BGS	WELL CONSTRUCTION	WELL SCHEMATICS
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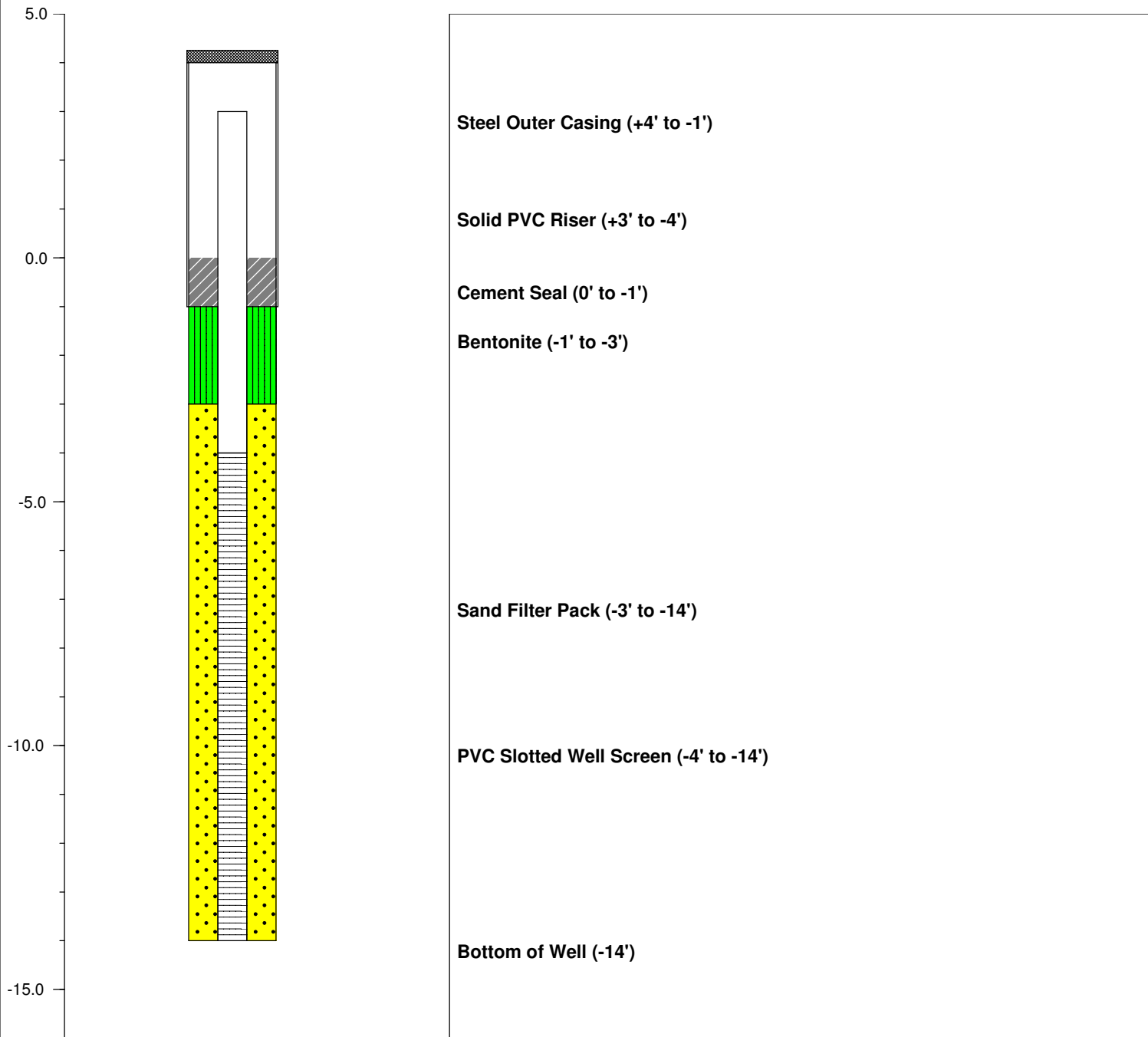


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : D. Hans
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Sunny, Mid 80's
 TOTAL DEPTH: 14'
 GROUND SURFACE ELEVATION: 11.90'
 DATE BEGUN: August 29, 2005
 DATE COMPLETED: August 29, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 7'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 5'

DEPTH BCS	WELL CONSTRUCTION	WELL SCHEMATICS
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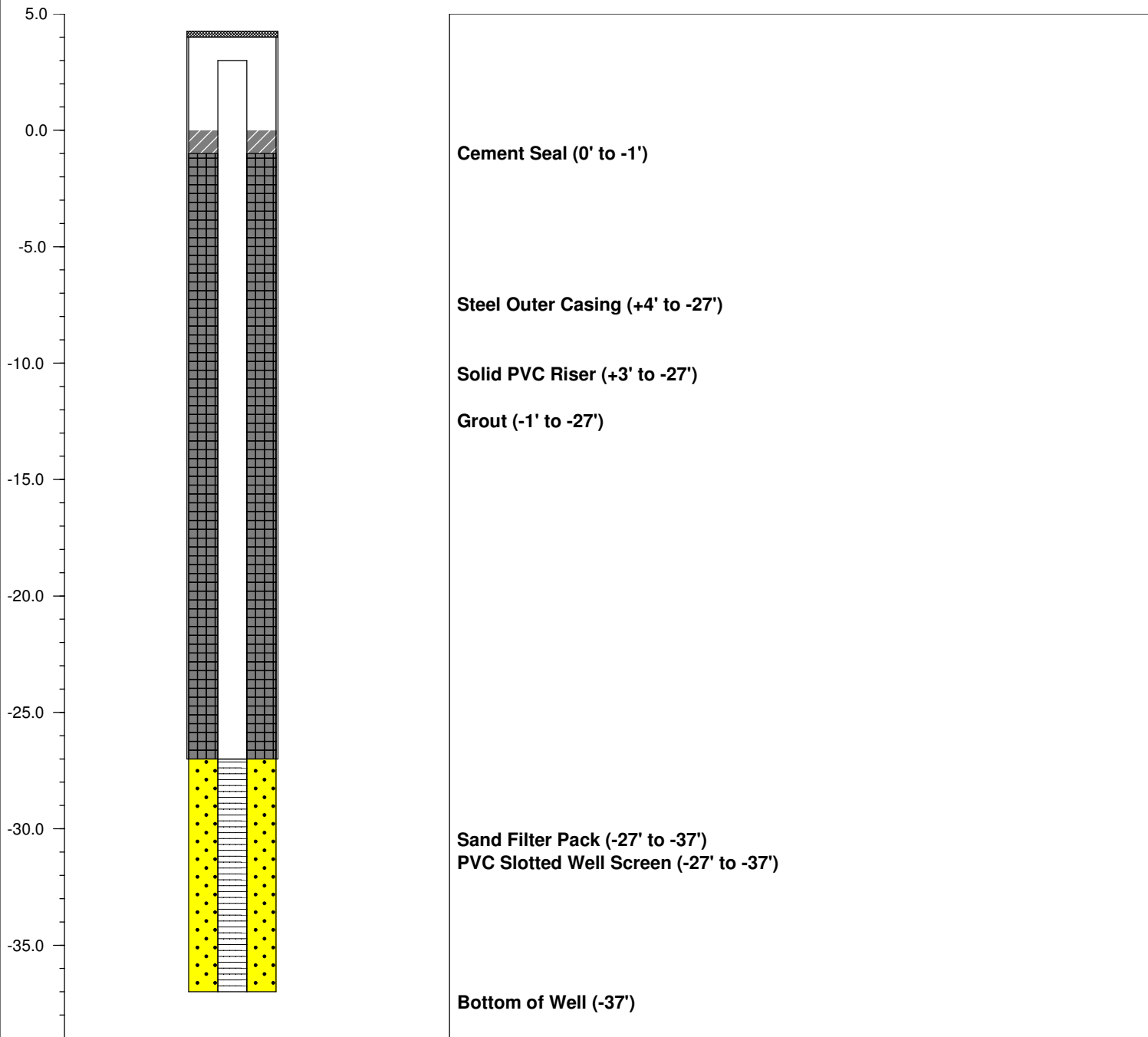


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: Tabasco Drilling
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : B. Woodington
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Overcast, Low 60's
 TOTAL DEPTH: 37'
 GROUND SURFACE ELEVATION: 19.12'
 DATE BEGUN: September 12, 2005
 DATE COMPLETED: October 10, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 30'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 31'

DEPTH BGS	WELL CONSTRUCTION	WELL SCHEMATICS
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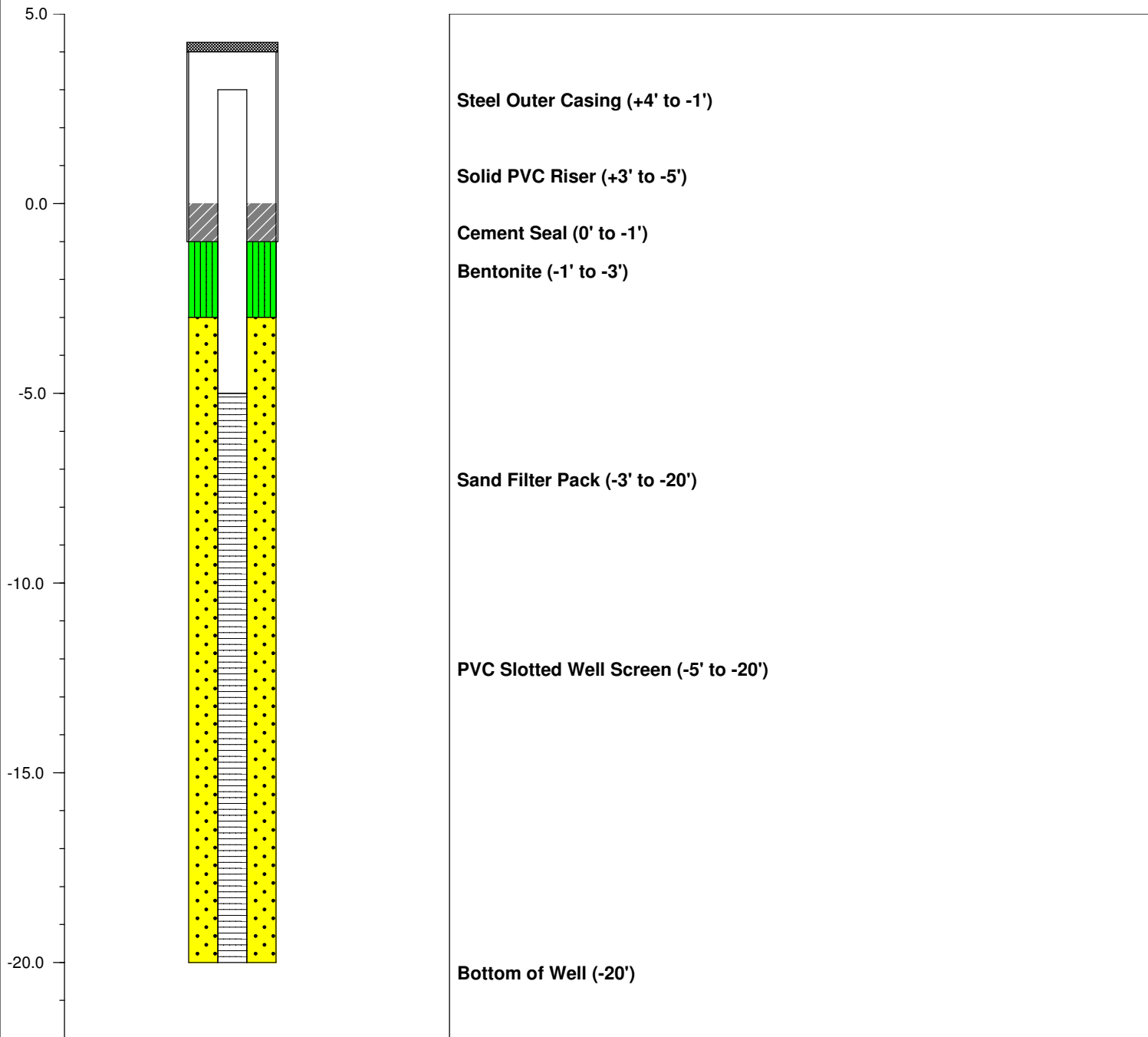


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : D. Hans
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Sunny, Mid 80's
 TOTAL DEPTH: 20'
 GROUND SURFACE ELEVATION: 18.68'
 DATE BEGUN: August 29, 2005
 DATE COMPLETED: August 29, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 8'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 15'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 5'

DEPTH BGS	WELL CONSTRUCTION	WELL SCHEMATICS
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PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : B. Woodington
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

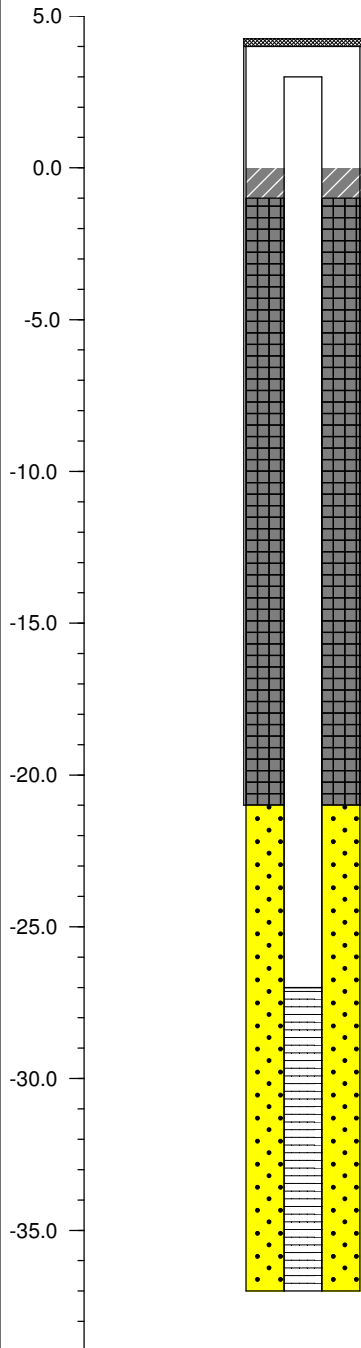
WEATHER : Rain, Low 60's
 TOTAL DEPTH: 37'
 GROUND SURFACE ELEVATION: 12.09'
 DATE BEGUN: September 14, 2005
 DATE COMPLETED: October 11, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 30'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 25'

**DEPTH
BGS**

**WELL
CONSTRUCTION**

WELL SCHEMATICS



Cement Seal (0' to -1')

Steel Outer Casing (+4' to -21')

Solid PVC Riser (+3' to -27')

Grout (-1' to -21')

Sand Filter Pack (-21' to -37')

PVC Slotted Well Screen (-27' to -37')

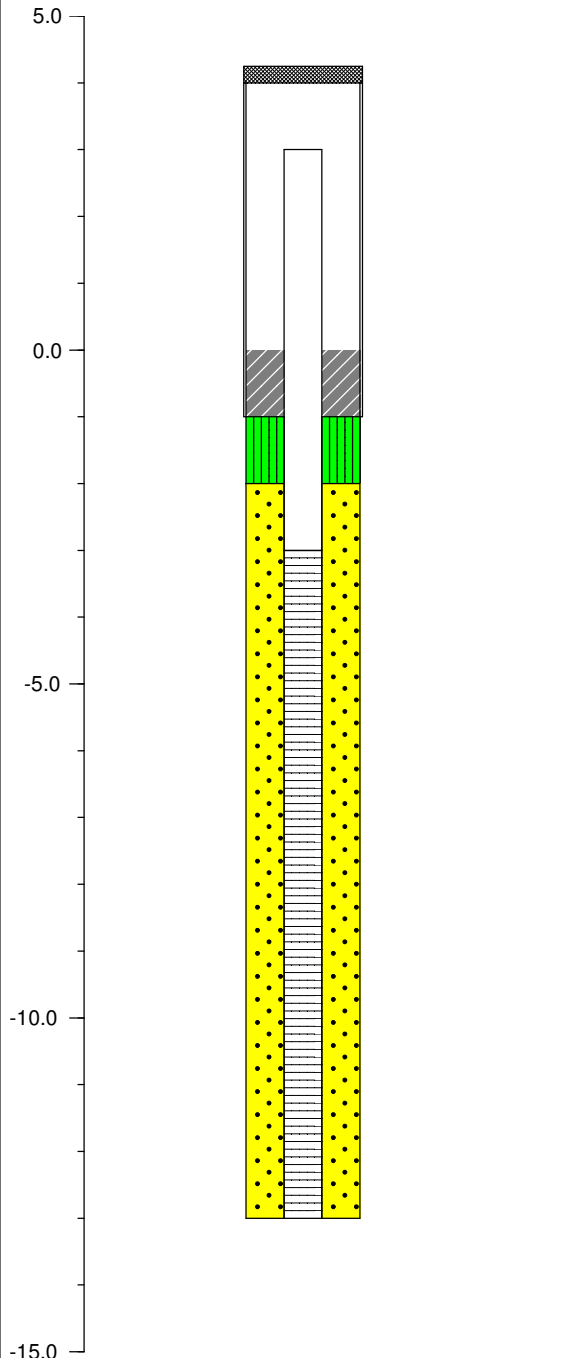
Bottom of Well (-37')

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : D. Hans
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Sunny, Mid 80's
 TOTAL DEPTH: 13'
 GROUND SURFACE ELEVATION: 12.11'
 DATE BEGUN: August 24, 2005
 DATE COMPLETED: August 24, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 6'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 5'

DEPTH BCS	WELL CONSTRUCTION	WELL SCHEMATICS
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Steel Outer Casing (+4' to -1')

Solid PVC Riser (+3' to -3')

Cement Seal (0' to -1')

Bentonite (-1' to -2')

Sand Filter Pack (-2' to -13')

PVC Slotted Well Screen (-3' to -13')

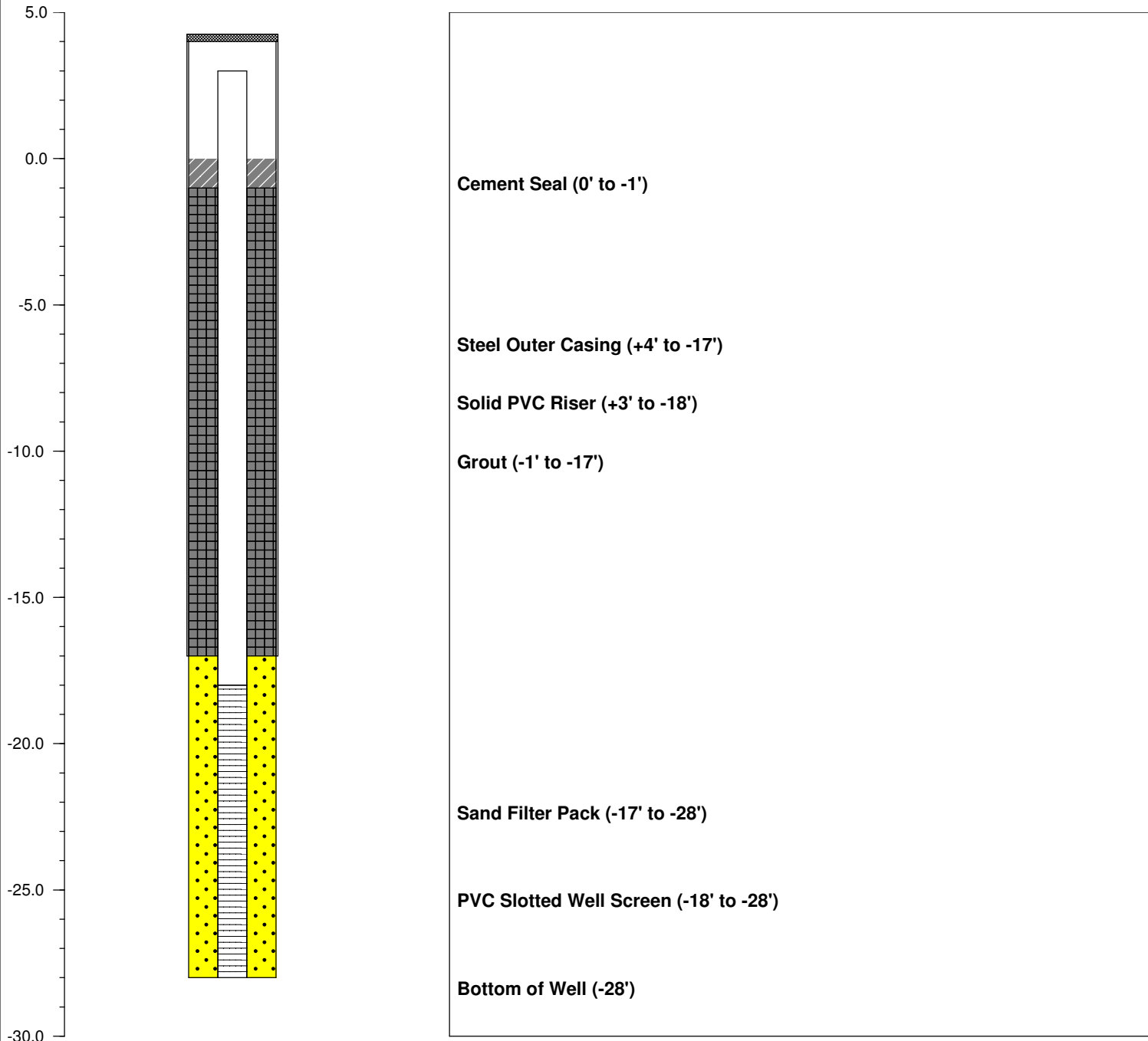
Bottom of Well (-13')

PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: Tabasco Drilling
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : B. Woodington
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Overcast, High 60's
 TOTAL DEPTH: 28'
 GROUND SURFACE ELEVATION: 13.04'
 DATE BEGUN: September 15, 2005
 DATE COMPLETED: October 7, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 21'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 21'

DEPTH BCS	WELL CONSTRUCTION	WELL SCHEMATICS
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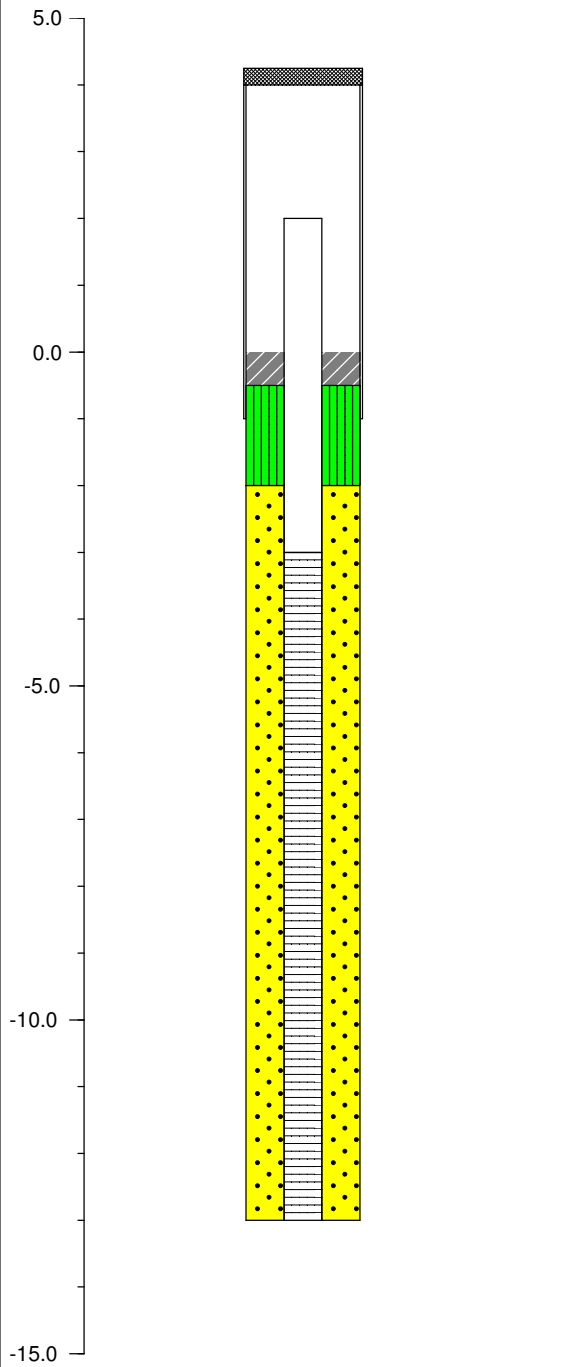


PROJECT NUMBER: 2522.212.920
 PROJECT NAME: Former Philadelphia Coke Plant
 LOCATION: Philadelphia, PA
 DRILLING CO: ERC
 DRILLING METHOD: Hollow Stem Auger
 DRILLER/HELPER : D. Hans
 ENVIRONMENTAL SCIENTIST: Paul DeBlasio

WEATHER : Sunny, Mid 80's
 TOTAL DEPTH: 13'
 GROUND SURFACE ELEVATION: 12.47'
 DATE BEGUN: August 23, 2005
 DATE COMPLETED: August 23, 2005

PVC CASING (DIA.) - 2"	MATERIAL 1 - Schedule 40 PVC	LENGTH 1 - 5'
SCREEN (DIA.) - 2"	MATERIAL 2 - Schedule 40 PVC	LENGTH 2 - 10'
PVC CASING (DIA.) - 6"	MATERIAL 3 - Protective Steel Casing	LENGTH 3 - 5'

DEPTH BCS	WELL CONSTRUCTION	WELL SCHEMATICS
--------------	----------------------	-----------------



Steel Outer Casing (+4' to -1')

Solid PVC Riser (+2' to -3')

Cement Seal (0' to -1')

Bentonite (-1' to -2')

Sand Filter Pack (-2' to -13')

PVC Slotted Well Screen (-3' to -13')

Bottom of Well (-13')

GEO TECHNICAL

SOIL

BORINGS

Paulus, Sokolowski, & Sartor Field Drilling Log

Page 1 of

Job Name: Philly Coker
Job Name: _____

Boring Log Number: B-2
Date: 2/16/05
Weather: Partly Sunny 45°F

Drilling Company: WTD
Driller/Helper: Jay

Depth	Recovery	PID ppm	HCN ppm	Description	Environmental Description
0-2	8"	0	0	Fill: (0-2") Grass (2-8") Brick and Brick fragments, dry	
2-4'	3"	0	0	FILL DO "0-2" " → 2-8"	
4-6'	1.5'	0	0	Fill: 0-1' Brick 1-1.5 Ash/cinders	
6-8'	0	-	-	NO RECOVERY	
8-10	0	-	-	NO RECOVERY, concrete in tip of spoon.	
10-12	6"	0	0	Fill: ash/cinders, mainly ash and cinder fragments	
12-14'	6"	0	0	Brown to light green, Silty SAND, wet.	
14-16'	10"	0	0	Fill: DO "12-14", lace paper (0-7") (7-10") Brown SILT, trace organic (grass)	

Paulus, Sokolowski, & Sartor Field Drilling Log

Page 2 of

Job Name: Philly Coke
Job Name:

Boring Log Number: B-2

Date: 2/16/05
Weather: Sunny ~ 45-50°F

Drilling Company: UTD
Driller/Helper: JAY

Depth	Recovery	PID ppm	HCN ppm	Description	Environmental Description
20-22'	10"	0	0	Clayey Silt, lt. brown, soft, wet; slightly plastic	
25-27'	1'	0	0	Reddish Brown f-SAND, trace muscovite, 1 to 0.5" lens of iron mottling at 6" and 8" intervals, wet.	
30-32'	11"	0	0	Brown to yellow brown f-m SAND, trace muscovite and f-m Gravel, wet.	
35-37'	4"	0	0	Orange-brown GRAVEL AND m-c SAND; wet.	
40-42'	13"	0	0	(0-10") Gray Clayey SAND, moist. (10-13") Gravel (f), trace m-c Sand, wet.	
45-47'	12"	0	0	Gray m-c SAND, little f-Gravel, wet.	
50-52'	8"	0	0	Orange-yellow SILT, trace Clay, dry.	
55-57'	18"	0	0	Gray w/ black speckles - SILT (Weathered Gneiss)	

Paulus, Sokolowski, & Sartor Field Drilling Log

Page 3 of

Job Name: Shilly Cove
Job Name:

Boring Log Number: B-2
Date: 2/16/85
Weather: RAIN

Drilling Company: WTO
Driller/Helper:

Depth	Recovery	PID ppm	HCN ppm	Description	Environmental Description
65-67	1.5'	6	•	D.O. SS-57'	
65-67	1.0	0	0	D.O. SS-57'	
70-72 18-24 50/5'	20"	∅	∅	Gray claysilt w/ M-F sand (weather schist?)	
75-77 13 35 50/5'	20"	∅	∅	D.O. above	
80-82 30 50/4'	∅	N	O	Recovery	
				C.D. 82'	

Paulus, Sokolowski, & Sartor Field Drilling Log

Page 1 of 3

Job Name: Philly Coke
 Job Name: _____

Boring Log Number: B-3

Date: 2/15/05

Weather: Sunny, ~55°F

Drilling Company: UTD

Driller/Helper: Jay

Depth	Recovery	PID ppm	HCN ppm	Description	Environmental Description
0-2	1.0'	0	0	Fill: (0-6") Brown f-SAND (6"-1') concrete (3") and Brick/wood (to 6")	
2-4	1.0'	0	0	Fill: (0-6") BRICK (6"-1.0') Brown, f-SAND, moist to wet.	
4-6'	1.5	0	0	Fill: DO "2-4"	
6-8'	1.0'	0	0	Fill: Brown f-SAND AND BRICK, trace f-m Gravel, moist.	
8-10	1.0'	0	0	Fill: (0-6") Brown f-SAND, trace silt, wet. (6-12") Black ash/cinders fragments, dry.	
10-12	1.0	0	0	DO "8-10" → 6-12" interval	
12-14'	1.5	0	0	Fill: DARK GRAY f-SAND, trace concrete, wet.	
14-16'	6"	0	0	Fill: BLACK ASH/CINDER FRAGMENTS	

Paulus, Sokolowski, & Sartor Field Drilling Log

39° 59' 48" N
75° 04' 05" W

Page 2 of 3

Job Name: Philly Coke
Job Name: _____

Boring Log Number: B-3
Date: 2/15/05 + 2/16/05
Weather: Sunny, ≈ 55°F

Drilling Company: UTD
Driller/Helper: JAY

Depth	Recovery	PID ppm	HCN ppm	Description	Environmental Description
16-18	2"	0	0	2" concrete in TIP of SPOON	
18-20	14"	0	0	DARK BROWN SANDY SILT, traces of grass blades; slightly plastic, moist.	FILL ENDS AT 18' bgs.
25-27	18"	0	0	SP ^{PMA} DARK GRAY SILT, wet, trace grass blades, plastic.	
30-32'	18"	0	0	CLAYEY SILT, dark gray, traces of peat fibers, moist.	
35-37'	0	-	-	NO RECOVERY	
40-42'	1'	0	0	Brown f-c SAND + f-m GRAVEL, wet.	
45-47'	4"	0	0	Clayey SILT, trace f-Sand, wet, light brown to tan.	
50-52'	2'	0	0	DO "45-47'", more plastic and stiff.	

2/16/05

Paulus, Sokolowski, & Sartor Field Drilling Log

Page 1 of 2

Job Name: Philly Coke
Job Name: _____

Boring Log Number: B-4

Date: 2/15/05
Weather: partly cloudy ± 45°F

Drilling Company: Unitex Drilling
Driller/Helper: Jay

Depth	Recovery	PID ppm	HCN ppm	Description	Environmental Description
0-2	1.5'	0	0	(0-1') Fill: Brown f-SAND, trace gravel (f) and concrete fragments. (1-1.5) Brick, trace Br. f-Sand.	
2-4	1.0	0	0	(0-1.0) Brick, trace f-Sand and gravel (f).	
4-6	6"	0	0	(0-6") ^{FILL:} Brick and Brick fragments	
6-8'	1.0'	4.5	0	(0-1') Black f-SAND, trace f-m Gravel (possible clinker), dry, slight petroleum-like odor.	BUENT Petroleum-like odor (slight) SY: 6-6.5' logs for observation only!
8-10	6"	0	0	Rock Fragments	
10-11 10-12'	11.5'	0	0	Fill: Ash, cinders, black f-Sand, 4" interval of brick from 1.1-1.4'	
12-14	0	0	0	No Recovery, spoon was wet @ 12.0' by. Possibility of fill ending between 12-14'	▽ : 12' logs
14-16	2"	0	0	DARK BROWN SANDY SILT, organic odor, wet.	

Paulus, Sokolowski, & Sartor Field Drilling Log

x 5194

Page 2 of 2

Job Name: Philly Coke
Job Name: _____

Boring Log Number: B-4
Date: 2/15/05
Weather: _____

Drilling Company: Unitech Drilling, Inc.
Driller/Helper: Jay

Depth	Recovery	PID ppm	HCN ppm	Description	Environmental Description
20-22'	0			NO Recovery	
25-27'	1.5	0	0	Reddish - Brown f-m SAND, some f-Gravel, little to trace silt, wet.	
30-32'	1"	0	0	Brown to Gray f- SAND, trace m-c Sand, wet.	
35-37	6"	0	0	(0-2") Rock / Rock fragment (2-6") f-c Brown SAND, little to trace f-gravel, wet.	
40-42	1.5'	0	0	GRAVEL (f-m) and SAND (m-c), trace f-Sand, colors varied from Brown to green to red to orange-yellow, wet.	
45-47	1.0	0	0	Brown to lt. brown SAND (f-c), wet. (pmd)	
50-52	1.5	0	0	(0-1') DO "45-47" (1-1.5) GRAVEL (f-m), trace light Brown f-m Sand, wet.	
58-57	0	-	-	NO RECOVERY	END of Boring at 57'

Paulus, Sokolowski, & Sartor Boring Log

Page 1 of 2

Job Name: PC

Boring Log Number: B-6

Job Name: _____

Date: 2/9/05

Drilling Company: United Drilling

Weather: Cloudy, 35°F

Driller/Helper: Jay

Depth	Recovery	PID ppm	HCN ppm	Description	MGP Description
0-2'	17"	0.0		Fill: Brown f-SAND, ^{90%} trace silt, concrete, brick and wood fragments through out, dry to moist. (from soils at top meters)	
2-4'	11"	0.0		Fill: (0-4") BROWN f-SAND and silt with crushed concrete, dry Fill: (4-11") Crushed concrete powder, trace gravel (f), dry	
4-6'	10"	0.0		(0-3") Fill: Brown f-SAND and silt, trace lost fragments (3-6") Gravel and ^{concrete} (6-10") Brick, Black f-SAND, ^{moist}	
6-8'	18.5"	0.0		Fill: (0-12) Black and Gray f-SAND, brick and concrete fragments, 1" piece of concrete at 12" (12-18.5") Brown f-SAND, some f-Gravel, possible perched water	Table at 7.0' bgs. Native soils at 7.0' bgs
8-10'	10"	0.0		Top 2" - Orange-brown f-SAND (2-10") Gray Silty clay with 2" f-Sand lens at 4-6", moist. (Possible perched water table)	
15-17'	16"	0.0		(0-16") f-m brown to orange-brown SAND, trace silt, wet. Water table located between 10-15' bgs.	
20-22'	17"	0.0		(0-17") Brown f-SAND w/ alternating 1-inch silt lenses, wet.	
25-27'	12"	0.0		DO "20-22"	

Paulus, Sokolowski, & Sartor Boring Log

Page 1 of 2

Job Name: PC COKE

Boring Log Number: B-7

Job Name: _____

Date: 2/8/05

Drilling Company: Whitch DeLha,

Weather: Sunny 40°F

Driller/Helper: Jay

Depth	Recovery	PID ppm	HCN ppm	Description	MGP Description
0-2'	16"	0.0		Fill: Black f SAND and GRAVEL (f-m), trace pieces of suspected alkali.	Black pieces of gravel were very light in weight - slight petroleum
2-4'	20"	0.0		Fill: DO "0-2'", trace brick fragments	Slight petroleum-like odor
4-6'	20"	0.0		Fill DO "2-4"	Slight petroleum-like odor
6-8'	12"	0.0		Fill - trace wood fragments at bottom (11.5") of spoon, wet and clinker	Petroleum-like odors stop around water table, which is suspected at 6' logs
8-10'	12"	0.0		Fill DO "6-8"	CLINKER PIECES Through out
15-17'	7"	0.0		Fill: Black f SAND, trace silt and Gravel (f), pieces of clinker and wood fragments at bottom	wood/clinker at bottom of spoon
20-22'	13"	0.0		Rest - Fabric to surface	
27-27'	24"	0.0		DO "20-22'"	

PC-TR-10

PC-08

39° 59' 44" N
75° 04' 07" WPaulus, Sokolowski, & Sartor
Boring Log

Page 1 of 2

Job Name: Philly CokeBoring Log Number: B-8

Job Name: _____

Date: 2/9/05Drilling Company: Whitech DrillingWeather: Sunny 45°FDriller/Helper: Jay

Depth	Recovery	PID ppm	HCN ppm	Description	MGP Description
0-2'	18"	0.0	0	Fill: (0-1") Brick (1-18") Black f-SAND, some Silt, possible crushed clinker fragments (soil very light in weight)	Possible crushed Clinker fragments broken finely into a soil/dust
2-4'	15"	0.0	0	Fill: (0-15") Orange-brown to black f-SAND, some Silt, trace f-gravel. Brick fragments located at 10"	
4-6'	18"	0.0	0	Fill: Black f-SAND, some Silt, trace f-gravel and .25" diameter pieces of clinker, wet @ 5.0' logs -Note: mica-like glimmer present in soil	Trace Clinker Δ : ≈ 5.0' logs.
6-8'	18"	0.8	0	(0-12") Fill: Same As above (12-18") Gray f-m SAND, wet	
8-10	12" 1"	0.4	0	Fill: Wood plug in tip of spout causing poor recovery.	Note: PID background reading 0.1 ppm. PID reading are suspected to be elevated from organics in soils.
15-17'	14"	0.7	0	Black silty CLAY, soft, H ₂ S-like odor, trace grass fibers, moist	HSR = 2.4 ppm Burst Possible petroleum-like odor mixed with organic odor
20-22'	24"	0.8	0	DO "25-17"	
25-27'	4"	0.0		Gray to brown sandy-silt, wet	

Paulus, Sokolowski, & Sartor Boring Log

Page 1 of 2

Job Name: Philly Core

Boring Log Number: B-9

Job Name: _____

Date: 2/9/05

Drilling Company: Unitech Drilling

Weather: cloudy, raining

Driller/Helper: Jay

Depth	Recovery	PID ppm	HCN ppm	Description	MGP Description
0-2	12"	0.0	0	(0-6") Fill: Wood (shredded), brick and brown f-SAND, moist (6"-12") concrete fragments, 1/4 to 1/2-inch subangular pieces	
2-4	1"	0.0	0	DO " 0-2' "	
4-6	3"	0.0	0	White to gray rock fragments, apparently 0.5" in diameter by 0.25" widths.	
6-8	13"	0.0	0	Fill: Black f-SAND w/ trace mica, clinker pieces (0.25" diameter). 3" lens of crushed brick at 9-12", dry.	
8-10	10"	3.9	0	orange-brown to black f-SAND, some silt, trace f-m gravel, moist.	Note: ICKIAK in rain
15-17	3"	1.9	0	Black Sandy SILT, sheen on water in spoon. Petroleum-like odor	Note: NO soil to collect sample - sheen - petroleum-like odor
20-22'	6"	2.9	0	DARK Gray Silty CLAY, trace mica, moist.	
25-27'	3" 0	0.0	0	DO " 20-22"; trace peat fiber	

HSR-2.6

39° 59' 40" N
75° 04' 05" W

Paulus, Sokolowski, & Sartor Boring Log

Page 2 of 2

Job Name: Philly CR
 Job Name: _____

Boring Log Number: B-9
 Date: 2/9/01
 Weather: sun

Drilling Company: Unitech
 Driller/Helper: Jay

Depth	Recovery	PID ppm	HCN ppm	Description	MGP Description
30-32	8"	0	0	Brown f-sand, trace silt, wet	
35-37	6"	0	0	Gray to lt brown, f-m SAND, wet.	
40-42	12"	0	0	DO "35-37"	
45-47	0	0	0	NO recovery due to rock in top of spoon	
50-52	6"	0	0	DO "35-37", increase of f-m Gravel	End of boring at 50.5' bgs.

Paulus, Sokolowski, & Sartor Field Drilling Log

Page _____ of _____

Job Name: Philly Coke
 Job Name: 2522-212-074

Boring Log Number: B-10
 Date: 2/17/05
 Weather: Sunny Windy 40s

Drilling Company: UTD
 Driller/Helper: Eugene / Dan / Aron

Depth	Recovery	PID ppm	HCN ppm	Description	Environmental Description
0-2 1-2-12 50% ₁	4"	∅	∅	Fill Brickwood concrete cinders Brn silty sand	/
2-4 20-14 14-16	18"	6.9 Head space	∅	Fill Brn C-F sand little silt	lar headspace 6.9 ppm 4" to 2'-3' mod petrol like odor NVI
4-6 10-13 15-11	14"	∅	∅	Brn silty sand little F gravel	moist 5.5 6' wet
6-8 5-6 12-13	12"	∅	∅	6-7 Brn/Gray silty sand little F gravel 7-8 Gray M-C sand + gravel	/
8-10 1-2-4-4	16"	∅	∅	Gray M-C sand some gravel	/
15-17 3-2-3-4	14"	∅	∅	15-16 Gray F-C sand 16- Gray silt ^{some} organics	
20-22 3-7-12-13	16"	∅	∅	Brn Grayish F-C sand + gravel	
25-27 8-5-4-8	14"	∅	∅	D.O above	

Paulus, Sokolowski, & Sartor Field Drilling Log

Job Name: Philly Coke
 Job Name: 2522-212-074

Boring Log Number: B-10
 Date: 2/17/04
 Weather: Sunny Wind 40+

Drilling Company: UTD
 Driller/Helper: Eugene / Dan / Aaron

Depth	Recovery	PID ppm	HCN ppm	Description	Environmental Description
30-32 3.5-8-10	∅	X	X	No Recovery	/
35-37 5.8-22-10	○	-	-	NO recovery	
2/17/04 40-42	14"	○	○	Brain f-c SAND; trace f-Grain, met.	Note: 9753: Waiting on drillers to set up rig, no spool yet water tank frozen
45-47	10"	○	○	Do "40-42"	E.D 40'

BORING LOG

Paulus, Sokolowski and Sartor
 Consulting Engineers
 Warren, New Jersey 07059

Boring No.: B13
 Sheet: 1 of
 Job No.: 2522-016-035

Project: Bay Shore Former MGP Site, Q1-1 PC Prelim Elevation:
 Project Location: Bay Shore, New York Phil PA Date Started: 2/10/65
 Observer: Date Completed:

Contractor: ~~Amico Drilling & Construction Co.~~ Univ Tech drilling Co.
 Driller: Jay Helper: 1

Type of Rig:
 Casing Dia.: 6 in. From: 0 to ft. Auger Dia.: ID in. OD 9 7/8 in. Top 20'
 Drilling Mud Utilized: yes Type: Rotary Bit Diameter: 6 1/8 in.

SAMPLING EQUIPMENT (type and size)
 Split Spoon Sampler: 2" OD
 U-Tube Sampler: Dia. in. Type:
 Core Barrel: N/A Core Bit:
 Sampler Hammer Weight: 140 Lbs. Average Drop: 30 in.

WATER LEVEL OBSERVATIONS

Date	Time	Depth of Hole	Depth of Casing	Depth to Water	Remarks
					Groundwater levels not observed due to the use of bentonite drilling mud in the drilling operations.

SAMPLE			SAMPLE DESCRIPTION	DEPTH	STRATA	REMARKS
NO.	DEPTH (FT)	BLOWS/6"				
S1	0-2	12 10	Blk fill w/cinders, slag, ash		F	PIDØ
		12 11	8" Brn C-Fsand little silt 4" Blk fill ash, slag			
S2	2-4	13 32	fill ash, cinders, brick, concrete			PIDØ
		31 10	3" Brn C-Fsand little gravel			PIDØ
S3	4-6	1 2	DK Gry M-Fsand silt tr f gravel	5	Water 5.5'	PIDØ
		10 4				
S4	6-8	3 4	D.O			PIDØ
		5 2				
S5	8-10	3 2	Gray F-sand tr silt			
		1 1				
				10		
S6	15-17	WOR WOR	Gray clayey silt	15		PIDOO sample PC-B13 mod. petro like odor sheen 10.30
		1 1				
S7	18-20	3 2	Gray silty clay w/ organic material root mass			
		3 2				
				20		
S8	25-27	1 1	D.O SF	25		
		1 3				

PLATE NO:

BORING LOG

Paulus, Sokolowski and Sartor
 Consulting Engineers
 Warren, New Jersey 07059

Boring No.:
 Sheet: 2 of
 Job No.:

SAMPLE			SAMPLE DESCRIPTION	DEPTH	STRATA	REMARKS
NO.	DEPTH	BLOWS/6"				
S9	30-32	4 14 13 13	S9) 6" DOSS Yellowish Brn C-Fsand w M-Fgravel	30		
S10	35-37	4 16 18 20	S10) Reddish yellow Brn C-Fsand w F-M g. gravel	35		
S11	40-42	50/5"	S11) No Recover C.D. 42'	40		
S12	45-47		S12)	45		
S13	50-52		S13)	50		
				55		
				60		
				65		
				70		

PLATE NO.:

BORING LOG

Paulus, Sokolowski and Sartor
Consulting Engineers
Warren, New Jersey 07059

Boring No.: **B-14**
Sheet: **1** of
Job No.: **2522-016-043**

Project: Bay Shore Former MGP Site, OU-1		Elevation:	
Project Location: Bay Shore, New York		Date Started:	
Observer: <i>Doug</i>		Date Completed:	
Contractor: Aquifer Drilling & Testing, Inc.			
Driller: <i>Jay Blemmings</i>		Helper: <i>Mike / Terrence</i>	
Type of Rig: <i>CME 75 ATV Rig</i>			
Casing Dia.: 4 in.	From: 0 to ft.	Auger Dia.: ID in.	OD <i>9 1/4 in. + 4 1/4</i>
Drilling Mud Utilized: Type:		Rotary Bit Diameter: 3 1/8 in.	
SAMPLING EQUIPMENT (type and size)		Split Spoon Sampler: 2" OD	
		U-Tube Sampler: Dia. in. Type:	
		Core Barrel: N/A	Core Bit:
Sampler Hammer Weight: 140 Lbs.		Average Drop: 30 in.	

WATER LEVEL OBSERVATIONS

Date	Time	Depth of Hole	Depth of Casing	Depth to Water	Remarks
					Groundwater levels not observed due to the use of bentonite drilling mud in the drilling operations.

SAMPLE			SAMPLE DESCRIPTION	DEPTH	STR ATA	REMARKS
NO.	DEPTH (FT)	BLOWS/6"				
51	0-2	22 12	51 Fill ash cinders brick			9 PID Ø
		12 14	Brn sand bldg debris			
52	2-4	50 1/2"	52 Blk. fill ash cinder brick			52 PID Ø
			concrete			
53	4-6	5 4	53) Blk silty sand w/fill ash, cinders			53 PID Ø
		3 3	wood concrete brick rock frag	5		5.5 wet
54	6-8	1 2	54) Gray fine sand			54 PID Ø
		1 2				
55	8-10	1 2	55) Gray f silty sand			55 PID Ø
		2 2				
				10		56) Head space PID = 3.4 ppm
						9:15 PC-B14 15-17
56	15-17	1 1	56 D.O 55	15		56) no PID light petro like odor no sheen
		1 WOH				
57	20-22	WOH 1	57) Brn. silt w/peat (organic)	20		no odor NVI
		2 2				
58	25-27	2 2	Red Brn silty sand	25		58) PID Ø
		5 3	some F-M gravel			NVI

PLATE NO:

BORING LOG

Paulus, Sokolowski and Sartor
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 Warren, New Jersey 07059

Boring No.: **B14**
 Sheet: **2** of
 Job No.:

SAMPLE			SAMPLE DESCRIPTION	DEPTH	STRATA	REMARKS
NO.	DEPTH	BLOWS/6"				
S9	30-32	5 10 12 11	S9 Red Brown M-C sand some fine gravel tr silt	30		
S10	35-37	10 15 20 18	S10 Olive brn M-C sand some M-F gravel	35		
S11	40-42	12 25 33 32	S11 No. Recovery	40		
S12	45.5-47	8 9 9	S12 Yellowish tan silty clay	45		
S13	50-52	3 4 10 9	S13 Orange clayey silt som c sand	50		
S14	55-57	7 12 13 12	S14 Lt Gray/bluishgreen sandy silt tr rock frags	55		
S15	60-62	4 8 10 12	S15 6" weathered gneiss 6" Lt Gray/bluishgreen silt	60		
S16	65-67	12 33 35 32	S16A 65-66 weathered rock black gray gneiss S16B 66-67 Bluish green clayey silt	65		
S17	70-72	9 12 20 27	S17) DO S16B 71-72 weathered rock gneiss	70		

PLATE NO.:

BORING LOG

Paulus, Sokolowski and Sartor
 Consulting Engineers
 Warren, New Jersey 07059

Boring No.:
 Sheet:
 Job No.:

B 14

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of

SAMPLE			SAMPLE DESCRIPTION	DEPTH	STRATA	REMARKS
NO.	DEPTH	BLOWS/6"				
S18	75-76	17 3/4"	S18 weathered Gneiss	75		
			CD 76'			
S19	80-82		S19	80		
S20	85-87		S20	85		
				90		
				95		
				100		
				105		
				110		
				115		

Paulus, Sokolowski, & Sartor Field Drilling Log

Page 1 of

Job Name: Philly Core
Job Name:

Boring Log Number: B-15
Date: 4/14/05
Weather: Rain 12.5!

Drilling Company: Vermet
Driller/Helper: JEM

Depth	Recovery	PID ppm	HCN ppm	Description	Environmental Description
0-2	2'	0	0	Fill: Black f-SAND, mica Crust and slag.	
2-4	2'	0	0	DS (0-2')	
4-6	1'	N/A	0	Fill: Black f-SAND, some silt and f-Gravel, soft, wet	
6-8	2.0	N/A	0	Fill: DO 4-6' to 7.5' 7.5' to bottom, black SILT, wet	Fill to 7.5' H ₂ S ODOX
8-10	4"	N/A	0	Black silt, trace f-sand and mica, wet.	H ₂ S ODOX
15-17'	1.5'	0	0	DO "8-10" Bottom 3" Gray Clayey silt, plastic, moist	H ₂ S ODOX
21-22	1.0'	0	0	DARK Gray to black silt, some clay, trace mica, moist.	H ₂ S ODOX
25-27'	6"	0	0	Gray lit. gray silt some f- Gravel, trace f-sand	

Paulus, Sokolowski, & Sartor Field Drilling Log

Page 2 of

Job Name: _____
Job Name: _____

Boring Log Number: B-19¹⁵
Date: _____
Weather: _____

Drilling Company: _____
Driller/Helper: _____

Depth	Recovery	PID ppm	HCN ppm	Description	Environmental Description
30-32'	6"	0	0	R-brown f-sand, trace silt, wet	
35-37	1'	0	0	DO 30-32'	
40-42	1'	0	0	Red-brown f-m sand, trace silt, wet.	
45-47	1.5'	0	0	lt brown to tan f-m sand, trace silt, wet.	COB @ 47'

39° 59' 39" N
075° 04' 09" W

GEOTECHNICAL

TEST

PITS

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Job Name: _____
Job Name: _____

Boring Log Number: TP-2
Date: 3/4/05
Weather: Sunny 40°

Drilling Company: _____
Driller/Helper: _____

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-2	∅	∅	Brn n-c sand Fill bricks concrete rebar	
2-3	∅	∅	concrete	
3-5	∅	∅	Yellowish brown silty sand	
5-15	∅	∅	Yellowish brn C-F sand M-F gravel + silt	
15-15.5			Gray/bluish gray F sand	
15.5-17			Gray sandy clay	
17-19			Pale yellow c-n-F sand	
19			Brn C-F sand F gravel	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Job Name: _____

Boring Log Number: BWP-3

Job Name: _____

Date: 3/4/63

Drilling Company: _____

Weather: _____

Driller/Helper: _____

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-10			Fill, Brn C-M sand F gravel concrete, brick ash cinder coal rebar	
10-17			Reddish brn C-F sand F gravel	
17-18			Pale yellow / Lt. Gray silt clay / silt clay	
18-19			Pale yellow / yellow C-M-F sand	
19-			Reddish brn C-F sand F gravel	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Job Name: _____

Boring Log Number: TP 4

Job Name: _____

Date: 3/4/05

Weather: _____

Drilling Company: _____

Driller/Helper: _____

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-5			Fill brick concrete rebar metal	Bluish green on concrete @ 5
5-9			solid concrete w/ rebar	
9-10			fill wood ash	
10-14			Brn C-F sand F gravel	
14-18			Pale yellow/ Yellowish brn C-M±F sand	
18-20			Yellow/ Yellowish brn	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Job Name: _____

Boring Log Number: TP-5

Job Name: _____

Date: 3/4/05

Weather: _____

Drilling Company: _____

Driller/Helper: _____

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-5			Fill	
5-7			Concrete	
7-9			Concrete	
9-11			Reddish brn. C-M-Fsien	
11-13			Pale yellow / Yellowish brn sandy clay	
13-19			Yellow M-Fsand	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Job Name: _____

Boring Log Number: TP-6

Job Name: _____

Date: 3/7/05

Drilling Company: _____

Weather: _____

Driller/Helper: _____

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-5 5-6	∅	∅	Fill Brn concreted metal wood pipe concrete solid	
6-7	∅	∅	Blk ash + cinders dense	
7-9	∅	∅	Brn C-M-F sand + silt	
9-10	∅	∅	Pale Yellow sandy clayey silt	
10-19	∅	∅	Brn/Yellish brn F-m sand / silt/sand	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Job Name: _____

Boring Log Number: TP-7

Job Name: _____

Date: 3/9/05

Drilling Company: _____

Weather: _____

Driller/Helper: _____

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-2			Red brick fill	
2-6			Fill	
6-7			concrete	
7-8			Blk cinders-ash	
8-12			Brn C-F sand	
12-14			lt Gray sandy clay	
14-			Pale yellow/yellowish brn F-n sand sandy silt	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Job Name: _____

Boring Log Number: TP-10

Job Name: _____

Date: 3/7/05

Drilling Company: _____

Weather: Sunny 50's

Driller/Helper: _____

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-5			Fill Brn C-M-F sand concrete bricks, rebar	
5-7			Soild concrete on eastern silt	
7-9			ash cinders	
9-11			Brn C-M-F sand little F gravel + silt	
11-16			Gray/Pink gray M-F sand lenses w/ black organics	
16-19			Gray clayey sand	
			slight * Petro. like odor while excavating 6'-19' section	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Job Name: _____

Boring Log Number: TP-12

Job Name: _____

Date: 3/8/05

Weather: Rain

Drilling Company: _____

Driller/Helper: _____

** Rain*

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-2	* ∅	* ∅	Brn C-M.F sand w/ fill brick, concrete	
2-19	* ∅	* ∅	Ash cinders brick concrete rebar, metal, creosote timbers	water @ 10' sheen on water slight. Petro like odor
19-20	* ∅	* ∅	Gray sandy silt	

TP-12

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Job Name: _____

Boring Log Number: TP-14

Job Name: _____

Date: 3/8/05

Weather: Rain/Snow 30's

Drilling Company: _____

V. windy

Driller/Helper: _____

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-2	*	*	Blk ash & cinders	slight Petro-like odor
2-4			Brick metal Brn C-M-F sand	
4-18			Gry/DK Gry M-F sand	seen on soil mod. Petro-like odor sample TP-14 (18') 1040
18-20			Gray silty clay	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Job Name: _____

Boring Log Number: TP-16

Job Name: _____

Date: 3/9/05

Weather: Sunny, V. windy, T. over

Drilling Company: _____

Driller/Helper: _____ 7:50 - 8:30

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-2			BK slag ash	
2-5	7.5	f	HS ₂ C-M ⁺ -F sand Filt silt w/ ...	
5.6 6-6.5	9.5	g	DK Brown F-M sand BK silt material trapped above clayey silt layer	820 sample TP-16(6')
6.5-19			Drk Brn / Drk Gray clayey silt / silty clay	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Job Name: _____

Boring Log Number: 7P-17

Job Name: _____

Date: 3/9/05

Drilling Company: _____

Weather: Sunny, V. Windy

Driller/Helper: _____

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-2			Brn silty sand brick fill	
2-4			Blk ash cinders, slag w/lt &c	Pipes @ 2-4' Cast 6-8" iron 2''
4-8			Drk Gray f-sand w/silt	
8-18			Drk Gray clayey silt silty clay	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Job Name: _____

Boring Log Number: TP-18

Job Name: _____

Date: 5/11/05

Drilling Company: _____

Weather: Sunny / V. Windy 30'

Driller/Helper: _____

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-2			Brn C-M+F sand fill rug plastic metal brick concrete	
2-7			Blk slag ash coke bricks	slight sheen 0.1ppm
7-9			Drk gray clayey silt	
9-11			Drk gray C-F sand silty sand	
11-16			Drk Gray / silty Clay	
16-20			Gray clayey silt	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Job Name: _____

Boring Log Number: TP-20

Job Name: _____

Date: 3/10/65

Drilling Company: _____

Weather: _____

Driller/Helper: _____

750 - 840

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-4			Brn C-MF sand w/ fill brick, concrete metal wood	—
4-13			Blk/DK Gray ash cinders sandy silt brick, wood, rope, plastic, concrete pipe metal	—
13-15.5			DK Brn/Gray R sand little silt	—
15-17			Gray clayey silt	
17-20			Gray silt/clay	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Job Name: _____

Boring Log Number: TP-21

Job Name: _____

Date: 3/10/05

Drilling Company: _____

Weather: Sunny 30°S

Driller/Helper: _____

1050- 1150

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-4			Brn c-m-f sand / fill I-beam, concrete, brick, metal	
4-7			BK / Orange slag, qsh, limbs	
7-9			Brn / Greenst old re. ties	sample TP21 (8') 1130 wet @ 8 Sheen on water creosote odor
9-11			Gry / DK Gry F sand sandy silt	sample MS MSD B D TP221 (8') 1410
11-20			Gry / DK Gra silty clay	

Paulus, Sokolowski, & Sartor

Test Pit Field Drilling Log

Page _____ of _____

Job Name: _____

Boring Log Number: 7P-22

Job Name: _____

Date: 3/10/05

Drilling Company: _____

Weather: Clear 70's

Driller/Helper: _____

Depth	Recovery	PID ppm	HCN ppm	Description	Environmental Description
0-5				Brn c-f sand / fill large concretions	
5-10				Blk ash cinder	
10-13				Dk Gray clay/silt	
13-16				Gray clayey silt - silty clay	
16-20				Gray f sand w/ silty clay	

Paulus, Sokolowski, & Sartor

Test Pit Field Drilling Log

Page _____ of _____

Job Name: _____

Boring Log Number: TP-23

Job Name: _____

Date: 3/10/05

Drilling Company: _____

Weather: _____

Driller/Helper: _____

1320 - 1400

Depth	Recovery	PID ppm	HCN ppm	Description	Environmental Description
0-2		ψ	φ	Brn C-F sand w M-F gravel + silt	
2-3		9	φ	pebbles Crushed stone under pipe →	PVC Pipe 3/4" - 2"
3-9		23.1	φ	Gray M-F gravel w/ C-F sand	Sample TA23 (7') 1405 Headspace 43.7 ppm
9-10				Gray F sand w/ silty clay	
10-11				Gray clayey silt	
11-12				Gray silty clay	
12-13				peat Gray silty clay	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Boring Log Number: TP-24
Date: 3/11/05
Weather: Sunny 30's

Drilling Company: _____
Driller/Helper: _____

39° 59' 38" N
075° 03' 57" W

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-5			dk M-F sand little silt	
6-12			ash cinders slag brick (coke)	water @ 6' slight creosote
12			DK Brn sandy silt	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Boring Log Number: TP-25
Date: 3/11/05
Weather: _____

Drilling Company: _____
Driller/Helper: _____

930 - 1030

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-2			Blk fill	
2-3			stain/tar layer	
3-5			stained C-F sand little M-F gravel	sample TP-25 (5') ¹⁰¹⁵ strong petro like odor
5-9			Brn/lt brn C-F sand little M-F gravel	
9-14			Brn silt w/organics	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Boring Log Number: TP-2:6
Date: 3/11/05
Weather: Overcast 30S

Drilling Company: _____
Driller/Helper: _____

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-2'	∅	∅	lt gray m-f gravel	
2-3	∅	∅	Blk ash, cinders, slag	
3-8	∅	∅	Brn-Gray C-F sand C-F gran	
8-17	∅	∅	Brn-Grx organic silt little wood	
17-20	∅	∅	reddish brn F-C sand F-C gravel +rsilt	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Boring Log Number: 7D-27
Date: 3/11/05
Weather: Overcast 40's

Drilling Company: _____
Driller/Helper: _____

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-1	φ		BK ash ends slag	
1-3	φ		H gray M-F gravel	
3-5	φ		B/K ash + slag M-F sand	
5-9	φ		Brn C-F sand M-F gravel	
9-	φ		OK Brn / OK gray silt	

Paulus, Sokolowski, & Sartor Test Pit Log

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Name: _____
Job Name: _____

Boring Log Number: TP-28
Date: 3/17/05
Weather: _____

Drilling Company: _____
Driller/Helper: _____

7:30 - 8:15

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-1.5			dk Sand/silt w/ ash + cinders	
1.5-5			Brn M-F sand	
5-			DK Gry/ Gry silt w/ organic	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Boring Log Number: TP-29
Date: 3/14/05
Weather: Sunny 80's

Drilling Company: _____
Driller/Helper: _____

830 - 900

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-2			asphalt	
2-4			ash cinders	
4-9			Reddish Brn m-F sand/silt w/ bricks	water @ 8' Pile cap
9-			Grey/Tan m-F sand	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Boring Log Number: TP-30
Date: 3/14/05
Weather: Sunny 30's

Drilling Company: _____
Driller/Helper: _____

905-

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-1	∅	∅	Blk M-F sand ash lenses	
1-2	∅	∅	Brn c-M-F sand little silt 4" zone Blush green	water trapped under concrete 30" RCP sample TP-30(2') 910
2-4	∅	∅	Brn M-F sand silt	
4-17			DK Brn/ Dk Gny Silty Brn	sample TP-30(12') 920

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Boring Log Number: TP-31
Date: 3/19/03
Weather: Sunny 30°

Drilling Company: _____
Driller/Helper: _____

1039

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-6"			asphalt	
6"-5'			Brn M-F sand w/ ash lenses	
5'-8'			Brn/F-M sand + silt gray	
8'-20'			DK Gray/Brn clayey silt	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Boring Log Number: TP.32
Date: 5/14/05
Weather: Sunny D's

Drilling Company: _____
Driller/Helper: _____

1056 1120

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-6" asphalt 6"-4			DK Brn ash cinders	
4-7			Brn Silty sand C-F gravel	Petro like odor light sheen on water 6.5' TP.32 (6.5') 1110
7'-15			Gry F-sand tr silt	
15-17			DK Gry/ Brn slaysilt	
17-20			DK Brn/Drk Gry silty clay	

Paulus, Sokolowski, & Sartor Field Drilling Log

Page _____ of _____

Job Name: _____

Boring Log Number: TP-33

Job Name: _____

Date: 3/14/08

Drilling Company: _____

Weather: Sunny 30S

Driller/Helper: _____

1146 1230

Depth	Recovery	PID ppm	HCN ppm	Description	Environmental Description
0-3				DK Brn silty sand (top soil)	
3-7				Brn C-M-F sand ash cinders	
7-2		109	42	DK Gray / Brn F-Sand w/silt	TP-33 (9') 1205 Strong petro-like odor 109 PID
12-20				Blk/DK gray clayey silt	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Boring Log Number: TP-34
Date: 3/14/05
Weather: Sunny 30°

Drilling Company: _____
Driller/Helper: _____

1240 - 1345

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-3			DK Brn M-F sand + silt ash cinders	water @ 3'
3-8			Brn ash cinders Sheen	TP-34(4') 1310 Slight petro like odor Sheen.
8-17'			DK Gray/Blk clay/silt	

Paulus, Sokolowski, & Sartor Test Pit Log

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Name: _____
Job Name: _____

Boring Log Number: TP-35
Date: 3/15/05
Weather: _____

Drilling Company: _____
Driller/Helper: _____

740-830

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-6'			Concrete vault with debris - concrete brick pipe trapped water	(C) Petro-like odor sheen sample TP-35(4') 805

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Boring Log Number: TP-36

Date: 3/15/05

Weather: sunny / v. windy 30's

Drilling Company: _____
Driller/Helper: _____

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-1.5			Bvn m-f sand + silt with brick	
1.5-8'			Bvn c-f sand, silt, gravel w/ large concrete pipe rebar	> light petrotlike odor seen OK Bvn c-f sand gravel TP-36(7) 49:15

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Boring Log Number: TP-37
Date: 3/15/65
Weather: Sunny 30°

Drilling Company: _____
Driller/Helper: _____

950 - 10 50

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-4			Brn C-M-F sand little silt w/ brick, rebar, wood	
4-5			DK Brn ash + clays, slag	* Jarred for example 2" tar layer on top of slag to hard to sample
5-7			Blk F sand	
7-12			Blk sandy silt	TB-37(9') MS/MSD 1000 TP-237(8') 930 tar-like odor, sheen
12-20			DK Gry / Blk clayey silt	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Boring Log Number: TP-37A
Date: 3/15/05
Weather: Sunny 30's

Drilling Company: _____
Driller/Helper: _____

1050 - 1150

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-4			Brn c-n.F Sand Brick	
4-6			ash, slag, debris	
7-9			ash + cinders inside between grade beam	
10-12			concrete + DK Gray clayey silt	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Boring Log Number: TP-38
Date: 3/15/05
Weather: Sunny 40's

Drilling Company: _____
Driller/Helper: _____

1300

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-1			Brn c-M-F sand bricks (numerous) fill concrete @ 1' slab	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Boring Log Number: TP-39
Date: 3/16/05
Weather: Sunny / 30's

Drilling Company: _____
Driller/Helper: _____

730 - 830

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-9' 9-10	7.4	—	Brn GM ⁺ F sand little silt Fill Brick, concrete rebar wood Blk Gravel/sand →	Tar-like/ Strong Petro-like odor stained material tar like TP-39(9') 810
10 -			DK Brn / DK Gray slavysilt	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Boring Log Number: TP-40
Date: 3/16/05
Weather: _____

Drilling Company: _____
Driller/Helper: _____

850-910

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-2			DK Brn C-M.F sand silt concrete brick rebar	
			concrete refusal	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Boring Log Number: 7P.41
Date: 3/16/85
Weather: Sunny/ 30's

Drilling Company: _____
Driller/Helper: _____

920 - 940

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-2.5			DK Brn silty sand w fill brick, cinder slag	
2.5-5			Tan/ Yellowish brn Sandy silt clayey silt	
5-				

Paulus, Sokolowski, & Sartor Test Pit Log



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Name: _____
Job Name: _____

Boring Log Number: TP-42 / TP-42A
Date: 3/16/05
Weather: sunny / 40°

Drilling Company: _____
Driller/Helper: _____

1000 10 55

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-5			Blk F sand / ground coal concrete @ 5'	
TP-42A 0-1			Blk F sand / ground coal	
1-5			Brn c-mt. sand / gravel ash cinders slag	3 2" steel pipes  E-W next to each other broken / moved no product
5-9			Fill material / landfill ash cinders bottles glass wood	Sheen
9-			DK Gry silty clay	

Paulus, Sokolowski, & Sartor Test Pit Log

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Name: _____
Job Name: _____

Boring Log Number: TP-44
Date: 3/16/05
Weather: Sunny

Drilling Company: _____
Driller/Helper: _____

1230 - 1320

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-2	∅	∅	Brn C-F sand m-F gravel cobble	
2-3	1.5	∅	B/K Tar/ash layer	
3-5	35.0	∅	DK Brn/B/K ash, cinders	3" PVC sch. 40 pipe wrapped in GEO fabric crushed stone plastic TP-44 4' 1240
5-8	7.5	∅	DK Gray/Gray, lenses fine sand / clayey silt	

Paulus, Sokolowski, & Sartor Test Pit Log

Page 1 of 1

Name: Philly Coke
Job Name: 2522-212-074

Boring Log Number: TP-45
Date: 3/17/05 SP
Weather: Overcast 30's

Drilling Company: H+K
Driller/Helper: Jim Soren / Sham

730 - 805

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-4	∅	∅	Brn C-F sand silt w/ fill Bricks concrete	
4-9	∅	∅	V. Dense Hard Debris concrete rebar brick metal	
9-	∅	∅	Brn M-F sand	

Paulus, Sokolowski, & Sartor Test Pit Log

Page 1 of 1

Name: Philly Coke
 Job Name: 2522-212-074

Boring Log Number: TP-46
 Date: 3/17/05
 Weather: Overcast 30's

Drilling Company: H+K
 Driller/Helper: Jim Facer / Shaw

810 830

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-3			Brn C-Fsand silt w/ fill Brick wood	
3-8			Brk fill rebar brick ash cinders debris	
8-11			Brn Yellow M-Fsand + silt	

Paulus, Sokolowski, & Sartor Test Pit Log

Page 1 of 1

Name: Philly Coke
Job # 2522-212-074

Boring Log Number: TP-47
Date: 3/17/05
Weather: Overcast 30's

Drilling Company: H+K
Driller/Helper: Jim Saiced Shawn

835 - 855

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-4			Brn C-F sand l. H/silt w/ brick concrete	
4-9			BLK fill large concrete, brick rebar wood metal	
9-12			H tan / lt yellowish-brn M-F sand / sandysilt	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Test Pit Number: TP-51
Date: 3/17/05
Weather: Overcast 30's

Excavation Company: _____
Operator/Helper: _____

9:20 1010

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-3			lt brn C-F sand little silt little debris brick	
3-5			Brn C-M-F sand some silt brick wire concrc	
5-9			Blk v dense Hard layer concrete rebar pipe brick metal	
9-11			Reddish Brn C-F sand little silt	
11-21			Yellowish brn / Bl Yellow m-F sand	
21-22			Orange Red Clayey silt	

Paulus, Sokolowski, & Sartor

Test Pit Log

Page _____ of _____

Name: _____
 Job Name: _____

Test Pit Number: TP-52
 Date: 3/17/05
 Weather: overcast 30's

Excavation Company: _____
 Operator/Helper: _____

1020 10 55

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-3	φ	φ	lt brn c-M-F sand little silt w/brick	
3-5	φ	φ	Brn c-M-F sand little silt concrete, brick, rebar wood wire	
5-7	φ	φ	wood	
7-9	φ	φ	stone gravel layer	
9-10	φ	φ	Brn c-F sand w/silt	
10-11	φ	φ	lt brn sandy silt	
11-12	φ	φ	Yellow F-c sand	

Paulus, Sokolowski, & Sartor Test Pit Log

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Name: _____
Job Name: _____

Test Pit Number: TP-53
Date: 3/17/05
Weather: overcast 40's

Excavation Company: _____
Operator/Helper: _____

1120 1200

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-3			lt Brn C-F sand 1. Hle silt w/ brick	
3-7			Debris v. dense concrete rebar metal wood brick	
7-12			coal frag + crushed coal	
12-14			tan M-F sand	
14-16			Orange C-F sand F gravel	
16-17			Pale Yellow C-F sand	
17-19			lt gray/white silty clay	
19-			orange C-F gravel sand	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Test Pit Number: TP-55
Date: 3/17/05
Weather: Overcast 30%

Excavation Company: _____
Operator/Helper: _____

1230 - 1320

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-2			Brn C-F sand little silt w/ brick concrete	
2-10			debris / fill bluish tint v. dense concrete, brick rebar, pipe wood	
10-12			Yellowish brn C-F sand C-F gravel + silt	
12-14			pale yellow lt gray sandy clay	
14-20			Reddish yellowish brn C-F sand	water @ 14'-15'

Paulus, Sokolowski, & Sartor

Test Pit Log

Page _____ of _____

Name: _____
 Job Name: _____

Test Pit Number: TP-57
 Date: 3/19/05
 Weather: Overcast 30s

Excavation Company: _____
 Operator/Helper: _____

1340 1430

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-3			Brn CF sand little silt fill brick wire reinforced concrete	
3-7			fill Brick concrete rebar metal wood	
7-9			Blk ash cinders slag m-c sand	Slight odor TP-57(8') 1355
9-11			Brn/DK Gry m-F sand	Concrete foundation water pouring in wider concrete
11-13			DK gry/Gry mixed with sandy silt landfill ie bottles	
13-17			ash cinders glass slag	
17-20			Gry/Brn clayey silt	

Paulus, Sokolowski, & Sartor

Test Pit Log

Page _____ of _____

Name: _____
 Job Name: _____

Test Pit Number: TP-58
 Date: 3/18/05
 Weather: _____

Excavation Company: _____
 Operator/Helper: _____

740 835

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-5			Brn C-M-F sand little silt w/ fill Brick, concrete metal, rebar, large concrete block	
5-9 - building demo debris 9-11 - sand gravel layer			Blk ash, cinders, glass landfill material slag F sand metal rubber F gravel	free product trapped water @ 7' TP-58 (11') 815
11-15 - land fill 15-17			DK Gry F sand / sandy silt	
17-20			Gry/Brn sandy silt clayey silt	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Test Pit Number: TP-59
Date: 3/8/05
Weather: Sunny/ 70's

Excavation Company: _____
Operator/Helper: _____

950 1030

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-9			Brn C-F sand l. H/silt w/ fill brick concrete	
9-10			Blk gravel	
10-15			Blk ash cinder landfill	sheen TP-59(12)/1010
15-17			DK Brn clayey silt sandy silt	
17-20			DK Gray/gray sandy silt	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Boring Log Number: TP-60
Date: 3/18/05
Weather: Sunny 40's

Drilling Company: _____
Driller/Helper: _____

1050 1135

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-5			Brn C-M-F sand w/brick	
5-8			AK fill brick, concrete wood metal	trapped water @ 6' Sheen on water slight Petro-like odor
8-21			ash cinders, belgium block brick, black metal	Sheen/product TP-60 (18') 1110
21-22			DK Gry sandy silt	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Boring Log Number: TP-61

Date: 3/18/05

Weather: Sunny b. windy 50's

Drilling Company: _____

Driller/Helper: _____

1200 / 1245

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-7			Brn C-Fsand little silt large section of rock	
7-9			Blk ash cinders	
9-10			Yellowish brn C-Fsand M-Fgravel	
10-12			Gry Clayey silt	
12-13			Gry/DK Gry C-Fsand Fgravel	
13-14			Gry Clayey sandy silt	water Ground @ 14'
14-20			Gry sandy silt	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Boring Log Number: TP-62
Date: 3/18/05
Weather: Sunny 50's

Drilling Company: _____
Driller/Helper: _____

1310 1400

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-3			Reddish brn M-F sand w/silt brick wood concrete	
3-8			DK Gry M-F sand sandy silt w/fill brick, concrete ash+cinders	
8-11			Blk ash cinders slag	
11-18			ash+cinders	
18-19			Brn/DK Gry Fine sand	
19-20			Gry clayey silt	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Test Pit Number: TP-63
Date: 3/2/05
Weather: Overcast 40's wind

Excavation Company: _____
Operator/Helper: _____

800 - 830

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-4	∅	∅	Brn C-F sand little silt w/ brick, wood, timbers, rebar, metal concrete	
4-8	9.4	∅	BK ash cinders	
8-8.5	47.2		BK Tar layer w/ wood frag	Strong ^{tar-like} Odor seen on water TP-63(8') 805
8.5-9	∅		DK Gray sandy silt	
9-18	∅		DK Brn / DK Gray clayey silt	
18-20	∅		DK Gray sandy silt	

Paulus, Sokolowski, & Sartor

Test Pit Log

Page _____ of _____

Name: _____
 Job Name: _____

Test Pit Number: TP-64
 Date: 3/2/05
 Weather: Overcast 30's

Excavation Company: _____
 Operator/Helper: _____

845-920

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-2	φ	φ	Brn c-F sand little silt w/ brick, concrete	
2-4	1.8	φ	Blk ash, cinders tar	TP-64(3') 850
4-6	φ	φ	Greenish brn-tan micaceous c-F sand w/ gravel	
6-7	φ	φ	Gravel layer M-F trapped water w/ heavy sheen	Sheen mod petro-like odor
7-10	4.5	φ	Blk/DK Gray F sand silty sand	TP-64(7') 900 strong petro-like odor sheen
10-18	φ	φ	Blk/DK Gray sandy silt w/ organics (peat)	
18-20	φ	φ	Brn/DK Gray clayey silt	

Paulus, Sokolowski, & Sartor

Test Pit Log

Page _____ of _____

Name: _____
 Job Name: _____

Test Pit Number: TP-65
 Date: 3/21/65
 Weather: Overcast

Excavation Company: _____
 Operator/Helper: _____

950-1035

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-1 1-3			Blk/Brn/DK Brn C-F sand little silt w/ brick ash cinders ash cinders	
3-5			Brn/Tan C-F sand M-F gravel	
5-9			Grey C-F sand F gravel	
9-13			Blk: clayey silt	
13-18			Grey clayey silt + organics	
18-19			Grey/Brn clayey silt some organics	

Paulus, Sokolowski, & Sartor

Test Pit Log

Page _____ of _____

Name: _____
 Job Name: _____

Test Pit Number: TP-66
 Date: 3/2/05
 Weather: _____

Excavation Company: _____
 Operator/Helper: _____

1055 - 1120

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-6			Brn C-F sand little silt w/ Brick metal	
6-7			Blk ash cinders	trapped water
7-8			Brn C-F sand silt w/ bricks	trapped water
8-12			land fill	trapped water to @ 12'
12-20			DK Gry / DK Brn clayey silt tr organic	

Paulus, Sokolowski, & Sartor Test Pit Log

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Name: _____
Job Name: _____

Test Pit Number: TP-67
Date: 3/21/05
Weather: _____

Excavation Company: _____
Operator/Helper: _____

1155 1240

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-2			Ash cinders	
2-5			Tan C-F sand F gravel	
5-7			M-F gravel / Cr. verstone	water trapped in gravel slight Sheen on water no impacted material
7-13			Grey/Grey silty clay	
13-14			Brn/Gry clayey silt w/organics	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Test Pit Number: TP-68A
Date: 3/21/02
Weather: Overcast 30's

Excavation Company: _____
Operator/Helper: _____

1335 - 1420

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-1			Blk ash + cinders	
1-3			Reddish Brn ash + cinders	
3-5			Tan M-F sand little silt	
5-14			Blk F sand ash + cinders landfill	TP-68A(9) 1350 Odor sheen
14-			Blk clayey silt	

Paulus, Sokolowski, & Sartor

Test Pit Log

Page _____ of _____

Name: _____
 Job Name: _____

Test Pit Number: TP-69
 Date: 3/22/65
 Weather: Sunny 50's

Excavation Company: _____
 Operator/Helper: _____

740-810

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-5			Brn C-F sand little silty/ fill - brick, concrete, wood, plastic	
5-12			DK Gray C-F sand silt w/ fill large block, concrete, metal, rock wood	trapped water @ 5' slight Petro-like odor
12-18			Large fill granite curbs, rock concrete	
18-19			Brn silty clay	
19-20			Bluish green clayey silt w/ organics	

Paulus, Sokolowski, & Sartor

Test Pit Log

Page _____ of _____

Name: _____
 Job Name: _____

Test Pit Number: TP-70
 Date: 3/22/04
 Weather: Sunny 30's

Excavation Company: _____
 Operator/Helper: _____

8 50 - 930

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-5			DK Brn C-F sand + silt w/ brick	2 12" pipes running N-S resting on pile supported cap 3' B.G.S. 1 8" pipe under 2 12" pipes
5-9			Grey F sand + silt	8" pipe running E-W broke section off water leaking out not under pressure
9-12			Blk F sand	
12-20			DK Grey clay/silt w/ organics	TP-70(12') 915

Paulus, Sokolowski, & Sartor

Test Pit Log

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Name: _____
 Job Name: _____

Test Pit Number: TP-71
 Date: 3/24/05
 Weather: Sunny / 50's

Excavation Company: _____
 Operator/Helper: _____

956-1020

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-1			Blk coal	
2-6			lt Brn tan c-F sand M-F gravel	
6-7			DK Gry ash cinders	trapped water
7-9			DK Gry / Gry F-sand	
9-20			Gry silt	mod Petro l. like odor TP-71 (10') 1005

Paulus, Sokolowski, & Sartor

Test Pit Log

Page _____ of _____

Name: _____
 Job Name: _____

Test Pit Number: TP-73
 Date: 3/22/65
 Weather: _____

Excavation Company: _____
 Operator/Helper: _____

1150 - 1230

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-1			Brn C-F sand + silt Bricky wood	
1-2			BK ash/cinders concrete slab 1/2 of TP	
2-4			coal frag, ash cinders slag	
4-20			landfill brick, concrete, metal	
			wood wire large block	
20-4			Hbrn / Tan silty sand w/F gravel	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Test Pit Number: TP-74
Date: 5/22/65
Weather: _____

Excavation Company: _____
Operator/Helper: _____

1305 1345

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-0.5			Brn silty sand	
.5-2.5			ash, cinders slag	
2.5-13			Site Debris brick concrete CGK bricks	
13-18			Landfill material glass, bottles wood	
18-20			Brn clayey silt w/peat organics	

Paulus, Sokolowski, & Sartor

Test Pit Log

Page _____ of _____

Name: _____
 Job Name: _____

Test Pit Number: TP-75
 Date: 3/23/05
 Weather: Rain 30's

Excavation Company: _____
 Operator/Helper: _____

740-830

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-3	∅	∅	lt Brn tan C-F sand F-gravel	— water trapped in gravel bed
3-7	11.4	∅	DK Brn C-F sand M-F gravel 3" PVC pipes	Sheen for PVC pipes on water
7-14	12.9	∅	Gry clay/silt/silty clay	sheen strong. Petro-like # TP-75(7') 810 odor water has heavy sheen
			End in Clay @ 14 did not want to go through clay layer	

Paulus, Sokolowski, & Sartor

Test Pit Log

Page _____ of _____

Name: _____
 Job Name: _____

Test Pit Number: TP-76
 Date: 3/23/05
 Weather: Rain 30'S

Excavation Company: _____
 Operator/Helper: _____

900 - 945

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-2			Ash cinders B/K - reddish brn	
2-4			tan / orange C-F sand F-M gravel	
4-5.5			Grey sandy silt	
5.5-9			C-F sand	
9-18			Brn/PK Grey sandy clayey silt	

Paulus, Sokolowski, & Sartor Test Pit Log

Page _____ of _____

Name: _____
Job Name: _____

Test Pit Number: TP-77
Date: 3/23/05
Weather: Rain 40's

Excavation Company: _____
Operator/Helper: _____

1115 - 1145

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-2			lt Gray/white ash	
2-3.5			ash, cinders slag	
3.5-10			lt Reddish Brn C-F sand E gravel	water @ 4'
10-13			Brn/DK Gray F sand w/silt	
13-18			Gray/Brn Clayey silt	

Paulus, Sokolowski, & Sartor

Test Pit Log

Page _____ of _____

Name: _____
 Job Name: _____

Test Pit Number: TP-78
 Date: 3/23/05
 Weather: Rain 30's

Excavation Company: _____
 Operator/Helper: _____

1220 - 1300

Depth	PID ppm	HCN ppm	Description	Environmental Description
0-2.5			Brn silty sandy/rock brick concrete wood	
2.5-5			OK Brn silty sand	
5-8			ash + cinders sandy silt	
8-15			Grayish Green F-C sand w/	TP-78(7') 1240 Slight Petro-like odor
15-20			Brn/Gry Clayey silt	

APPENDIX E

Groundwater Monitoring and Purge Logs



**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	Former Philadelphia Coke Plant Site	Weather:	sunny, 50's
Project Location:	4501 Richmond Street	Personnel:	PMD
	Philadelphia, Pennsylvania	Date:	November 7, 2005

Well Number:	PCMW-10	Pump Depth:	15'	Pumping Rate:	350 ml/min
Water Level:	10.67	Pump Start Time:	1025	Total Purged:	12.25 liters
Screened Interval: (ft bgs)	5-15	PID Reading (ppm)	0.0	Purge Method:	Submersible Pump

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
1025	17.40	6.56	3.160	16.55	380.0	-101	11.02	
1030	17.60	6.47	3.150	7.66	777.0	-121	11.02	
1035	18.00	6.48	3.150	6.99	99.7	-128	11.02	
1040	18.10	6.49	3.160	6.73	13.5	-132	11.02	
1045	18.10	6.49	3.210	6.60	4.8	-134	11.02	
1050	17.90	6.50	3.240	6.59	9.9	-135	11.02	
1055	17.80	6.50	3.230	6.60	10.5	-135	11.02	
1100	17.80	6.50	3.280	6.60	10.0	-136	11.02	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	<u>Former Philadelphia Coke Plant Site</u>	Weather:	<u>sunny mid 50's</u>
Project Location:	<u>4501 Richmond Street</u>	Personnel:	<u>PMD</u>
	<u>Philadelphia, Pennsylvania</u>	Date:	<u>November 7, 2005</u>

Well Number:	<u>PCMW-10D</u>	Pump Depth:	<u>32.5</u>	Pumping Rate:	<u>250 ml/ min</u>
Water Level:	<u>14</u>	Pump Start Time:	<u>1237</u>	Total Purged:	<u>11.25 liters</u>
Screened Interval: (ft bgs)	<u>23-33</u>	PID Reading (ppm)	<u>0.0</u>	Purge Method:	<u>Submersible Pump</u>

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
1240	14.80	6.68	2.050	12.56	108.0	-78	14.11	
1245	14.60	6.22	2.040	8.22	315.0	-84	14.14	
1250	14.90	6.11	2.090	7.92	183.0	-90	14.14	
1255	15.30	6.08	2.160	7.63	58.3	-98	14.14	
1300	15.30	6.08	2.160	7.61	10.0	-102	14.14	
1305	15.40	6.08	2.160	7.44	5.9	-103	14.14	
1310	15.00	6.08	2.200	7.48	6.0	-105	14.14	
1315	14.80	6.08	2.200	7.43	0.7	-106	14.14	
1320	14.70	6.08	2.200	7.36	0.5	-108	14.14	
1325	14.80	6.08	2.200	7.29	0.5	-109	14.14	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	Former Philadelphia Coke Plant Site	Weather:	sunny 50's windy
Project Location:	4501 Richmond Street	Personnel:	PMD
	Philadelphia, Pennsylvania	Date:	November 7, 2005

Well Number:	PCMW-11	Pump Depth:	15.5'	Pumping Rate:	350 ml/min
Water Level:	11.82	Pump Start Time:	1407	Total Purged:	10.5 liters
Screened Interval: (ft bgs)	5-15	PID Reading (ppm)	0.0	Purge Method:	Submersible Pump

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
1410	18.60	6.49	2.080	7.57	601.0	-103	11.92	
1415	19.30	6.34	1.770	6.21	53.2	-118	11.95	
1420	19.60	6.30	1.680	5.96	23.6	-114	11.95	
1425	19.70	6.29	1.660	5.91	19.5	-113	11.95	
1430	19.70	6.28	1.640	5.87	18.4	-113	11.95	
1435	19.30	6.27	1.610	5.93	17.1	-109	11.95	
1440	19.30	6.27	1.610	5.91	17.4	-107	11.95	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	<u>Former Philadelphia Coke Plant Site</u>	Weather:	<u>sunny high 40's</u>
Project Location:	<u>4501 Richmond Street</u>	Personnel:	<u>PMD</u>
	<u>Philadelphia, Pennsylvania</u>	Date:	<u>November 8, 2005</u>

Well Number:	<u>PCMW-11D</u>	Pump Depth:	<u>36.5</u>	Pumping Rate:	<u>325 ml/min</u>
Water Level:	<u>16.63</u>	Pump Start Time:	<u>713</u>	Total Purged:	<u>17.875 liters</u>
Screened Interval: (ft bgs)	<u>27-37</u>	PID Reading (ppm)	<u>0.0</u>	Purge Method:	<u>Submersible Pump</u>

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
715	14.80	6.81	1.450	13.43	100.0	-32	16.78	
720	15.00	6.52	1.470	7.48	162.0	-62	16.78	
725	15.40	6.48	1.480	6.99	78.6	-76	16.78	
730	15.80	6.47	1.490	6.90	41.0	-88	16.78	
735	15.70	6.47	1.490	6.78	32.2	-91	16.75	
740	15.90	6.45	1.490	6.73	22.0	-95	16.70	
745	16.10	6.46	1.500	6.64	16.6	-98	16.70	
750	16.00	6.46	1.500	6.67	12.2	-99	16.70	
755	16.00	6.46	1.500	6.68	8.1	-100	16.70	
800	16.10	6.46	1.500	6.64	5.7	-102	16.70	
805	16.20	6.46	1.500	6.64	6.1	-102	16.70	
810	16.20	6.46	1.500	6.64	6.2	-103	16.70	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	Former Philadelphia Coke Plant Site	Weather:	50's windy
Project Location:	4501 Richmond Street	Personnel:	PMD
	Philadelphia, Pennsylvania	Date:	November 8, 2005

Well Number:	PCMW-12	Pump Depth:	10'	Pumping Rate:	250 ml/ min
Water Level:	5.54	Pump Start Time:	923	Total Purged:	11.25 liters
Screened Interval: (ft bgs)	2-10	PID Reading (ppm)	0.0	Purge Method:	Submersible Pump

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
925	15.70	6.61	0.645	9.51	80.2	-26	5.85	
930	15.80	6.18	0.671	8.33	15.2	-14	5.85	
935	16.20	6.05	0.717	7.27	0.7	-28	5.85	
940	16.30	6.02	0.712	7.10	-3.8	-35	5.85	
945	16.40	6.03	0.722	7.02	-5.4	-38	5.85	
950	16.50	6.03	0.716	6.94	-6.9	-39	5.85	
955	16.60	6.04	0.723	6.87	-7.8	-42	5.85	
1000	16.60	6.04	0.715	6.81	-7.6	-42	5.85	
1005	16.60	6.04	0.714	6.80	-7.9	-42	5.85	
1010	16.60	6.04	0.717	6.80	-7.8	-42	5.85	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	<u>Former Philadelphia Coke Plant Site</u>	Weather:	<u>sunny high 50's</u>
Project Location:	<u>4501 Richmond Street</u>	Personnel:	<u>PMD</u>
	<u>Philadelphia, Pennsylvania</u>	Date:	<u>November 8, 2005</u>

Well Number:	<u>PCMW-12D</u>	Pump Depth:	<u>32.5'</u>	Pumping Rate:	<u>300 ml/ min</u>
Water Level:	<u>12.47</u>	Pump Start Time:	<u>1114</u>	Total Purged:	<u>15 liters</u>
Screened Interval: (ft bgs)	<u>23-33</u>	PID Reading (ppm)	<u>0.0</u>	Purge Method:	<u>Submersible Pump</u>

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
1115	14.90	6.30	1.710	10.06	329.0	-64	12.57	
1120	15.10	6.19	1.710	7.94	141.0	-79	12.62	
1125	15.40	6.18	1.720	7.64	100.0	-83	12.62	
1130	15.70	6.17	1.740	7.13	19.0	-103	12.62	
1135	16.00	6.18	1.740	7.01	10.0	-107	12.62	
1140	16.00	6.19	1.750	6.94	9.3	-108	12.62	
1145	16.00	6.20	1.750	6.85	7.5	-115	12.62	
1150	16.10	6.21	1.750	6.78	5.1	-116	12.62	
1155	16.20	6.20	1.750	6.74	3.2	-117	12.62	
1200	16.20	6.20	1.750	6.73	3.2	-117	12.62	
1205	16.20	6.20	1.750	6.73	2.8	-118	12.62	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	Former Philadelphia Coke Plant Site	Weather:	
Project Location:	4501 Richmond Street	Personnel:	PMD
	Philadelphia, Pennsylvania	Date:	November 9, 2005

Well Number:	PCMW-13	Pump Depth:	19'	Pumping Rate:	350ml/min
Water Level:	10.8'	Pump Start Time:	639	Total Purged:	15.75
Screened Interval: (ft bgs)	5-20	PID Reading (ppm)	0.0	Purge Method:	Submersible Pump

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
640	15.00	7.11	1.340	12.88	999.0	92	10.82	
645	15.50	6.73	1.300	7.13	999.0	-15	10.85	
650	15.80	6.70	1.330	6.80	449.0	-50	10.85	
655	16.00	6.71	1.330	6.69	210.0	-62	10.85	
700	16.00	6.70	1.340	6.61	113.0	-68	10.85	
705	16.00	6.69	1.340	6.59	56.0	-72	10.85	
710	15.90	6.69	1.330	6.60	42.1	-75	10.85	
715	15.90	6.69	1.350	6.57	?	-76	10.85	
720	15.90	6.69	1.350	6.55	?	-77	10.85	
725	15.90	6.69	1.350	6.52	?	-79	10.85	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	Former Philadelphia Coke Plant Site	Weather:	cloudy low 50's
Project Location:	4501 Richmond Street	Personnel:	PMD
	Philadelphia, Pennsylvania	Date:	November 9, 2005

Well Number:	PCMW-13D	Pump Depth:	37.5'	Pumping Rate:	350 ml/min
Water Level:	12.48'	Pump Start Time:	839	Total Purged:	15.75 liters
Screened Interval: (ft bgs)	23-33	PID Reading (ppm)	0.0	Purge Method:	Submersible Pump

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
840	13.90	6.45	1.360	8.64	27.7	43	12.46	
845	13.90	6.48	1.360	8.13	16.6	25	12.47	
850	14.00	6.52	1.330	7.76	5.1	6	12.47	
855	14.30	6.54	1.320	7.51	-6.0	-7	12.47	
900	14.40	6.55	1.320	7.36	-5.8	-17	12.47	
905	14.50	6.53	1.330	7.25	-6.3	-20	12.47	
910	14.70	6.54	1.330	7.16	-8.5	-26	12.47	
915	14.60	6.54	1.340	7.11	-9.0	-29	12.47	
920	14.70	6.55	1.340	7.08	-9.7	-30	12.47	
925	14.70	6.55	1.340	7.07	-9.8	-31	12.47	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	Former Philadelphia Coke Plant Site	Weather:	cloudy, low 50's
Project Location:	4501 Richmond Street	Personnel:	PMD
	Philadelphia, Pennsylvania	Date:	November 1, 2005

Well Number:	PCMW-14	Pump Depth:	15'	Pumping Rate:	350 ml/min
Water Level:	8.58'	Pump Start Time:	1119	Total Purged:	19.25 liters
Screened Interval: (ft bgs)	5-15	PID Reading (ppm)	0.0	Purge Method:	Submersible Pump

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
1120	17.20	8.60	1.350	9.41	166.0	-134	8.60	
1125	17.20	8.52	1.390	7.21	37.9	-159	8.62	
1130	17.30	8.48	1.420	6.91	4.7	-197	8.62	
1135	17.40	8.49	1.420	6.52	-2.7	-224	8.63	
1140	17.30	8.50	1.410	6.39	7.0	-251	8.63	
1145	17.50	8.50	1.380	6.17	7.0	-260	8.63	
1150	17.90	8.51	1.380	6.12	7.0	-268	8.63	
1155	16.80	8.41	1.420	6.21	14.4	-284	8.85	
1200	16.50	8.41	1.420	6.27	11.1	-304	8.89	
1205	16.50	8.40	1.430	6.35	9.9	-312	8.89	
1210	16.40	8.39	1.440	6.35	9.1	-316	8.89	
1215	16.40	8.39	1.440	6.34	8.9	-318	8.89	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	<u>Former Philadelphia Coke Plant Site</u>	Weather:	<u>cloudy 50's</u>
Project Location:	<u>4501 Richmond Street</u>	Personnel:	<u>PMD</u>
	<u>Philadelphia, Pennsylvania</u>	Date:	<u>November 9, 2005</u>

Well Number:	<u>PCMW-14D</u>	Pump Depth:	<u>39'</u>	Pumping Rate:	<u>350 ml / min</u>
Water Level:	<u>12.85</u>	Pump Start Time:	<u>1314</u>	Total Purged:	<u>19.25 liters</u>
Screened Interval: (ft bgs)	<u>30-40</u>	PID Reading (ppm)	<u>0.0</u>	Purge Method:	<u>Submersible Pump</u>

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
1315	14.90	6.76	1.600	14.64	526.0	-49	13.57	
1320	15.30	5.97	1.600	7.39	240.0	-35	13.59	
1325	15.40	5.92	1.600	7.19	132.0	-35	13.59	
1330	15.50	5.91	1.600	7.12	68.3	-35	13.60	
1335	15.50	5.90	1.600	7.04	40.0	-34	13.60	
1340	15.40	5.90	1.600	6.98	40.1	-34	13.60	
1345	15.20	5.89	1.600	7.00	15.3	-34	13.60	
1350	15.20	5.89	1.600	6.90	32.2	-35	13.60	
1355	15.20	5.89	1.600	6.90	32.1	-35	13.60	
1400	15.20	5.89	1.600	6.89	30.0	-35	13.60	
1405	15.20	5.89	1.600	6.89	29.7	-35	13.60	
1410	15.20	5.89	1.600	6.88	29.5	-35	13.60	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	<u>Former Philadelphia Coke Plant Site</u>	Weather:	<u>sunny cold, vy windy</u>
Project Location:	<u>4501 Richmond Street</u>	Personnel:	<u>PMD</u>
	<u>Philadelphia, Pennsylvania</u>	Date:	<u>November 10, 2005</u>

Well Number:	<u>PCMW-15</u>	Pump Depth:	<u>14'</u>	Pumping Rate:	<u>300ml/min</u>
Water Level:	<u>9.95'</u>	Pump Start Time:	<u>654</u>	Total Purged:	<u>12 liters</u>
Screened Interval: (ft bgs)	<u>5-15</u>	PID Reading (ppm)	<u>0.0</u>	Purge Method:	<u>Submersible Pump</u>

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
655	16.40	7.09	2.810	11.77	260.0	-57	10.85	
700	16.40	6.77	2.700	7.68	93.6	-106	10.89	
705	17.30	6.66	2.770	6.45	-1.8	-142	10.89	
710	17.70	6.65	2.710	6.12	-10.0	-148	10.89	
715	17.60	6.65	2.700	6.09	-10.0	-149	10.89	
720	17.70	6.65	2.710	6.04	-10.0	-149	10.89	
725	17.80	6.64	2.720	6.02	-10.0	-149	10.89	
730	17.90	6.64	2.740	6.01	-10.0	-150	10.89	
735	17.70	6.64	2.750	6.05	-10.0	-150	10.89	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	Former Philadelphia Coke Plant Site	Weather:	very windy 20-30 mph
Project Location:	4501 Richmond Street	Personnel:	PMD
	Philadelphia, Pennsylvania	Date:	November 1, 2005

Well Number:	PCMW-15D	Pump Depth:	40'	Pumping Rate:	300ml/min
Water Level:	17.63	Pump Start Time:	843	Total Purged:	10.5 liters
Screened Interval: (ft bgs)	31-41	PID Reading (ppm)	0.0	Purge Method:	Submersible Pump

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
845	14.90	6.04	1.410	6.37	-3.6	13	17.71	
850	15.20	6.34	1.410	5.32	-8.5	-41	17.72	
855	15.50	6.42	1.410	4.94	-10.0	-88	17.73	
900	15.60	6.42	1.420	4.80	-10.0	-104	17.73	
905	15.60	6.42	1.420	4.73	-10.0	-111	17.73	
910	15.70	6.42	1.420	4.68	-10.0	-115	17.73	
915	15.70	6.42	1.420	4.68	-10.0	-116	17.73	
920	15.60	6.42	1.420	4.67	-10.0	-117	17.73	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	Former Philadelphia Coke Plant Site	Weather:	
Project Location:	4501 Richmond Street	Personnel:	PMD
	Philadelphia, Pennsylvania	Date:	November 10, 2005

Well Number:	PCMW-16	Pump Depth:	14.8	Pumping Rate:	250ml/min
Water Level:	9.8	Pump Start Time:	1029	Total Purged:	11.25 liters
Screened Interval: (ft bgs)	4-14	PID Reading (ppm)	0.0	Purge Method:	Submersible Pump

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
1030	16.10	6.66	1.910	10.86	509.0	-39	9.85	
1035	16.70	6.42	1.930	4.66	365.0	-110	9.88	
1040	16.30	6.37	1.880	4.67	152.0	-111	9.88	
1045	16.30	6.37	1.890	4.66	42.7	-114	9.88	
1050	16.30	6.38	1.890	4.61	9.1	-118	9.88	
1055	16.20	6.39	1.890	4.61	-3.2	-122	9.88	
1100	16.20	6.39	1.900	4.60	-7.8	-125	9.88	
1105	16.20	6.40	1.900	4.58	-9.1	-127	9.88	
1110	16.20	6.40	1.900	4.58	-10.0	-127	9.88	
1115	16.20	6.40	1.900	4.57	-10.0	-128	9.88	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	Former Philadelphia Coke Plant Site	Weather:	partly sunny, windy
Project Location:	4501 Richmond Street	Personnel:	PMD
	Philadelphia, Pennsylvania	Date:	November 10, 2005

Well Number:	PCMW-16D	Pump Depth:	333.5	Pumping Rate:	275ml/min
Water Level:	11.77	Pump Start Time:	1227	Total Purged:	15.125 liters
Screened Interval: (ft bgs)	23-33	PID Reading (ppm)	0.0	Purge Method:	Submersible Pump

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
1230	15.10	6.57	0.970	5.65	999.0	-67	11.76	
1235	15.20	6.41	0.960	5.15	999.0	-85	11.74	
1240	15.70	6.36	0.960	4.89	999.0	-96	11.74	
1245	16.30	6.35	0.950	4.71	453.0	-103	11.74	
1250	16.00	6.35	0.950	4.69	214.0	-108	11.74	
1255	16.20	6.36	0.950	4.61	110.0	-113	11.74	
1300	16.40	6.37	0.950	4.53	104.0	-117	11.74	
1305	16.40	6.38	0.950	4.52	93.4	-119	11.74	
1310	16.20	6.37	0.950	4.54	90.9	-121	11.74	
1315	16.10	6.39	0.950	4.55	94.7	-124	11.74	
1320	16.30	6.40	0.950	4.46	96.1	-125	11.74	
1325	16.30	6.41	0.950	4.51	94.8	-125	11.74	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	<u>Former Philadelphia Coke Plant Site</u>	Weather:	<u>cold, low 40's</u>
Project Location:	<u>4501 Richmond Street</u>	Personnel:	<u>PMD</u>
	<u>Philadelphia, Pennsylvania</u>	Date:	<u>November 11, 2005</u>

Well Number:	<u>PCMW-17</u>	Pump Depth:	<u>14'</u>	Pumping Rate:	<u>250 ml/min</u>
Water Level:	<u>7.05</u>	Pump Start Time:	<u>704</u>	Total Purged:	<u>13.75 liters</u>
Screened Interval: (ft bgs)	<u>4-14</u>	PID Reading (ppm)	<u>0.0</u>	Purge Method:	<u>Submersible Pump</u>

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
705	15.50	6.01	1.080	10.19	530.0	90	7.61	
710	15.30	6.02	1.070	6.36	306.0	-20	7.80	
715	15.40	6.02	1.080	6.25	258.0	-35	7.84	
720	15.90	6.02	1.080	6.01	160.0	-62	7.84	
725	16.50	6.03	1.080	5.76	119.0	-82	7.84	
730	16.80	6.04	1.080	5.64	103.0	-93	7.84	
735	16.70	6.03	1.120	5.57	63.6	-99	7.84	
740	16.60	6.04	1.130	5.54	43.9	-102	7.84	
745	16.70	6.04	1.120	5.53	37.6	-105	7.84	
750	16.60	6.04	1.130	5.55	19.6	-108	7.84	
755	16.70	6.05	1.130	5.52	17.1	-111	7.84	
800	16.70	6.05	1.130	5.53	17.0	-113	7.84	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	<u>Former Philadelphia Coke Plant Site</u>	Weather:	
Project Location:	<u>4501 Richmond Street</u>	Personnel:	<u>PMD</u>
	<u>Philadelphia, Pennsylvania</u>	Date:	<u>November 11, 2005</u>

Well Number:	<u>PCMW-17D</u>	Pump Depth:	<u>40.5</u>	Pumping Rate:	<u>350ml/ min</u>
Water Level:	<u>14.75</u>	Pump Start Time:	<u>913</u>	Total Purged:	<u>14 liters</u>
Screened Interval: (ft bgs)	<u>30-40</u>	PID Reading (ppm)	<u>0.0</u>	Purge Method:	<u>Submersible Pump</u>

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
915	15.20	6.12	1.030	8.36	55.2	-22	13.94	
920	15.50	5.70	1.020	6.28	130.0	-25	13.94	
925	15.80	5.66	1.020	6.01	37.4	-26	13.94	
930	15.80	5.65	1.020	5.94	8.3	-28	13.94	
935	15.70	5.65	1.020	5.89	-3.8	-30	13.94	
940	15.60	5.65	1.020	5.86	-8.6	-31	13.94	
945	15.70	5.65	1.020	5.86	-10.0	-32	13.94	
950	15.60	5.65	1.020	5.89	-10.0	-33	13.94	
955	15.60	5.65	1.020	5.89	-10.0	-33	13.94	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	Former Philadelphia Coke Plant Site	Weather:	cloudy low 40's
Project Location:	4501 Richmond Street Philadelphia, Pennsylvania	Personnel:	PMD
		Date:	November 11, 2005

Well Number:	PCMW-18	Pump Depth:	19.7	Pumping Rate:	300 ml / min
Water Level:	18.44	Pump Start Time:	1109	Total Purged:	10.5 liters
Screened Interval: (ft bgs)	5-15	PID Reading (ppm)	0.0	Purge Method:	Submersible Pump

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
1110	16.10	6.53	0.949	8.40	999.0	4	18.56	
1115	16.50	5.68	0.888	7.20	45.2	47	18.56	
1120	16.90	5.66	0.892	7.04	13.2	50	18.56	
1125	17.10	5.65	0.887	7.01	-1.2	54	18.56	
1130	17.30	5.62	0.885	6.99	-1.2	59	18.56	
1135	16.60	5.61	0.883	7.17	-1.3	64	18.56	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	Former Philadelphia Coke Plant Site	Weather:	cloudy low 40's
Project Location:	4501 Richmond Street	Personnel:	PMD
	Philadelphia, Pennsylvania	Date:	November 11, 2005

Well Number:	PCMW-18D	Pump Depth:	35.5	Pumping Rate:	400 ml/min
Water Level:	17.45	Pump Start Time:	1219	Total Purged:	14 liters
Screened Interval: (ft bgs)	27-37	PID Reading (ppm)	0.0	Purge Method:	Submersible Pump

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
1225	14.20	5.80	0.821	8.34	151.0	101	17.49	
1230	15.00	5.21	0.831	6.93	206.0	117	17.49	
1235	15.00	5.20	0.831	6.90	162.0	117	17.49	
1240	15.20	5.18	0.830	6.78	38.0	120	17.49	
1245	15.20	5.17	0.832	6.78	13.0	120	17.49	
1250	15.10	5.17	0.834	6.78	-4.6	122	17.49	
1255	15.10	5.17	0.834	6.75	-4.6	122	17.49	
1300	15.10	5.17	0.834	6.74	-4.6	122	17.49	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	Former Philadelphia Coke Plant Site	Weather:	partly sunny, 50's
Project Location:	4501 Richmond Street	Personnel:	PMD
	Philadelphia, Pennsylvania	Date:	November 14, 2005

Well Number:	PCMW-19	Pump Depth:	13.5	Pumping Rate:	350 ml/min
Water Level:	7.71	Pump Start Time:	647	Total Purged:	14 liters
Screened Interval: (ft bgs)	3-13	PID Reading (ppm)	0.0	Purge Method:	Submersible Pump

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
650	16.60	6.45	0.731	13.36	278.0	-38	7.80	
655	16.80	6.40	0.725	10.11	17.2	-61	7.80	
700	17.20	6.34	0.714	6.69	7.9	-97	7.80	
705	17.20	6.32	0.706	6.45	10.0	-113	7.80	
710	17.60	6.33	0.706	6.36	1.7	-115	7.80	
715	17.20	6.37	0.689	6.40	-10.0	-125	7.80	
720	16.40	6.40	0.695	6.51	-10.0	-132	7.80	
725	16.50	6.40	0.696	6.51	-10.0	-134	7.80	
730	16.50	6.40	0.696	6.51	-10.0	-135	7.80	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	Former Philadelphia Coke Plant Site	Weather:	sunny 50's
Project Location:	4501 Richmond Street	Personnel:	PMD
	Philadelphia, Pennsylvania	Date:	November 14, 2005

Well Number:	PCMW-19D	Pump Depth:	36'	Pumping Rate:	400 ml/min
Water Level:	12.3	Pump Start Time:	839	Total Purged:	16 liters
Screened Interval: (ft bgs)	27-37	PID Reading (ppm)	6.0	Purge Method:	Submersible Pump

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
840	15.80	5.98	1.170	14.49	393.0	-23	12.32	
845	16.20	5.89	1.170	7.52	422.0	-31	12.34	
850	16.30	5.86	1.170	6.81	199.0	-40	12.34	
855	16.40	5.86	1.180	6.61	88.3	-46	12.34	
900	16.50	5.87	1.180	6.50	44.2	-50	12.34	
905	16.30	5.87	1.180	6.50	20.3	-53	12.34	
910	16.10	5.87	1.180	6.63	-0.7	-55	12.34	
915	16.10	5.87	1.180	6.62	-2.8	-57	12.34	
920	16.10	5.87	1.180	6.62	-2.8	-58	12.34	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	Former Philadelphia Coke Plant Site	Weather:	sunny 50's
Project Location:	4501 Richmond Street Philadelphia, Pennsylvania	Personnel:	PMD
		Date:	November 14, 2005

Well Number:	PCMW-20	Pump Depth:	13	Pumping Rate:	350 ml/min
Water Level:	8.66	Pump Start Time:	1049	Total Purged:	14 liters
Screened Interval: (ft bgs)	3-13	PID Reading (ppm)	0.0	Purge Method:	Submersible Pump

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
1050	17.50	5.89	0.265	7.86	191.0	49	9.52	
1055	17.60	5.86	0.237	6.64	172.0	9	9.54	
1100	17.90	5.82	0.239	6.35	23.9	-11	9.54	
1105	17.70	5.80	0.243	6.37	23.6	-17	9.54	
1110	18.10	5.72	0.237	6.12	17.2	-26	9.54	
1115	18.00	5.76	0.237	6.10	13.5	-33	9.54	
1120	18.10	5.78	0.240	6.00	22.7	-35	9.54	
1125	18.10	5.78	0.241	6.06	23.7	-36	9.54	
1130	18.10	5.78	0.241	6.06	29.5	-36	9.54	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2005**

Project:	<u>Former Philadelphia Coke Plant Site</u>	Weather:	<u>sunny high 50's</u>
Project Location:	<u>4501 Richmond Street</u>	Personnel:	<u>PMD</u>
	<u>Philadelphia, Pennsylvania</u>	Date:	<u>November 14, 2005</u>

Well Number:	<u>PCMW-20D</u>	Pump Depth:	<u>25</u>	Pumping Rate:	<u>400 ml/ min</u>
Water Level:	<u>13.3</u>	Pump Start Time:	<u>1219</u>	Total Purged:	<u>16 liters</u>
Screened Interval: (ft bgs)	<u>18-28</u>	PID Reading (ppm)	<u>0.0</u>	Purge Method:	<u>Submersible Pump</u>

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
1220	16.10	6.61	8.610	8.92	52.5	-45	14.31	
1225	16.30	6.55	7.460	7.14	27.4	-98	14.31	
1230	16.30	6.55	7.180	7.07	11.7	-107	14.31	
1235	16.30	6.56	6.880	6.84	0.3	-117	14.31	
1240	16.30	6.56	6.790	6.70	-1.9	-122	14.31	
1245	16.30	6.57	6.600	6.59	-6.3	-126	14.31	
1250	16.30	6.57	6.490	6.55	-8.0	-129	14.31	
1255	16.30	6.57	6.470	6.47	-10.0	-132	14.31	
1300	16.30	6.57	6.420	6.45	-10.0	-131	14.31	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2006**

Project:	Former Philadelphia Coke Plant Site	Weather:	
Project Location:	4501 Richmond Street	Personnel:	PD & JD
	Philadelphia, Pennsylvania	Date:	January 30, 2006

Well Number:	PCMW-01	Pump Depth:	9.5	Pumping Rate:	500 ml/min
Water Level:	5.35	Pump Start Time:	1315	Total Purged:	30 liters
Screened Interval: (ft bgs)	1-9	PID Reading (ppm)	0.0	Purge Method:	Submersible Pump

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
1325	7.94	6.07	0.696	7.34	100.0	-2	5.37	
1335	7.49	6.55	3.060	0.75	57.0	-128	5.38	
1340	7.89	6.57	8.000	1.61	56.0	-133	5.38	
1345	7.19	6.58	16.800	0.98	47.0	-133	5.38	
1350	6.83	6.60	4.510	0.63	28.0	-139	5.38	
1355	6.39	6.62	3.460	0.53	16.0	-141	5.38	
1400	6.34	6.64	3.120	0.50	15.0	-143	5.38	
1405	6.19	6.68	2.760	0.51	14.0	-144	5.38	
1410	6.06	6.70	2.570	0.48	15.0	-145	5.38	
1415	5.85	6.72	2.120	0.48	8.0	-145	5.38	
1420	5.33	6.77	1.700	0.47	7.0	-148	5.38	
1425	5.31	6.79	1.520	0.47	11.0	-149	5.38	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2006**

Project:	Former Philadelphia Coke Plant Site	Weather:	
Project Location:	4501 Richmond Street	Personnel:	PD & JD
	Philadelphia, Pennsylvania	Date:	January 30, 2006

Well Number:	PCMW-02	Pump Depth:	approx 12'	Pumping Rate:	950 ml/min
Water Level:	5.42	Pump Start Time:	1355	Total Purged:	32.3 liters
Screened Interval: (ft bgs)	1-9	PID Reading (ppm)	0.0	Purge Method:	Submersible Pump

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
1400	10.93	6.23	0.723	0.88	390.0	-2	5.45	
1404	10.86	6.33	0.699	0.68	350.0	27	5.45	
1408	10.81	6.37	0.678	0.66	350.0	6	5.45	
1412	10.70	6.40	0.653	0.66	200.0	-12	5.45	
1419	10.70	6.44	0.633	0.64	200.0	-26	5.44	
1424	10.80	6.46	0.623	0.68	180.0	-32	5.43	
1428	10.80	6.48	0.617	0.62	190.0	-37	5.44	
1430	10.80	6.49	0.600	0.66	68.0	-40	5.44	
1434	10.80	6.50	0.581	0.62	80.0	-43	5.44	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2006**

Project:	<u>Former Philadelphia Coke Plant Site</u>	Weather:	
Project Location:	<u>4501 Richmond Street</u>	Personnel:	<u>PD & JD</u>
	<u>Philadelphia, Pennsylvania</u>	Date:	<u>January 30, 2006</u>

Well Number:	<u>PCMW04</u>	Pump Depth:	<u>10'</u>	Pumping Rate:	<u>500 ml/min</u>
Water Level:	<u>6.29</u>	Pump Start Time:	<u>1525</u>	Total Purged:	<u>17.5 liters</u>
Screened Interval: (ft bgs)	<u>1-9</u>	PID Reading (ppm)	<u>0.0</u>	Purge Method:	<u>Submersible Pump</u>

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
1525	6.91	6.81	1.050	5.33	120.0	23	6.31	
1535	3.08	6.84	4.950	0.89	49.0	-7	6.32	
1545	1.73	6.89	6.070	0.93	35.0	-84	6.32	temperature error
1550	1.66	6.90	5.750	0.89	30.0	-89	6.32	
1555	1.20	6.91	5.570	0.91	33.0	-93	6.32	
1600	0.85	6.92	5.470	0.90	28.0	-96	6.32	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2006**

Project: Former Philadelphia Coke Plant Site Weather: _____
 Project Location: 4501 Richmond Street Personnel: PD & JD
Philadelphia, Pennsylvania Date: January 31, 2006

Well Number: PCMW-05 Pump Depth: approx 12' Pumping Rate: 1 l/m
 Water Level: 5.73 Pump Start Time: 817 Total Purged: 16 liters
 Screened Interval: (ft bgs) 1-10 PID Reading (ppm) 23.2 Purge Method: Submersible Pump

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
824	8.60	6.59	0.591	0.59	47.0	134	6.34	
830	8.50	6.65	0.641	0.54	40.0	83	6.35	
834	8.50	6.70	0.654	0.55	41.0	35	6.44	
840	8.40	6.75	0.697	0.49	36.0	-9	6.42	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2006**

Project:	<u>Former Philadelphia Coke Plant Site</u>	Weather:	
Project Location:	<u>4501 Richmond Street</u>	Personnel:	<u>PD & JD</u>
	<u>Philadelphia, Pennsylvania</u>	Date:	<u>January 31, 2006</u>

Well Number:	<u>PCMW-06</u>	Pump Depth:	<u>10'</u>	Pumping Rate:	<u>500 ml/min</u>
Water Level:	<u>5.31</u>	Pump Start Time:	<u>815</u>	Total Purged:	<u>22.5 liters</u>
Screened Interval: (ft bgs)	<u>2-10</u>	PID Reading (ppm)	<u>0.0</u>	Purge Method:	<u>Submersible Pump</u>

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
815	4.75	6.09	0.672	3.23	71.0	307	5.69	
820	3.78	6.31	1.550	1.01	39.0	297	5.70	
825	3.40	6.40	3.060	0.38	31.0	231	5.70	
835	2.98	6.49	2.060	0.76	28.0	-5	5.70	
840	3.00	6.55	2.260	0.72	16.0	-46	5.70	
845	3.02	6.57	1.590	0.66	15.0	-85	5.70	
850	3.05	6.62	2.200	0.66	14.0	-74	5.70	
855	2.65	6.66	1.590	0.64	15.0	-82	5.70	
900	2.62	6.67	1.560	0.62	15.0	-85	5.70	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2006**

Project:	<u>Former Philadelphia Coke Plant Site</u>	Weather:	
Project Location:	<u>4501 Richmond Street</u>	Personnel:	<u>PD & JD</u>
	<u>Philadelphia, Pennsylvania</u>	Date:	<u>January 31, 2006</u>

Well Number:	<u>PCMW-07</u>	Pump Depth:	<u>9.06</u>	Pumping Rate:	<u>500 ml/min</u>
Water Level:	<u>5.09</u>	Pump Start Time:	<u>1050</u>	Total Purged:	<u>17.5 liters</u>
Screened Interval: (ft bgs)	<u>1-10</u>	PID Reading (ppm)	<u>0.0</u>	Purge Method:	<u>Submersible Pump</u>

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
1050	4.66	6.70	1.560	1.75	250.0	-56	5.21	
1055	4.07	6.78	2.700	0.75	160.0	-82	5.21	
1100	3.83	6.83	3.160	0.67	130.0	-96	5.21	
1105	3.12	6.86	3.350	0.86	120.0	-103	5.21	
1110	2.99	6.87	2.940	1.03	130.0	-106	5.21	
1115	2.60	6.89	2.380	1.16	91.0	-108	5.21	
1120	2.04	6.90	2.220	1.16	92.0	-108	5.21	
1125	2.00	6.90	2.020	1.14	83.0	-108	5.21	

LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2006

Project:	Former Philadelphia Coke Plant Site	Weather:	
Project Location:	4501 Richmond Street Philadelphia, Pennsylvania	Personnel:	PD & JD
		Date:	January 31, 2006

Well Number:	PCMW-08	Pump Depth:	15'	Pumping Rate:	630 ml/min
Water Level:	9.98	Pump Start Time:	1226	Total Purged:	12.6 liters
Screened Interval: (ft bgs)	5-15	PID Reading (ppm)	0.0	Purge Method:	Submersible Pump

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
1230	8.70	7.14	1.590	0.73	14.0	22	10.24	
1235	8.80	7.18	1.600	0.62	14.0	23		
1240	8.80	7.19	1.600	0.53	16.0	25	10.24	
1245	8.90	7.18	1.590	0.52	18.0	27		
1250	8.90	7.17	1.610	0.52	4.0	28	10.25	

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2006**

Project:	Former Philadelphia Coke Plant Site	Weather:	
Project Location:	4501 Richmond Street	Personnel:	PD & JD
	Philadelphia, Pennsylvania	Date:	January 31, 2006

Well Number:	PCMW-08D	Pump Depth:	32'	Pumping Rate:	1 l/min
Water Level:	16.99	Pump Start Time:	1112	Total Purged:	15 liters
Screened Interval: (ft bgs)	26-36	PID Reading (ppm)	0.0	Purge Method:	Submersible Pump

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
1117	14.30	6.08	1.230	2.64	61.0	-24	17.31	
1122	14.30	6.09	1.260	2.66	41.0	-43	17.31	
1127	14.40	6.11	1.270	2.65	27.0	-39	17.27	
1132	14.40	6.11	1.280	2.65	22.0	-26		

**LOW FLOW FIELD SAMPLING LOG
GROUNDWATER QUALITY PARAMETERS
GROUNDWATER MONITORING - 2006**

Project: Former Philadelphia Coke Plant Site Weather: _____
 Project Location: 4501 Richmond Street Personnel: PD & JD
Philadelphia, Pennsylvania Date: January 31, 2006

Well Number: PCMW-09 Pump Depth: approx 14' Pumping Rate: 1 l/min
 Water Level: 9.76' Pump Start Time: 1334 Total Purged: 15 liters
 Screened Interval: (ft bgs) 4-14 PID Reading (ppm) 0.0 Purge Method: Submersible Pump

TIME	TEMP (°C)	pH (SU)	SPEC. COND. (mS/cm)	DO (PPM)	TURBIDITY (NTU)	ORP (mv)	WATER LEVEL (ft.)	COMMENTS
1340	12.40	6.69	1.76	0.620	290.0	-11	9.80	
1345	12.40	6.70	1.75	0.540	230.0	-12	9.79	
1350	12.50	6.69	1.76	0.560	220.0	-12	9.79	
1355	12.50	6.69	1.75	0.530	210.0	-12	9.76	

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv.

Event

Sampling Personnel: OB

Well ID: PCMN-01

Client / Job Number: National Grid / B0036790.0001.00002

Date: 3/19/18

Weather: SUNNY 400

Time In: 1050 Time Out: 1300

Well Information

Depth to Water (ft): 6.02 (from TIC)

Total Depth (ft): 13.47 (from TIC)

Length of Water Column (ft): 7.45

Volume of Water in Well (gal): 4.84

Well Type: Flushmount Stick-Up

Well Material: Stainless Steel PVC

Well Locked: Yes No

Measuring Point Marked: Yes No

Well Diameter: 1" 2" Other: 4"

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:

Tubing/Bailer Material: Steel Polyethylene Teflon Other:

Sampling Method: Bailer Peristaltic Bladder Other:

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Duration of Pumping (min): 30 mi

Average Pumping Rate (ml/min): 400 Water-Quality Meter Type: HANNA TSI Turbidimeter

Total Volume Removed (gal): ML 12000 Did well go dry: Yes No

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	±10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal) <u>ML</u>	<u>2000</u>	<u>400</u>										
Rate (mL/min)	<u>400</u>	<u>400</u>	<u>400</u>	<u>400</u>	<u>400</u>	<u>400</u>						
Depth to Water (ft.)	<u>6.12</u>	<u>6.12</u>	<u>6.12</u>	<u>6.12</u>	<u>6.12</u>	<u>6.12</u>						
pH	<u>5.73</u>	<u>6.34</u>	<u>6.91</u>	<u>6.92</u>	<u>6.92</u>	<u>6.91</u>						
Temp. (C)	<u>10.76</u>	<u>11.16</u>	<u>11.18</u>	<u>11.29</u>	<u>11.32</u>	<u>11.30</u>						
Conductivity (mS/cm)	<u>706</u>	<u>580</u>	<u>573</u>	<u>572</u>	<u>570</u>	<u>570</u>						
Dissolved Oxygen (mg/L)	<u>1.05</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>						
ORP (mV)	<u>-14</u>	<u>-124</u>	<u>-166</u>	<u>-168</u>	<u>-168</u>	<u>-167</u>						
Turbidity (NTU)	<u>9.4</u>	<u>11.0</u>	<u>12.3</u>	<u>13.0</u>	<u>11.3</u>	<u>12.5</u>						
Notes:												
TIME:	<u>1120</u>	<u>1125</u>	<u>1130</u>	<u>1135</u>	<u>1140</u>	<u>1145</u>						

Sampling Information

Analyses	#	Laboratory
<u>TCL VOC</u>	<u>8260</u>	<u>SGS</u>
<u>TCL SVOC</u>	<u>8270</u>	
<u>CU</u>		
<u>PEST</u>	<u>8061</u>	
<u>PCB</u>	<u>8082</u>	
<u>metals</u>		
Sample ID: <u>PCMN-01</u>	Sample Time: <u>1150</u>	
MS/MSD: Yes <u>No</u>		
Duplicate: Yes <u>No</u>		
Duplicate ID: <u>-</u>	Dup. Time: <u>-</u>	
Chain of Custody Signed By: <u>-</u>		

Problems / Observations

Initial: NO PROBLEMS

Final:

PID: 0-0

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv. Event

Sampling Personnel: CO

Well ID: PCMW-04

Client / Job Number: National Grid / B0036790.0001.00002

Date: 3/19/18

Weather: SUNNY 40

Time In: 1215 Time Out: 1330

Well Information

Depth to Water (ft): 6.64 (from TIC)
 Total Depth (ft): 13.40 (from TIC)
 Length of Water Column (ft): 6.76
 Volume of Water in Well (gal): 4.39

Well Type: Flushmount Stick-Up
 Well Material: Stainless Steel PVC
 Well Locked: Yes No
 Measuring Point Marked: Yes No
 Well Diameter: 1" 2" Other: 4"

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:
 Tubing/Bailer Material: Steel Polyethylene Teflon Other:
 Sampling Method: Bailer Peristaltic Bladder Other:
 Duration of Pumping (min): 45
 Average Pumping Rate (ml/min): 250 Water-Quality Meter Type: HORIBA YSI Turbidimeter
 Total Volume Removed (gal): 11250 Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	± 10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	<u>1250</u>	<u>2500</u>	<u>3750</u>	<u>5000</u>	<u>6250</u>	<u>7500</u>	<u>8750</u>	<u>10000</u>	<u>11250</u>			
Rate (mL/min)	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>			
Depth to Water (ft.)	<u>6.70</u>	<u>6.70</u>	<u>6.70</u>	<u>6.70</u>	<u>6.70</u>	<u>6.70</u>	<u>6.70</u>	<u>6.70</u>	<u>6.70</u>			
pH	<u>6.52</u>	<u>6.49</u>	<u>6.51</u>	<u>6.65</u>	<u>6.61</u>	<u>6.50</u>	<u>6.48</u>	<u>6.47</u>	<u>6.47</u>			
Temp. (C)	<u>10.70</u>	<u>10.43</u>	<u>9.70</u>	<u>9.43</u>	<u>9.33</u>	<u>9.12</u>	<u>8.81</u>	<u>8.70</u>	<u>8.68</u>			
Conductivity (mS/cm)	<u>923</u>	<u>925</u>	<u>918</u>	<u>907</u>	<u>904</u>	<u>895</u>	<u>874</u>	<u>871</u>	<u>874</u>			
Dissolved Oxygen (mg/L)	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>			
ORP (mV)	<u>-111</u>	<u>-113</u>	<u>-121</u>	<u>-129</u>	<u>-126</u>	<u>-121</u>	<u>-114</u>	<u>-111</u>	<u>-110</u>			
Turbidity (NTU)	<u>149</u>	<u>129</u>	<u>78.1</u>	<u>50.7</u>	<u>47.4</u>	<u>39.2</u>	<u>28.7</u>	<u>26.4</u>	<u>21.6</u>			
Notes:	<u>TIME</u>	<u>1225</u>	<u>1235</u>	<u>1240</u>	<u>1245</u>	<u>1250</u>	<u>1255</u>	<u>1300</u>	<u>1305</u>			

Sampling Information

Analyses	#	Laboratory
<u>TOL VOL</u>		
<u>TOL SVOC</u>		
<u>CW</u>		
<u>PEST</u>		
<u>PCB</u>		
<u>MEVMS</u>		
Sample ID: <u>PCMW-04</u>	Sample Time: <u>1310</u>	
MS/MSD: Yes <u>No</u>		
Duplicate: Yes <u>No</u>		
Duplicate ID: <u>---</u>	Dup. Time: <u>---</u>	
Chain of Custody Signed By: <u>---</u>		

Problems / Observations

Initial: NO PROBLEMS

Final:

PID: 0-0

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv.

Event

Sampling Personnel: CO

Well ID: PCMW-05

Client / Job Number: National Grid / B0036790.0001.00002

Date: 3/23/18

Weather:

Time In: 0730 Time Out: 0840

Well Information

Depth to Water (ft): 5.40 (from TIC)
Total Depth (ft): 17.30 (from TIC)
Length of Water Column (ft):
Volume of Water in Well (gal):

Well Type: Flushmount (Stick-Up)
Well Material: Stainless Steel (PVC)
Well Locked: Yes (No)
Measuring Point Marked: Yes (No)
Well Diameter: 1" 2" Other: 4

Purging Information

Purging Method: Bailer Peristaltic (Bladder) Other:
Tubing/Bailer Material: Steel (Polyethylene) Teflon Other:
Sampling Method: Bailer Peristaltic (Bladder) Other:
Duration of Pumping (min): 30
Average Pumping Rate (ml/min): 300
Water-Quality Meter Type: YSI/Turbidimeter
Total Volume Removed (gal): ML 9000 Did well go dry: Yes (No)

Conversion Factors table with columns for gal/ft of water and 1", 2", 4", 6" ID.

Unit Stability table with columns for pH, DO/Turb., Cond/temp, and ORP.

Main data table with 12 columns for parameters (Volume Purged, Rate, Depth to Water, pH, Temp, Conductivity, Dissolved Oxygen, ORP, Turbidity) and a Notes row.

Sampling Information

Table with columns for Analyses # and Laboratory, listing various chemical and physical analyses.

Problems / Observations

Initial: No PROB

Final:

PID:

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv.

Event

Sampling Personnel: CO

Well ID: PCMW-06

Client / Job Number: National Grid / B0036790.0001.00002

Date: 2/23/18

Weather:

Time In: 845 Time Out:

Well Information

Depth to Water (ft): 4.98 (from TIC)
Total Depth (ft): 13.20 (from TIC)
Length of Water Column (ft):
Volume of Water in Well (gal):

Well Type: Flushmount Stick-Up
Well Material: Stainless Steel PVC
Well Locked: Yes No
Measuring Point Marked: Yes No
Well Diameter: 1" 2" Other: 4

Purging Information

Purging Method: Bailer Peristaltic Bladder
Tubing/Bailer Material: Steel Polyethylene Teflon
Sampling Method: Bailer Peristaltic Bladder
Duration of Pumping (min): 30
Average Pumping Rate (ml/min): 360
Total Volume Removed (gal): 9000
Water-Quality Meter Type: YSI/Turbidimeter
Did well go dry: Yes No

Conversion Factors table with columns for gal/ft of water and 1", 2", 4", 6" ID.

Unit Stability table with columns for pH, DO/Turb., Cond/temp, and ORP.

Main data table with 13 columns (Parameter, 1-12) and rows for Volume Purged, Rate, Depth to Water, pH, Temp, Conductivity, Dissolved Oxygen, ORP, Turbidity, and Notes.

Sampling Information

Table with columns for Analyses # and Laboratory, containing sample ID, time, and MS/MSD status.

Problems / Observations

Initial:

Final:

PID:

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv. Event

Sampling Personnel: CO
Client / Job Number: National Grid / B0036790.0001.00002
Weather: 60 cloudy 35

Well ID: PCMW-89
Date: 3/22/18
Time In: 0730 Time Out: 0820

Well Information

Depth to Water (ft): 10.02 (from TIC)
Total Depth (ft): 17.60 (from TIC)
Length of Water Column (ft):
Volume of Water in Well (gal):

Well Type: Flushmount Stick-Up
Well Material: Stainless Steel PVC
Well Locked: Yes No
Measuring Point Marked: Yes No
Well Diameter: 1" 2" Other:

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:
Tubing/Bailer Material: Steel Polyethylene Teflon Other:
Sampling Method: Bailer Peristaltic Bladder Other:
Duration of Pumping (min): 40
Average Pumping Rate (ml/min): 300 Water-Quality Meter Type: Horiba YSI/Turbidimeter
Total Volume Removed (gal): ML 9000 Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO/Turb.	Cond/Temp	ORP
± 0.1	±10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal) <u>ML</u>	1500	3000	4500	6000	7500	9000						
Rate (mL/min)	300	300	300	300	300	300						
Depth to Water (ft.)	10.02	10.08	10.08	10.08	10.08	10.08						
pH	7.10	7.22	7.22	7.21	7.21	7.21						
Temp. (C)	5.01	5.87	6.11	6.43	6.41	6.43						
Conductivity (mS/cm)	1.87	1.85	1.84	1.83	1.83	1.83						
Dissolved Oxygen (mg/L)	5.87	4.23	3.75	2.77	2.71	2.66						
ORP (mV)	80	85	85	55	50	41						
Turbidity (NTU)	44.4	15.5	8.9	0.9	0.8	0.5						
Notes: <u>TIME</u> <u>735</u>	735	740	745	750	755	800						

Sampling Information

Analyses	#	Laboratory
<u>VOC</u>		
<u>SVOC</u>		
<u>CU</u>		
<u>PER</u>		
<u>MEHC</u>		
<u>PCB</u>		
Sample ID: <u>PCMW-89</u>	Sample Time: <u>0805</u>	
MS/MSD: Yes <u>No</u>		
Duplicate: Yes <u>No</u>		
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

Initial: No Prob.

Final:

PID:

Site
Philadelphia Coke

GROUND-WATER SAMPLING LOG

Event
Phase 1 – Preliminary GW Inv.

Sampling Personnel: CO Well ID: PCMW-813
 Client / Job Number: National Grid / B0036790.0001.00002 Date: 3/22/15
 Weather: cloudy 35 Time In: 0620 Time Out:

Well Information

Depth to Water (ft): 14.82 (from TIC)
 Total Depth (ft): 37.20 (from TIC)
 Length of Water Column (ft):
 Volume of Water in Well (gal):

Well Type: Flushmount Stick-Up
 Well Material: Stainless Steel PVC
 Well Locked: Yes No
 Measuring Point Marked: Yes No
 Well Diameter: 1" 2" Other:

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:
 Tubing/Bailer Material: Steel Polyethylene Teflon Other:
 Sampling Method: Bailer Peristaltic Bladder Other:
 Duration of Pumping (min):
 Average Pumping Rate (ml/min): 300 Water-Quality Meter Type: YSI Turbidimeter
 Total Volume Removed (gal): Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	± 10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	1500	3000	4500	6000	7500	9000						
Rate (mL/min)	300	300	300	300	300	300						
Depth to Water (ft.)	14.95	15.00	15.01	15.01	15.01	15.01						
pH	7.74	6.23	6.22	6.21	6.21	6.21						
Temp. (C)	4.26	9.74	9.76	10.00	10.11	10.17						
Conductivity (mS/cm)	1.49	1.53	1.53	1.52	1.51	1.50						
Dissolved Oxygen (mg/L)	2.79	0	0	0	0	0						
ORP (mV)	-132	-114	-121	-124	-126	-127						
Turbidity (NTU)	48.5	36.8	19.3	12.6	9.2	7.7						
Notes:												
TIME	0830	835	840	845	850	855						

Sampling Information

Analyses	#	Laboratory
VTE		
SJOC		
EN		
PEST		
PCB		
Metals		
Sample ID: <u>PCMW-813</u>	Sample Time: <u>0905</u>	
MS/MSD: <u>Yes</u>	No	
Duplicate: <u>Yes</u>	<u>No</u>	
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

Initial:

Final:

PID:

Site
Philadelphia Coke

GROUND-WATER SAMPLING LOG

Event
Phase 1 - Preliminary GW Inv.

Sampling Personnel:

Client / Job Number: National Grid / B0036790.0001.00002

Weather: Sunny 40

Well ID: PCMN-095

Date: 2/19/18

Time In: 1330 Time Out: 1430

Well Information

Depth to Water (ft): 9.72 (from TIC)
 Total Depth (ft): 16.18 (from TIC)
 Length of Water Column (ft): 6.46
 Volume of Water in Well (gal): 1.03

Well Type: Flushmount Stick-Up
 Well Material: Stainless Steel RVC
 Well Locked: Yes No
 Measuring Point Marked: Yes Yes No
 Well Diameter: 1" 2" Other: L

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:
 Tubing/Bailer Material: Steel Polyethylene Teflon Other:
 Sampling Method: Bailer Peristaltic Bladder Other:
 Duration of Pumping (min): 30
 Average Pumping Rate (ml/min): 200 Water-Quality Meter Type: HANNA YSI/Turbidimeter
 Total Volume Removed (gal): 6000 Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO/Turb.	Cond/Temp	ORP
± 0.1	± 10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal) ML	1000	200	200	400	500	600						
Rate (mL/min)	200	200	200	200	200	200						
Depth to Water (ft.)	9.72	9.73	9.73	9.73	9.73	9.73						
pH	6.66	6.44	6.55	6.76	6.80	6.80						
Temp. (C)	13.40	12.90	12.94	12.91	12.95	12.94						
Conductivity (mS/cm)	1.56	1.57	1.57	1.57	1.57	1.56						
Dissolved Oxygen (mg/L)	0	0	0	0	0	0						
ORP (mV)	-39	-39	-53	-59	-63	-65						
Turbidity (NTU)	100	80.1	61.7	49.7	44.4	41.7						
Notes:												
TIME:	1340	1345	1350	1355	1400	1405						

Sampling Information

Analyses	#	Laboratory
VOC		
SOC		
CN		
PEST		
PCB		
Metals		
Sample ID: PCMN-95	Sample Time: 1410	
MS/MSD: Yes <u>No</u>		
Duplicate: Yes <u>No</u>		
Duplicate ID	Dup. Time:	
Chain of Custody Signed By: _____		

Problems / Observations

Initial: NO PROBS

Final:

PID: 0-0

Site
Philadelphia Coke

GROUND-WATER SAMPLING LOG

Event
Phase 1 - Preliminary GW Inv.

Sampling Personnel: CO
Client / Job Number: National Grid / B0036790.0001.00002

Well ID: PCMW-105
Date: 3/22/18
Time In: 1230 Time Out: 1315

Well Information

Depth to Water (ft): 9.27 (from TIC)
Total Depth (ft): 17.70 (from TIC)
Length of Water Column (ft):
Volume of Water in Well (gal):

Well Type: Flushmount Stick-Up
Well Material: Stainless Steel PVC
Well Locked: Yes No
Measuring Point Marked: Yes No
Well Diameter: 1" 2" Other:

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:
Tubing/Bailer Material: Steel Polyethylene Teflon Other:
Sampling Method: Bailer Peristaltic Bladder Other:
Duration of Pumping (min): 30
Average Pumping Rate (ml/min): 250 Water-Quality Meter Type: YSI/Turbidimeter
Total Volume Removed (gal): 7500 Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	±10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	<u>1250</u>	<u>2500</u>	<u>3750</u>	<u>5000</u>	<u>6250</u>	<u>7500</u>						
Rate (mL/min)	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>						
Depth to Water (ft.)	<u>9.25</u>	<u>9.33</u>	<u>9.35</u>	<u>9.35</u>	<u>9.35</u>	<u>9.35</u>						
pH	<u>7.28</u>	<u>7.29</u>	<u>7.27</u>	<u>7.26</u>	<u>7.24</u>	<u>7.21</u>						
Temp. (C)	<u>14.32</u>	<u>13.20</u>	<u>11.61</u>	<u>11.42</u>	<u>11.38</u>	<u>11.29</u>						
Conductivity (mS/cm)	<u>2.15</u>	<u>2.12</u>	<u>2.20</u>	<u>2.21</u>	<u>2.22</u>	<u>2.23</u>						
Dissolved Oxygen (mg/L)	<u>.54</u>	<u>.45</u>	<u>.32</u>	<u>.20</u>	<u>.04</u>	<u>0</u>						
ORP (mV)	<u>21</u>	<u>21</u>	<u>21</u>	<u>22</u>	<u>21</u>	<u>21.9</u>						
Turbidity (NTU)	<u>133</u>	<u>100</u>	<u>65</u>	<u>65.2</u>	<u>22.2</u>	<u>22.7</u>						
Notes:												
Time	<u>1235</u>	<u>1240</u>	<u>1245</u>	<u>1250</u>	<u>1255</u>	<u>1300</u>						

Sampling Information

Analyses	#	Laboratory
Sample ID: <u>PCMW-105</u>	Sample Time: <u>1305</u>	
MS/MSD: Yes No		
Duplicate: Yes No		
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

Initial:

Final:

PID:

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv. Event

Sampling Personnel: LO
Client / Job Number: National Grid / B0036790.0001.00002
Weather:

Well ID: PCMW-10D
Date: 3/22/15
Time In: 1320 Time Out: 1415

Well Information

Depth to Water (ft): 12.78 (from TIC)
Total Depth (ft): 34.20 (from TIC)
Length of Water Column (ft):
Volume of Water in Well (gal):

Well Type: Flushmount Stick-Up
Well Material: Stainless Steel PVC
Well Locked: Yes No
Measuring Point Marked: Yes No
Well Diameter: 1" 2" Other:

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:
Tubing/Bailer Material: Steel Polyethylene Teflon Other:
Sampling Method: Bailer Peristaltic Bladder Other:
Duration of Pumping (min): 30
Average Pumping Rate (ml/min): 300 Water-Quality Meter Type: YSI/Turbidimeter
Total Volume Removed (gal): 9000 Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	±10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal) <u>ML</u>	1500	3000	4500	6000	7500	9000						
Rate (mL/min)	300	300	300	300	300	300						
Depth to Water (ft.)	12.75	12.95	12.95	12.95	12.95	12.95						
pH	6.54	6.33	6.36	6.39	6.41	6.46						
Temp. (C)	12.57	13.17	13.47	13.52	13.54	13.55						
Conductivity (mS/cm)	2.18	2.19	2.17	2.15	2.16	2.16						
Dissolved Oxygen (mg/L)	0	0	0	0	0	0						
ORP (mV)	-109	-131	-141	-146	-149	-151						
Turbidity (NTU)	546	127	138	133	121	117						
Notes:												
<u>TIME</u>	1320	1325	1330	1335	1340	1345						

Sampling Information

Analyses	#	Laboratory
Sample ID: <u>PCMW-10D</u>	Sample Time: <u>1350</u>	
MS/MSD: Yes	No	
Duplicate: Yes	No	
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

Initial:

Final:

PID:

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv. Event

Sampling Personnel: CO

Well ID: PCMW-115

Client / Job Number: National Grid / B0036790.0001.00002

Date: 3/23/16

Weather:

Time In: 0540 Time Out:

Well Information

Depth to Water (ft):	<u>9.93</u>	(from TIC)
Total Depth (ft):	<u>17.50</u>	(from TIC)
Length of Water Column (ft):		
Volume of Water in Well (gal):		

Well Type:	Flushmount	Stick-Up
Well Material:	Stainless Steel	PVC
Well Locked:	Yes	No
Measuring Point Marked:	Yes	No
Well Diameter:	1"	2" Other:

Purging Information

Purging Method:	Bailer	Peristaltic	<u>Bladder</u>	Other:
Tubing/Bailer Material:	Steel	<u>Polyethylene</u>	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	<u>Bladder</u>	Other:
Duration of Pumping (min):	<u>30</u>			
Average Pumping Rate (ml/min):	<u>250</u>			Water-Quality Meter Type: <u>YSI/Turbidimeter</u>
Total Volume Removed (gal):	<u>7500</u>			Did well go dry: Yes <u>No</u>

gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

pH	DO/Turb.	Cond/temp	ORP
± 0.1	± 10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	<u>1250</u>	<u>2500</u>	<u>3750</u>	<u>5000</u>	<u>6250</u>	<u>7500</u>						
Rate (mL/min)	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>						
Depth to Water (ft.)	<u>9.97</u>	<u>9.97</u>	<u>9.97</u>	<u>9.97</u>	<u>9.97</u>	<u>9.97</u>						
pH	<u>6.39</u>	<u>6.61</u>	<u>6.65</u>	<u>6.72</u>	<u>6.73</u>	<u>6.74</u>						
Temp. (C)	<u>10.10</u>	<u>10.33</u>	<u>10.30</u>	<u>10.29</u>	<u>10.29</u>	<u>10.33</u>						
Conductivity (mS/cm)	<u>2.52</u>	<u>2.21</u>	<u>2.11</u>	<u>1.89</u>	<u>1.85</u>	<u>1.84</u>						
Dissolved Oxygen (mg/L)	<u>2.21</u>	<u>1.55</u>	<u>.33</u>	<u>0</u>	<u>0</u>	<u>0</u>						
ORP (mV)	<u>-76</u>	<u>-102</u>	<u>-106</u>	<u>-112</u>	<u>-113</u>	<u>-114</u>						
Turbidity (NTU)	<u>501</u>	<u>115</u>	<u>31.9</u>	<u>11.8</u>	<u>9.9</u>	<u>9.3</u>						
Notes:												
<u>TIME</u>	<u>955</u>	<u>1000</u>	<u>1005</u>	<u>1010</u>	<u>1015</u>	<u>1020</u>						

Sampling Information

Analyses	#	Laboratory
Sample ID:	<u>PCMW-115</u>	Sample Time: <u>1025</u>
MS/MSD:	Yes	No
Duplicate:	Yes	No
Duplicate ID		Dup. Time:
Chain of Custody Signed By:		

Problems / Observations

Initial: NO PROB

Final:

PID:

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 – Preliminary GW Inv. Event

Sampling Personnel:

Client / Job Number: National Grid / B0036790.0001.00002

Weather:

Well ID:

Date: 3/29/18

Time In:

Time Out:

Well Information

Depth to Water (ft):	8.67'	(from TIC)
Total Depth (ft):	16.41'	(from TIC)
Length of Water Column (ft):		
Volume of Water in Well (gal):		

Well Type:	Flushmount	Stick-Up	
Well Material:	Stainless Steel	PVC	
Well Locked:	Yes	No	
Measuring Point Marked:	Yes	No	
Well Diameter:	1"	2"	Other:

Purging Information

Purging Method:	Bailer	Peristaltic	Bladder	Other:
Tubing/Bailer Material:	Steel	Polyethylene	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	Bladder	Other:
Duration of Pumping (min):	0920/			
Average Pumping Rate (ml/min):	Water-Quality Meter Type: YSI/Turbidimeter			
Total Volume Removed (gal):	Did well go dry: Yes No			

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	±10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	0.25	0.30	0.35	0.40	0.45	0.50	0.55					
Rate (mL/min)	200	200	200	200	200	200	200					
Depth to Water (ft.)	8.77'	8.83'	8.88'	8.96'	9.01'	9.06'	9.07'					
pH	6.56	6.69	6.69	6.71	6.75	6.78	6.79					
Temp. (C)	5.14	6.27	6.55	6.36	6.38	6.48	6.56					
Conductivity (mS/cm)	2.00	2.01	1.92	1.78	1.67	1.65	1.64					
Dissolved Oxygen (mg/L)	2.16	1.73	0.61	0.00	0.00	0.00	0.00					
ORP (mV)	-31	-90	-100	-103	-106	-107	-109					
Turbidity (NTU)	41.3	30.8	30.1	12.0	7.7	2.5	1.7					
Notes:												

Sampling Information

Analyses	#	Laboratory
Sample ID:	PCMWW-155	Sample Time: 1000
MS/MSD:	Yes	No
Duplicate:	Yes	No
Duplicate ID:		Dup. Time:
Chain of Custody Signed By:		

Problems / Observations

Initial:

Final:

PID:

Site
Philadelphia Coke

GROUND-WATER SAMPLING LOG

Event
Phase 1 – Preliminary GW Inv.

Sampling Personnel:

Client / Job Number: National Grid / B0036790.0001.00002

Well ID: mw-150

Date: 3/20/18

Weather:

Time In:

Time Out:

Well Information

Depth to Water (ft): 15.05' (from TIC)
 Total Depth (ft): 42.4' (from TIC)
 Length of Water Column (ft):
 Volume of Water in Well (gal):

Well Type: Flushmount Stick-Up
 Well Material: Stainless Steel PVC
 Well Locked: Yes No
 Measuring Point Marked: Yes No
 Well Diameter: 1" 2" Other:

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:
 Tubing/Bailer Material: Steel Polyethylene Teflon Other:
 Sampling Method: Bailer Peristaltic Bladder Other:
 Duration of Pumping (min): 1020
 Average Pumping Rate (ml/min): 250 Water-Quality Meter Type: YSI/Turbidimeter
 Total Volume Removed (gal): Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	±10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	<u>0.2</u>	<u>0.4</u>	<u>0.6</u>	<u>0.8</u>	<u>1.0</u>							
Rate (mL/min)	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>							
Depth to Water (ft.)	<u>15.11'</u>	<u>15.15'</u>	<u>15.17'</u>	<u>15.23'</u>	<u>15.29'</u>							
pH	<u>6.62</u>	<u>6.72</u>	<u>6.69</u>	<u>6.69</u>	<u>6.68</u>	<u>6.67</u>						
Temp. (C)	<u>6.57</u>	<u>8.26</u>	<u>8.93</u>	<u>8.90</u>	<u>9.09</u>	<u>9.12</u>						
Conductivity (mS/cm)	<u>1.41</u>	<u>1.43</u>	<u>1.44</u>	<u>1.40</u>	<u>1.39</u>	<u>1.36</u>						
Dissolved Oxygen (mg/L)	<u>1.40</u>	<u>0.67</u>	<u>0.17</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>						
ORP (mV)	<u>-92</u>	<u>-101</u>	<u>-106</u>	<u>-110</u>	<u>-111</u>	<u>-111</u>						
Turbidity (NTU)	<u>5.4</u>	<u>6.4</u>	<u>11.1</u>	<u>8.3</u>	<u>0.2</u>	<u>0.0</u>						
Notes:												

Sampling Information

Analyses	#	Laboratory
Sample ID: <u>PMW-150</u>	Sample Time: <u>1055</u>	
MS/MSD: Yes <u>No</u>		
Duplicate: Yes <u>No</u>		
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

Initial:

Final:

PID:

Site
Philadelphia Coke

GROUND-WATER SAMPLING LOG

Event
Phase 1 - Preliminary GW Inv.

Sampling Personnel:

Client / Job Number: National Grid / B0036790.0001.00002

Well ID: PCMW-160
Date: 3/19/18

Weather: Sunny, 45°F

Time In: Time Out:

Well Information

Depth to Water (ft): 12.21' (from TIC)
Total Depth (ft): 35.65' (from TIC)
Length of Water Column (ft): 33.44'
Volume of Water in Well (gal):

Well Type: Flushmount Stick-Up
Well Material: Stainless Steel PVC
Well Locked: Yes No
Measuring Point Marked: Yes No
Well Diameter: 1" 2" Other:

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:
Tubing/Bailer Material: Steel Polyethylene Teflon Other:
Sampling Method: Bailer Peristaltic Bladder Other:
Duration of Pumping (min): 1230 / 1310
Average Pumping Rate (ml/min): Water-Quality Meter Type: YSI/Turbidimeter
Total Volume Removed (gal): Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	±10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	0.2	0.4	0.6	0.8	1.0	1.2						
Rate (mL/min)	250	250	250	250	250	250						
Depth to Water (ft.)	12.31'	12.31'	12.31'	12.31'	12.31'	12.31'						
pH	6.87	6.73	6.78	6.75	6.75	6.75						
Temp. (C)	13.92	14.48	14.60	14.67	14.75	14.81						
Conductivity (mS/cm)	1.05	1.07	1.07	1.06	1.06	1.06						
Dissolved Oxygen (mg/L)	0.38	0.00	0.00	0.00	0.00	0.00						
ORP (mV)	-144	-159	-164	-164	-166	-167						
Turbidity (NTU)	198	120	84.7	37.3	31.8	28.1						
Notes:												

Sampling Information

Analyses	#	Laboratory
Sample ID: PCMW-160	Sample Time: 1305	
MS/MSD: Yes <u>No</u>		
Duplicate: Yes <u>No</u>		
Duplicate ID: _____	Dup. Time: _____	
Chain of Custody Signed By: _____		

Problems / Observations

Initial:

Final:

PID:

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv.

Event

Sampling Personnel: CO

Well ID: PCMW-175

Client / Job Number: National Grid / B0036790.0001.00002

Date: 3/22/18

Weather:

Time In: 1000 Time Out: 1055

Well Information

Depth to Water (ft): 4.82 (from TIC)

Total Depth (ft): 16.70 (from TIC)

Length of Water Column (ft):

Volume of Water in Well (gal):

Well Type: Flushmount Stick-Up

Well Material: Stainless Steel PVC

Well Locked: Yes No

Measuring Point Marked: Yes No

Well Diameter: 1" 2" Other:

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:

Tubing/Bailer Material: Steel Polyethylene Teflon Other:

Sampling Method: Bailer Peristaltic Bladder Other:

Duration of Pumping (min): 30

Average Pumping Rate (ml/min): 300 Water-Quality Meter Type: YSI/Turbidimeter

Total Volume Removed (gal): 9000 Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	±10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	1500	3000	4500	6000	7500	9000						
Rate (mL/min)	300	300	300	300	300	300						
Depth to Water (ft.)	4.90	5.25	5.30	5.30	5.31	5.30						
pH	6.99	5.87	5.75	5.72	5.71	5.70						
Temp. (C)	16.23	13.60	11.26	10.45	10.38	10.35						
Conductivity (mS/cm)	1.03	1.01	1.06	1.10	1.12	1.15						
Dissolved Oxygen (mg/L)	1.03	0	0	0	0	0						
ORP (mV)	-77	-1	17	20	18	19						
Turbidity (NTU)	660	518	113	100	79.2	74.1						
Notes:												
<u>TIME</u>	<u>1005</u>	<u>1010</u>	<u>1015</u>	<u>1020</u>	<u>1025</u>	<u>1030</u>						

Sampling Information

Analyses	#	Laboratory
<u>VOC</u>		
<u>SVOC</u>		
<u>metal</u>		
<u>CU</u>		
<u>PEST</u>		
<u>P&B</u>		
Sample ID: <u>PCMW-175</u>	Sample Time: <u>1035</u>	
MS/MSD: Yes <u>No</u>		
Duplicate: Yes <u>No</u>		
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

Initial: no probs.

Final:

PID:

Site
Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 – Preliminary GW Inv. Event

Sampling Personnel: CO
Client / Job Number: National Grid / B0036790.0001.00002
Weather:

Well ID: PCMW-17D
Date: 3/22/18
Time In: 1055 Time Out: 1200

Well Information

Depth to Water (ft): 12.08 (from TIC)
Total Depth (ft): 43.40 (from TIC)
Length of Water Column (ft):
Volume of Water in Well (gal):

Well Type: Flushmount Stick-Up
Well Material: Stainless Steel PVC
Well Locked: Yes No
Measuring Point Marked: Yes No
Well Diameter: 1" 2" Other:

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:
Tubing/Bailer Material: Steel Polyethylene Teflon Other:
Sampling Method: Bailer Peristaltic Bladder Other:
Duration of Pumping (min): 30
Average Pumping Rate (ml/min): 300 Water-Quality Meter Type: YSI/Turbidimeter
Total Volume Removed (gal): 9000 Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	± 10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	1500	3000	4500	6000	7500	9000						
Rate (mL/min)	300	300	300	300	300	300						
Depth to Water (ft.)	12.12	12.12	12.12	12.12	12.12	12.12						
pH	5.62	5.63	5.61	5.70	5.76	5.77						
Temp. (C)	10.93	12.04	12.76	12.78	12.80	12.81						
Conductivity (mS/cm)	.934	.863	.844	.851	.853	.853						
Dissolved Oxygen (mg/L)	0	0	0	0	0	0						
ORP (mV)	18	28	38	42	35	34						
Turbidity (NTU)	552	397	263	156	139	144						
Notes:												
TIME	1055	1100	1105	1110	1115	1120						

Sampling Information

Analyses	#	Laboratory
VOC		
SOC		
metals		
CU		
PEST		
PCB		
Sample ID: <u>PCMW-17D</u>	Sample Time: <u>1125</u>	
MS/MSD: <u>Yes</u>	No	
Duplicate: <u>Yes</u>	No	
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

Initial: NO PROB

Final:

PID:

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 – Preliminary GW Inv. Event

Sampling Personnel: Jan Campbell
 Client / Job Number: National Grid / B0036790.0001.00002

Well ID: 185
 Date: 3/23/18
 Time In: 0845 Time Out: 0915

Weather: Sunny

Well Information

Depth to Water (ft): 16.65 (from TIC)
 Total Depth (ft): 21.30 (from TIC)
 Length of Water Column (ft):
 Volume of Water in Well (gal):

Well Type: Flushmount Stick-Up
 Well Material: Stainless Steel PVC
 Well Locked: Yes No
 Measuring Point Marked: Yes No
 Well Diameter: 1" 2" Other:

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:
 Tubing/Bailer Material: Steel Polyethylene Teflon Other:
 Sampling Method: Bailer Peristaltic Bladder Other:
 Duration of Pumping (min): 60
 Average Pumping Rate (ml/min): 250 Water-Quality Meter Type: YSI/Turbidimeter
 Total Volume Removed (gal): 3.96 Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	±10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	<u>0.33</u>											<u>→</u>
Rate (mL/min)	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>
Depth to Water (ft.)	<u>16.65</u>	<u>16.65</u>	<u>16.65</u>	<u>16.65</u>	<u>16.65</u>	<u>16.65</u>	<u>16.65</u>	<u>16.60</u>	<u>16.60</u>	<u>16.65</u>	<u>16.65</u>	<u>16.60</u>
pH	<u>6.92</u>	<u>7.07</u>	<u>7.11</u>	<u>7.12</u>	<u>7.06</u>	<u>7.10</u>	<u>6.99</u>	<u>7.05</u>	<u>7.03</u>	<u>7.02</u>	<u>7.03</u>	<u>7.02</u>
Temp. (C)	<u>5.83</u>	<u>7.95</u>	<u>8.77</u>	<u>9.09</u>	<u>9.88</u>	<u>9.77</u>	<u>9.81</u>	<u>9.48</u>	<u>9.61</u>	<u>9.70</u>	<u>9.80</u>	<u>9.75</u>
Conductivity (mS/cm)	<u>7.08</u>	<u>2.93</u>	<u>1.97</u>	<u>1.90</u>	<u>1.88</u>	<u>1.85</u>	<u>1.85</u>	<u>1.82</u>	<u>1.81</u>	<u>1.70</u>	<u>1.75</u>	<u>1.72</u>
Dissolved Oxygen (mg/L)	<u>4.11</u>	<u>7.95</u>	<u>7.01</u>	<u>7.22</u>	<u>7.33</u>	<u>7.01</u>	<u>6.51</u>	<u>6.49</u>	<u>6.40</u>	<u>6.11</u>	<u>6.05</u>	<u>6.00</u>
ORP (mV)	<u>-78</u>	<u>-80</u>	<u>-89</u>	<u>-81</u>	<u>-85</u>	<u>-80</u>	<u>-74</u>	<u>-81</u>	<u>-83</u>	<u>-81</u>	<u>-80</u>	<u>-75</u>
Turbidity (NTU)	<u>755</u>	<u>300</u>	<u>58.1</u>	<u>35.9</u>	<u>10.5</u>	<u>8.1</u>	<u>8.5</u>	<u>6.8</u>	<u>5.1</u>	<u>4.3</u>	<u>3.5</u>	<u>3.3</u>
Notes:	<u>gray</u>	<u>clay</u>	<u>clay</u>	<u>clear</u>	<u>clear</u>	<u>clear</u>	<u>clear</u>	<u>clear</u>	<u>clear</u>	<u>clear</u>	<u>clear</u>	<u>clear</u>

Sampling Information

Analyses	#	Laboratory
Sample ID:	Sample Time:	
MS/MSD: Yes	No	
Duplicate: Yes	No	
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

Initial:

Final:

PID:

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv.

Event

Sampling Personnel: Ian Campbell
Client / Job Number: National Grid / B0036790.0001.00002
Weather: Sunny

Well ID: 18D
Date: 3/23/18
Time In: 1000 Time Out: 1100

Well Information

Depth to Water (ft): 15.81 (from TIC)
Total Depth (ft): 39.95 (from TIC)
Length of Water Column (ft):
Volume of Water in Well (gal):

Well Type: Flushmount (Stick-Up)
Well Material: Stainless Steel (PVC)
Well Locked: Yes (No)
Measuring Point Marked: Yes (No)
Well Diameter: 1" (2") Other:

Purging Information

Purging Method: Bailer Peristaltic Bladder
Tubing/Bailer Material: Steel Polyethylene Teflon
Sampling Method: Bailer Peristaltic Bladder
Duration of Pumping (min): 60
Average Pumping Rate (ml/min): 250
Total Volume Removed (gal): 3.96
Water-Quality Meter Type: YSI Turbidimeter
Did well go dry: Yes (No)

Conversion Factors table with columns for 1" ID, 2" ID, 4" ID, 6" ID and rows for gal/ft of water and cubic feet conversion.

Unit Stability table with columns for pH, DO/Turb., Cond/Temp, and ORP and rows for accuracy ranges.

Main data table with 13 columns (Parameter, 1-12) and rows for Volume Purged, Rate, Depth to Water, pH, Temp, Conductivity, Dissolved Oxygen, ORP, Turbidity, and Notes.

Sampling Information

Table with columns for Analyses # and Laboratory, and rows for Sample ID, MS/MSD, Duplicate, Duplicate ID, and Chain of Custody.

Problems / Observations

Initial: Dropped bladder pump too low to start, red clayey sediment jammed the pump, had to decon and throw in new pump ft. tubing
Final:

PID:

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv.

Event

Sampling Personnel:

Client / Job Number: National Grid / B0036790.0001.00002

Well ID: PCMW-195

Date: 3/22/18

Weather:

Time In:

Time Out:

Well Information

Depth to Water (ft):	7.72	(from TIC)
Total Depth (ft):	15.99'	(from TIC)
Length of Water Column (ft):		
Volume of Water in Well (gal):		

Well Type:	Flushmount	Stick-Up
Well Material:	Stainless Steel	PVC
Well Locked:	Yes	No
Measuring Point Marked:	Yes	No
Well Diameter:	1"	2" Other:

Purging Information

Purging Method:	Bailer	Peristaltic	Bladder	Other:
Tubing/Bailer Material:	Steel	Polyethylene	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	Bladder	Other:

gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Duration of Pumping (min):	1105	Water-Quality Meter Type:	YSI/Turbidimeter
Average Pumping Rate (ml/min):		Did well go dry:	Yes No
Total Volume Removed (gal):			

pH	DO/Turb.	Cond/temp	ORP
± 0.1	±10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	0.2	0.4	0.6	0.8	1.0							
Rate (mL/min)	250	250	250	250	250							
Depth to Water (ft.)	7.75	7.77	7.81	7.81	7.81							
pH	6.96	6.92	7.01	7.05	7.06							
Temp. (C)	17.09	12.14	11.67	11.31	11.10							
Conductivity (mS/cm)	0.777	0.577	0.565	0.560	0.564							
Dissolved Oxygen (mg/L)	11.84	0.04	0.00	0.00	0.00							
ORP (mV)	-96	-124	-137	-143	-145							
Turbidity (NTU)	622	527	449	216	111							
Notes:												

Sampling Information

Analyses	#	Laboratory
Sample ID:	PCMW-195	Sample Time: 1135
MS/MSD:	Yes	No
Duplicate:	Yes	No
Duplicate ID:		Dup. Time:
Chain of Custody Signed By:		

Problems / Observations

Initial:

Final:

PID:

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv.

Event

Sampling Personnel:

Client / Job Number: National Grid / B0036790.0001.00002

Well ID: AA PCMW-17D

Date: 3/22/18

Weather:

Time In:

Time Out:

Well Information

Depth to Water (ft): 10.57' (from TIC)
Total Depth (ft): 38.1' (from TIC)
Length of Water Column (ft):
Volume of Water in Well (gal):

Well Type: Flushmount (Stick-Up)
Well Material: Stainless Steel (PVC)
Well Locked: Yes (No)
Measuring Point Marked: Yes (No)
Well Diameter: 1" (2") Other:

Purging Information

Purging Method: Bailer Peristaltic (Bladder) Other:
Tubing/Bailer Material: Steel Polyethylene Teflon Other:
Sampling Method: Bailer Peristaltic (Bladder) Other:
Duration of Pumping (min): 0950/1
Average Pumping Rate (ml/min): 250 Water-Quality Meter Type: YSI/Turbidimeter
Total Volume Removed (gal): Did well go dry: Yes No

Conversion Factors table with columns for gal/ft of water and diameters 1" ID, 2" ID, 4" ID, 6" ID.

Unit Stability table with columns for pH, DO/Turb., Cond/temp, and ORP.

Main data table with 12 columns for parameters and 12 rows for data points. Parameters include Volume Purged, Rate, Depth to Water, pH, Temp, Conductivity, Dissolved Oxygen, ORP, and Turbidity.

Sampling Information

Sampling Information form with fields for Analyses #, Laboratory, Sample ID, Sample Time, MS/MSD, Duplicate, Duplicate ID, Dup. Time, and Chain of Custody Signed By.

Problems / Observations

Initial:

Final:

PID:

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv.

Event

Sampling Personnel:

Client / Job Number: National Grid / B0036790.0001.00002

Well ID: AW-20 PCMW-205

Date: 3/22/19

Weather:

Time In: 0730 Time Out:

Well Information

Depth to Water (ft): 7.77 (from TIC)
Total Depth (ft): 16' (from TIC)
Length of Water Column (ft):
Volume of Water in Well (gal):

Well Type: Flushmount (Stick-Up)
Well Material: Stainless Steel (PVC)
Well Locked: Yes (No)
Measuring Point Marked: Yes (No)
Well Diameter: 1" (2" Other):

Purging Information

Purging Method: Bailer Peristaltic (Bladder) Other:
Tubing/Bailer Material: Steel Polyethylene Teflon Other:
Sampling Method: Bailer Peristaltic (Bladder) Other:
Duration of Pumping (min): 0740 / 0825
Average Pumping Rate (ml/min):
Water-Quality Meter Type: YSI/Turbidimeter
Total Volume Removed (gal): Did well go dry: Yes No

Conversion Factors table with columns for gal/ft of water and 1", 2", 4", 6" ID.

Unit Stability table with columns for pH, DO/Turb., Cond/temp, and ORP.

Main data table with 12 columns for parameters (Volume Purged, Rate, Depth to Water, pH, Temp, Conductivity, Dissolved Oxygen, ORP, Turbidity) and 12 rows for samples.

Sampling Information

Sampling Information form with fields for Analyses #, Laboratory, Sample ID, Sample Time, MS/MSD, Duplicate, Duplicate ID, Dup. Time, and Chain of Custody Signed By.

Problems / Observations

Initial:

Final:

PID:

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv.

Event

Sampling Personnel:

Client / Job Number: National Grid / B0036790.0001.00002

Well ID: AW-200 PCMW-200

Date:

Weather:

Time In:

Time Out:

Well Information

Depth to Water (ft):	<u>11.87</u>	(from TIC)
Total Depth (ft):	<u>23.8'</u>	(from TIC)
Length of Water Column (ft):		
Volume of Water in Well (gal):		

Well Type:	Flushmount	Stick-Up
Well Material:	Stainless Steel	PVC
Well Locked:	Yes	No
Measuring Point Marked:	Yes	No
Well Diameter:	1"	2" Other:

Purging Information

Purging Method:	Bailer	Peristaltic	<u>Bladder</u>	Other:
Tubing/Bailer Material:	Steel	<u>Polyethylene</u>	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	<u>Bladder</u>	Other:
Duration of Pumping (min):	<u>0835</u>			
Average Pumping Rate (ml/min):	Water-Quality Meter Type: YSI/Turbidimeter			
Total Volume Removed (gal):	Did well go dry: Yes No			

gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

pH	DO/Turb.	Cond/temp	ORP
± 0.1	±10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	<u>0.2</u>	<u>0.4</u>	<u>0.6</u>	<u>0.8</u>	<u>1.0</u>	<u>1.2</u>	<u>1.4</u>					
Rate (mL/min)	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>	<u>250</u>					
Depth to Water (ft.)	<u>11.97</u>	<u>11.95'</u>	<u>11.94'</u>	<u>11.90'</u>	<u>11.90</u>	<u>11.90</u>	<u>11.90</u>					
pH	<u>7.02</u>	<u>7.03</u>	<u>7.04</u>	<u>7.06</u>	<u>7.06</u>	<u>7.04</u>	<u>7.06</u>					
Temp. (C)	<u>10.73</u>	<u>10.50</u>	<u>10.61</u>	<u>10.97</u>	<u>11.05</u>	<u>11.16</u>	<u>11.22</u>					
Conductivity (mS/cm)	<u>4.50</u>	<u>3.97</u>	<u>3.66</u>	<u>3.29</u>	<u>2.81</u>	<u>2.95</u>	<u>2.93</u>					
Dissolved Oxygen (mg/L)	<u>3.06</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>					
ORP (mV)	<u>-139</u>	<u>-141</u>	<u>-166</u>	<u>-147</u>	<u>-146</u>	<u>-151</u>	<u>-151</u>					
Turbidity (NTU)	<u>3.01</u>	<u>2.10</u>	<u>1.66</u>	<u>1.01</u>	<u>0.58</u>	<u>0.52</u>	<u>0.49</u>					
Notes:												

Sampling Information

Analyses	#	Laboratory
Sample ID:	<u>PCMW-200</u>	Sample Time: <u>0915</u>
MS/MSD:	Yes	No
Duplicate:	Yes	No
Duplicate ID		Dup. Time:
Chain of Custody Signed By:		

Problems / Observations

Initial:

Final:

PID:

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Event

Phase 1 - Preliminary GW Inv.

Sampling Personnel:

Client / Job Number: National Grid / B0036790.0001.00002

Well ID: MW-5

Date:

Weather: Sunny, 45°F

Time In:

Time Out:

Well Information

Depth to Water (ft): 6.15' (from TIC)

Total Depth (ft): 16.50' (from TIC)

Length of Water Column (ft):

Volume of Water in Well (gal):

Well Type: Flushmount Stick-Up

Well Material: Stainless Steel PVC

Well Locked: Yes No

Measuring Point Marked: Yes No

Well Diameter: 1" 2" Other:

Purging Information

Purging Method: Bailer ~~Peristaltic~~ Bladder Other:

Tubing/Bailer Material: Steel Polyethylene Teflon Other:

Sampling Method: Bailer Peristaltic Bladder Other:

Duration of Pumping (min): 13/5

Average Pumping Rate (ml/min):

Water-Quality Meter Type: YSI/Turbidimeter

Total Volume Removed (gal):

Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	±10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	0.2	0.4	0.6	0.8	1.0	2.2						
Rate (mL/min)	200	200	200	200	200	200						
Depth to Water (ft.)	6.57	6.57	6.57	6.57	6.57	6.57						
pH	6.49	6.41	6.38	6.36	6.34	6.34						
Temp. (C)	15.09	14.05	13.79	13.63	13.50	13.20						
Conductivity (mS/cm)	0.331	0.300	0.297	0.300	0.307	0.315						
Dissolved Oxygen (mg/L)	0.79	0.00	0.00	0.00	0.00	0.00						
ORP (mV)	-52	-51	-56	-61	-65	-69						
Turbidity (NTU)	7.0	6.2	4.6	2.3	0.7	0.0						
Notes:												

Sampling Information

Analyses	#	Laboratory
Sample ID: MW-5	Sample Time: 1420	
MS/MSD: Yes	<u>No</u>	
Duplicate: Yes	<u>No</u>	
Duplicate ID: _____	Dup. Time: _____	
Chain of Custody Signed By: _____		

Problems / Observations

Initial:

Final:

PID:

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv.

Event

Sampling Personnel:

Client / Job Number: National Grid / B0036790.0001.00002

Well ID: MW-6

Date: 3/22/18

Weather:

Time In:

Time Out:

Well Information

Depth to Water (ft): 4.05' (from TIC)
Total Depth (ft): 13.51' (from TIC)
Length of Water Column (ft):
Volume of Water in Well (gal):

Well Type: Flushmount
Well Material: Stainless Steel
Well Locked: Yes
Measuring Point Marked: Yes
Well Diameter: 1" 2" Other:

Stick-Up
PVC
No

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:
Tubing/Bailer Material: Steel Polyethylene Teflon Other:
Sampling Method: Bailer Peristaltic Bladder Other:
Duration of Pumping (min): 1310
Average Pumping Rate (ml/min):
Water-Quality Meter Type: YSI/Turbidimeter
Total Volume Removed (gal): Did well go dry: Yes No

Conversion Factors table with columns for 1" ID, 2" ID, 4" ID, 6" ID and rows for gal/ft of water and cubic feet conversion.

Unit Stability table with columns for pH, DO/Turb., Cond/temp, and ORP and rows for stability ranges.

Main data table with 12 columns (1-12) and rows for Parameter, Volume Purged, Rate, Depth to Water, pH, Temp, Conductivity, Dissolved Oxygen, ORP, Turbidity, and Notes.

Sampling Information

Sampling Information form with fields for Analyses #, Laboratory, Sample ID, Sample Time, MS/MSD, Duplicate, Duplicate ID, Dup. Time, and Chain of Custody Signed By.

Problems / Observations

Initial:

Final:

PID:



CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX 732-329-3499
www.sgs.com/ehsusa

FED-EX Tracking #	Bottle Order Control #
SGS Quote #	SGS Job #

Client / Reporting Information		Project Information				Requested Analysis (see TEST CODE sheet)												Matrix Codes		
Company Name Arcadis		Project Name: National Grid - Philadelphia Coke Site				<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">V8260TCL20</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">A188270TCL20-1mDX</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">MTIAL</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">CN</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">HGT</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">P8081PESTICL</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">P8092ICB11</div> </div>												DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank		
Street Address 824 N. Market St Ste 820		Street		Billing Information (if different from Report to)																
City Wilmington DE	State DE	City Wilmington	State DE	Company Name Arcadis																
Project Contact Adam Wissner, Ian Campbell		E-mail		Project # 80036790.0001															Street Address 824 N. Market St Ste 820	
Phone #	Fax #	Client Purchase Order #		City Wilmington	State DE														Zip 19801	
Lab Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	LAB USE ONLY				
	MMW-106		05/29/18	14:50	AW		11	3		2	6									
	PCAW-195		05/29/18	14:00	IC		1			1										
	Trip Blank																			

Turnaround Time (Business days)		Data Deliverable Information										Comments / Special Instructions						
<input checked="" type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day RUSH <input type="checkbox"/> 2 Day RUSH <input type="checkbox"/> 1 Day RUSH <input type="checkbox"/> other _____		Approved by (SGS Project Manager)/Date:		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> NYASP Category A <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NYASP Category B <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> State Forms <input type="checkbox"/> NJ Reduced <input type="checkbox"/> EDD Format <input type="checkbox"/> Commercial "C" <input type="checkbox"/> Other _____ <input type="checkbox"/> NJ Data of Known Quality Protocol Reporting										Sample inventory is verified upon receipt in the Laboratory				
Emergency & Rush T/A data available via LabLink				Commercial "A" = Results Only; Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data														

Sample Custody must be documented below each time samples change possession, including courier delivery.											
Relinquished by Sampler: 1 Adam Wissner		Date Time: 5/29/18 1600		Received By: 1 [Signature]		Relinquished By: 2		Date Time:		Received By: 2	
Relinquished by Sampler: 3		Date Time:		Received By: 3		Relinquished By: 4		Date Time:		Received By: 4	
Relinquished by: 5		Date Time:		Received By: 5		Custody Seal #		<input type="checkbox"/> Intact Preserved where applicable <input type="checkbox"/> Not intact <input type="checkbox"/>		<input type="checkbox"/> On Ice Cooler Temp.	



CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX 732-329-3499
www.sgs.com/ehsusa

FED-EX Tracking #	Bottle Order Control #
SGS Quote #	SGS Job #

Client / Reporting Information			Project Information						Requested Analysis (see TEST CODE sheet)										Matrix Codes																
Company Name Arcadis			Project Name: Philly Coke						AB80707CL20-14DX V80607CL20 MTAL CN HG P8081PESTCL P8082RCB11										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank																
Street Address 824 N. Market St. Suite 924			Street Richmond St & Delaware St.			Billing Information (if different from Report to)																													
City State Zip Wilmington DE 19801		City State bridestown PA		Company Name																															
Project Contact Carey/Healy		E-mail lucence.healy@arcadis.com		Project #			Street Address																												
Phone # 302-358-3024 315-671-9338		Fax #		Client Purchase Order #			City State Zip																												
Sampler(s) Name(s) Adam Wissner; Tom Campbell			Phone #			Project Manager			Attention:																										
Lab Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection				# of bottles	Number of preserved bottles								LAB USE ONLY																			
			Date	Time	Sampled by	Matrix		HCl	NaOH	HNO3	H2SO4	NONE	D1/Water	MEOH	ENCORE																				
	MW-104		5/30/13	1120	AW	GW	12	3	1	2	6																								
	MW-101			1320	AW	GW	12	3	1	2	6																								
	MW-105			0952	AW	GW	12	3	1	2	6																								
	PCMW-06			1310	IC	GW	1																												
	PCMW-05			1205	IC	GW	1			1																									
	PCMW-04			1110	IC	GW	1			1																									
	MW-107			0850	IC	GW	12	3	1	2	6																								
	Trip Blank							2	2																										

Turnaround Time (Business days)	Data Deliverable Information	Comments / Special Instructions
<input type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day RUSH <input type="checkbox"/> 2 Day RUSH <input type="checkbox"/> 1 Day RUSH <input type="checkbox"/> other _____	Approved by (SGS Project Manager)/Date: _____ <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ Data of Known Quality Protocol Reporting Commercial "A" = Results Only; Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data	<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format _____ <input type="checkbox"/> Other _____ Sample inventory is verified upon receipt in the Laboratory

Sample Custody must be documented below each time samples change possession, including courier delivery.					
Relinquished By: Sampler 1 Adam Wissner	Date Time: 5/30/13 1400	Received By: [Signature]	Relinquished By: 2	Date Time:	Received By: 2
Relinquished By: Sampler 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	<input type="checkbox"/> Intact Preserved where applicable	<input type="checkbox"/> On Ice Cooler Temp.
				<input type="checkbox"/> Not intact	

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 – Preliminary GW Inv.

Event

Sampling Personnel: A. Wissner

Well ID: MW-101

Client / Job Number: National Grid / B0036790.0001.00002

Date: 5/30/18

Weather: Cloudy, 70°F

Time In: 1225

Time Out:

Well Information

Depth to Water (ft):	<u>6.86'</u>	(from TIC)
Total Depth (ft):	<u>16.35'</u>	(from TIC)
Length of Water Column (ft):		
Volume of Water in Well (gal):		

Well Type:	Flushmount	<u>Stick-Up</u>
Well Material:	Stainless Steel	<u>PVC</u>
Well Locked:	<u>Yes</u>	No
Measuring Point Marked:	Yes	<u>No</u>
Well Diameter:	1"	<u>2"</u> Other:

Purging Information

Purging Method:	Bailer	Peristaltic	<u>Bladder</u>	Other:
Tubing/Bailer Material:	Steel	<u>Polyethylene</u>	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	<u>Bladder</u>	Other:
Duration of Pumping (min):				
Average Pumping Rate (ml/min):	Water-Quality Meter Type: <u>YSI/Turbidimeter</u>			
Total Volume Removed (gal):	Did well go dry: Yes No			

gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

pH	DO/Turb.	Cond/temp	ORP
± 0.1	±10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	<u>1240</u>	<u>1245</u>	<u>1250</u>	<u>1255</u>	<u>1300</u>	<u>1305</u>	<u>1310</u>	<u>1815</u>				
Rate (mL/min)	<u>.25</u>	<u>.5</u>	<u>.75</u>	<u>1</u>	<u>1.25</u>	<u>1.5</u>	<u>1.75</u>					
Depth to Water (ft.)	<u>350</u>	<u>350</u>	<u>350</u>	<u>350</u>	<u>350</u>	<u>350</u>	<u>350</u>					
pH	<u>6.87</u>	<u>6.90</u>	<u>6.92</u>	<u>6.93</u>	<u>7.00</u>	<u>6.93</u>	<u>6.93</u>					
Temp. (C)	<u>6.11</u>	<u>6.73</u>	<u>7.59</u>	<u>7.59</u>	<u>7.60</u>	<u>7.53</u>	<u>7.50</u>					
Conductivity (mS/cm)	<u>14.71</u>	<u>13.90</u>	<u>13.31</u>	<u>13.30</u>	<u>13.09</u>	<u>13.00</u>	<u>12.97</u>					
Dissolved Oxygen (mg/L)	<u>0.37</u>	<u>0.81</u>	<u>1.45</u>	<u>1.47</u>	<u>1.55</u>	<u>1.54</u>	<u>1.52</u>					
ORP (mV)	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>					
Turbidity (NTU)	<u>12</u>	<u>-5</u>	<u>-252</u>	<u>-266</u>	<u>-282</u>	<u>-286</u>	<u>-294</u>					
Notes:	<u>0.0</u>	<u>972</u>	<u>571</u>	<u>337</u>	<u>127</u>	<u>62.4</u>	<u>60.7</u>					

Sampling Information

Analyses	#	Laboratory
Sample ID:	Sample Time:	<u>1320</u>
MS/MSD: Yes	No	
Duplicate: Yes	No	
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

Initial:

Final:

PID:

Site
Philadelphia Coke

GROUND-WATER SAMPLING LOG

Event
Phase 1 – Preliminary GW Inv.

Sampling Personnel: IMC Well ID: MW-102
 Client / Job Number: National Grid / B0036790.0001.00002 Date: 5/31/18
 Weather: Cloudy 62°F Time In: 0745 Time Out: 0940

Well Information

Depth to Water (ft): 10.64 (from TIC)
 Total Depth (ft): 20.35 (from TIC)
 Length of Water Column (ft):
 Volume of Water in Well (gal):

Well Type: Flushmount Stick-Up
 Well Material: Stainless Steel PVC
 Well Locked: Yes No
 Measuring Point Marked: Yes No
 Well Diameter: 1" 2 Other:

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:
 Tubing/Bailer Material: Steel Polyethylene Teflon Other:
 Sampling Method: Bailer Peristaltic Bladder Other:
 Duration of Pumping (min):
 Average Pumping Rate (ml/min): Water-Quality Meter Type: Hanna YS/Turbidimeter
 Total Volume Removed (gal): Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	±10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	<u>0.3</u>	<u>0.3</u>	<u>0.3</u>	<u>0.3</u>	<u>0.3</u>	<u>0.3</u>	<u>0.3</u>					
Rate (mL/min)	<u>300</u>	<u>300</u>	<u>300</u>	<u>300</u>	<u>300</u>	<u>300</u>	<u>300</u>					
Depth to Water (ft.)	<u>10.70</u>	<u>10.70</u>	<u>10.70</u>	<u>10.70</u>	<u>10.70</u>	<u>10.70</u>	<u>10.70</u>					
pH	<u>8.47</u>	<u>8.49</u>	<u>8.45</u>	<u>8.43</u>	<u>8.43</u>	<u>8.41</u>	<u>8.41</u>					
Temp. (C)	<u>16.42</u>	<u>15.8</u>	<u>14.87</u>	<u>13.84</u>	<u>13.99</u>	<u>13.72</u>	<u>13.68</u>					
Conductivity (mS/cm)	<u>1.55</u>	<u>1.55</u>	<u>1.53</u>	<u>1.52</u>	<u>1.51</u>	<u>1.51</u>	<u>1.51</u>					
Dissolved Oxygen (mg/L)	<u>0.48</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>					
ORP (mV)	<u>-205</u>	<u>-211</u>	<u>-215</u>	<u>-218</u>	<u>-218</u>	<u>-218</u>	<u>-219</u>					
Turbidity (NTU)	<u>215</u>	<u>178</u>	<u>169</u>	<u>157</u>	<u>100</u>	<u>82.7</u>	<u>40.5</u>					
Notes:												

Sampling Information

Analyses	#	Laboratory
<u>TCL VOCs, TCL SVOCs</u>		
<u>Metals</u>		
<u>CN</u>		
<u>PCBs</u>		
<u>Pesticides</u>		
Sample ID: <u>MW-102</u>	Sample Time: <u>0850</u>	
MS/MSD: Yes <u>No</u>		
Duplicate: <u>Yes</u> No		
Duplicate ID <u>DUP-05312018</u>	Dup. Time: <u>0920</u>	
Chain of Custody Signed By:		

Problems / Observations

Initial: none

Final:

PID: 1.5 ppm

Site
Philadelphia Coke

GROUND-WATER SAMPLING LOG

Event
Phase 1 - Preliminary GW Inv.

Sampling Personnel: **IMC**
 Client / Job Number: National Grid / B0036790.0001.00002
 Weather: **65° cloudy**

Well ID: **MW-103**
 Date: **5/31/18**
 Time In: **1015** Time Out: **1200**

Well Information

Depth to Water (ft): **10.52** (from TIC)
 Total Depth (ft): **17.15** (from TIC)
 Length of Water Column (ft):
 Volume of Water in Well (gal):

Well Type: Flushmount **Stick-Up**
 Well Material: Stainless Steel **PVC**
 Well Locked: **Yes** No
 Measuring Point Marked: **Yes** No
 Well Diameter: 1" **2"** Other:

Purging Information

Purging Method: Bailer Peristaltic **Bladder** Other:
 Tubing/Bailer Material: Steel Polyethylene **P** Teflon Other:
 Sampling Method: Bailer Peristaltic **Bladder** Other:
 Duration of Pumping (min):
 Average Pumping Rate (ml/min): Water-Quality Meter Type: **YSI Turbidimeter** **Horiba**
 Total Volume Removed (gal): Did well go dry: Yes **No**

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	± 10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	0.3	0.3	0.3	0.3	0.3	0.3	0.3					
Rate (mL/min)	300	300	300	300	300	300	300					
Depth to Water (ft.)	11.00	11.00	11.00	11.00	11.00	11.00	11.00					
pH	8.09	8.09	8.11	8.10	8.13	8.11	8.09					
Temp. (C)	14.01	13.22	13.25	13.23	13.79	13.54	13.45					
Conductivity (mS/cm)	2.25	2.19	2.20	2.18	2.15	2.17	2.19					
Dissolved Oxygen (mg/L)	0.50	0.00	0.00	0.00	0.00	0.00	0.00					
ORP (mV)	-185	-177	-179	-180	-175	-176	-174					
Turbidity (NTU)	405	263	108	89.5	69.9	55.8	48.1					
Notes:	water was black											

Sampling Information

Analyses	#	Laboratory
TCL VOCs, TCL SVOCs		
Metals		
CN		
PCBs		
Pesticides		
Sample ID: MW-103	Sample Time:	
MS/MSD: Yes	No	MW-103 MS/MSD
Duplicate: Yes	No	
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

Initial: **water was black with sediment**

Final: **none**

PID: **0.8 ppm**

Sampling Personnel:
Client / Job Number: National Grid / B0036790.0001.00002
Weather: Cloudy, 70°F

Well ID: MW-104
Date: 5/30/18
Time In: _____ Time Out: _____

Well Information

Depth to Water (ft): 6.59 (from TIC)
Total Depth (ft): 12.40' (from TIC)
Length of Water Column (ft):
Volume of Water in Well (gal):

Well Type: Flushmount Stick-Up
Well Material: Stainless Steel PVC
Well Locked: Yes No
Measuring Point Marked: Yes No
Well Diameter: 1" 2" Other:

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:
Tubing/Bailer Material: Steel Polyethylene Teflon Other:
Sampling Method: Bailer Peristaltic Bladder Other:

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
		0.041	0.163	0.653
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Duration of Pumping (min):
Average Pumping Rate (ml/min): Water-Quality Meter Type: YSI/Turbidimeter
Total Volume Removed (gal): Did well go dry: Yes No

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	± 10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0		
Rate (mL/min)	250	250	250	250	250	250	250	250	250	250		
Depth to Water (ft.)	6.89	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90	6.90		
pH	6.46	6.48	6.46	6.43	6.46	6.37	6.33	6.32	6.32	6.32		
Temp. (C)	16.27	16.71	16.37	16.31	17.64	17.90	17.92	18.06	18.09	18.13		
Conductivity (mS/cm)	0.373	0.321	0.373	0.376	0.370	0.374	0.378	0.390	0.380	0.380		
Dissolved Oxygen (mg/L)	0.00	0.00	0.00	0.00	0.37	0.34	0.00	0.00	0.00	0.00		
ORP (mV)	76	12	-5	-18	-31	-39	-47	-53	-57	-60		
Turbidity (NTU)	0.0	1000	594	541	520	436	329	150	147	142		
Notes:												

Sampling Information

Analyses	#	Laboratory
Sample ID: MW-104	Sample Time: 1120	
MS/MSD: Yes	<u>No</u>	
Duplicate: Yes	<u>No</u>	
Duplicate ID: _____	Dup. Time: _____	
Chain of Custody Signed By: _____		

Problems / Observations

Initial:

Final:

PID:

Sampling Personnel:
Client / Job Number: National Grid / B0036790.0001.00002
Weather: Cloudy, 70°

Well ID: MW-105
Date: 5/30/18
Time In: 0055 Time Out:

Well Information

Depth to Water (ft): 8.41 (from TIC)
Total Depth (ft): 16.62 (from TIC)
Length of Water Column (ft):
Volume of Water in Well (gal):

Well Type: Flushmount Stick-Up
Well Material: Stainless Steel PVC
Well Locked: Yes No
Measuring Point Marked: Yes No
Well Diameter: 1" 2" Other:

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:
Tubing/Bailer Material: Steel Polyethylene Teflon Other:
Sampling Method: Bailer Peristaltic Bladder Other:
Duration of Pumping (min):
Average Pumping Rate (ml/min): Water-Quality Meter Type: YSI/Turbidimeter
Total Volume Removed (gal): Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
		0.041	0.163	0.653
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	±10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	0.25	0.50	0.75	1.0	1.25	1.5	1.75	2.00	2.25			
Rate (mL/min)	300	300	300	300	300	300	300	300	300			
Depth to Water (ft.)	8.70	8.73	8.76	8.78	8.90	8.94	8.99	9.01	9.05			
pH	6.46	6.51	6.51	6.54	6.54	6.54	6.53	6.53	6.54			
Temp. (C)	17.31	15.47	15.26	15.09	15.50	15.59	15.35	15.25	15.34			
Conductivity (mS/cm)	2.35	2.57	2.60	2.69	2.66	2.63	2.64	2.64	2.65			
Dissolved Oxygen (mg/L)	0.00	0.00	0.00	0.00	0.56	0.77	0.00	0.00	1.00			
ORP (mV)	-85	-105	-111	-118	-118	-116	-118	-118	-122			
Turbidity (NTU)	0.0	1000	394	428	127	15.2	10.6	10.7	10.6			
Notes:	black silty											

Sampling Information

Analyses	#	Laboratory
Sample ID:	Sample Time:	0952
MS/MSD: Yes	No	
Duplicate: Yes	No	
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

Initial:

Final:

PID:

Site
Philadelphia Coke

GROUND-WATER SAMPLING LOG

Event
Phase 1 – Preliminary GW Inv.

Sampling Personnel: A. Wisner
 Client / Job Number: National Grid / B0036790.0001.00002
 Weather: sunny, 80°F

Well ID: MW-106
 Date: 5/29/18
 Time In: 1345 Time Out:

Well Information

Depth to Water (ft): 4.22 (from TIC)
 Total Depth (ft): 12.34 (from TIC)
 Length of Water Column (ft):
 Volume of Water in Well (gal):

Well Type: Flushmount Stick-Up
 Well Material: Stainless Steel PVC
 Well Locked: Yes No
 Measuring Point Marked: Yes No
 Well Diameter: 1" 2" Other:

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:
 Tubing/Bailer Material: Steel Polyethylene Teflon Other:
 Sampling Method: Bailer Peristaltic Bladder Other:
 Duration of Pumping (min): 1355
 Average Pumping Rate (ml/min): Water-Quality Meter Type: YSI/Turbidimeter
 Total Volume Removed (gal): Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	± 10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8			
Rate (mL/min)	350	350	350	350	350	350	350	350	350			
Depth to Water (ft.)	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22	4.22			
pH	6.56	6.55	6.53	6.54	6.55	6.56	6.56	6.54	6.55			
Temp. (C)	22.36	23.78	21.66	20.60	21.21	21.04	20.98	20.68	20.45			
Conductivity (mS/cm)	0.992	0.912	0.818	0.766	0.771	0.772	0.768	0.759	0.751			
Dissolved Oxygen (mg/L)	0.00	0.00	0.00	1.47	1.27	1.21	1.02	0.98	0.96			
ORP (mV)	-99	-99	-103	-106	-111	-114	-114	-113	-112			
Turbidity (NTU)	0.0	0.0	614	829	181	117	96.6	73.3	67.2			
Notes:	too turbid →											

Sampling Information

Analyses	#	Laboratory
Sample ID: <u>MW-106</u>	Sample Time: <u>1450</u>	
MS/MSD: Yes <u>No</u>		
Duplicate: Yes <u>No</u>		
Duplicate ID: <u>—</u>	Dup. Time: <u>—</u>	
Chain of Custody Signed By:		

Problems / Observations

Initial:

Final:

PID:

Site
Philadelphia Coke

GROUND-WATER SAMPLING LOG

Event
Phase 1 - Preliminary GW Inv.

Sampling Personnel: IMC
 Client / Job Number: National Grid / B0036790.0001.00002
 Weather: cloudy 65°F

Well ID: MW-107
 Date: 5/30/18
 Time In: 0745 Time Out: 0910

Well Information

Depth to Water (ft): 5.19 (from TIC)
 Total Depth (ft): 12.71 (from TIC)
 Length of Water Column (ft):
 Volume of Water in Well (gal):

Well Type: Flushmount Stick-Up
 Well Material: Stainless Steel PVC
 Well Locked: Yes No
 Measuring Point Marked: Yes No
 Well Diameter: 1" 2" Other:

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:
 Tubing/Bailer Material: Steel Polyethylene Teflon Other:
 Sampling Method: Bailer Peristaltic Bladder Other:
 Duration of Pumping (min):
 Average Pumping Rate (ml/min): Water-Quality Meter Type: Hanna YSI Turbidimeter
 Total Volume Removed (gal): Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	± 10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2				
Rate (mL/min)	250	250	250	250	250	250	250	250				
Depth to Water (ft.)	5.19	5.19	5.19	5.19	5.19	5.19	5.19	5.14				
pH	7.17	7.00	6.96	6.99	7.00	7.03	7.02	7.00				
Temp. (C)	19.95	16.84	15.06	14.91	14.65	14.55	13.25	13.29				
Conductivity (mS/cm)	1.22	1.11	1.12	1.12	1.12	1.11	1.12	1.13				
Dissolved Oxygen (mg/L)	8.66	7.49	4.86	1.55	0.04	0.00	0.00	0.00				
ORP (mV)	-105	-106	-103	-103	-102	-100	-97	-99				
Turbidity (NTU)	690	584	561	450	395	205	134	121				
Notes:												

Sampling Information

Analyses	#	Laboratory
Metals		
CN		
PC SVOC		
TC VOC		
Hg		
PCBs, Pesticides		
Sample ID: <u>MW-107</u>	Sample Time: <u>0850</u>	
MS/MSD: Yes <u>No</u>		
Duplicate: Yes <u>No</u>		
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

Initial: None

Final: None

PID: 0.9 ppm

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv.

Event

Sampling Personnel: JMC

Well ID: PCMW-04

Client / Job Number: National Grid / B0036790.0001.00002

Date: 5/30/18

Weather: 65% cloudy

Time In: 1020

Time Out: 1125

Well Information

Depth to Water (ft): 6.84 (from TIC)

Total Depth (ft): 13.48 (from TIC)

Length of Water Column (ft):

Volume of Water in Well (gal):

Well Type: Flushmount Stick-Up

Well Material: Stainless Steel PVC

Well Locked: Yes No

Measuring Point Marked: Yes No

Well Diameter: 1" 2" Other: 4"

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:

Tubing/Bailer Material: Steel Polyethylene Teflon Other:

Sampling Method: Bailer Peristaltic Bladder Other:

Duration of Pumping (min):

Average Pumping Rate (ml/min): Water-Quality Meter Type: Hori ba YSI Turbidimeter

Total Volume Removed (gal): Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	± 10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	0.2	0.2	0.2	0.2	0.2	0.2	0.2					
Rate (mL/min)	250	250	250	250	250	250	250					
Depth to Water (ft.)	6.84	6.84	6.84	6.84	6.84	6.84	6.84					
pH	6.95	6.98	7.04	7.00	7.01	7.03	7.07					
Temp. (C)	16.81	16.05	15.47	15.11	14.35	13.81	13.80					
Conductivity (mS/cm)	1.12	1.17	1.14	1.05	1.09	0.905	0.821					
Dissolved Oxygen (mg/L)	0.5	0.2	0.0	0.0	0.0	0.0	0.0					
ORP (mV)	-103	-105	-100	-111	-109	-105	-85					
Turbidity (NTU)	35.0	31.5	24.8	22.1	15.5	14.3	8.4					
Notes:												

Sampling Information

Analyses	#	Laboratory
Metals		
Sample ID: PCMW-04	Sample Time: 1110	
MS/MSD: Yes <u>No</u>		
Duplicate: Yes <u>No</u>		
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

Initial: None

Final: none

PID: 0.3 ppm

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv. Event

Sampling Personnel: JMC
Client / Job Number: National Grid / B0036790.0001.00002
Weather: 65 cloudy

Well ID: PCMW-05
Date: 5/30/18
Time In: 1115 Time Out: 1220

Well Information

Depth to Water (ft): 6.14 (from TIC)
Total Depth (ft): 14.35 (from TIC)
Length of Water Column (ft):
Volume of Water in Well (gal):

Well Type: Flushmount Stick-Up
Well Material: Stainless Steel PVC
Well Locked: Yes No
Measuring Point Marked: Yes No
Well Diameter: 1" 2" Other: 4"

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:
Tubing/Bailer Material: Steel Polyethylene Teflon Other:
Sampling Method: Bailer Peristaltic Bladder Other:

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
		0.041	0.163	0.653
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Duration of Pumping (min):
Average Pumping Rate (ml/min): Water-Quality Meter Type: YSI Turbidity
Total Volume Removed (gal): Did well go dry: Yes No

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	± 10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	0.3	0.3	0.3	0.3	0.3	0.3	0.3					
Rate (mL/min)	300	300	300	300	300	300	300					
Depth to Water (ft.)	6.18	6.18	6.18	6.18	6.18	6.18	6.18					
pH	7.45	7.39	7.35	7.23	7.20	7.17	7.10					
Temp. (C)	15.05	14.45	14.65	14.50	14.42	14.59	14.73					
Conductivity (mS/cm)	1.20	1.05	1.03	1.03	1.02	0.910	0.905					
Dissolved Oxygen (mg/L)	1.54	0.70	0.57	0.95	0.86	0.72	0.62					
ORP (mV)	-225	-209	-150	-135	-130	-125	-122					
Turbidity (NTU)	55.0	49.4	39.5	38.9	35.3	25.1	18.7					
Notes:												

Sampling Information

Analyses	#	Laboratory
<u>Metals</u>		
Sample ID: <u>PCMW-05</u>	Sample Time: <u>1205</u>	
MS/MSD: Yes <u>No</u>		
Duplicate: Yes <u>No</u>		
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

Initial: none
Final: none
PID: 0.0ppm

Site
Philadelphia Coke

GROUND-WATER SAMPLING LOG

Event
Phase 1 - Preliminary GW Inv.

Sampling Personnel: IMC
 Client / Job Number: National Grid / B0036790.0001.00002
 Weather: 68 cloudy

Well ID: PCMw-06
 Date: 5/30
 Time In: 1225 Time Out: 1325

Well Information

Depth to Water (ft): 6.74 (from TIC)
 Total Depth (ft): 13.30 (from TIC)
 Length of Water Column (ft):
 Volume of Water in Well (gal):

Well Type: Flushmount Stick-Up
 Well Material: Stainless Steel PVC
 Well Locked: Yes No
 Measuring Point Marked: Yes No
 Well Diameter: 1" 2" Other 4"

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:
 Tubing/Bailer Material: Steel Polyethylene Teflon Other:
 Sampling Method: Bailer Peristaltic Bladder Other:
 Duration of Pumping (min):
 Average Pumping Rate (ml/min): Water-Quality Meter Type: Horiaba YSI/Turbidimeter
 Total Volume Removed (gal): Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
		0.041	0.163	0.653

1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	± 10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	0.3 0.3	0.3	0.3	0.3	0.3	0.3	0.3					
Rate (mL/min)	300	300	300	300	300	300	300					
Depth to Water (ft.)	6.80	6.80	6.80	6.80	6.80	6.80	6.80					
pH	7.41	7.45	7.40	7.38	7.35	7.35	7.33					
Temp. (C)	19.13	19.10	19.00	18.43	17.95	17.31	16.42					
Conductivity (mS/cm)	0.535	0.611	0.605	0.575	0.568	0.534	0.516					
Dissolved Oxygen (mg/L)	2.00	1.89	1.87	1.75	1.73	1.69	1.65					
ORP (mV)	-22	-39	-29	-25	-35	-37	-39					
Turbidity (NTU)	1.1	1.5	1.3	0.9	1.0	1.0	0.2					
Notes:												

Sampling Information

Analyses	#	Laboratory
<u>Metals</u>		
Sample ID: <u>PCMw-06</u>	Sample Time: <u>1310</u>	
MS/MSD: Yes <u>No</u>		
Duplicate: Yes <u>No</u>		
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

Initial: None

Final: none

PID: 0.0 ppm

Sampling Personnel: A. W. J. Sner Well ID: PCMw-085
 Client / Job Number: National Grid / B0036790.0001.00002 Date: 5/31/18
 Weather: Cloudy/mist, 65°F Time In: 0830 Time Out: _____

Well Information
 Depth to Water (ft): 10.47 (from TIC)
 Total Depth (ft): 17.45 (from TIC)
 Length of Water Column (ft): _____
 Volume of Water in Well (gal): _____

Well Type: Flushmount Stick-Up
 Well Material: Stainless Steel PVC
 Well Locked: Yes No
 Measuring Point Marked: Yes No
 Well Diameter: 1" 2" Other: _____

Purging Information
 Purging Method: Bailer Peristaltic Bladder Other: _____
 Tubing/Bailer Material: Steel Polyethylene Teflon Other: _____
 Sampling Method: Bailer Peristaltic Bladder Other: _____
 Duration of Pumping (min): _____
 Average Pumping Rate (ml/min): _____ Water-Quality Meter Type: YSI/Turbidimeter
 Total Volume Removed (gal): _____ Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO/Turb.	Cond/temp	ORP
± 0.1	±10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	<u>0.25</u>	<u>0.5</u>	<u>0.75</u>	<u>1.25</u>	<u>1.85</u>	<u>1.5</u>						
Rate (mL/min)	<u>300</u>	<u>300</u>	<u>300</u>	<u>300</u>	<u>300</u>	<u>300</u>						
Depth to Water (ft.)	<u>10.69</u>	<u>10.69</u>	<u>10.68</u>	<u>10.69</u>	<u>10.69</u>	<u>10.69</u>						
pH	<u>7.11</u>	<u>6.83</u>	<u>6.72</u>	<u>6.71</u>	<u>6.69</u>	<u>6.69</u>						
Temp. (C)	<u>12.00</u>	<u>12.08</u>	<u>12.13</u>	<u>12.53</u>	<u>12.90</u>	<u>12.60</u>						
Conductivity (mS/cm)	<u>2.41</u>	<u>2.00</u>	<u>1.94</u>	<u>1.94</u>	<u>1.91</u>	<u>1.92</u>						
Dissolved Oxygen (mg/L)	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>						
ORP (mV)	<u>5</u>	<u>-18</u>	<u>-37</u>	<u>-38</u>	<u>-47</u>	<u>-43</u>						
Turbidity (NTU)	<u>6.0</u>	<u>1000</u>	<u>359</u>	<u>180</u>	<u>170</u>	<u>192</u>						
Notes:												

Sampling Information

Analyses	#	Laboratory
Sample ID:	Sample Time:	<u>0910</u>
MS/MSD: Yes	<u>No</u>	
Duplicate: Yes	<u>No</u>	
Duplicate ID	Dup. Time:	
Chain of Custody Signed By: _____		

Problems / Observations

Initial: _____

Final: _____

PID: _____

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv.

Event

Sampling Personnel:

Well ID: RLMW-08

Client / Job Number: National Grid / B0036790.0001.00002

Date: 5/31/18

Weather:

Time In:

Time Out:

Well Information

Depth to Water (ft):	10.35	(from TIC)
Total Depth (ft):		(from TIC)
Length of Water Column (ft):		
Volume of Water in Well (gal):		

Well Type:	Flushmount	Stick-Up
Well Material:	Stainless Steel	PVC
Well Locked:	Yes	No
Measuring Point Marked:	Yes	No
Well Diameter:	1"	2" Other:

Purging Information

Purging Method:	Bailer	Peristaltic	Bladder	Other:
Tubing/Bailer Material:	Steel	Polyethylene	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	Bladder	Other:
Duration of Pumping (min):				
Average Pumping Rate (ml/min):				Water-Quality Meter Type: YSI/Turbidimeter
Total Volume Removed (gal):				Did well go dry: Yes No

gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

pH	DO/Turb.	Cond/temp	ORP
± 0.1	±10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	0.25	0.45	0.65	0.85	1.05	1.25						
Rate (mL/min)	300	250	250	250	250	250						
Depth to Water (ft.)	10.11	10.41	10.50	10.53	10.54	10.54						
pH	7.86	7.34	6.99	6.63	6.62	6.61						
Temp. (C)	11.02	11.56	11.17	11.64	11.63	11.65						
Conductivity (mS/cm)	2.52	2.15	2.01	1.84	1.83	1.82						
Dissolved Oxygen (mg/L)	0.01	0.00	0.00	0.00	0.00	0.00						
ORP (mV)	-100	-96	-63	-61	-59	-56						
Turbidity (NTU)	128	74	36	13.2	12.2	16.8						
Notes:												

Sampling Information

Analyses	#	Laboratory
Sample ID:	Sample Time	1037
MS/MSD:	Yes	No
Duplicate:	Yes	No
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

Initial:

Final:

PID:

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv.

Event

Sampling Personnel: A. Wissner

Well ID: PMW-160

Client / Job Number: National Grid / B0036790.0001.00002

Date: 5/30/18

Weather: cloudy, 70°F

Time In: 0755

Time Out:

Well Information

Depth to Water (ft):	11.10'	(from TIC)
Total Depth (ft):	35.60	(from TIC)
Length of Water Column (ft):		
Volume of Water in Well (gal):		

Well Type:	Flushmount	Stick-Up
Well Material:	Stainless Steel	PVC
Well Locked:	Yes	No
Measuring Point Marked:	Yes	No
Well Diameter:	1"	2" Other:

Purging Information

Purging Method:	Bailer	Peristaltic	Bladder	Other:
Tubing/Bailer Material:	Steel	Polyethylene	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	Bladder	Other:
Duration of Pumping (min):	0805			
Average Pumping Rate (ml/min):	Water-Quality Meter Type: YSI/Turbidimeter			
Total Volume Removed (gal):	Did well go dry: Yes No			

gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

pH	DO/Turb.	Cond/temp	ORP
± 0.1	±10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6				
Rate (mL/min)	250	250	250	250	250	250	250	250				
Depth to Water (ft.)	10.75	10.78	10.76	10.76	10.76	10.76	10.76	10.76				
pH	6.62	6.61	6.59	6.57	6.55	6.55	6.54	6.54				
Temp. (C)	17.31	16.59	16.19	16.65	16.65	16.52	16.15	16.06				
Conductivity (mS/cm)	1.26	1.25	1.24	1.16	0.88	0.83	0.88	1.18				
Dissolved Oxygen (mg/L)	0.00	0.00	0.30	0.65	0.70	0.73	0.69	0.64				
ORP (mV)	+107	-98	-78	-70	-67	-69	-70	-69				
Turbidity (NTU)	0.0	793	642	583	128	36	24	5				
Notes:												

Sampling Information

Analyses	#	Laboratory
Sample ID:	PMW-160	Sample Time: 0850
MS/MSD:	Yes No	
Duplicate:	Yes No	
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

Initial:

Final:

PID:

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv.

Event

Sampling Personnel: IMC

Well ID: PCMW-195

Client / Job Number: National Grid / B0036790.0001.00002

Date: 5/29/18

Weather: Sunny 75°

Time In: Time Out:

Well Information

Depth to Water (ft):	7.80	(from TIC)
Total Depth (ft):	15.50	(from TIC)
Length of Water Column (ft):		
Volume of Water in Well (gal):		

Well Type:	Flushmount	Stick-Up
Well Material:	Stainless Steel	PVC
Well Locked:	Yes	No
Measuring Point Marked:	Yes	No
Well Diameter:	1"	2" Other:

Purging Information

Purging Method:	Bailer	Peristaltic	Bladder	Other:
Tubing/Bailer Material:	Steel	Polyethylene	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	Bladder	Other:
Duration of Pumping (min):				
Average Pumping Rate (ml/min):				Water-Quality Meter Type: YSI/Turbidimeter
Total Volume Removed (gal):				Did well go dry: Yes No

gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

pH	DO/Turb.	Cond/temp	ORP
± 0.1	± 10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	0.2	0.4	0.6	0.8	1.0	1.2						
Rate (mL/min)	250	250	250	250	250	250						
Depth to Water (ft.)	7.80	7.82	7.83	7.83	7.81	7.82						
pH	7.05	7.03	7.02	6.98	6.95	7.04						
Temp. (C)	18.00	17.80	17.01	16.53	16.10	16.55						
Conductivity (mS/cm)	0.649	0.677	0.631	0.640	0.648	0.645						
Dissolved Oxygen (mg/L)	6.39	4.80	0.50	0.31	0.00	0.00						
ORP (mV)	-138	-140	-141	-132	-138	-140						
Turbidity (NTU)	137	125	89	58	8.7	5.3						
Notes:												

Sampling Information

Analyses	#	Laboratory
Metals	1	
Sample ID: PCMW-195	Sample Time:	
MS/MSD: Yes	No	
Duplicate: Yes	No	
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

Initial: None

Final: None

PID: 0.2 ppm

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv.

Event

Sampling Personnel: A. Wisner

Well ID: PCMW-155

Client / Job Number: National Grid / B0036790.0001.00002

Date: 7/24/18

Weather: Sunny, 90°F

Time In:

Time Out:

Well Information

Depth to Water (ft): 9.37 (from TIC)

Total Depth (ft): (from TIC)

Length of Water Column (ft):

Volume of Water in Well (gal):

Well Type: Flushmount Stick-Up

Well Material: Stainless Steel PVC

Well Locked: Yes No

Measuring Point Marked: Yes No

Well Diameter: 1" 2" Other:

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:

Tubing/Bailer Material: Steel Polyethylene Teflon Other:

Sampling Method: Bailer Peristaltic Bladder Other:

Duration of Pumping (min): 1130/1230

Average Pumping Rate (ml/min): Water-Quality Meter Type: YSI/Turbidimeter

Total Volume Removed (gal): Did well go dry: Yes No

Conversion Factors

gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet

Unit Stability

pH	DO/Turb.	Cond/temp	ORP
± 0.1	± 10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9	10	11	12
Volume Purged (gal)	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4
Rate (mL/min)	250	250	250	250	250	250	250	250	250	250	250	250
Depth to Water (ft.)	9.46	9.48	9.51	9.51	9.51	9.51	9.51	9.51	9.51	9.51	9.51	9.51
pH	4.56	5.57	6.43	6.46	6.46	6.49	6.51	6.50	6.55	6.55	6.57	6.56
Temp. (C)	16.73	19.11	18.73	19.26	19.74	19.95	20.01	20.11	20.48	20.51	20.91	20.91
Conductivity (mS/cm)	1.113	1.100	1.002	1.098	0.912	0.803	0.803	0.803	0.803	0.803	0.803	0.803
Dissolved Oxygen (mg/L)	4.23	3.11	1.67	1.52	0.75	0.34	0.33	0.22	0.34	0.12	0.18	0.26
ORP (mV)	112.1	98.1	65.3	68.1	69.4	68.7	68.2	68.9	69.1	69.6	72.4	75.6
Turbidity (NTU)	0.0*	0.0*	1000	94	637	552	256	98	54	36	22.1	18.3
Notes:												

Sampling Information

Analyses	#	Laboratory
Free Chloride		
Sample ID: PCMW-155	Sample Time: 12:30	
MS/MSD: Yes	No	
Duplicate: Yes	No	
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

Initial: turbidity too high to read.

Final:

PID:

*DUP-07232018

Site

Philadelphia Coke

GROUND-WATER SAMPLING LOG

Phase 1 - Preliminary GW Inv.

Event

Sampling Personnel:

Client / Job Number: National Grid / B0036790.0001.00002

Well ID: RCMW-10D

Date: 7/29/10

Weather: Sunny, 95°F

Time In: Time Out:

Well Information

Depth to Water (ft): 13.00 (from TIC)
Total Depth (ft): (from TIC)
Length of Water Column (ft):
Volume of Water in Well (gal):

Well Type: Flushmount (Stick-Up)
Well Material: Stainless Steel (PVC)
Well Locked: Yes (No)
Measuring Point Marked: Yes (No)
Well Diameter: 1" (2") Other:

Purging Information

Purging Method: Bailer Peristaltic Bladder Other:
Tubing/Bailer Material: Steel Polyethylene Teflon Other:
Sampling Method: Bailer Peristaltic Bladder Other:
Duration of Pumping (min):
Average Pumping Rate (ml/min): Water-Quality Meter Type: YSI/Turbidimeter
Total Volume Removed (gal): Did well go dry: Yes No

Conversion Factors table with columns for 1" ID, 2" ID, 4" ID, 6" ID and rows for gal/ft of water and cubic feet conversion.

Unit Stability table with columns for pH, DO/Turb., Cond/temp, ORP and rows for stability ranges.

Main data table with 13 columns (Parameter, 1-12) and 13 rows (Volume Purged, Rate, Depth to Water, pH, Temp, Conductivity, Dissolved Oxygen, ORP, Turbidity, Notes).

Sampling Information

Table with columns for Analyses, #, and Laboratory, containing fields for Sample ID, Sample Time, MS/MSD, Duplicate, Duplicate ID, Dup. Time, and Chain of Custody.

Problems / Observations

Initial: turb unacceptable @ begining

Final:

PID:

Site

Event

GROUND-WATER SAMPLING LOG

Sampling Personnel: Evan Green Well ID: MW-107
 Client / Job Number: National Grid / Philly Coke Date: 3/28/19
 Weather: MW 30's, Sunny Time In: 0815 Time Out: 1020

Well Information

Depth to Water: (feet) 5.11 (from MP)
 Total Depth: (feet) 12.68 (from MP)
 Length of Water Column: (feet) 7.57
 Volume of Water in Well: (gal) 1.23
 Three Well Volumes: (gal) 3.70

Well Type: Flushmount Stick-Up
 Well Material: Stainless Steel PVC
 Well Locked: Yes No
 Measuring Point Marked: Yes No
 Well Diameter: 1" 2" Other:

Purging Information

Purging Method: Bailer Peristaltic Waterra Other:
 Tubing/Bailer Material: Steel Polyethylene Teflon Other:
 Sampling Method: Bailer Peristaltic Waterra Other:
 Duration of Pumping: 97 (min)
 Average Pumping Rate: 100 (ml/min) Water-Quality Meter Type: Horiba U-50
 Total Volume Removed: 1.65 (gal) Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO	Cond.	ORP
± 0.1	± 10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9
Volume Purged (gal)	0.85	0.905	0.910	0.915	0.920	0.925	0.930	0.935	0.940
Rate (ml/min)	150	125	100	100	100	100	100	100	100
Depth to Water (ft.)	5.13	5.14	5.14	5.13	5.12	5.12	5.12	5.13	5.12
pH	5.47	6.97	7.06	7.07	7.08	7.09	7.09	7.09	7.09
Temp. (C)	8.51	8.77	9.41	9.43	10.01	10.09	10.03	10.05	10.06
Conductivity (mS/cm)	1.22	1.15	1.10	1.09	1.07	1.06	1.04	1.03	1.02
Dissolved Oxygen (mg/L)	4.25	1.18	0.98	0.97	0.90	0.84	0.77	0.68	0.70
ORP (mV)	-105	-206	-210	-211	-212	-214	-214	-215	-215
Turbidity (NTU)	812	333	256	225	157	148	118	96	75
Notes:	Water has red-orange tint								

Sampling Information

Analyses	#	Laboratory
MTAL [0.35LE]	3	
TDS	3	
Sample ID:	<u>MW-107</u>	Sample Time: <u>1000</u>
MS/MSD:	<u>Yes</u>	No
Duplicate:	Yes	No
Duplicate ID		Dup. Time:
Chain of Custody Signed By: <u>Evan Green</u>		

Problems / Observations

PID: 0.9
 *MS/MSD ID:
 MW-107 MS
 MW-107 MSD

2 of 2

Site _____ Event _____

GROUND-WATER SAMPLING LOG

Sampling Personnel: Evan Green Well ID: MW-107
 Client / Job Number: _____ Date: 3/28/19
 Weather: See page 1 Time In: _____ Time Out: _____

Well Information

Depth to Water: _____ (feet) _____ (from MP)
 Total Depth: _____ (feet) _____ (from MP)
 Length of Water Column: _____ (feet)
 Volume of Water in Well: _____ (gal)
 Three Well Volumes: _____ (gal)

Well Type: _____ Flushmount _____ Stick-Up _____
 Well Material: _____ Stainless Steel _____ PVC _____
 Well Locked: _____ Yes _____ No _____
 Measuring Point Marked: _____ Yes _____ No _____
 Well Diameter: _____ 1" _____ 2" _____ Other: _____

Purging Information

Purging Method: _____ Bailer _____ Peristaltic _____ Waterra _____ Other: _____
 Tubing/Bailer Material: _____ Steel _____ Polyethylene _____ Teflon _____ Other: _____
 Sampling Method: _____ Bailer _____ Peristaltic _____ Waterra _____ Other: _____
 Duration of Pumping: _____ (min)
 Average Pumping Rate: _____ (ml/min) Water-Quality Meter Type: _____
 Total Volume Removed: _____ (gal) Did well go dry: Yes _____ No _____

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO	Cond.	ORP
± 0.1	± 10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9
Volume Purged (gal)	1.25	1.46	1.55						
Rate (mL/min)	100	100	100						
Depth to Water (ft.)	5.12	5.12	5.12						
pH	7.10	7.10	7.11						
Temp. (C)	10.11	10.09	10.12						
Conductivity (mS/cm)	1.01	0.99	0.94						
Dissolved Oxygen (mg/L)	0.65	0.68	0.66						
ORP (mV)	-215	-216	-216						
Turbidity (NTU)	64	51	44						
Notes:									

Sampling Information

Analyses	#	Laboratory
Sample ID: <u>MW-107</u>	Sample Time: <u>1000</u>	
MS/MSD: <u>Yes</u>	No	
Duplicate: <u>Yes</u>	No	
Duplicate ID	Dup. Time:	
Chain of Custody Signed By: _____		

Problems / Observations

Site

GROUND-WATER SAMPLING LOG

Event

Sampling Personnel: Evan Green
 Client / Job Number: National Grid / Philly Coke
 Weather: 40's, Sunny

Well ID: PC MW-05
 Date: 3/28/14
 Time In: 1029 Time Out: 1156

Well Information

Depth to Water: 6.0 (feet) (from MP)
 Total Depth: 14.29 (feet) (from MP)
 Length of Water Column: 8.29 (feet)
 Volume of Water in Well: 9.39 (gal)
 Three Well Volumes: 16.2 (gal)

Well Type: Flushmount Stick-Up
 Well Material: Stainless Steel PVC
 Well Locked: Yes No
 Measuring Point Marked: Yes No
 Well Diameter: 1' 2' Other: 4"

Purging Information

Purging Method: Bailer Peristaltic Waterra Other:
 Tubing/Bailer Material: Steel Polyethylene Teflon Other:
 Sampling Method: Bailer Peristaltic Waterra Other:
 Duration of Pumping: 66 (min)
 Average Pumping Rate: 125 (ml/min) Water-Quality Meter: Type: Hanbaq U-50
 Total Volume Removed: 1.75 (gal) Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO	Cond.	ORP
± 0.1	± 10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9
Volume Purged (gal)	0	0.35	0.55	0.70	0.85	1.0	1.15	1.30	1.45
Rate (mL/min)	175	150	150	150	125	125	125	125	125
Depth to Water (ft.)	6.20	6.38	6.42	6.53	6.51	6.50	6.50	6.50	6.49
pH	7.37	7.09	7.08	7.08	7.09	7.09	7.09	7.08	7.08
Temp. (C)	9.73	10.23	10.39	10.38	10.48	11.16	11.22	11.25	11.38
Conductivity (mS/cm)	0.481	0.470	0.466	0.462	0.459	0.458	0.458	0.457	0.456
Dissolved Oxygen (mg/L)	3.34	0.78	0.59	0.46	0.42	0.39	0.37	0.37	0.37
ORP (mV)	-130	-150	-154	-156	-163	-166	-169	-173	-175
Turbidity (NTU)	38.7	16.6	12.5	10.5	7.7	5.2	4.9	4.4	4.1
Notes:	Faint color								

Sampling Information

Analyses	#	Laboratory
MTAL(OBSLF)	2	
TDS	2	
Sample ID:	PC MW-05	Sample Time: 1145
MS/MSD:	Yes	No
Duplicate:	Yes	No
Duplicate ID:	GW-DUP-0328	Time: ---
Chain of Custody Signed By:	Evan Green	

Problems / Observations

PID: 6.6
 * Duplicate ID: GW-DUP-0328

2 of 2

Site

Event

GROUND-WATER SAMPLING LOG

Sampling Personnel: EGreen Well ID: PCMw-05
 Client / Job Number: _____ Date: 3/28/19
 Weather: _____ Time In: _____ Time Out: _____

See Page 1

Depth to Water:	(feet)	(from MP)
Total Depth:	(feet)	(from MP)
Length of Water Column:	(feet)	
Volume of Water in Well:	(gal)	
Three Well Volumes:	(gal)	

Well Type:	Flushmount	Stick-Up
Well Material:	Stainless Steel	PVC
Well Locked:	Yes	No
Measuring Point Marked:	Yes	No
Well Diameter:	1"	2" Other:

Purging Information

Purging Method:	Bailer	Peristaltic	Waterra	Other:
Tubing/Bailer Material:	Steel	Polyethylene	Teflon	Other:
Sampling Method:	Bailer	Peristaltic	Waterra	Other:
Duration of Pumping:	(min)			
Average Pumping Rate:	(ml/min)		Water-Quality Meter Type:	
Total Volume Removed:	(gal)		Did well go dry:	Yes No

Conversion Factors

gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469

1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet

Unit Stability

pH	DO	Cond.	ORP
± 0.1	± 10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9
Volume Purged (gal)	1.60								
Rate (mL/min)	125								
Depth to Water (ft.)	6.49								
pH	7.07								
Temp. (C)	11.31								
Conductivity (mS/cm)	6456								
Dissolved Oxygen (mg/L)	6.36								
ORP (mV)	-177								
Turbidity (NTU)	3.8								
Notes:									

Sampling Information

Analyses	#	Laboratory
Sample ID: <u>PCMw-05</u>	Sample Time: <u>1145</u>	
MS/MSD:	Yes No	
Duplicate:	Yes No	
Duplicate ID	Dup. Time:	
Chain of Custody Signed By:		

Problems / Observations

Site

Event

GROUND-WATER SAMPLING LOG

Sampling Personnel: Evan Green Well ID: PCMW-160
 Client / Job Number: National Grid / Philly Coke Date: 5/28/19
 Weather: 40's Sunny Time In: 1220 Time Out: 1345

Well Information

Depth to Water: 11.04 (feet) (from MP)
 Total Depth: 35.6 (feet) (from MP)
 Length of Water Column: 24.6 (feet)
 Volume of Water in Well: 4 (gal)
 Three Well Volumes: 12 (gal)

Well Type: Flushmount Stick-Up
 Well Material: Stainless Steel PVC
 Well Locked: Yes No
 Measuring Point Marked: Yes No
 Well Diameter: 1" 2" Other:

Purging Information

Pump on 1237

Purging Method: Bailer Peristaltic Wattera Other:
 Tubing/Bailer Material: Steel Polyethylene Teflon Other:
 Sampling Method: Bailer Peristaltic Wattera Other:
 Duration of Pumping: 67 (min)
 Average Pumping Rate: 100 (ml/min) Water-Quality Meter Type: Horiba U-50
 Total Volume Removed: 1.75 (gal) Did well go dry: Yes No

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO	Cond.	ORP
± 0.1	± 10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9
Volume Purged (gal)	0	0.4	0.55	0.70	0.85	1.0	1.15	1.30	1.45
Rate (mL/min)	200	150	100	100	100	100	100	100	100
Depth to Water (ft.)	11.12	11.15	11.16	11.16	11.15	11.14	11.14	11.15	11.16
pH	7.05	6.85	6.88	6.89	6.88	6.88	6.89	6.89	6.87
Temp. (C)	17.58	12.85	12.70	12.80	12.89	12.91	12.94	12.95	12.95
Conductivity (mS/cm)	0.940	0.955	0.952	0.948	0.944	0.938	0.934	0.932	0.932
Dissolved Oxygen (mg/L)	1.47	0.43	0.38	0.35	0.31	0.28	0.29	0.29	0.27
ORP (mV)	-197	-198	-200	-200	-200	-201	-200	-199	-199
Turbidity (NTU)	388	176	126	112	93.5	77.1	62.4	59.5	53.4
Notes:									

Sampling Information

Analyses	#	Laboratory
MTAL(DISSLE)	1	
TDS	1	
Sample ID:	PCMW-160	Sample Time: 1335
MS/MSD:	Yes	<u>No</u>
Duplicate:	Yes	<u>No</u>
Duplicate ID		Dup. Time:
Chain of Custody Signed By:	Evan Green	

Problems / Observations

PID: 0.0

Site

Event

GROUND-WATER SAMPLING LOG

Sampling Personnel: EGreen Well ID: PCMLW-160
 Client / Job Number: National Grid/Philly C&L Date: 3/28/19
 Weather: _____ Time In: _____ Time Out: _____

Well Information Sec page 1
 Depth to Water: _____ (feet) _____ (from MP)
 Total Depth: _____ (feet) _____ (from MP)
 Length of Water Column: _____ (feet)
 Volume of Water in Well: _____ (gal)
 Three Well Volumes: _____ (gal)

Well Type: _____ Flushmount _____ Stick-Up _____
 Well Material: _____ Stainless Steel _____ PVC _____
 Well Locked: _____ Yes _____ No _____
 Measuring Point Marked: _____ Yes _____ No _____
 Well Diameter: _____ 1" _____ 2" _____ Other: _____

Purging Information

Purging Method: _____ Bailer _____ Peristaltic _____ Waterra _____ Other: _____
 Tubing/Bailer Material: _____ Steel _____ Polyethylene _____ Teflon _____ Other: _____
 Sampling Method: _____ Bailer _____ Peristaltic _____ Waterra _____ Other: _____
 Duration of Pumping: _____ (min)
 Average Pumping Rate: _____ (ml/min) Water-Quality Meter Type: _____
 Total Volume Removed: _____ (gal) Did well go dry: Yes _____ No _____

Conversion Factors				
gal / ft. of water	1" ID	2" ID	4" ID	6" ID
	0.041	0.163	0.653	1.469
1 gal = 3.785 L = 3785 ml = 0.1337 cubic feet				

Unit Stability			
pH	DO	Cond.	ORP
± 0.1	±10%	± 3.0%	± 10 mV

Parameter:	1	2	3	4	5	6	7	8	9
Volume Purged (gal)	1.66								
Rate (mL/min)	100								
Depth to Water (ft.)	11.16								
pH	6.86								
Temp. (C)	12.96								
Conductivity (mS/cm)	6.597								
Dissolved Oxygen (mg/L)	0.27								
ORP (mV)	-196								
Turbidity (NTU)	47.1								
Notes:									

Sampling Information

Analyses	#	Laboratory
Sample ID: <u>PCMLW-160</u>		Sample Time: <u>1335</u>
MS/MSD: Yes		<u>No</u>
Duplicate: Yes		<u>No</u>
Duplicate ID		Dup. Time:
Chain of Custody Signed By:		

Problems / Observations

GROUNDWATER SAMPLING LOG

Project No. 30004026
 Project Name/Location Former Philadelphia Coke Facility

MW-109

Date 10/4/2019

Measuring Pt. Description TOC Screen Setting (ft-bmp) _____ Casing Diameter (in.) 2
 Static Water Level (ft-bmp) 13.49 Total Depth (ft-bmp) 22.84 Water Column/ Gallons in Well 1.52 gal
 MP Elevation _____ Pump Intake (ft-bmp) 21 Purge Method: Peri-Pump
 Pump On/Off 900 1020 Volumes Purged _____ Centrifugal _____
 Sample Time: Label 95c Replicate/ Code No. Dup-100419 Submersible _____
 Start 941 Other _____
 End 1020

Weather _____
 Well Material x PVC _____ SS
 Sample Method Peri-Pump Low Flow

Sampled by GS

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Cond. (mMhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance	
											Color	Odor
905	5	100	13.49	500	9.29	0.930	290	2.42	15.35	-95	Clear	None
910	10	"	13.49	1000	8.52	0.922	363	0.92	14.81	-98	Clear	None
915	15	"	13.50	1500	8.20	0.918	28.1	1.42	14.76	-96	Clear	Petrol
920	20	"	13.49	2000	7.94	0.915	31.0	1.65	14.77	-94	"	"
925	25	"	13.49	2500	7.86	0.913	20.6	1.59	15.21	-88	"	"
930	30	"	13.49	3000	7.76	0.902	9.8	1.69	15.35	-86	"	"
935	35	"	13.19	3500	7.72	0.964	8.9	1.77	15.30	-87	"	"
940	40	"	13.49	4000	7.55	0.903	6.9	1.89	15.28	-80	"	"

Constituents Sampled	Container	Number	Preservative
V8260TCL20	40mL Vial	3	HCl
AB8270TCL20	1L Amber Glass	2	NP
MTAL	60mL Glass	1	NaOH+Ascorbic acid
CN	500mL Plastic	1	HNO3
MTAL (Diss, LF)	60mL Glass	1	NP
CN (Diss, LF)	500mL Plastic	1	NP
TDS	500mL Plastic	1	NP

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Location: _____
 Condition of Well: good
 Well Completion: Flush Mount / Stick Up
 Well Locked at Arrival: Yes / No
 Well Locked at Departure: Yes / No
 Key Number To Well: _____

Parent of Dup-100419

GROUNDWATER SAMPLING LOG

Project No. 30004026

MW-109

Date 10/4/2019

Project Name/Location Former Philadelphia Coke Facility

Weather Clear, 66°

Measuring Pt. Screen Casing
Description TOC Setting (ft-bmp) _____ Diameter (in.) 2

Well Material x PVC
_____ SS

Static Water Level (ft-bmp) 9.54 Total Depth (ft-bmp) 21.90 Water Column/
Gallons in Well _____

MP Elevation _____ Pump Intake (ft-bmp) _____ Purge Method: Peri-Pump

Sample Method Peri-Pump Low Flow

Pump On/Off Start 925 Volumes Purged _____ Centrifugal
Submersible
Other _____

Sample Time: Label MW-109 Replicate/
Start 1005 Code No. _____
End 1026

Sampled by James Mack

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged L	pH	Cond. (mMhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance	
											Color	Odor
0930	5	100	9.54	1	7.07	1.49	7.89	0.11	17.15	-98	clear	
0935	10	100	9.54	1.5	6.91	1.70	11.26	0.00	17.21	-96	clear	
0940	15	100	9.54	2	6.87	1.68	7.68	0.00	16.66	-115	clear	
0945	20	100	9.54	2.5	6.93	1.52	8.83	0.00	16.31	-125	clear	
0950	25	100	9.54	3	7.00	1.48	7.45	0.00	16.02	-140	clear	
0955	30	100	9.54	3.5	7.07	1.39	5.26	0.00	16.04	-146	clear	
1000	35	100	9.54	4	7.12	1.32	7.16	0.00	16.01	-150	clear	

Constituents Sampled	Container	Number	Preservative
V8260TCL20	40mL Vial	3	HCl
AB8270TCL20	1L Amber Glass	2	NP
MTAL	60mL Glass	1	NaOH+Ascorbic acid
CN	500mL Plastic	1	HNO3
MTAL (Diss, LF)	60mL Glass	1	NP
CN (Diss, LF)	500mL Plastic	1	NP

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Location: <u>middle of eoz field / trees</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>brand new</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount / Stick Up</u>	Key Number To Well: _____

GROUNDWATER SAMPLING LOG

Project No. 30004026 MW-110 Date 10/4/2019

Project Name/Location Former Philadelphia Coke Facility Weather Sunny, 63

Measuring Pt. Screen Casing
Description TOC Setting (ft-bmp) Diameter (in.) 2
Well Material x PVC
 SS

Static Water Level (ft-bmp) 7.42 Total Depth (ft-bmp) 16.94 Water Column/
Gallons in Well

MP Elevation Pump Intake (ft-bmp) Purge Method: Peri-Pump
Sample Method Peri-Pump Low Flow

Pump On/Off Start 0805 Volumes Purged Other
Centrifugal
Submersible
Other

Sample Time: Label MW-110 Replicate/
Start 0845 Code No.
End 0900

Sampled by James Mark

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged L	pH	Cond. (mMhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance	
											Color	Odor
0810	5	100	7.42	1	7.19	1.10	9.05	0.90	16.19	-77	clear	
0815	10	100	7.42	1.5	6.70	1.10	18.9	0.12	16.48	-76	clear	
0820	15	100	7.42	2	6.75	1.10	11.3	0.00	16.59	-89	clear	
0825	20	100	7.42	2.5	6.81	1.10	8.18	0.00	16.74	-94	clear	
0830	25	100	7.43	3	6.83	1.09	5.67	0.00	16.86	-97	clear	
0835	30	100	7.42	3.5	6.85	1.09	3.00	0.00	16.91	-95	clear	
0840	35	100	7.42	4	6.92	1.09	3.68	0.00	17.01	-98	clear	

Constituents Sampled	Container	Number	Preservative
V8260TCL20	40mL Vial	3	HCl
AB8270TCL20	1L Amber Glass	2	NP
MTAL	60mL Glass	1	NaOH+Ascorbic acid
CN	500mL Plastic	1	HNO3
MTAL (Diss, LF)	60mL Glass	1	NP
CN (Diss, LF)	500mL Plastic	1	NP

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Location: Field out out brush Well Locked at Arrival: Yes / No

Condition of Well: brand new Well Locked at Departure: Yes / No

Well Completion: Flush Mount / Stick Up Key Number To Well:

GROUNDWATER SAMPLING LOG

Project No. 30004026

MW-11

Date 10/4/2019

Project Name/Location Former Philadelphia Coke Facility

Weather

Measuring Pt. Description TOC Screen Setting (ft-bmp) Casing Diameter (in.)

Well Material x PVC SS

Static Water Level (ft-bmp) 12.40 Total Depth (ft-bmp) 22.19 Water Column/ Gallons in Well 1.60

MP Elevation Pump Intake (ft-bmp) 20 Purge Method: Peri-Pump

Sample Method Peri-Pump Low Flow

Pump On/Off 1049/1250 Volumes Purged Centrifugal Submersible Other

Sample Time: Label 1135 Replicate/ Code No. ms/msd Start 1120 End 1130

Sampled by GD

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged	pH	Cond. (mMhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance	
											Color	Odor
1050	5	100	12.79	500	6.96	0.947	14.9	8.27	18.46	-50	Clear	None
1055	10	100	13.12	1000	6.90	0.956	30.6	7.00	18.10	-50	"	"
1100	15	100	13.81	1500	6.91	0.954	44.9	6.06	18.51	-68	"	"
1105	20	100	14.56	2000	6.88	0.977	57.3	5.73	18.62	-68	cloudy	"
1110	25	100	14.92	2500	6.80	0.967	61.4	5.64	18.74	-62	"	"
1115	30	100	14.96	3000	6.79	1.00	64.4	5.13	19.54	-58	"	"
1120	35	100	14.95	3500	6.74	1.00	65.6	5.04	19.66	-56	"	"

Constituents Sampled	Container	Number	Preservative
V8260TCL20	40mL Vial	3	HCl
AB8270TCL20	1L Amber Glass	2	NP
MTAL	60mL Glass	1	NaOH+Ascorbic acid
CN	500mL Plastic	1	HNO3
MTAL (Diss, LF)	60mL Glass	1	NP
CN (Diss, LF)	500mL Plastic	1	NP
TDS	500mL Plastic	2	NP
Effluent Sample			

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2" = 0.16	2.5" = 0.26	3" = 0.37	3.5" = 0.50	4" = 0.65	6" = 1.47
Gallons/Foot								

Well Information	Well Location:	Well Locked at Arrival:	Yes / No
Condition of Well:	Good	Well Locked at Departure:	Yes / No
Well Completion:	Flush Mount / Stick Up	Key Number To Well:	

* MS/MSD Parent. *MS has 4 VOA vials *MSD does not have TDS

GROUNDWATER SAMPLING LOG

Project No. 30004026

MW-112

Date 10/4/2019

Project Name/Location Former Philadelphia Coke Facility

Weather Sunny, 69

Measuring Pt. Description TOC
Screen Setting (ft-bmp)

Casing Diameter (in.) 2

Well Material x PVC
SS

Static Water Level (ft-bmp) 8.07
Total Depth (ft-bmp) 16.62

Water Column/
Gallons in Well

MP Elevation
Pump Intake (ft-bmp)

Purge Method: Peri-Pump

Sample Method Peri-Pump Low Flow

Pump On/Off Start 1040
Volumes Purged

Centrifugal
Submersible
Other

Sample Time: Label MW-112 Replicate/
Start 1120 Code No.
End 1135

Sampled by James Mack

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged L	pH	Cond. (mMhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance	
											Color	Odor
1045	5	100	8.00	1	6.94	1.86	14.3	0.02	17.58	-7	clear	
1050	10	100	8.53	1.5	6.88	1.57	4.58	0.00	17.41	2	clear	
1055	15	100	8.57	2	6.88	1.34	4.55	0.00	17.63	-16	clear	
1100	20	100	8.63	2.5	6.86	1.35	3.78	0.00	17.95	-26	clear	
1105	25	100	8.66	3	6.86	1.34	4.84	0.00	17.83	-42	clear	
1110	30	100	8.69	3.5	6.85	1.36	4.01	0.00	17.93	-52	clear	
1115	35	100	8.71	4	6.85	1.36	4.66	0.00	18.16	-63	clear	

Constituents Sampled	Container	Number	Preservative
V8260TCL20	40mL Vial	3	HCl
AB8270TCL20	1L Amber Glass	2	NP
MTAL	60mL Glass	1	NaOH+Ascorbic acid
CN	500mL Plastic	1	HNO3
MTAL (Diss, LF)	60mL Glass	1	NP
CN (Diss, LF)	500mL Plastic	1	NP

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Location: middle of field / rd path / near utility line	Well Locked at Arrival: Yes / No
Condition of Well: brand new	Well Locked at Departure: Yes / No
Well Completion: Flush Mount / <u>Stick Up</u>	Key Number To Well:

GROUNDWATER SAMPLING LOG

Project No. 30004026

MW-113

Date 10/4/2019

Project Name/Location Former Philadelphia Coke Facility

Weather Sunny, 70°F

Measuring Pt. TOC
Description TOC Screen Setting (ft-bmp) _____

Casing Diameter (in.) 2

Well Material x PVC
_____ SS

Static Water Level (ft-bmp) 12.75 Total Depth (ft-bmp) 22.14

Water Column/
Gallons in Well _____

MP Elevation _____ Pump Intake (ft-bmp) _____

Purge Method: Peri-Pump

Sample Method Peri-Pump Low Flow

Pump On/Off Start 1205 Volumes Purged _____

Centrifugal _____
Submersible _____
Other _____

Sample Time: Label MW-113 Replicate/ Code No. _____
Start 1245
End 1300

Sampled by James Mack

Time	Minutes Elapsed	Rate (gpm) (mL/min)	Depth to Water (ft)	Gallons Purged L	pH	Cond. (mMhos) (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temp. (°C) (°F)	Redox (mV)	Appearance	
											Color	Odor
1210	5	100	12.49	1	6.96	0.674	1.93	0.54	20.18	-92	clear	
1215	10	100	12.49	1.5	6.82	0.669	1.58	0.00	18.92	-90	clear	
1220	15	100	12.50	2	6.83	0.671	2.46	0.00	18.40	-97	clear	
1225	20	100	12.51	2.5	6.84	0.674	2.45	0.00	18.20	-99	clear	
1230	25	100	12.51	3	6.85	0.671	2.45	0.00	18.12	-101	clear	
1235	30	100	12.51	3.5	6.86	0.676	2.17	0.00	18.08	-102	clear	
1240	35	100	12.51	4	6.86	0.675	2.43	0.00	18.12	-103	clear	

Constituents Sampled	Container	Number	Preservative
V8260TCL20	40mL Vial	3	HCl
AB8270TCL20	1L Amber Glass	2	NP
MTAL	60mL Glass	1	NaOH+Ascorbic acid
CN	500mL Plastic	1	HNO3
MTAL (Diss, LF)	60mL Glass	1	NP
CN (Diss, LF)	500mL Plastic	1	NP

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

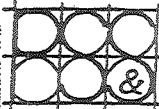
Well Information

Well Location: <u>middle of field cut brush</u>	Well Locked at Arrival: <u>Yes</u> / No
Condition of Well: <u>brand new</u>	Well Locked at Departure: <u>Yes</u> / No
Well Completion: <u>Flush Mount / Stick Up</u>	Key Number To Well: _____

APPENDIX F

Soil Physical Parameter Laboratory Reports





PAULUS
SOKOLOWSKI
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CONSULTING ENGINEERS

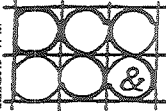
~ PHILA. COKE ~
JOB. NO. 2522-212-074 PROJECT ENGINEER JF

TESTED BY LLSR
SL DATE 3/21/06 (1)

	K TEST		K TEST		K TEST		K TEST		K TEST	
	PCMw-10D	PCMw-10D	PCMw-10D	PCMw-10D	PCMw-10D	PCMw-14D	PCMw-14D	PCMw-14D	PCMw-14D	PCMw-14D
SAMPLE #	51 10'-12'	51 10'-12'	53 17'-19'	53 17'-19'	54 33'-35'	54 33'-35'	51 10'-12'	51 10'-12'	52 16'-18'	52 16'-18'
TARE #	21		36		23		27		37	
WGT. TARE WET SOIL	601.23		539.12		509.39		396.30		592.11	
WGT. TARE DRY SOIL	550.74		336.61		466.76		317.11		427.85	
WGT. WATER	50.49		202.51		42.66		79.19		164.26	
WGT. TARE	85.27		76.98		106.26		110.16		80.28	
WGT. DRY SOIL	465.47		259.63		360.50		206.95		347.57	
MOIST. CONT. %	10.8		78.0		11.8		38.3		47.3	
		Reconst. to:		Reconst. to:		Reconst. to:		Reconst. to:		Reconst. to:
WGT. TARE WET SOIL	2568.36	1175.52	539.12	325.49	1159.23	1091.15	1313.48	1696.5	592.11	503.91
WGT. TARE	98.07	510.9	76.98	71.48	115.76	510.9	120.36	510.9	80.28	160.2
WGT. WET SOIL (grams)	2470.29	664.62	462.14	254.01	1043.47	580.25	1193.12	585.6	511.83	343.71
HEIGHT (in)	17.5	3.39	4.0	1.61	7.5	3.0	9.3	3.39	4.0	1.949
φ (in)	2.46	2.875	2.46	2.875	2.46	2.875	2.46	2.875	2.46	2.875
VOLUME (ft³)	0.0481	0.0127	0.0110	0.0060	0.0206	0.0113	0.0256	0.0127	0.0110	0.0073
γ _t (lb/ft³)	113.22	115.4	92.62	53.33	111.67	113.2	102.75	101.7	102.58	103.80
M.C. %	10.8	10.8	78.0	77.5	11.8	11.8	38.3	38.3	47.3	48.0
γ _d (lb/ft³)	102.18	104.2	52.03	52.58	99.88	101.1	74.3	73.5	69.64	70.14
G _s	2.67	2.67	2.41	2.41	2.70	2.70	2.53	2.53	2.43	2.43
e ₀	0.631	0.599	1.89	1.86	0.686	0.666	1.125	1.148	1.18	1.16
S ₀	45.7%	48.1%	99.5%	100%	46.4%	47.8%	86.1%	84.4%	97.4%	100
n	0.387	0.375	0.654	0.650	0.407	0.399	0.529	0.534	0.541	0.537
USCS I.O.	(SP-SM)	(SP-SM)	(OH)	(OH)	(GC)	(GC)	(SM)/(GM)	(SM)/(GM)	(OH)	(OH)
K (in/hr)		2.52		0.00012		99.8		0.21		0.000195
K (cm/sec)		1.78 × 10 ⁻³		8.76 × 10 ⁻⁸		7.04 × 10 ⁻²		1.47 × 10 ⁻⁴		1.38 × 10 ⁻⁷

~ MOIST. CONT. ~

~ DENSITY ~



PAULUS
SOKOLOWSKI
and SARTOR
CONSULTING ENGINEERS

~ PHILA. COKE ~
JOB. NO. 2522-212-074 PROJECT ENGINEER JP

TESTED BY LLSR
SL DATE 3/21/06

2

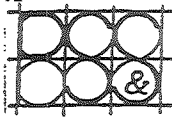
~ MOIST. CONT. ~

	PCM W-140	K-TEST PCM W-140	PCM W-160	K-TEST PCM W-160	PCM W-160	K-TEST PCM W-160	PCM W-170 bot. 14"	K-TEST PCM W-170 bot. 14"	PCM W-180	K-TEST PCM W-180	PCM W-180
SAMPLE #	53 38'-40'	53 38'-40'	51 9'-11'	51 9'-11'	53 29'-31'	53 29'-31'	51 18'-26'	51 18'-26'	51 18'-20'	51 18'-20'	51 18'-26'
TARE #	28		29		33		38		34		
WGT. TARE & WET SOIL	609.20		246.67		851.63		443.70		471.23		
WGT. TARE & DRY SOIL	564.71		221.71		797.79		223.86		453.18		
WGT. WATER	40.49		24.96		53.84		219.84		18.05		
WGT. TARE	109.93		109.89		77.68		78.70		78.10		
WGT. DRY SOIL	454.78		111.82		720.11		145.16		375.08		
MOIST. CONT. %	8.9		22.3		7.5		151.45		4.8		

* IMPOSSIBLE TO OBTAIN RECONSTITUTED SAMPLE SIMILAR TO IN-SITU PROP'S. DUE TO THE VARIABLE M.C.'S & AMT. OF ORGANIC MATTER WITHIN SAMPLE.

~ DENSITY ~

		Reconst. to:		Reconst. to:		Reconst. to:		Reconst. to: *		Reconst. to:
WGT. TARE & WET SOIL	2583.40	1163.51	716.30	966.14	2213.36	1231.25	443.70	971.80	1788.81	1039.8
WGT. TARE	119.93	510.9	118.59	510.9	86.28	510.9	78.70	510.9	86.80	510.9
WGT. WET SOIL (grams)	2463.47	652.61	597.71	455.24	2127.08	720.35	365.0	460.9	1702.01	528.9
HEIGHT (in)	18.0"	3.47"	5.0"	2.72"	13.0"	3.20"	3.75"	3.1"	13.0"	2.94"
Φ (in)	2.46	2.875	2.46	2.875	2.46	2.875	2.46	2.875	2.44	2.875
VOLUME (ft ³)	0.0495	0.0130	0.0137	0.0102	0.0357	0.0120	0.0103	0.0116	0.0351	0.0110
γ _t (lb/ft ³)	109.72	110.7	96.18	98.4	131.35	132.3	78.12	87.59	106.9	106.0
M.C. %	8.9	8.9	22.3	22.3	7.5	7.5	151.45	108.53	4.8	4.8
γ _d (lb/ft ³)	100.75	101.6	78.64	80.46	122.19	123.07	31.07	39.9	102.0	101.1
G _s	2.71	2.71	2.68	2.68	2.70	2.70	2.11	2.11	2.65	2.65
e ₀	0.678	0.664	1.127	1.078	0.379	0.369	3.24	2.30	0.621	0.436
S ₀	35.67%	36.37%	53.07%	55.47%	53.47%	54.97%	98.67%	99.67%	20.57%	20.07%
n	0.404	0.399	0.530	0.519	0.275	0.269	0.764	0.697	0.383	0.389
USCS I.D.	(GP-GM)	(GP-GM)	(SM)	(SM)	(GP-GM) (SP-SM)	(GP-GM) (SP-SM)	(OH)	(OH)	(SP-SM)	(SP-SM)
K (in/hr)		254.0		4.15		23.89		0.00125		10.96
K (cm/sec)		1.79 x 10 ⁻¹		2.93 x 10 ⁻³		1.69 x 10 ⁻²		8.64 x 10 ⁻⁷		7.73 x 10 ⁻³



PAULUS
SOKOLOWSKI
and SARTOR
CONSULTING ENGINEERS

~ PHILA. COKE ~
JOB. NO. 2522-212-074 PROJECT ENGINEER JP

TESTED BY LLSR
SL DATE 3/21/06

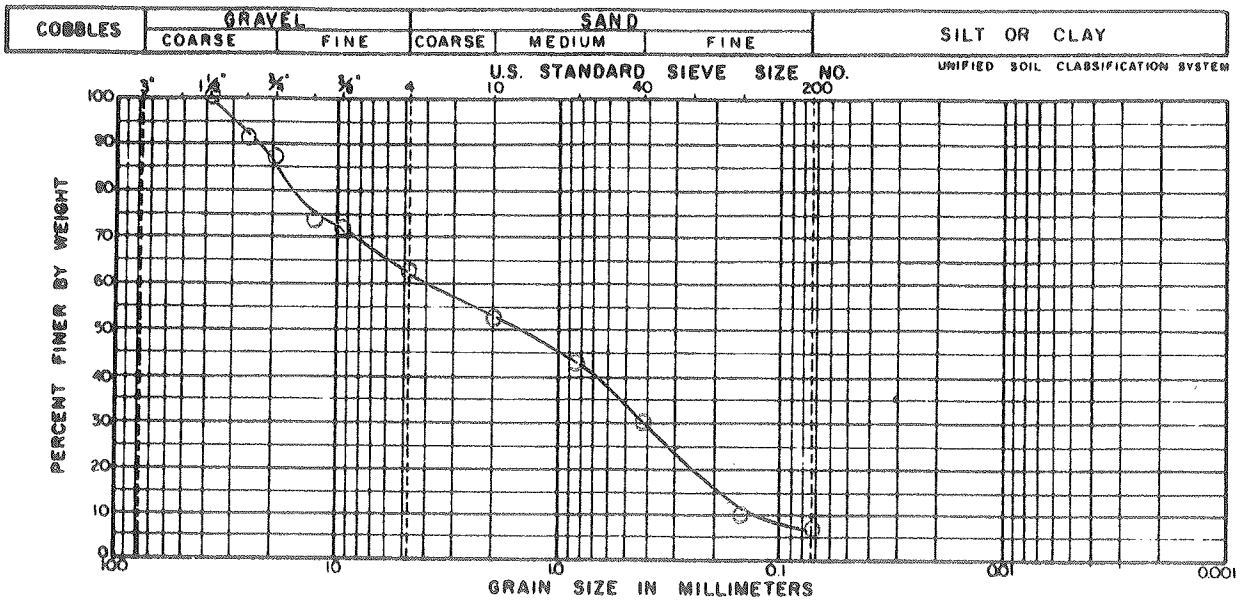
3

	PCM W-18D	K TEST PCM W-18D	PCM W-	PCM W-	PCM W-	PCM W-	PCM W-	PCM W-	PCM W-	PCM W-	PCM W-
SAMPLE #	52 34'-36'	52 34'-36'									
TARE #	35										
WGT. TARE & WET SOIL	515.27										
WGT. TARE & DRY SOIL	486.58										
WGT. WATER	28.69										
WGT. TARE	77.42										
WGT. DRY SOIL	409.16										
MOIST CONT. %	7.0										
		Reconst to:									
WGT. TARE & WET SOIL	2872.02	1078.43									
WGT. TARE	92.52	510.9									
WGT. WET SOIL (grams)	2779.50	567.53									
HEIGHT (in)	22.5"	3.28									
Φ (in)	2.44	2.875									
VOLUME (ft ³)	0.0608	0.0123									
γ _t (lb/ft ³)	100.78	101.72									
M.C. %	7.0	7.0									
γ _d (lb/ft ³)	94.2	95.1									
G _s	2.67	2.67									
e ₀	0.769	0.752									
S ₀	24.3%	24.9%									
n	0.435	0.429									
USCS I.P.	(SP-SM)	(SP-SM)									
K (in/hr)		3.87									
K (cm/sec)		2.73 × 10 ⁻³									

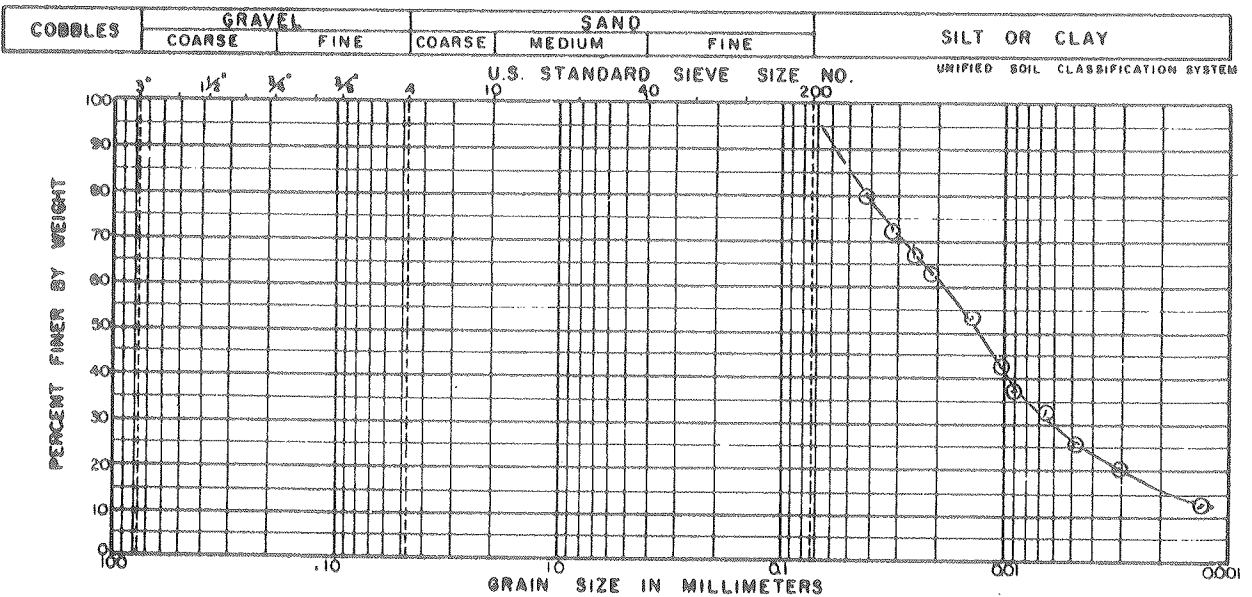
~ MOIST. CONT. ~

~ DENSITY ~

GRAIN-SIZE DISTRIBUTION



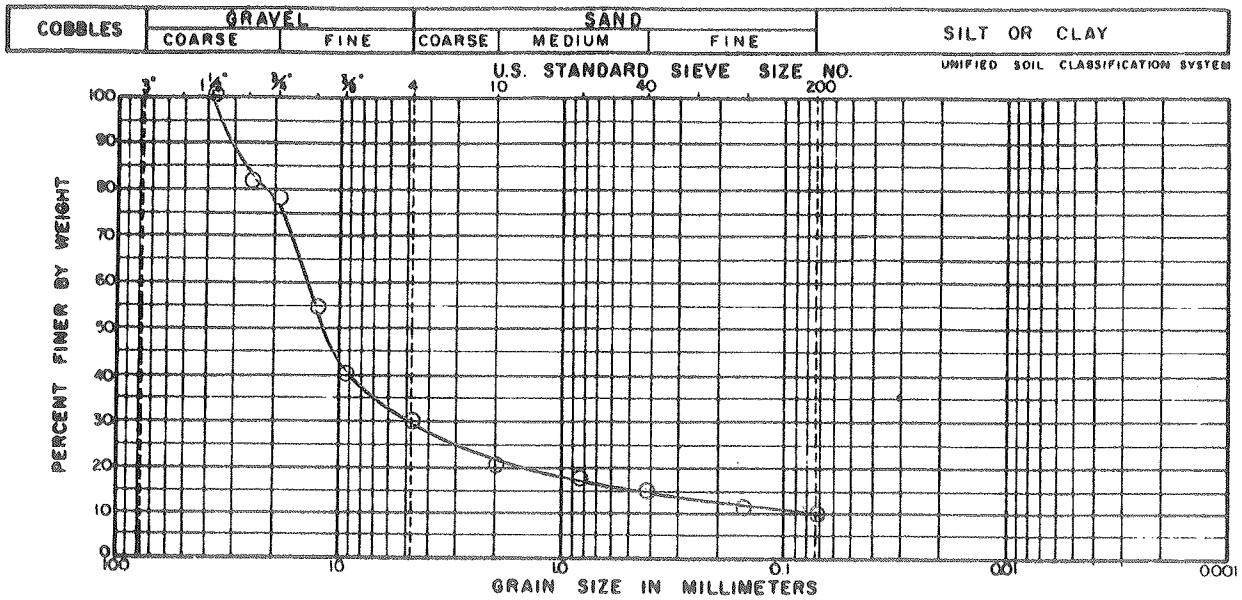
BORING	SAMPLE	DEPTH	SYMBOL	CLASSIFICATION	MC	LL	PL
PCMW	S1	10'-12'		GRAY BR. F ⁺ -G SAND, AND F ⁺ -G	10.8	~	~
	-10D			GRAVEL, TR ⁺ SILT, NUM. COAL			
				FRAGS (SP-SM) (FILL)			



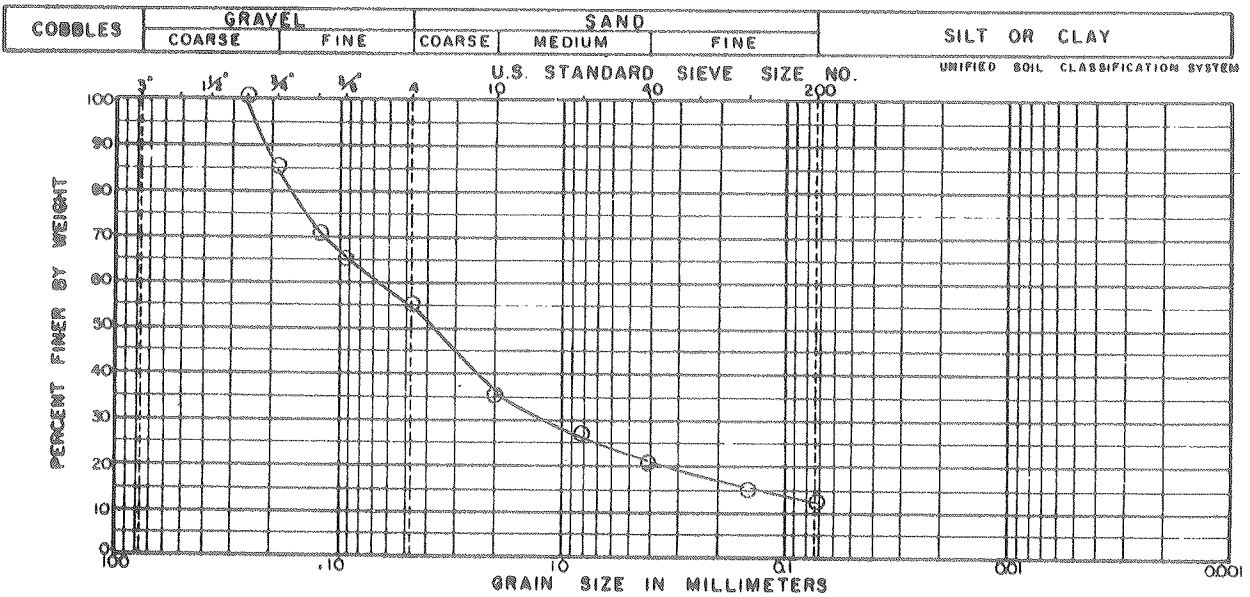
BORING	SAMPLE	DEPTH	SYMBOL	CLASSIFICATION	MC	LL	PL
PCMW	S3	17'-19'		DK. GRAY ORGANIC SILTY CLAY,	78.0	~	~
	-10D			OCC. ROOTS, TWIGS & PEAT FIBERS			
				(OH)			

PROJ. NO. 2522-212-074 ~

GRAIN-SIZE DISTRIBUTION



BORING	SAMPLE	DEPTH	SYMBOL	CLASSIFICATION	MC	LL	PL
PCMW	S4	33'-35'		BR. GRAY F-C GRAVEL, SOME C-F SAND, LITTLE SILTY CLAY (GC)	11.8	~	~
-10D							

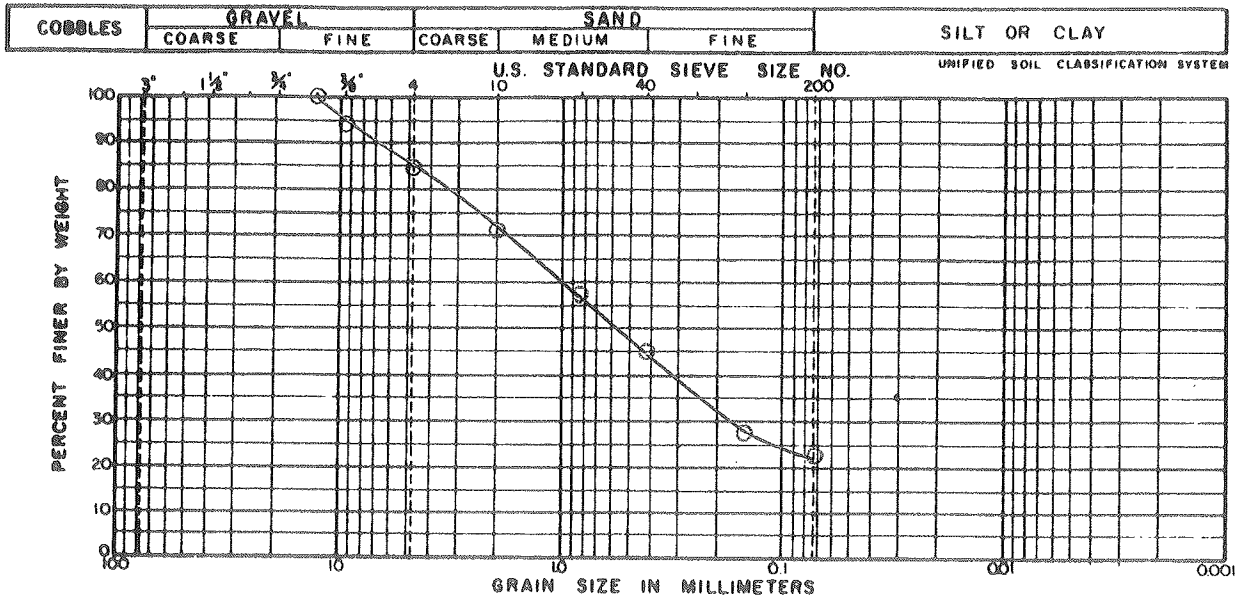


BORING	SAMPLE	DEPTH	SYMBOL	CLASSIFICATION	MC	LL	PL
PCMW	S1	10'-12'		GRAY BR. C-F SAND, F-C GRVL., LITTLE SILT, NUM. CINDERS, GLASS, METAL, WOOD & MISC. DEBRIS (SM)/(GM) (FILL)	38.3	~	~
-14D							

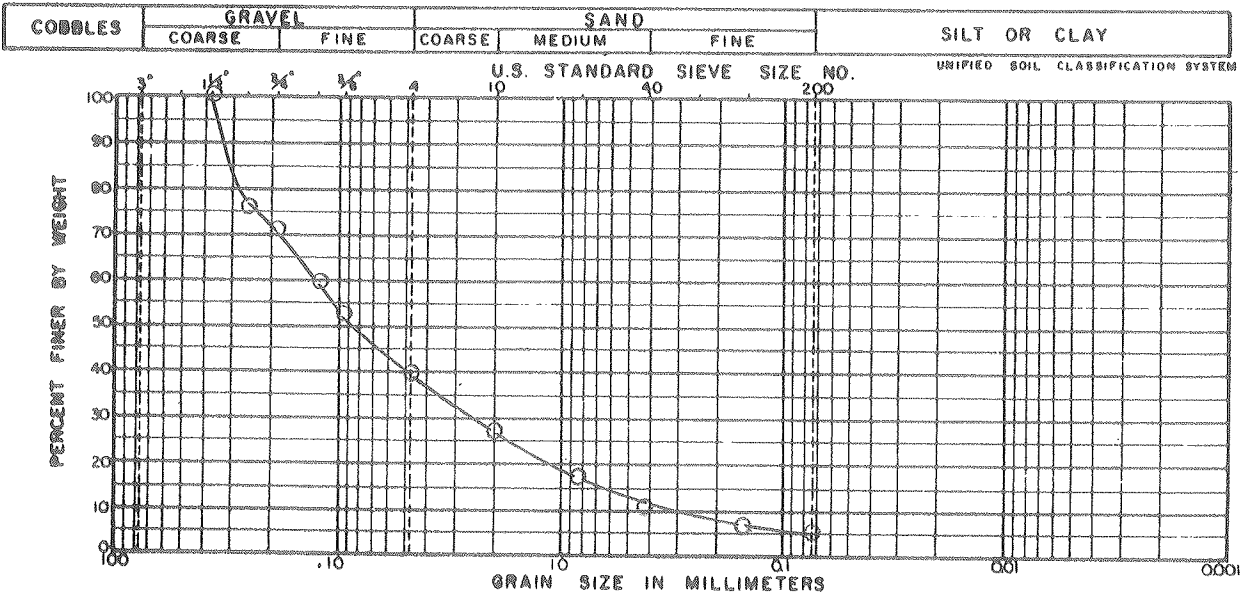
PROJ. NO.

~ 2522-212-074~

GRAIN - SIZE DISTRIBUTION



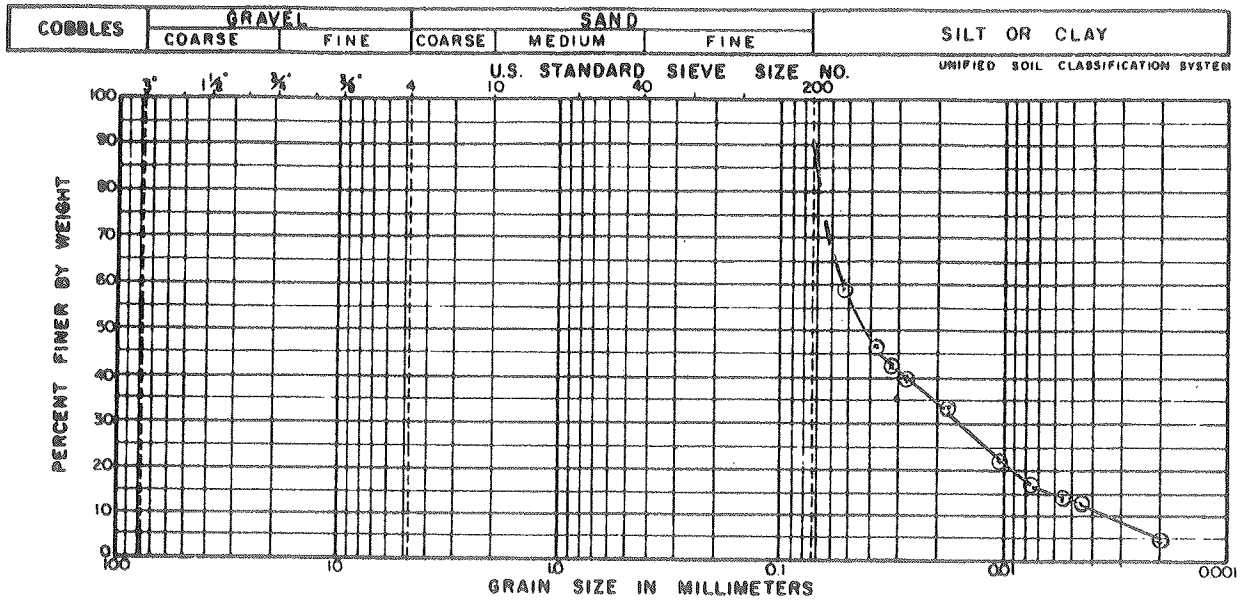
BORING	SAMPLE	DEPTH	SYMBOL	CLASSIFICATION	MC	LL	PL
PCMW	S1	9'-11'		DM-GRAV F-M-C SAND, SOME CLAYEY SILT, LITTLE F GRAVEL (SM)(FILL)	22.3	~	~
-160							



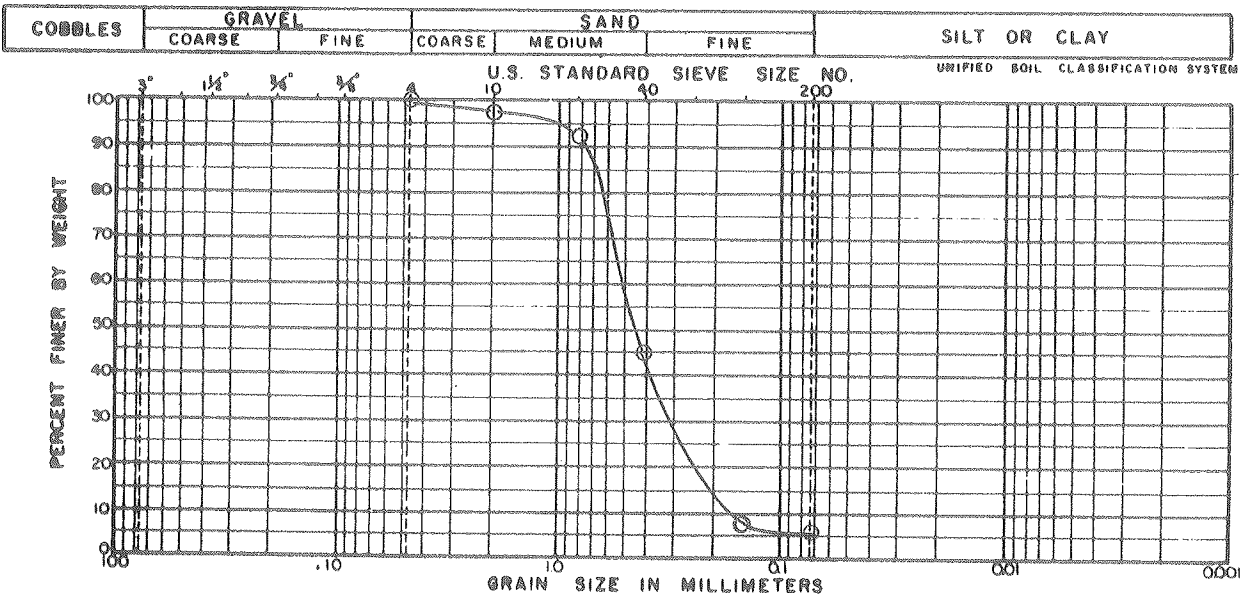
BORING	SAMPLE	DEPTH	SYMBOL	CLASSIFICATION	MC	LL	PL
PCMW	S3	29'-31'		TAN GRAY BR. F-C GRAVEL, SOME G-F SAND, TR. SILT (GP-GM)/(SP-SM)	7.5	~	~
-160							

PROJ. NO. ~ 2522-212-074 ~

GRAIN-SIZE DISTRIBUTION



BORING	SAMPLE	DEPTH	SYMBOL	CLASSIFICATION	MC	LL	PL
PCMW	S1	18'-20'		DK. GRAY ORGANIC CLAYEY SILT,	154.5	~	~
	-17D	BOT. 14"		TR. F SAND, NUM. ROOTS, PEAT			
				FIBERS (OH)			

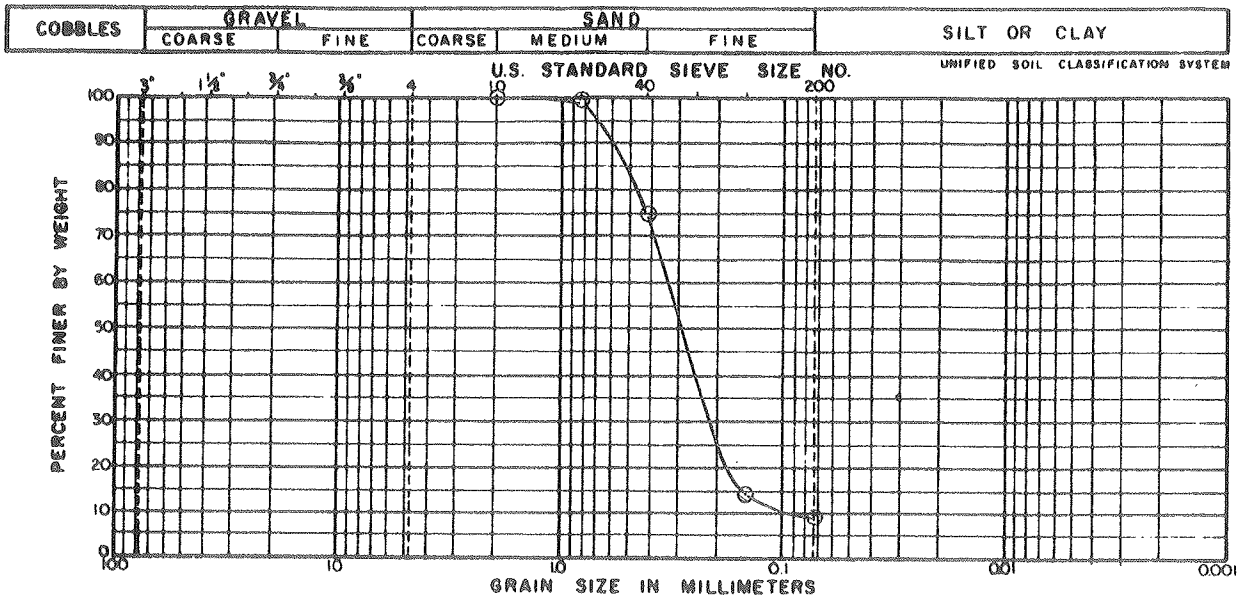


BORING	SAMPLE	DEPTH	SYMBOL	CLASSIFICATION	MC	LL	PL
PCMW	S1	18'-20'		ORANGE BR. F-M SAND, TR. SILT	4.8	~	~
	-18D			(SP-SM)			

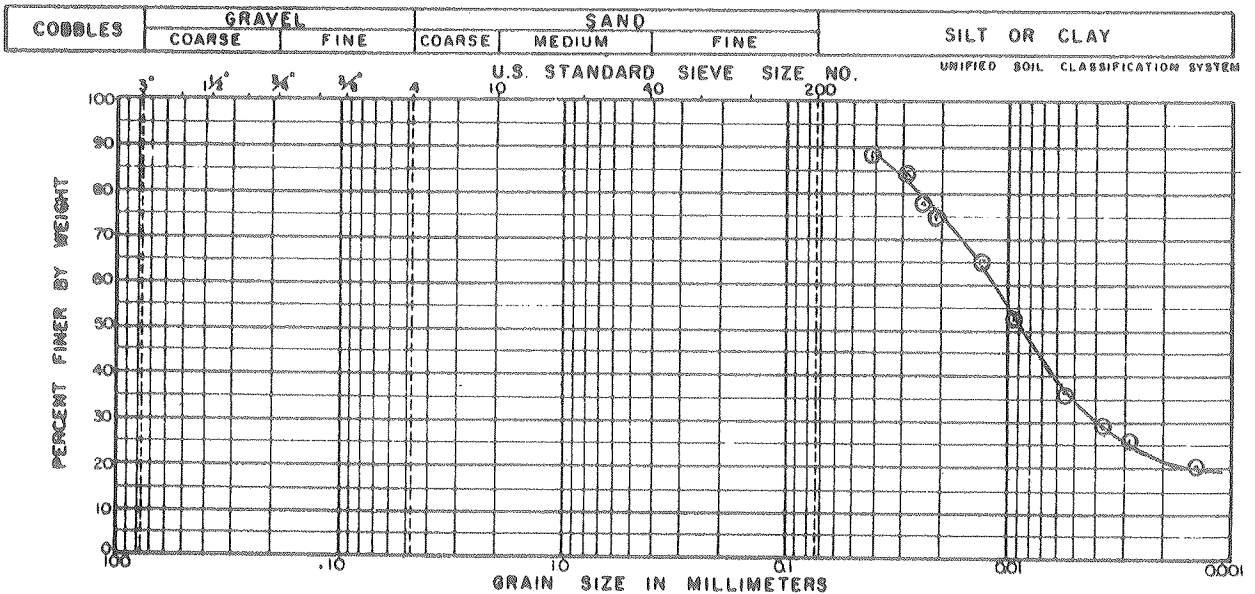
PROJ. NO.

~ 2522-212-074 ~

GRAIN-SIZE DISTRIBUTION



BORING	SAMPLE	DEPTH	SYMBOL	CLASSIFICATION	MC	LL	PL
FCMW	S2	34'-36'		TAN BR. F. M SAND, TR. SILT (SP-SM)	7.0	~	~
	-1B						



BORING	SAMPLE	DEPTH	SYMBOL	CLASSIFICATION	MC	LL	PL
FCMW	S2	18'-20'		DK. GRAY ORGANIC SILTY CLAY, OCC. F SAND LENSES, OCC. PEAT FIBERS (OH)	-	~	~
	JAR SAMPLE						

PROJ. NO. 2522-212-074~

SIEVE ANALYSIS

Job No.: 2522-212-074
 Owner: PHILA. COKE
 Location: PHILADELPHIA, PA
 Sheet of

~UNIFIED~

Boring No.: PCMW-100
 Sample No. + Depth: S1 10'-12'
 Tested By: LLSR, SL
 Date: 3/1/06

- | | |
|---|--|
| 1. Wt. of Sample + Tare (No. <u>21</u>) <u>601.23</u> gms. | 7. Loss of Moisture (3-6) <u>50.49</u> gms. |
| 2. Wt. of Tare <u>85.27</u> gms. | 8. Field Moisture Content (7+6) <u>10.8</u> % |
| 3. Wt. of Sample (at field m.c.) <u>515.96</u> gms. | 9. Wt. of Sample after Wash & Drying + Tare <u>525.49</u> gms. |
| 4. Wt. of Dry Sample + Tare <u>550.74</u> gms. | 10. Wt. of Tare <u>85.27</u> gms. |
| 5. Wt. of Tare <u>85.27</u> gms. | 11. Wt. of Sample (9-10) <u>440.22</u> gms. |
| 6. Wt. of Dry Sample <u>465.47</u> gms. | 12. Wt. Lost in Washing (6-11) <u>25.25</u> gms. |

U.S. Std. Sieve No.	Dish + Soil Retained	Wt. of Dish	Wt. Soil Retained	Percent Retained	Cumulative Percent Ret.	% Finer
Larger						100.0
1" 13.0	124.45	85.27	34.18		8.4	91.6
3/4" 13.0	145.79		60.52		13.0	87.0
1/2" 24.0	205.35		120.08		25.8	74.2
3/8" 24.0	214.98		124.71		27.9	72.1
No. 4 47.5	257.63		172.36		37.0	63.0
No. 10 9.9	303.69		218.42		46.9	53.1
No. 20 22.8	346.48		261.21		56.1	43.9
No. 40 22.8	409.58		324.31		69.7	30.3
No. 100 22.8	505.12		419.85		90.2	9.8
No. 200 22.8	518.30		433.03		93.0	7.0
Pan 7.0	525.49		440.22	7.0		
Wt. Lost in Wash (Item 12)			25.25			
TOTAL			465.47 [Ⓐ]			

37.0 G
 56.0 S
 7.0 \$
 100.0 %

Ⓐ - should equal Item 6


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GRAIN SIZE ANALYSIS - HYDROMETER METHOD

Project PHILA. COKE Job No. 2522-212-074
 Location of Project PHILADELPHIA, PA Boring No. PCMW-10D Sample No. 5B
 Description of Soil Dk gray organic silty clay, occ. roots, twigs; peat fibers Depth of Sample 17'-19'
 Tested By LL SR (DH) Date of Testing 3/7/06
SL

Hydrometer analysis CYL. 1

Hydrometer no. 152H G_s of solids = 2.41 γ_w = 1.06

Dispersing agent (NaPO₃)₆ Amount 4% 125 mL Wt. of soil, W_s 50.0

Zero correction +5.0 Meniscus correction 1.0

START 11:06 Date	Time of reading	Elapsed time, min	Temp., °C	R_a Actual Hyd. reading H _a	R_c Corr. Hyd. reading H _c	N % Finer	Hyd. Corr. only for meniscus. H	L from Table 6-5	$\frac{L}{l}$	K from Table 6-4	D, mm	N'
3.7.06	11:07	1	23	42	37.7	79.9	43	9.2	9.2	0.0143	0.0434	
	11:08	2	"	38.5	34.2	72.5	39.5	9.8	4.9	"	0.0317	
	11:09	3	"	36	31.7	67.2	37	10.2	3.4	"	0.0264	
	11:10	4	"	34	29.7	63.0	35	10.5	2.63	"	0.0232	
	11:17	11	"	29.5	25.2	53.4	30.5	11.3	1.03	"	0.0145	
	11:26	20	"	24	19.7	41.8	25	12.2	0.61	"	0.0111	
	11:36	30	"	22	17.7	37.5	23	12.5	0.42	"	0.009	
	12:06	60	"	20	15.7	33.3	21	12.9	0.215	"	0.0066	
	13:06	120	"	16.5	12.2	25.9	17.5	13.4	0.112	"	0.0048	
	16:06	300	"	14	9.7	20.6	15	13.8	0.046	"	0.0031	
3.8.06	13:06	1560	22	10.5	5.9	12.5	11.5	14.4	0.0092	0.0144	0.0014	

$R_c = R_{actual} - \text{zero correction} + C_r$ % finer = $R_c(d)/W_s$ $D = K \sqrt{L/l}$
 $N' = N \cdot \% \text{ FINER} \neq 10$

SIEVE ANALYSIS

Job No.: 2522-212-074
 Owner: PHILA. COKE
 Location: PHILADELPHIA, PA
 Sheet of

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Boring No.: PCMW-100
 Sample No. + Depth: S4 33'-35"
 Tested By: LLSR, SL
 Date: 3/1/06

- | | |
|---|--|
| 1. Wt. of Sample + Tare (No. <u>23</u>) <u>509.39</u> gms. | 7. Loss of Moisture (3-6) <u>42.66</u> gms. |
| 2. Wt. of Tare <u>106.26</u> gms. | 8. Field Moisture Content (7÷6) <u>11.8</u> % |
| 3. Wt. of Sample (at field m.c.) <u>403.16</u> gms. | 9. Wt. of Sample after Wash & Drying + Tare <u>429.67</u> gms. |
| 4. Wt. of Dry Sample + Tare <u>466.76</u> gms. | 10. Wt. of Tare <u>106.26</u> gms. |
| 5. Wt. of Tare <u>106.26</u> gms. | 11. Wt. of Sample (9-10) <u>323.41</u> gms. |
| 6. Wt. of Dry Sample <u>360.50</u> gms. | 12. Wt. Lost in Washing (6-11) <u>37.09</u> gms. |

U.S. Std. Sieve No.	Dish + Soil Retained	Wt. of Dish	Wt. Soil Retained	Percent Retained	Cumulative Percent Ret.	% Finer
Larger						100
1"	171.36	106.26	65.10		18.1	81.9
3/4" 21.9	185.22		78.96		21.9	78.1
1/2"	269.27		163.01		45.2	54.8
3/8" 47.4	322.46		216.20		60.0	40.0
No. 4	356.09		249.83		69.3	30.7
No. 10 9.8	391.40		285.14		79.1	20.9
No. 20	400.60		294.34		81.6	18.4
No. 40 5.1	409.78		303.52		84.2	15.8
No. 100	424.17		317.91		88.2	11.8
No. 200 5.1	428.35		322.09		89.3	10.7
Pan 10.7	429.67		323.41	10.7		
Wt. Lost in Wash (Item 12)			37.09			
TOTAL			360.50 (A)			

(A) - should equal Item 6

69.3 % C
 20.0 % S
 10.7 % 4C
 100 %



GRAIN SIZE ANALYSIS - HYDROMETER METHOD

Project PHILA. COKE Job No. 2522-212-074
 Location of Project PHILADELPHIA, PA Boring No. PCMW-110 Sample No. 52 (JAR)
 Description of Soil Dr. gray organic silty clay, occ. f. sand lenses, occ. peat fibers (OH) Depth of Sample 18'-20'
 Tested By LL SR Date of Testing 3/9/06
SL

Hydrometer analysis

Hydrometer no. 152 H % of solids = 2.45 " = 1.05
 Dispersing agent (NaPO₃)₆ Amount 4% 125 ML Wt. of soil, W_s 50.0
 Zero correction +5.0 Meniscus correction 1.0

START 11:35 Date	Time of reading	Elapsed time, min	Temp., °C	Actual Hyd. reading R _a	Corr. Hyd. reading R _c	N % Finer	Hyd. Corr. only for meniscus. H	L from Table 6-5	$\frac{L}{l}$	K from Table 6-4	D, mm	N'
3-9-06	11:36	1	24	46	42	88.2	47	8.6	8.6	0.0139	0.0408	
	11:37	2	"	44	40	84.0	45	8.9	4.45	"	0.0293	
	11:38	3	"	41	37	77.7	42	9.4	3.13	"	0.0246	
	11:39	4	"	40	36	75.6	41	9.6	2.40	"	0.0215	
	11:45	10	"	35	31	65.1	36	10.4	1.04	"	0.0142	
	12:00	25	"	29	25	52.5	30	11.4	0.46	"	0.0094	
	13:00	85	"	21	17	35.7	22	12.7	0.149	"	0.0054	
	14:35	180	23	18	13.7	28.8	19	13.2	0.073	0.0141	0.0038	
	17:05	330	22	17	12.4	26.0	18	13.3	0.040	0.0144	0.0028	
3-10-06	9:05	1290	23	14	9.7	20.4	15	13.8	0.011	0.0141	0.0015	

$R_c = R_{actual} - \text{zero correction} + C_T$
 $\% \text{ finer} = R_c(a)/W_s$
 $D = K \sqrt{L/H}$
 $N' = N \cdot \% \text{ FINER} \cdot 10$

SIEVE ANALYSIS

Job No.: 2522-212-074
 Owner: PHILA. COKE
 Location: PHILADELPHIA, PA
 Sheet of

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Boring No.: PCMW-14D
 Sample No. + Depth: S1 10'-12'
 Tested By: LLSR, SL
 Date: 3/3/06

- | | |
|---|--|
| 1. Wt. of Sample + Tare (No. <u>27</u>) <u>396.30</u> gms. | 7. Loss of Moisture (3-6) <u>79.19</u> gms. |
| 2. Wt. of Tare <u>110.16</u> gms. | 8. Field Moisture Content (7+6) <u>38.3</u> % |
| 3. Wt. of Sample (at field m.c.) <u>286.14</u> gms. | 9. Wt. of Sample after Wash & Drying + Tare <u>293.23</u> gms. |
| 4. Wt. of Dry Sample + Tare <u>317.11</u> gms. | 10. Wt. of Tare <u>110.16</u> gms. |
| 5. Wt. of Tare <u>110.16</u> gms. | 11. Wt. of Sample (9-10) <u>183.07</u> gms. |
| 6. Wt. of Dry Sample <u>206.95</u> gms. | 12. Wt. Lost in Washing (6-11) <u>23.88</u> gms. |

U.S. Std. Sieve No.	Dish + Soil Retained	Wt. of Dish	Wt. Soil Retained	Percent Retained	Cumulative Percent Ret.	% Finer
Larger						
1"		110.16				100%
3/4" 14.9	140.97	110.16	30.81		14.9	85.1
1/2"	169.42		59.26		28.6	71.4
3/8" 29.6	181.99		71.83		34.7	65.3
No. 4	202.15		91.99		44.5	55.5
No. 10 20.2	244.14		133.98		64.7	35.3
No. 20	260.68		150.52		72.7	27.3
No. 40 14.3	273.62		163.46		79.0	21.0
No. 100 7.8	286.32		176.16		85.1	14.9
No. 200	289.78		179.62		86.8	13.2
Pan 13.2	293.23		183.07	13.2		
Wt. Lost in Wash (Item 12)			23.88			
TOTAL			206.95 [Ⓐ]			

44.9 G
42.3 S
13.2 #
100%

Ⓐ - should equal Item 6

GRAIN SIZE ANALYSIS - HYDROMETER METHOD

Project PHILA. COKE Job No. 2522-212-074
 Location of Project PHILADELPHIA, PA Boring No. PCMW-14D Sample No. 52
 Description of Soil Dr. gray organic silty clay, tr. f sand, org. roots, peat Depth of Sample 16'-18'
 Tested By LLSR fibers (OH) Date of Testing 3/7/06
SL
 Hydrometer analysis CYL. 2
 Hydrometer no. 152 H (% of solids = 2.43 " = 1.00
 Dispersing agent (NaPO₃)₆ Amount 4% 125 ML Wt. of soil, W_s 50.0
 Zero correction +5.0 Meniscus correction 1.0

START 12:00 Date	Time of reading	Elapsed time, min	Temp., °C	Actual Hyd. reading H _a	Corr. Hyd. reading H _c	N % Finer	Hyd. Corr. only for meniscus, H _m	L from Table 6-5	$\frac{L}{l}$	K from Table 6-4	D, mm	N'
3/7/06	12:01	1	23	48	43.7	42.6	49	8.3	8.3	0.0101	0.001	
	12:02	2	"	46	41.7	88.4	47	8.6	4.3	"	0.029	
	12:03	3	"	44	39.7	84.2	45	8.9	2.9	"	0.024	
	12:04	4	"	43	38.7	79.5	44	9.1	2.3	"	0.024	
	12:10	10	"	39	34.7	73.5	40	9.7	0.97	"	0.0139	
	12:20	20	"	34	29.7	63.0	35	10.5	0.53	"	0.0102	
	12:30	30	"	30	25.7	54.5	31	11.2	0.37	"	0.0086	
	13:00	60	"	25.5	21.2	44.9	26.5	11.95	0.199	"	0.0063	
	14:00	120	"	23	18.7	39.6	24	12.4	0.183	"	0.0045	
	16:00	240	"	19	14.7	31.2	20	13.0	0.054	"	0.0033	
3-8-06	13:00	1500	22	15	10.4	22.0	16	13.7	0.0091	0.0143	0.0014	

$R_c = R_{\text{actual}} - \text{zero correction} + C_r$

$\% \text{ finer} = R_c(a)/W_s$

$D = K \sqrt{L/l}$

$N' = N \cdot \% \text{ FINER} \cdot 10$

SIEVE ANALYSIS

Job No.: 2522-212-074
 Owner: PHILA. COKE
 Location: PHILADELPHIA, PA
 Sheet of

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Boring No.: PCMW-14D
 Sample No. + Depth: 53 38'-40'
 Tested By: LLSR, SL
 Date: 3/2/06

- | | |
|---|--|
| 1. Wt. of Sample + Tare (No. <u>28</u>) <u>605.20</u> gms. | 7. Loss of Moisture (3-6) <u>40.49</u> gms. |
| 2. Wt. of Tare <u>109.93</u> gms. | 8. Field Moisture Content (7+6) <u>8.9</u> % |
| 3. Wt. of Sample (at field m.c.) <u>495.27</u> gms. | 9. Wt. of Sample after Wash & Drying + Tare <u>548.21</u> gms. |
| 4. Wt. of Dry Sample + Tare <u>564.71</u> gms. | 10. Wt. of Tare <u>109.93</u> gms. |
| 5. Wt. of Tare <u>109.93</u> gms. | 11. Wt. of Sample (9-10) <u>438.28</u> gms. |
| 6. Wt. of Dry Sample <u>454.78</u> gms. | 12. Wt. Lost in Washing (6-11) <u>16.50</u> gms. |

U.S. Std. Sieve No.	Dish + Soil Retained	Wt. of Dish	Wt. Soil Retained	Percent Retained	Cumulative Percent Ret.	% Finer
Larger						
1"						
3/4"						
1/2"	116.21		6.28		1.4	100.0
3/8" 78.2	170.79	109.93	60.86		13.4	98.6
No. 4	465.53		355.60		78.2	21.8
No. 10 9.0	506.40		396.47		87.2	12.8
No. 20	521.13		411.20		90.4	9.6
No. 40 5.3	530.62		420.69		92.5	7.5
No. 100	535.41		425.48		93.6	6.4
No. 200 2.2	540.72		430.79		94.7	5.3
Pan 5.3	548.21		438.28	5.3		
Wt. Lost in Wash (Item 12)			16.5			
TOTAL			454.78 [Ⓐ]			

Ⓐ - should equal Item 6

78.2 % G
 16.5 % S
 5.3 % F
 100 %

SIEVE ANALYSIS

Job No.: 2522-212-07A
 Owner: PHILA. COKE
 Location: PHILADELPHIA, PA
 Sheet of

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Boring No.: PCMW-160
 Sample No. + Depth: S1 9'-11"
 Tested By: LSR, SL
 Date: 3/2/06

- | | |
|---|--|
| 1. Wt. of Sample + Tare (No. <u>29</u>) <u>246.67</u> gms. | 7. Loss of Moisture (3-6) <u>29.96</u> gms. |
| 2. Wt. of Tare <u>109.89</u> gms. | 8. Field Moisture Content (7÷6) <u>22.3</u> % |
| 3. Wt. of Sample (at field m.c.) <u>136.78</u> gms. | 9. Wt. of Sample after Wash & Drying + Tare <u>196.77</u> gms. |
| 4. Wt. of Dry Sample + Tare <u>221.71</u> gms. | 10. Wt. of Tare <u>109.89</u> gms. |
| 5. Wt. of Tare <u>109.89</u> gms. | 11. Wt. of Sample (9-10) <u>86.88</u> gms. |
| 6. Wt. of Dry Sample <u>111.82</u> gms. | 12. Wt. Lost in Washing (6-11) <u>24.94</u> gms. |

U.S. Std. Sieve No.	Dish + Soil Retained	Wt. of Dish	Wt. Soil Retained	Percent Retained	Cumulative Percent Ret.	% Finer
Larger						
1"						
3/4"						
1/2"						
3/8"		<u>109.89</u>				<u>100</u>
No. 4 <u>15.2</u>	<u>116.35</u>	<u>109.89</u>	<u>6.46</u>		<u>5.8</u>	<u>94.2</u>
No. 10 <u>13.6</u>	<u>126.86</u>		<u>16.97</u>		<u>15.2</u>	<u>84.8</u>
No. 20	<u>142.12</u>		<u>32.23</u>		<u>28.8</u>	<u>71.2</u>
No. 40 <u>26.3</u>	<u>156.55</u>		<u>46.66</u>		<u>41.7</u>	<u>58.3</u>
No. 100	<u>171.51</u>		<u>61.62</u>		<u>55.1</u>	<u>44.9</u>
No. 200 <u>21.0</u>	<u>190.32</u>		<u>80.43</u>		<u>71.9</u>	<u>28.1</u>
Pan <u>23.9</u>	<u>194.94</u>		<u>85.05</u>		<u>76.1</u>	<u>23.9</u>
Wt. Lost in Wash (Item 12)			<u>86.88</u>	<u>23.9</u>		
			<u>24.94</u>			<i>occ. metal frags.</i>
TOTAL			<u>111.82</u> ⓐ			

ⓐ - should equal Item 6

15.2 %
60.9 %
23.9 %
100 %



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SIEVE ANALYSIS

Job No.: 2522-212-074
 Owner: PHILA. COKE
 Location: PHILADELPHIA, PA
 Sheet of

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Boring No.: PCMW-160
 Sample No. + Depth: S3 29'-31'
 Tested By: LLSR, SL
 Date: 3/2/06

- | | |
|---|--|
| 1. Wt. of Sample + Tare (No. <u>33</u>) <u>851.63</u> gms. | 7. Loss of Moisture (3-6) <u>53.84</u> gms. |
| 2. Wt. of Tare <u>77.68</u> gms. | 8. Field Moisture Content (7÷6) <u>7.5</u> % |
| 3. Wt. of Sample (at field m.c.) <u>773.95</u> gms. | 9. Wt. of Sample after Wash & Drying + Tare <u>759.20</u> gms. |
| 4. Wt. of Dry Sample + Tare <u>797.79</u> gms. | 10. Wt. of Tare <u>77.68</u> gms. |
| 5. Wt. of Tare <u>77.68</u> gms. | 11. Wt. of Sample (9-10) <u>681.52</u> gms. |
| 6. Wt. of Dry Sample <u>720.11</u> gms. | 12. Wt. Lost in Washing (6-11) <u>38.59</u> gms. |

U.S. Std. Sieve No.	Dish + Soil Retained	Wt. of Dish	Wt. Soil Retained	Percent Retained	Cumulative Percent Ret.	% Finer
Larger						100.0
1" 28.2	243.76	77.68	166.08		23.1	76.9
3/4" 31.8	280.56		202.88		28.2	71.8
1/2" 31.8	368.37		290.69		40.4	59.6
No. 4 31.8	413.77		336.09		46.7	53.3
No. 10 6.1	509.59		431.91		60.0	40.0
No. 20 12.2	547.26		519.58		72.2	27.8
No. 40 16.0	667.33		589.65		81.9	18.1
No. 100 6.1	712.86		635.18		88.2	11.8
No. 200 6.1	746.69		669.01		92.9	7.1
Pan 5.7	756.79		679.11		94.3	5.7
Wt. Lost in Wash (Item 12)			681.52	5.7		
TOTAL			38.59			
			720.11 [Ⓐ]			

60.0 6
 34.3 5
 5.7 4

 100 %

Ⓐ - should equal Item 6



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 and SARTOR
 CONSULTING ENG.

GRAIN SIZE ANALYSIS · HYDROMETER METHOD

Project PHILA. COKE Job No. 2522-212-074
 Location of Project PHILADELPHIA, PA Boring No. PCMW-17D Sample No. 51
 Description of Soil Dr. gray organic clayey silt, tr. f sand, num. roots & peat fibers Depth of Sample 18'-20'
 Tested By LL SR (OH) Date of Testing 3/4/06
SL

Hydrometer analysis

Hydrometer no. 152 H (% of solids = 2.11 " = 1.18

Dispersing agent (NaPO₃)₆ Amount 1% 125 ML Wt. of soil, W_s 50.0

Zero correction +5.0 Meniscus correction 1.0

START 17:04 Date	Time of reading	Elapsed time, min	Temp., °C	Actual Hyd. reading R _a	Corr. Hyd. reading R _r	N % Finer	Hyd. Corr. only for meniscus, R _m	L from Table 6-5	L i	K from Table 6-4	D, mm	N'
3/4/06	17:05	1	24	29.0	25	59.0	30	11.4	11.4	0.0159	0.0537	
	17:06	2	"	23.5	19.5	46.0	24.5	12.1	6.05	"	0.0391	
	17:07	3	"	22	18	42.5	23	12.5	4.17	"	0.0325	
	17:08	4	"	21	17	40.1	22	12.7	3.18	"	0.0284	
	17:14	10	"	18.5	14.5	34.2	19.5	13.1	1.31	"	0.0182	
	17:34	30	"	13	9	21.2	14	14.0	0.47	"	0.0109	
	18:04	60	"	11	7	16.5	12	14.3	0.238	"	0.0078	
	19:04	120	"	10	6	14.2	11	14.5	0.121	"	0.0055	
	20:04	180	"	9.5	5.5	13.0	10.5	14.6	0.081	"	0.0045	
3/6/06	09:56	1012	23	6	1.7	4.0	7	15.2	0.015	0.0161	0.0020	

$R_r = R_{\text{actual}} - \text{zero correction} + C_r$
 $\% \text{ finer} = R_r(u)/W_s$
 $D = K \sqrt{L/i}$
 $N' = N \cdot \% \text{ FINER} \cdot 0$

SIEVE ANALYSIS

Job No.: 2522-212-074
 Owner: PHILA. COKE
 Location: PHILADELPHIA, PA
 Sheet of

~UNIFIED~

Boring No.: PCMW-18D
 Sample No. + Depth: S1 18'-20'
 Tested By: LLSR, SL
 Date: 3/2/06

- | | |
|---|--|
| 1. Wt. of Sample + Tare (No. <u>34</u>) <u>471.23</u> gms. | 7. Loss of Moisture (3-6) <u>18.05</u> gms. |
| 2. Wt. of Tare <u>78.10</u> gms. | 8. Field Moisture Content (7÷6) <u>4.8</u> % |
| 3. Wt. of Sample (at field m.c.) <u>393.13</u> gms. | 9. Wt. of Sample after Wash & Drying + Tare <u>432.47</u> gms. |
| 4. Wt. of Dry Sample + Tare <u>453.18</u> gms. | 10. Wt. of Tare <u>78.10</u> gms. |
| 5. Wt. of Tare <u>78.10</u> gms. | 11. Wt. of Sample (9-10) <u>354.37</u> gms. |
| 6. Wt. of Dry Sample <u>375.08</u> gms. | 12. Wt. Lost in Washing (6-11) <u>20.71</u> gms. |

U.S. Std. Sieve No.	Dish + Soil Retained	Wt. of Dish	Wt. Soil Retained	Percent Retained	Cumulative Percent Ret.	% Finer
Larger						
1"						
3/4"						
1/2"						
3/8"						
No. 4						100.0
No. 10 ^{2.0}	85.50	78.10	7.40		2.0	98.0
No. 20	107.82		29.72		7.9	92.1
No. 40 ^{52.7}	286.97		208.87		55.7	45.3
No. 100	423.34		345.24		92.0	8.0
No. 200 ^{39.3}	430.63		352.53		94.0	6.0
Pan ^{6.0}	432.47		354.37	6.0		
Wt. Lost in Wash (Item 12)	1.84		20.71			
TOTAL			375.08 [Ⓐ]			

Ⓐ - should equal Item 6

94.0 % S
 6.0 % F
 100.0 %



SIEVE ANALYSIS

Job No.: 2522-212-07A
 Owner: PHILA. COKE
 Location: PHILADELPHIA, PA
 Sheet of

~UNIFIED~

Boring No.: PCMW-18D
 Sample No. + Depth: SZ 34'-36'
 Tested By: LLSR, SL
 Date: 3/2/06

- | | |
|---|--|
| 1. Wt. of Sample + Tare (No. <u>35</u>) <u>515.27</u> gms. | 7. Loss of Moisture (3-6) <u>28.69</u> gms. |
| 2. Wt. of Tare <u>77.42</u> gms. | 8. Field Moisture Content (7÷6) <u>7.0</u> % |
| 3. Wt. of Sample (at field m.c.) <u>437.85</u> gms. | 9. Wt. of Sample after Wash & Drying + Tare <u>449.03</u> gms. |
| 4. Wt. of Dry Sample + Tare <u>486.58</u> gms. | 10. Wt. of Tare <u>77.42</u> gms. |
| 5. Wt. of Tare <u>77.42</u> gms. | 11. Wt. of Sample (9-10) <u>371.61</u> gms. |
| 6. Wt. of Dry Sample <u>409.16</u> gms. | 12. Wt. Lost in Washing (6-11) <u>37.55</u> gms. |

U.S. Std. Sieve No.	Dish + Soil Retained	Wt. of Dish	Wt. Soil Retained	Percent Retained	Cumulative Percent Ret.	% Finer
Larger						
1"						
3/4"						
1/2"						
3/8"						
No. 4			77.42			100
No. 10 ^{0.1}	77.88		0.46		0.1	99.9
No. 20	79.73		2.31		0.6	99.4
No. 40 ^{25.0}	180.13		102.71		25.1	74.9
No. 100	429.41		351.99		86.0	14.0
No. 200 ^{65.2}	446.88		369.46		90.3	9.7
Pan ^{9.7}	449.03		371.61	9.7		
Wt. Lost in Wash (Item 12)			37.55			
TOTAL			409.16 [Ⓐ]			

90.3% S
 9.7% F
 100.0%

Ⓐ - should equal Item 6

APPENDIX G

Completed Monitoring Well Integrity Surveys





Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/27/18

Well ID PEMN-01 ID Clearly Marked? NO

Project Name PHILLY COICE

Photo filename _____

Project Number _____

Weather SUNNY 55

Field Personnel CO/AW

General Description of Surroundings RIGHT NEXT TO RIVER

Well Condition:

Damaged? NO Abandoned? NO
(Describe Below)
Stick Up YES Flush Mount NO

Lockable cover? YES

Lock present? NO

Key number: _____

Stick up height _____

Casing material PVC

Well diameter 4"

Protective casing material: STEEL

Protective casing diameter: 6"

Cap present? Type? NO

Vented? If so, how? YES - NO PLUS

Measuring point clearly marked? NO

Total depth reported: 10' (3' STICK UP)

Total depth measured: 13.30

DTW: 5.75

Well obstructed? If so, depth? NO

Well bottom soft (sediment) or firm? SOFT

Flush Mount Wells Only

Gasket present? _____

Bolts present? _____

Teflon washers present? _____

Surface Condition:

Damaged? _____
(Describe Below)

Pad/cement intact? _____

Curb box/well cover present? _____

Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes _____

away from well? _____

Location Sketch

Comments/Recommendations:

LABELLED / MP MARKED



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Well ID <u>PCNW-02</u> ID Clearly Marked? _____	Date <u>2/27/18</u>
Photo filename _____	Project Name <u>PALLY COVE</u>
Weather _____	Project Number _____
General Description of Surroundings _____	Field Personnel <u>CO/AW</u>

Well Condition:	Surface Condition:
Damaged? <input type="checkbox"/> (Describe Below)	Damaged? <input type="checkbox"/> (Describe Below)
Abandoned? <input type="checkbox"/>	
Stick Up <input type="checkbox"/>	
Flush Mount <input type="checkbox"/>	
Lockable cover? _____	Pad/cement intact? _____
Lock present? _____	Curb box/well cover present? _____
Key number: _____	Intact? _____
Stick up height _____	Seal condition _____
Casing material _____	All bolts present? _____
Well diameter _____	Ground surface slopes _____
Protective casing material: _____	away from well? _____
Protective casing diameter: _____	Location Sketch
Cap present? Type? _____	
Vented? If so, how? _____	
Measuring point clearly marked? _____	
Total depth reported: _____	
Total depth measured: _____	
DTW: _____	
Well obstructed? If so, depth? _____	
Well bottom soft (sediment) or firm? _____	
<i>Flush Mount Wells Only</i>	
Gasket present? _____	
Bolts present? _____	
Teflon washers present? _____	

Comments/Recommendations:

UNABLE TO LOCATE



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Well ID PCNW-03 ID Clearly Marked? _____ Date 2/27/18
Photo filename _____ Project Name PHILLY COKE
Weather _____ Field Personnel CO/AL
General Description of Surroundings _____

Well Condition:

Damaged? Abandoned?
(Describe Below)
Stick Up Flush Mount

Lockable cover? _____
Lock present? _____
Key number: _____

Stick up height _____
Casing material _____
Well diameter _____

Protective casing material: _____
Protective casing diameter: _____

Cap present? Type? _____
Vented? If so, how? _____

Measuring point clearly marked? _____

Total depth reported: _____

Total depth measured: _____

DTW: _____

Well obstructed? If so, depth? _____

Well bottom soft (sediment) or firm? _____

Flush Mount Wells Only

Gasket present? _____

Bolts present? _____

Teflon washers present? _____

Surface Condition:

Damaged?
(Describe Below)

Pad/cement intact? _____

Curb box/well cover present? _____
Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes _____
away from well?

Location Sketch

Comments/Recommendations:

UNABLE TO LOCATE



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/26/18

Well ID PENN-04 ID Clearly Marked? NO

Project Name PHILLY COKE

Photo filename _____

Project Number _____

Weather CLOUDY 40

Field Personnel CO/AW

General Description of Surroundings TAIL GRASS

Well Condition:

Damaged? NO Abandoned? NO
(Describe Below)
Stick Up YES Flush Mount NO

Lockable cover? YES

Lock present? YES - CUT OFF

Key number: _____

Stick up height _____

Casing material PVC

Well diameter 4"

Protective casing material: STEEL

Protective casing diameter: 6"

Cap present? Type? 3 PLUG

Vented? If so, how? NO

Measuring point clearly marked? NO

Total depth reported: 13 (1' STICK UP)

Total depth measured: 13.40

DTW: 6.75

Well obstructed? If so, depth? NO

Well bottom soft (sediment) or firm? SOFT

Flush Mount Wells Only

Gasket present? _____

Bolts present? _____

Teflon washers present? _____

Surface Condition:

Damaged? _____
(Describe Below)

Pad/cement intact? _____

Curb box/well cover present? _____

Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes _____

away from well? _____

Location Sketch

Comments/Recommendations:

LABELLED / MP MARKED



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Well ID PENW-05 ID Clearly Marked? NO Date 2/27/18
Photo filename _____ Project Name PHILLY COKE
Weather SUNNY SD Project Number _____
General Description of Surroundings TALL GRASS Field Personnel CO/AN

Well Condition:

Damaged? NO Abandoned? NO
(Describe Below)
Stick Up YES Flush Mount NO
Lockable cover? _____ YES
Lock present? _____ YES - CUT OFF
Key number: _____
Stick up height _____
Casing material _____ PVC
Well diameter _____ 4"
Protective casing material: _____ STEEL
Protective casing diameter: _____ 6"
Cap present? Type? _____ YES JPLUG
Vented? If so, how? _____ NO
Measuring point clearly marked? _____ NO
Total depth reported: _____ 10' (4' STICK UP)
Total depth measured: _____ 14.20
DTW: _____ 8.02
Well obstructed? If so, depth? _____ NO
Well bottom soft (sediment) or firm? _____ SOFT

Surface Condition:

Damaged? _____
(Describe Below)
Pad/cement intact? _____
Curb box/well cover present? _____
Intact? _____
Seal condition _____
All bolts present? _____
Ground surface slopes _____
away from well? _____

Location Sketch

Comments/Recommendations:

WELL LABELED / MP MARKED



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Well ID POMW-6 ID Clearly Marked? NO Date 2/23/15
Photo filename _____ Project Name PHILLY COKE
Weather SUNNY 50 Project Number _____
General Description of Surroundings TREE GRASS Field Personnel C/A/N

Well Condition:

Damaged? NO Abandoned? NO
(Describe Below)
Stick Up YES Flush Mount NO
Lockable cover? YES
Lock present? YES - CUT OFF
Key number: _____
Stick up height _____
Casing material PVC
Well diameter 4"
Protective casing material: STEEL
Protective casing diameter: 6"
Cap present? Type? J-PLUG
Vented? If so, how? NO
Measuring point clearly marked? NO
Total depth reported: 10' (3' STICK UP)
Total depth measured: 13.25
DTW: 5.43
Well obstructed? If so, depth? NO
Well bottom soft (sediment) or firm? HARD

Flush Mount Wells Only

Gasket present? _____
Bolts present? _____
Teflon washers present? _____

Surface Condition:

Damaged? _____
(Describe Below)
Pad/cement intact? _____
Curb box/well cover present? _____
Intact? _____
Seal condition _____
All bolts present? _____
Ground surface slopes _____
away from well? _____

Location Sketch

Comments/Recommendations:

LABELLED / MP MARKED



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/27/18

Well ID PLMW-07 ID Clearly Marked? _____

Project Name Philly Lake

Photo filename _____

Project Number _____

Weather sunny, 55°F

Field Personnel A. Wisner

General Description of Surroundings _____

Well Condition:

Damaged? no Abandoned? no

(Describe Below)

Stick Up yes Flush Mount no

Lockable cover? yes

Lock present? cut off, requires lock

Key number: n/a

Stick up height _____

Casing material PVC

Well diameter 4"

Protective casing material: steel

Protective casing diameter: 6"

Cap present? Type? yes, J-Plug

Vented? If so, how? no

Measuring point clearly marked? yes

Total depth reported: 10' (2' stick up)

Total depth measured: 4.4

DTW: * well dry nm

Well obstructed? If so, depth? yes

Well bottom soft (sediment) or firm? firm

Flush Mount Wells Only

Gasket present? _____

Bolts present? _____

Teflon washers present? _____

Surface Condition:

Damaged?

(Describe Below)

Pad/cement intact? _____

Curb box/well cover present? _____

Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes away from well? _____

Location Sketch

Comments/Recommendations:

well is dry



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/27/18

Well ID PMW-85 ID Clearly Marked? yes

Project Name PH. 114 COKE

Photo filename _____

Project Number _____

Weather 55°F, sunny

Field Personnel A. Wissner

General Description of Surroundings _____

Well Condition:

Damaged? no Abandoned? no
(Describe Below)
Stick Up yes Flush Mount no

Lockable cover? yes

Lock present? lock cut-off

Key number: n/a

Stick up height _____

Casing material PVC

Well diameter 2"

Protective casing material: steel

Protective casing diameter: 4"

Cap present? Type? yes, J-plug

Vented? If so, how? n/a

Measuring point clearly marked? yes

Total depth reported: 15' (2-88' STICK UP)

Total depth measured: 17.17'

DTW: 10.40'

Well obstructed? If so, depth? no

Well bottom soft (sediment) or firm? soft

Flush Mount Wells Only

Gasket present? _____

Bolts present? _____

Teflon washers present? _____

Surface Condition:

Damaged? _____
(Describe Below)

Pad/cement intact? _____

Curb box/well cover present? _____

Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes _____

away from well? _____

Location Sketch

Comments/Recommendations:

WELL LABELED & M.P. MARKED



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/27/18

Well ID PCMW-8D ID Clearly Marked? _____

Project Name Philly Lake

Photo filename 55°F

Project Number _____

Weather 55°F, sunny

Field Personnel A. Wissner

General Description of Surroundings _____

Well Condition:

Damaged? no Abandoned? no

(Describe Below)

Stick Up yes Flush Mount no

Lockable cover? yes

Lock present? lock was cut off

Key number: n/a

Stick up height _____

Casing material steel PVC

Well diameter 2"

Protective casing material: steel

Protective casing diameter: 6"

Cap present? Type? yes, J-plug

Vented? If so, how? n/a

Measuring point clearly marked? yes

Total depth reported: ~~37.39'~~ 36' (1.5 stick up)

Total depth measured: ~~no~~ 37.39'

DTW: 16.41'

Well obstructed? If so, depth? no

Well bottom soft (sediment) or firm? soft

Surface Condition:

Damaged?

(Describe Below)

Pad/cement intact? _____

Curb box/well cover present? _____

Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes away from well? _____

Location Sketch

Flush Mount Wells Only

Gasket present? _____

Bolts present? _____

Teflon washers present? _____

Comments/Recommendations:



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/27/08

Well ID PCMW-95 ID Clearly Marked? yes

Project Name Philly coke

Photo filename _____

Project Number _____

Weather 55°F, sunny

Field Personnel A Wissner

General Description of Surroundings _____

Well Condition:

Damaged? no Abandoned? no

(Describe Below)

Stick Up yes Flush Mount no

Lockable cover? yes

Lock present? lock was cut-off

Key number: n/a

Stick up height _____

Casing material PVC

Well diameter 2"

Protective casing material: steel

Protective casing diameter: steel 4"

Cap present? Type? yes, J-plug

Vented? If so, how? n/a

Measuring point clearly marked? yes

Total depth reported: 14' (227 stick up)

Total depth measured: 16.26'

DTW: 10.52'

Well obstructed? If so, depth? n/a

Well bottom soft (sediment) or firm? soft

Surface Condition:

Damaged?

(Describe Below)

Pad/cement intact? _____

Curb box/well cover present? _____

Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes away from well? _____

Location Sketch

Flush Mount Wells Only

Gasket present? _____

Bolts present? _____

Teflon washers present? _____

Comments/Recommendations:



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/27/18

Well ID PCMW-9D ID Clearly Marked? _____

Project Name Philly Lake

Photo filename _____

Project Number _____

Weather 55°F, sunny

Field Personnel _____

General Description of Surroundings _____

Well Condition:	Surface Condition:
Damaged? <input type="checkbox"/> <i>(Describe Below)</i>	Damaged? <input type="checkbox"/> <i>(Describe Below)</i>
Abandoned? <input type="checkbox"/>	
Stick Up <input type="checkbox"/>	
Flush Mount <input type="checkbox"/>	
Lockable cover? _____	Pad/cement intact? _____
Lock present? _____	Curb box/well cover present? _____
Key number: _____	Intact? _____
Stick up height _____	Seal condition _____
Casing material _____	All bolts present? _____
Well diameter _____	Ground surface slopes _____
Protective casing material: _____	away from well? _____
Protective casing diameter: _____	
Cap present? Type? _____	
Vented? If so, how? _____	
Measuring point clearly marked? _____	
Total depth reported: _____	
Total depth measured: _____	
DTW: _____	
Well obstructed? If so, depth? _____	
Well bottom soft (sediment) or firm? _____	
<i>Flush Mount Wells Only</i>	
Gasket present? _____	
Bolts present? _____	
Teflon washers present? _____	

Location Sketch

Comments/Recommendations:

** can not find well **



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/27/18

Well ID PENW-105 ID Clearly Marked? NO

Project Name PHILLY COKE

Photo filename _____

Project Number _____

Weather 55 sunny

Field Personnel CO / AJJ

General Description of Surroundings WELLS

Well Condition:

Damaged? NO Abandoned? NO
(Describe Below)
Stick Up YES Flush Mount NO

Lockable cover? YES

Lock present? LOCK WAS CUT OFF

Key number: —

Stick up height _____

Casing material PVC

Well diameter 2"

Protective casing material: STEEL

Protective casing diameter: 6"

Cap present? Type? YES

Vented? If so, how? NO

Measuring point clearly marked? NO

Total depth reported: ~~16.65~~ 15' (2.42 STICKUP)

Total depth measured: 9.34 16.65

DTW: 9.34

Well obstructed? If so, depth? NO

Well bottom soft (sediment) or firm? SOFT

Flush Mount Wells Only

Gasket present? _____

Bolts present? _____

Teflon washers present? _____

Surface Condition:

Damaged? NO
(Describe Below)

Pad/cement intact? NA

Curb box/well cover present? _____

Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes _____

away from well? _____

Location Sketch

Comments/Recommendations:

WELLS ARE LABELED NOW W/ M.P. MARKERS



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/27/15

Well ID PCMN-10D ID Clearly Marked? NO

Project Name PHILLY COKE

Photo filename _____

Project Number _____

Weather 55 Sunny

Field Personnel CO/AN

General Description of Surroundings WOODS

Well Condition:

Damaged? NO Abandoned? NO

(Describe Below)

Stick Up YES Flush Mount NO

Lockable cover? YES

Lock present? YES - CUT OFF

Key number: —

Stick up height 1

Casing material PVC

Well diameter 2"

Protective casing material: STEEL

Protective casing diameter: 6"

Cap present? Type? J-PLUG

Vented? If so, how? NO

Measuring point clearly marked? NO

Total depth reported: 33' (1' STICK UP)

Total depth measured: 34.45

DTW: 12.85

Well obstructed? If so, depth? NO

Well bottom soft (sediment) or firm? SOFT

Flush Mount Wells Only

Gasket present? _____

Bolts present? _____

Teflon washers present? _____

Surface Condition:

Damaged?

(Describe Below)

Pad/cement intact? _____

Curb box/well cover present? _____

Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes _____

away from well?

Location Sketch

Comments/Recommendations:

WELL LABELED & M.P. MARKED



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/27/15

Well ID PENW-115 ID Clearly Marked? NO

Project Name PHILLY CORE

Photo filename _____

Project Number _____

Weather 55° Sunny

Field Personnel CO/AW

General Description of Surroundings WOODS / BRUSH

Well Condition:	Surface Condition:
Damaged? <input type="checkbox"/> <u>NO</u> <i>(Describe Below)</i>	Damaged? <input type="checkbox"/>
Abandoned? <input type="checkbox"/> <u>NO</u>	<i>(Describe Below)</i>
Stick Up <input type="checkbox"/> <u>YES</u>	
Flush Mount <input type="checkbox"/> <u>NO</u>	
Lockable cover? _____ <u>YES</u>	Pad/cement intact? _____
Lock present? _____ <u>YES - CUT OFF</u>	Curb box/well cover present? _____
Key number: _____ <u>-</u>	Intact? _____
Stick up height _____	Seal condition _____
Casing material _____ <u>PVC</u>	All bolts present? _____
Well diameter _____ <u>2"</u>	Ground surface slopes _____
Protective casing material: _____ <u>STEEL</u>	away from well? _____
Protective casing diameter: _____ <u>6"</u>	
Cap present? Type? _____ <u>J-PLUG</u>	
Vented? If so, how? _____	
Measuring point clearly marked? _____ <u>NO</u>	
Total depth reported: _____ <u>15' (2.8 STICK UP)</u>	
Total depth measured: _____ <u>17.50</u>	
DTW: _____ <u>10.43</u>	
Well obstructed? If so, depth? _____ <u>NO</u>	
Well bottom soft (sediment) or firm? _____ <u>SOFT</u>	
<i>Flush Mount Wells Only</i>	
Gasket present? _____	
Bolts present? _____	
Teflon washers present? _____	

Location Sketch

Comments/Recommendations:

WELL LABELS + M.P. MARKERS



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/22/18

Well ID PENN-11A ID Clearly Marked? _____

Project Name PHILLY COKE

Photo filename _____

Project Number _____

Weather _____

Field Personnel CO/AN

General Description of Surroundings _____

Well Condition:

Damaged? Abandoned?

(Describe Below)

Stick Up Flush Mount

Lockable cover? _____

Lock present? _____

Key number: _____

Stick up height _____

Casing material _____

Well diameter _____

Protective casing material: _____

Protective casing diameter: _____

Cap present? Type? _____

Vented? If so, how? _____

Measuring point clearly marked? _____

Total depth reported: _____

Total depth measured: _____

DTW: _____

Well obstructed? If so, depth? _____

Well bottom soft (sediment) or firm? _____

Flush Mount Wells Only

Gasket present? _____

Bolts present? _____

Teflon washers present? _____

Surface Condition:

Damaged?

(Describe Below)

Pad/cement intact? _____

Curb box/well cover present? _____

Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes _____

away from well?

Location Sketch

Comments/Recommendations:

UNABLE TO LOCATE

USED GPS COORD-



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/27/18

Well ID PCNN-125 ID Clearly Marked? NO

Project Name PHILLY COKE

Photo filename _____

Project Number _____

Weather 55 Sunny

Field Personnel CO/AN

General Description of Surroundings _____

Well Condition:

Damaged? NO Abandoned? NO
(Describe Below)
Stick Up YES Flush Mount NO

Lockable cover? YES

Lock present? YES - CUT OFF

Key number: -

Stick up height _____

Casing material PVC

Well diameter 2"

Protective casing material: STEEL

Protective casing diameter: 6"

Cap present? Type? J-PLUG

Vented? If so, how? NO

Measuring point clearly marked? NO

Total depth reported: 10' (247 STICK UP)

Total depth measured: 4.63

DTW: 3.30

Well obstructed? If so, depth? NO ?

Well bottom soft (sediment) or firm? SOFT

Surface Condition:

Damaged? _____
(Describe Below)

Pad/cement intact? _____

Curb box/well cover present? _____

Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes away from well? _____

Location Sketch



Comments/Recommendations:

WELL LABELED + M.P. MARKED



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/27/18

Well ID PCNW-12D ID Clearly Marked? _____

Project Name PHILLY COKE

Photo filename _____

Project Number _____

Weather 55° sunny

Field Personnel _____

General Description of Surroundings _____

Well Condition:

Damaged? (Describe Below) Abandoned?
Stick Up Flush Mount

Lockable cover? _____

Lock present? _____

Key number: _____

Stick up height _____

Casing material _____

Well diameter _____

Protective casing material: _____

Protective casing diameter: _____

Cap present? Type? _____

Vented? If so, how? _____

Measuring point clearly marked? _____

Total depth reported: _____

Total depth measured: _____

DTW: _____

Well obstructed? If so, depth? _____

Well bottom soft (sediment) or firm? _____

Flush Mount Wells Only

Gasket present? _____

Bolts present? _____

Teflon washers present? _____

Surface Condition:

Damaged? (Describe Below)

Pad/cement intact? _____

Curb box/well cover present? _____

Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes away from well? _____

Location Sketch

Comments/Recommendations:

UNABLE TO LOCATE



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Well ID PCMW-135 ID Clearly Marked? _____ Date _____
Photo filename _____ Project Name _____
Weather _____ Project Number _____
General Description of Surroundings _____ Field Personnel _____

Well Condition:

Damaged? YES Abandoned?
(Describe Below)
Stick Up Flush Mount

Lockable cover? _____
Lock present? _____
Key number: _____
Stick up height _____
Casing material _____
Well diameter _____
Protective casing material: _____
Protective casing diameter: _____
Cap present? Type? _____
Vented? If so, how? _____
Measuring point clearly marked? _____
Total depth reported: _____
Total depth measured: _____
DTW: _____
Well obstructed? If so, depth? _____
Well bottom soft (sediment) or firm? _____

Flush Mount Wells Only

Gasket present? _____
Bolts present? _____
Teflon washers present? _____

Surface Condition:

Damaged?
(Describe Below)
Pad/cement intact? _____
Curb box/well cover present? _____
Intact? _____
Seal condition _____
All bolts present? _____
Ground surface slopes _____
away from well? _____

Location Sketch

Comments/Recommendations:

FOUND STEEL WELL CASING / 5 PLUG LYING ON THE
SIDE, UNABLE TO LOCATE WELL



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Well ID PCMN-13D ID Clearly Marked? _____ Date 2/26/18

Photo filename _____ Project Name _____

Weather _____ Project Number _____

General Description of Surroundings _____ Field Personnel CO/AN

<p>Well Condition:</p> <p>Damaged? <input type="checkbox"/> (Describe Below)</p> <p>Abandoned? <input type="checkbox"/></p> <p>Stick Up <input type="checkbox"/></p> <p>Flush Mount <input type="checkbox"/></p> <p>Lockable cover? _____</p> <p>Lock present? _____</p> <p>Key number: _____</p> <p>Stick up height _____</p> <p>Casing material _____</p> <p>Well diameter _____</p> <p>Protective casing material: _____</p> <p>Protective casing diameter: _____</p> <p>Cap present? Type? _____</p> <p>Vented? If so, how? _____</p> <p>Measuring point clearly marked? _____</p> <p>Total depth reported: _____</p> <p>Total depth measured: _____</p> <p>DTW: _____</p> <p>Well obstructed? If so, depth? _____</p> <p>Well bottom soft (sediment) or firm? _____</p> <p><i>Flush Mount Wells Only</i></p> <p>Gasket present? _____</p> <p>Bolts present? _____</p> <p>Teflon washers present? _____</p>	<p>Surface Condition:</p> <p>Damaged? <input type="checkbox"/> (Describe Below)</p> <p>Pad/cement intact? _____</p> <p>Curb box/well cover present? _____</p> <p>Intact? _____</p> <p>Seal condition _____</p> <p>All bolts present? _____</p> <p>Ground surface slopes away from well? _____</p> <p><i>Location Sketch</i></p>
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Comments/Recommendations:

UNABLE TO LOCATE



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Well ID PCMW-145 ID Clearly Marked? _____ Date 2/27/16
Photo filename _____ Project Name PHILLY COKE
Weather _____ Project Number _____
General Description of Surroundings _____ Field Personnel LD/AW

Well Condition:

Damaged? (Describe Below) Abandoned?
Stick Up Flush Mount

Lockable cover? _____
Lock present? _____
Key number: _____

Stick up height _____
Casing material _____
Well diameter _____

Protective casing material: _____
Protective casing diameter: _____

Cap present? Type? _____
Vented? If so, how? _____

Measuring point clearly marked? _____

Total depth reported: _____

Total depth measured: _____

DTW: _____

Well obstructed? If so, depth? _____

Well bottom soft (sediment) or firm? _____

Flush Mount Wells Only

Gasket present? _____

Bolts present? _____

Teflon washers present? _____

Surface Condition:

Damaged? (Describe Below)

Pad/cement intact? _____

Curb box/well cover present? _____
Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes _____
away from well? _____

Location Sketch

Comments/Recommendations:

UNABLE TO LOCATE



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/27/18

Well ID PCMW-14D ID Clearly Marked? _____

Project Name PHILLY COKE

Photo filename _____

Project Number _____

Weather _____

Field Personnel CO/AW

General Description of Surroundings _____

Well Condition:

Damaged? Abandoned?

(Describe Below)

Stick Up Flush Mount

Lockable cover? _____

Lock present? _____

Key number: _____

Stick up height _____

Casing material _____

Well diameter _____

Protective casing material: _____

Protective casing diameter: _____

Cap present? Type? _____

Vented? If so, how? _____

Measuring point clearly marked? _____

Total depth reported: _____

Total depth measured: _____

DTW: _____

Well obstructed? If so, depth? _____

Well bottom soft (sediment) or firm? _____

Flush Mount Wells Only

Gasket present? _____

Bolts present? _____

Teflon washers present? _____

Surface Condition:

Damaged?

(Describe Below)

Pad/cement intact? _____

Curb box/well cover present? _____

Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes _____

away from well?

Location Sketch

Comments/Recommendations:

UNABLE TO LOCATE



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/26/18

Well ID PCMW-155 ID Clearly Marked? NO

Project Name PHILLY COKE

Photo filename _____

Project Number _____

Weather cloudy 40

Field Personnel CO/AW

General Description of Surroundings HOUSES / TREE GROVES

Well Condition:

Damaged? NO Abandoned? NO

(Describe Below)

Stick Up YES Flush Mount NO

Lockable cover? YES

Lock present? YES - CUT OFF

Key number: -

Stick up height _____

Casing material PVC

Well diameter 2"

Protective casing material: STEEL

Protective casing diameter: 6"

Cap present? Type? YES

Vented? If so, how? J-PLUG

Measuring point clearly marked? NO

Total depth reported: 15' (2.6 STICK UP)

Total depth measured: 16.50

DTW: 9.08

Well obstructed? If so, depth? NO

Well bottom soft (sediment) or firm? SOFT

Flush Mount Wells Only

Gasket present? _____

Bolts present? _____

Teflon washers present? _____

Surface Condition:

Damaged?

(Describe Below)

Pad/cement intact? _____

Curb box/well cover present? _____

Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes _____

away from well?

Location Sketch

Comments/Recommendations:

WELL LABELLED & MP MARKED



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/26/18

Well ID PCMW-15D ID Clearly Marked? NO

Project Name PHILLY COKE

Photo filename _____

Project Number _____

Weather cloudy 40

Field Personnel CO/AN

General Description of Surroundings HOUS / TALL GRASS

Well Condition:

Damaged? NO Abandoned? NO
(Describe Below)
Stick Up YES Flush Mount NO

Lockable cover? YES

Lock present? YES - CUT OFF

Key number: _____

Stick up height _____

Casing material PVC

Well diameter 2"

Protective casing material: STEEL

Protective casing diameter: 6"

Cap present? Type? YES - J PLUG

Vented? If so, how? NO

Measuring point clearly marked? NO

Total depth reported: 41' (1.8 STICK UP)

Total depth measured: 42.30

DTW: 15.07

Well obstructed? If so, depth? NO

Well bottom soft (sediment) or firm? SOFT

Flush Mount Wells Only

Gasket present? _____

Bolts present? _____

Teflon washers present? _____

Surface Condition:

Damaged? _____
(Describe Below)

Pad/cement intact? _____

Curb box/well cover present? _____

Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes _____
away from well?

Location Sketch

Comments/Recommendations:

WELL LABELLED / MP MARKED



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Well ID PCMW-165 ID Clearly Marked? _____ Date 2/22/18
Photo filename _____ Project Name PHILLY COXE
Weather _____ Project Number _____
General Description of Surroundings _____ Field Personnel CO/NU

Well Condition:

Damaged? (Describe Below) Abandoned?
Stick Up Flush Mount
Lockable cover? _____
Lock present? _____
Key number: _____
Stick up height _____
Casing material _____
Well diameter _____
Protective casing material: _____
Protective casing diameter: _____
Cap present? Type? _____
Vented? If so, how? _____
Measuring point clearly marked? _____
Total depth reported: _____
Total depth measured: _____
DTW: _____
Well obstructed? If so, depth? _____
Well bottom soft (sediment) or firm? _____
Flush Mount Wells Only
Gasket present? _____
Bolts present? _____
Teflon washers present? _____

Surface Condition:

Damaged? (Describe Below)
Pad/cement intact? _____
Curb box/well cover present? _____
Intact? _____
Seal condition _____
All bolts present? _____
Ground surface slopes _____
away from well? _____

Location Sketch

Comments/Recommendations:

UNABLE TO LOCATE



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Well ID PCW-16D ID Clearly Marked? NO Date 2/27/18
Photo filename _____ Project Name PHILLY COKE
Weather 55° SUNNY Project Number _____
General Description of Surroundings _____ Field Personnel CO/AN

Well Condition:	Surface Condition:
Damaged? <input checked="" type="checkbox"/> YES <i>(Describe Below)</i>	Damaged? <input type="checkbox"/>
Abandoned? <input type="checkbox"/> NO	<i>(Describe Below)</i>
Stick Up <input checked="" type="checkbox"/> YES	
Flush Mount <input type="checkbox"/> NO	
Lockable cover? <u>NO - LID BROKE</u>	Pad/cement intact? _____
Lock present? <u>NO</u>	Curb box/well cover present? _____
Key number: <u>-</u>	Intact? _____
Stick up height _____	Seal condition _____
Casing material <u>PVC</u>	All bolts present? _____
Well diameter <u>2"</u>	Ground surface slopes _____
Protective casing material: <u>STEEL</u>	away from well? _____
Protective casing diameter: <u>6"</u>	Location Sketch
Cap present? Type? <u>J-PLUG</u>	
Vented? If so, how? _____	
Measuring point clearly marked? <u>NO</u>	
Total depth reported: <u>34' (1.7 STICK UP)</u>	
Total depth measured: <u>35.80</u>	
DTW: <u>11.68</u>	
Well obstructed? If so, depth? <u>NO</u>	
Well bottom soft (sediment) or firm? <u>SOFT</u>	
<i>Flush Mount Wells Only</i>	
Gasket present? _____	
Bolts present? _____	
Teflon washers present? _____	

Comments/Recommendations:
WELL LABELED & M.P. MARKED.
TAB BROKEN ON LID - NO WAY TO LOCK



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/24/15

Well ID PCMW-175 ID Clearly Marked? NO

Project Name PILELY CORE

Photo filename _____

Project Number _____

Weather cloudy 40

Field Personnel CO/AN

General Description of Surroundings WOODS / WELL CROSS

Well Condition:	Surface Condition:
Damaged? <input checked="" type="checkbox"/> NO <i>(Describe Below)</i>	Damaged? <input type="checkbox"/>
Abandoned? <input checked="" type="checkbox"/> NO	<i>(Describe Below)</i>
Stick Up <input checked="" type="checkbox"/> YES	
Flush Mount <input checked="" type="checkbox"/> NO	
Lockable cover? <u>YES</u>	Pad/cement intact? _____
Lock present? <u>YES - CUT OFF</u>	Curb box/well cover present? _____
Key number: _____	Intact? _____
Stick up height _____	Seal condition _____
Casing material <u>PVC</u>	All bolts present? _____
Well diameter <u>2"</u>	Ground surface slopes _____
Protective casing material: <u>STEEL</u>	away from well? _____
Protective casing diameter: <u>6"</u>	
Cap present? Type? <u>YES J PLUG</u>	
Vented? If so, how? <u>NO</u>	
Measuring point clearly marked? <u>NO</u>	
Total depth reported: <u>14' (2.7 STICK UP)</u>	
Total depth measured: <u>16.30</u>	
DTW: <u>5.22</u>	
Well obstructed? If so, depth? <u>NO</u>	
Well bottom soft (sediment) or firm? <u>SOFT</u>	
<i>Flush Mount Wells Only</i>	
Gasket present? _____	
Bolts present? _____	
Teflon washers present? _____	

Location Sketch

Comments/Recommendations:
WELL LABELED / MP MARKED



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/26/18

Well ID PCNN-171D ID Clearly Marked? NO

Project Name PHILLY COKE

Photo filename _____

Project Number _____

Weather cloudy 40

Field Personnel CO/AN

General Description of Surroundings WOODS / TALL GRASS

Well Condition:

Damaged? YES Abandoned? NO

(Describe Below)

Stick Up YES Flush Mount NO

Lockable cover? YES

Lock present? YES - CUT OFF

Key number: _____

Stick up height _____

Casing material PVC

Well diameter 2"

Protective casing material: STEEL - MOVES

Protective casing diameter: 6"

Cap present? Type? YES

Vented? If so, how? NO

Measuring point clearly marked? NO

Total depth reported: 41' (2-7 STICK UP)

Total depth measured: 43.00

DTW: 12.60

Well obstructed? If so, depth? NO

Well bottom soft (sediment) or firm? SOFT

Flush Mount Wells Only

Gasket present? _____

Bolts present? _____

Teflon washers present? _____

Surface Condition:

Damaged?

(Describe Below)

Pad/cement intact? _____

Curb box/well cover present? _____

Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes _____

away from well?

Location Sketch

Comments/Recommendations:

WELL CASING MOVES AROUND / LOOSE
WELL LABELED / MP MARKED



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/26/18

Well ID PENN-185 ID Clearly Marked? NO

Project Name PHILLY COKE

Photo filename _____

Project Number _____

Weather cloudy

Field Personnel C/AN

General Description of Surroundings _____

Well Condition:

Damaged? NO Abandoned? NO
(Describe Below)

Stick Up YES Flush Mount NO

Lockable cover? YES

Lock present? YES - CUT OFF

Key number: -

Stick up height _____

Casing material PVC

Well diameter 2"

Protective casing material: STEEL

Protective casing diameter: 6"

Cap present? Type? J-PLUG

Vented? If so, how? NO

Measuring point clearly marked? NO

Total depth reported: 20' (2-1 STICK UP)

Total depth measured: 21.03

DTW: 18.59

Well obstructed? If so, depth? NO

Well bottom soft (sediment) or firm? SOFT

Flush Mount Wells Only

Gasket present? _____

Bolts present? _____

Teflon washers present? _____

Surface Condition:

Damaged? _____
(Describe Below)

Pad/cement intact? _____

Curb box/well cover present? _____

Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes _____

away from well?

Location Sketch



Comments/Recommendations:

WELL LABELED & M.P. MARKED



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/26/18

Well ID PENN-18A ID Clearly Marked? NO

Project Name PAULY COKE

Photo filename _____

Project Number _____

Weather CLOUDY 40

Field Personnel CO/AN

General Description of Surroundings _____

Well Condition:

Damaged? YES Abandoned? NO
(Describe Below)
Stick Up YES Flush Mount NO

Lockable cover? NO

Lock present? NO

Key number: _____

Stick up height _____

Casing material PVC

Well diameter 2"

Protective casing material: STEEL

Protective casing diameter: 6"

Cap present? Type? NO

Vented? If so, how? NO

Measuring point clearly marked? NO

Total depth reported: 39' (1' stick up)

Total depth measured: 38.26

DTW: 17.30

Well obstructed? If so, depth? NO

Well bottom soft (sediment) or firm? SOFT

Flush Mount Wells Only

Gasket present? _____

Bolts present? _____

Teflon washers present? _____

Surface Condition:

Damaged? _____
(Describe Below)

Pad/cement intact? _____

Curb box/well cover present? _____

Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes _____

away from well? _____

Location Sketch

Comments/Recommendations:

WELL LABELED & M.P. MARKED
NO LOCKABLE COVER / WELL CASING BEST



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Well ID PCMN-195 ID Clearly Marked? NO Date 2/26/15
Photo filename _____ Project Name PHILLY COKE
Weather cloudy Project Number _____
General Description of Surroundings TALL GRASS Field Personnel CO/MS

Well Condition:	Surface Condition:
Damaged? <input type="checkbox"/> <u>NO</u> (Describe Below)	Damaged? <input type="checkbox"/>
Stick Up <input type="checkbox"/> <u>YES</u>	(Describe Below)
Abandoned? <input type="checkbox"/> <u>NO</u>	Pad/cement intact? _____
Flush Mount <input type="checkbox"/> <u>NO</u>	Curb box/well cover present? _____
Lockable cover? <u>YES</u>	Intact? _____
Lock present? <u>YES - CUT OFF</u>	Seal condition _____
Key number: _____	All bolts present? _____
Stick up height _____	Ground surface slopes _____
Casing material <u>PVC</u>	away from well? _____
Well diameter <u>2'</u>	Location Sketch
Protective casing material: <u>STEEL</u>	
Protective casing diameter: <u>6"</u>	
Cap present? Type? <u>J-PLUG</u>	
Vented? If so, how? _____	
Measuring point clearly marked? <u>NO</u>	
Total depth reported: <u>13' (2.8 STICK UP)</u>	
Total depth measured: <u>15.87</u>	
DTW: <u>6.36</u>	
Well obstructed? If so, depth? <u>NO</u>	
Well bottom soft (sediment) or firm? <u>SOFT</u>	
<i>Flush Mount Wells Only</i>	
Gasket present? _____	
Bolts present? _____	
Teflon washers present? _____	

Comments/Recommendations:
WELL LABELED / M.P. MARKED



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/26/18

Well ID PCMN-19D ID Clearly Marked? NO

Project Name PHILLY COKE

Photo filename _____

Project Number _____

Weather cloudy

Field Personnel CO/AU

General Description of Surroundings TALL GRASS

Well Condition:

Damaged? NO Abandoned? NO
(Describe Below)
Stick Up YES Flush Mount NO

Lockable cover? YES
Lock present? YES - CUT OFF
Key number: _____

Stick up height _____
Casing material PVC
Well diameter 2"

Protective casing material: STEEL
Protective casing diameter: 6"

Cap present? Type? PT-PLUG
Vented? If so, how? _____

Measuring point clearly marked? NO
Total depth reported: 37' (1.3 STICK UP)
Total depth measured: 38.31
DTW: 11.57

Well obstructed? If so, depth? NO
Well bottom soft (sediment) or firm? SOFT

Flush Mount Wells Only

Gasket present? _____
Bolts present? _____
Teflon washers present? _____

Surface Condition:

Damaged? _____
(Describe Below)

Pad/cement intact? _____
Curb box/well cover present? _____
Intact? _____

Seal condition _____
All bolts present? _____
Ground surface slopes away from well? _____

Location Sketch

Comments/Recommendations:

WELL LABELED / M.P. MARKED



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Well ID 7CMN-205 ID Clearly Marked? NO Date 2/26/18
Photo filename _____ Project Name PHILLY COKE
Weather CLOUDY 40 Project Number _____
General Description of Surroundings TALL GRASS Field Personnel CO/AN

Well Condition:

Damaged? NO Abandoned? NO
(Describe Below)
Stick Up YES Flush Mount NO
Lockable cover? YES
Lock present? YES - CUT OFF
Key number: _____
Stick up height _____
Casing material PVC
Well diameter 2"
Protective casing material: STEEL
Protective casing diameter: 6"
Cap present? Type? J-PLUG
Vented? If so, how? NO
Measuring point clearly marked? NO
Total depth reported: 13' (2-7 STICK UP)
Total depth measured: 7.00
DTW: 1)RY
Well obstructed? If so, depth? NO
Well bottom soft (sediment) or firm? HARD

Surface Condition:

Damaged? _____
(Describe Below)
Pad/cement intact? _____
Curb box/well cover present? _____
Intact? _____
Seal condition _____
All bolts present? _____
Ground surface slopes _____
away from well? _____

Location Sketch

Comments/Recommendations:

WELL LABELED / M.P. MARKED



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/26/18

Well ID PCMN-101 ID Clearly Marked? NB

Project Name PHILLY CHOICE

Photo filename _____

Project Number _____

Weather cloudy

Field Personnel CO/MW

General Description of Surroundings _____

Well Condition:

Damaged? YES Abandoned? NB
(Describe Below)

Stick Up YES Flush Mount NB

Lockable cover? NB

Lock present? NB

Key number: _____

Stick up height _____

Casing material PVC

Well diameter 2"

Protective casing material: STEEL

Protective casing diameter: 6"

Cap present? Type? NO

Vented? If so, how? YES - NO PLUG

Measuring point clearly marked? NO

Total depth reported: 28' (1.3 STICK UP)

Total depth measured: 28.90

DTW: 12.77

Well obstructed? If so, depth? NB

Well bottom soft (sediment) or firm? SOFT

Flush Mount Wells Only

Gasket present? _____

Bolts present? _____

Teflon washers present? _____

Surface Condition:

Damaged? _____
(Describe Below)

Pad/cement intact? _____

Curb box/well cover present? _____

Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes _____

away from well? _____

Location Sketch

Comments/Recommendations:

WELL LABELED / M-P. MARKED



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Well ID MU-5 ID Clearly Marked? NO Date 2/27/18
Photo filename _____ Project Name PHILLY COKE
Weather 55 Sunny Project Number _____
General Description of Surroundings TALL GRASS Field Personnel CO/AN

Well Condition:

Damaged? NO Abandoned? NO
(Describe Below)
Stick Up YES Flush Mount NO

Lockable cover? YES
Lock present? YES - CUT OFF
Key number: _____
Stick up height _____
Casing material PVC
Well diameter 2"
Protective casing material: STEEL
Protective casing diameter: 6"
Cap present? Type? J-PLUG
Vented? If so, how? NO
Measuring point clearly marked? NO
Total depth reported: NA
Total depth measured: 16.27
DTW: 6.35
Well obstructed? If so, depth? NO
Well bottom soft (sediment) or firm? SOFT

Surface Condition:

Damaged? _____
(Describe Below)
Pad/cement intact? _____
Curb box/well cover present? _____
Intact? _____
Seal condition _____
All bolts present? _____
Ground surface slopes _____
away from well? _____

Location Sketch

Flush Mount Wells Only

Gasket present? _____
Bolts present? _____
Teflon washers present? _____

Comments/Recommendations:

WELL LABELED + M.P. MARKED



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/26/18

Well ID MW-6 ID Clearly Marked? YES

Project Name PHILLY COKE

Photo filename _____

Project Number _____

Weather CLAY 40

Field Personnel CO/AW

General Description of Surroundings WOODS / TREE GRASS

Well Condition:

Damaged? YES Abandoned? NO
(Describe Below)
Stick Up YES Flush Mount NO

Lockable cover? NO - MISSING

Lock present? NO

Key number: _____

Stick up height _____

Casing material PVC

Well diameter 2"

Protective casing material: STEEL

Protective casing diameter: 6"

Cap present? Type? YES - PVC CAP

Vented? If so, how? NO

Measuring point clearly marked? NO

Total depth reported: NA

Total depth measured: 14.70

DTW: 4.10

Well obstructed? If so, depth? NO

Well bottom soft (sediment) or firm? SOFT

Flush Mount Wells Only

Gasket present? _____

Bolts present? _____

Teflon washers present? _____

Surface Condition:

Damaged? _____
(Describe Below)

Pad/cement intact? _____

Curb box/well cover present? _____

Intact? _____

Seal condition _____

All bolts present? _____

Ground surface slopes away from well? _____

Location Sketch

Comments/Recommendations:

WELL LABELED / MP MARKED



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Date 2/27/18

Well ID UNKNOWN-1 ID Clearly Marked? NO

Project Name Philly Coke

Photo filename _____

Project Number _____

Weather Sunny 53

Field Personnel CO/AN

General Description of Surroundings TAIL CRKS BY PCMH-07 / PCMH-06

Well Condition:	Surface Condition:
Damaged? <input checked="" type="checkbox"/> YES <i>(Describe Below)</i>	Damaged? <input type="checkbox"/>
Abandoned? <input checked="" type="checkbox"/> NO	<i>(Describe Below)</i>
Stick Up <input checked="" type="checkbox"/> YES	
Flush Mount <input checked="" type="checkbox"/> NO	
Lockable cover? <u>NO</u>	Pad/cement intact? _____
Lock present? <u>NO</u>	Curb box/well cover present? _____
Key number: _____	Intact? _____
Stick up height _____	Seal condition _____
Casing material <u>PVC</u>	All bolts present? _____
Well diameter <u>2"</u>	Ground surface slopes _____
Protective casing material: <u>STEEL</u>	away from well? _____
Protective casing diameter: <u>6"</u>	
Cap present? Type? <u>NO</u>	
Vented? If so, how? <u>YES - No PLUG</u>	
Measuring point clearly marked? <u>NO</u>	
Total depth reported: <u>NA</u>	
Total depth measured: <u>11.70</u>	
DTW: <u>3.77</u>	
Well obstructed? If so, depth? <u>NO</u>	
Well bottom soft (sediment) or firm? <u>SOFT</u>	
<i>Flush Mount Wells Only</i>	
Gasket present? _____	
Bolts present? _____	
Teflon washers present? _____	

Location Sketch

Comments/Recommendations:
UNKNOWN - NOT ON MAP
SURVEYOR GPS'D LOCATION



Monitoring Well Integrity Assessment Form

(For each item, check appropriate response or fill in the blank)

Well ID UNKNOWN-2 ID Clearly Marked? NO Date 2/27/18
Photo filename _____ Project Name PHILLY COKE
Weather SUNNY 55 Project Number _____
General Description of Surroundings BETWEEN PCMN-07/PCMW-06 Field Personnel COLAN

Well Condition:

Damaged? YES Abandoned? NO
(Describe Below)
Stick Up YES Flush Mount NO
Lockable cover? NO
Lock present? NO
Key number: _____
Stick up height _____
Casing material PVC
Well diameter 4"
Protective casing material: STEEL
Protective casing diameter: 6"
Cap present? Type? NO
Vented? If so, how? YES - NO PLUG
Measuring point clearly marked? NO
Total depth reported: NA
Total depth measured: 11.55
DTW: 4.36
Well obstructed? If so, depth? NO
Well bottom soft (sediment) or firm? SOFT

Flush Mount Wells Only

Gasket present? _____
Bolts present? _____
Teflon washers present? _____

Surface Condition:

Damaged? _____
(Describe Below)
Pad/cement intact? _____
Curb box/well cover present? _____
Intact? _____
Seal condition _____
All bolts present? _____
Ground surface slopes _____
away from well? _____

Location Sketch

Comments/Recommendations:

UNKNOWN NOT ON MAP
SURVEYOR GPS'D LOCATION

APPENDIX H

Data Usability Summary Reports



National Grid
Philly Coke

DATA REVIEW

Philadelphia, Pennsylvania

Volatile Organic Compound (VOC), Semivolatile Organic Compound (SVOC), Pesticides, Polychlorinated Biphenyls (PCBs), Metals, and Cyanide Analyses

SDG #: JC62879

Analyses Performed By:
SGS Laboratories
Dayton, New Jersey

Report #: 29630R
Review Level: Tier II
Project: B0036790.0001.00003

DATA REVIEW REPORT

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # JC62879 for samples collected in association with the National Grid Philly Coke site in Philadelphia, Pennsylvania. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data as reported by the laboratory were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets and chain of custody. Analyses were performed for the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOCs	SVOC	Pest./PCB	Metals	CN-
JC62879	PCMW 01	JC62879-1	Water	03/19/2018		X	X	X	X	X
	PCMW 04	JC62879-2	Water	03/19/2018		X	X	X	X	X
	PCMW 9S	JC62879-3	Water	03/19/2018		X	X	X	X	X
	PCMW 16D	JC62879-4	Water	03/19/2018		X	X	X	X	X
	MW-5	JC62879-5	Water	03/19/2018		X	X	X	X	X
	PCMW 15S	JC62879-6	Water	03/20/2018		X	X	X	X	X
	PCMW 15D	JC62879-7	Water	03/20/2018		X	X	X	X	X
	PCMW 8S	JC62879-8	Water	03/22/2018		X	X	X	X	X
	PCMW 8D	JC62879-9	Water	03/22/2018		X	X	X	X	X
	PCMW 17S	JC62879-10	Water	03/22/2018		X	X	X	X	X
	PCMW 17D	JC62879-11	Water	03/22/2018		X	X	X	X	X
	PCMW 20S	JC62879-12	Water	03/22/2018		X	X	X	X	X
	PCMW 20D	JC62879-13	Water	03/22/2018		X	X	X	X	X
	PCMW 19S	JC62879-14	Water	03/22/2018		X	X	X	X	X
	PCMW 19D	JC62879-15	Water	03/22/2018		X	X	X	X	X
	DUP-03222018	JC62879-16	Water	03/22/2018	PCMW 19D	X	X	X	X	X
	PCMW 10S	JC62879-17	Water	03/22/2018		X	X	X	X	X
	PCMW 10D	JC62879-18	Water	03/22/2018		X	X	X	X	X
	TRIP BLANK	JC62879-19	Water	03/22/2018		X				
	MW-6	JC62879-20	Water	03/22/2018		X	X	X	X	X

DATA REVIEW REPORT

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of quality assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW REPORT

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Methods 8260C, 8270D, 8081B and 8082A. Validation was performed following the procedures specified in *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (October 1999).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected as unusable. The compound may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

DATA REVIEW REPORT

that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
VOCs by 8260C	Water	14 days from collection to analysis (preserved) 7 days from collection to analysis (non-preserved)	Cool to <6 °C; preserved to a pH of less than 2 s.u.

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks, trip blanks, and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure sample storage contamination. Rinse blanks also measure contamination of samples during field operations.

If an analyte is detected in a blank at a concentration greater than the method detection limit (MDL), a blank action level (BAL) is calculated as five times the concentration detected in the blank. The BAL for common laboratory contaminants (e.g. acetone, methylene chloride) is calculated at ten times the blank concentration. Detected analytes in the associated samples are compared to the BAL. If the result is greater than the BAL, no qualification is required, and any laboratory-assigned flags are removed.

Target compounds were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited surrogate recoveries within the control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked compounds used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

DATA REVIEW REPORT

Sample Locations	Compound	MS Recovery	MSD Recovery
MW-6	Styrene	<LL but >10%	--

Note:

AC Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Parent sample concentration > four times the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS analysis must exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with LCS analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery
MW-6	Bromoform	>UL
	1,2-Dibromo-3-chloropropane	>UL

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

DATA REVIEW REPORT

6. Field Duplicate Sample Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PCMW 19D / DUP-03222018	All compounds	U	U	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

The laboratory narrative states that several compounds exhibited continuing calibration verification percent differences (%D) greater than the control limit of 20%.

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified as presented in the following table.

Initial/Continuing	Criteria	Sample Result	Qualification
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260B	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Trip blanks		X		X	
Laboratory Control Sample (LCS)		X	X		
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)		X	X		
Matrix Spike Duplicate(MSD)		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

- %RSD Relative standard deviation
- %R Percent recovery
- RPD Relative percent difference
- %D Percent difference

DATA REVIEW REPORT

SEMI-VOLATILE ORGANIC COMPOUNDS (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SVOCs by 8270D	Water	28 days from collection to extraction and 28 days from extraction to analysis	Cool to <6 °C; preserved with Sodium Bisulfate (NaHSO ₄) to a pH of less than 4 s.u.

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

If an analyte is detected in a blank at a concentration greater than the method detection limit (MDL), a blank action level (BAL) is calculated as five times the concentration detected in the blank. The BAL for common laboratory contaminants (e.g. acetone, methylene chloride) is calculated at ten times the blank concentration. Detected analytes in the associated samples are compared to the BAL. If the result is greater than the BAL, no qualification is required, and any laboratory-assigned flags are removed.

Target compounds were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with MS/MSD recoveries exhibiting an RPD greater than the control limit are presented in the following table.

DATA REVIEW REPORT

Sample Locations	Compound
PCMW 8D	4-Chloroaniline

The criteria used to evaluate the RPD between the MS/MSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PCMW 19D / DUP-03222018	All compounds	U	U	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

The laboratory narrative states that several compounds exhibited continuing calibration verification percent differences (%D) greater than the control limit of 20%.

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified as presented in the following table.

DATA REVIEW REPORT

Initial/Continuing	Criteria	Sample Result	Qualification
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: 8270D	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X	X		
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

PESTICIDES ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8081A	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to < 6 °C

All samples were extracted and analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. Pesticide analysis requires that at least one of the two pesticide surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited surrogate recoveries within the control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked compounds used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

DATA REVIEW REPORT

Sample	Compound	MS Recovery	MSD Recovery
PCMW 8D	Aldrin	>UL	>UL
PCMW 17D	Endrin ketone	AC	>UL

AC = Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of MS/MSD deviations, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Parent sample concentration > 4x the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS/LCSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the LCS and LCSD results must be within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Sample Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PCMW 19D / DUP-03222018	All compounds	U	U	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

DATA REVIEW REPORT

7. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows for both the primary and confirmation columns. When dual column analysis is performed the relative percent difference (%RPD) of detected sample results must be less than 40%.

Sample locations associated with RPD analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	RPD
PCMW-04	gamma-Chlordane	47.5%

The criteria used to evaluate the RPD are presented in the following table. In the case of a RPD deviation, the sample results are qualified as documented in the table below.

Control Limit (%D)	Qualification
>40% to 70%	J
>70% to 100%	JN
>100% ¹	R
>100% to 200% (Interference detected) ²	J or JN
>50% (PCB sample results less than the RL)	U

When the PCB sample results are less than the RL and the RPD greater than 50% the sample result are raised to the RL and reported as non-detect.

Note 1: If the pattern is confirmed sample results will be qualified as estimated (J). If pattern exhibits interference or if the PCB cannot be positively determined due to weathering the sample results will be qualified as tentative identification estimate (JN).

Note 2: If interference is detected in either column the sample results will be qualified as tentative identification estimate (JN).

9. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR PESTICIDES

Pesticides: SW-846 8081A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Gas Chromatography (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate (LCSD)		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS)		X	X		
Matrix Spike Duplicate (MSD)		X	X		
MS/MSD Precision (RPD)		X		X	
Laboratory Duplicate Sample RPD	X				X
Field Duplicate Sample RPD		X		X	
Surrogate Spike Recoveries		X		X	
Column %D \leq 40% (If dual column is performed for reporting - not confirmation)		X	X		
Dilution Factor		X		X	
Compound identification and quantitation		X		X	

Notes:

%R = percent recovery

RPD = relative percent difference

DATA REVIEW REPORT

POLYCHLORINATED BIPHENYLS (PCBs) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8082A	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

Note:

The holding time above is a recommendation. PCBs are very stable in a variety of matrices, and holding times, under the conditions listed above, may be as long as a year per SW-846 8082A (February 2007).

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. PCB analysis requires that the two PCB surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries reported from the primary column were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

DATA REVIEW REPORT

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PCMW 19D / DUP-03222018	All compounds	U	U	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows for both the primary and confirmation columns. When dual column analysis is performed the relative percent difference (%RPD) of detected sample results must be less than 40%.

The dual column analysis exhibited an acceptable %RPD between columns.

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR PCBs

PCBs: SW-846 8082A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Column (RPD) (If dual column is performed-not confirmation purposes only)		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Methods 6010C, 7470A, and 335.4. Data were reviewed in accordance with USEPA National Functional Guidelines of October 2002.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW846 6010C	Water	180 days from collection to analysis	Preserved to a pH of less than 2.
SW-846 7470A	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis /Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

DATA REVIEW REPORT

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD recoveries exhibited acceptable RPD.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Analyte	Sample Result	Duplicate Result	RPD
PCMW 19D / DUP-03222018	Aluminum	1440	1130	24.1%
	Arsenic	13.4	12.8	4.6%
	Calcium	83900	81800	2.5%
	Iron	213	201	AC
	Lead	3.5	3.0 U	AC
	Magnesium	359	349	2.8%
	Manganese	5690	5530	2.9%
	Nickel	11.9	11.7	AC
	Sodium	34600	33400	3.5%

AC = Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR METAL

METALS; 6010C/7470A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	

Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)

Tier II Validation

Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Instrument Blanks		X		X	
B. Method Blanks		X		X	
C. Equipment/Field Blanks		X		X	
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Total vs. Dissolved	X				X
Reporting Limit Verification		X		X	

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Cyanide by EPA 335.4	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of greater than 12.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

The correct number and type of standards were analyzed. The correlation coefficient of the initial calibration was greater than 0.995 and all initial calibration verification standard recoveries were within control limits.

All calibration standard recoveries were within the control limit.

4. Matrix Spike (MS)/Laboratory Duplicate Analysis

MS and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

4.1 MS Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS recovery control limits do not apply for MS performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS recoveries were within control limits with the exception of the following analytes present in the table below.

DATA REVIEW REPORT

Sample Location	Analytes	MS Recovery
PCMw 8D	Cyanide	<30%
PCMw 17D	Cyanide	74.4%

The criteria used to evaluate MS recoveries are presented in the following table. In the case of an MS deviation, the sample results are qualified. The qualifications are applied to all sample results associated with this SDG.

Control limit	Sample Result	Qualification
MS percent recovery 30% to 75%	Non-detect	UJ
	Detect	J
MS percent recovery <30%	Non-detect	R
	Detect	J
MS percent recovery >125%	Non-detect	No Action
	Detect	J

Sample PCMw 8D had a detection of cyanide close to the spiking concentration but not four times higher. Due to the significant amount of cyanide in the sample, the related samples will be qualified as estimated (J or UJ) and not rejected.

4.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

All analytes associated with laboratory duplicate RPD were within the control limit, with the exception of the analytes presented in the following table.

Sample Location	Analytes	Laboratory RPD
PCMw-8D	Cyanide	92.7%

The criteria used to evaluate laboratory duplicate RPD are presented in the following table. In the case of a laboratory duplicate RPD deviation, the sample results are qualified. The qualifications are applied to all sample results associated with this SDG except those which an acceptable laboratory duplicate analysis was performed.

Sample Concentration	Control Limit	Sample Result	Qualification
Parent sample and laboratory sample concentration >5 times RL	Water 20%	Non-detect	UJ
		Detect	J

DATA REVIEW REPORT

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PCMW 19D / DUP-03222018	All compounds	U	U	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

6. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: 335.4	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X	X		
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%RSD – relative standard deviation

%R - percent recovery

RPD - relative percent difference,

%D – difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: April 30, 2018

PEER REVIEW: Dennis Capria

DATE: May 4, 2018

CHAIN OF CUSTODY AND CORRECTED SAMPLE ANALYSIS DATA SHEETS





ACCUTEST

GW WTS

CHAIN OF CUSTODY

quick

SGS Accutest - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

FED-EX Tracking #
SGS Accutest Quote #
Bottle Order Control # DK-031218-61
SGS Accutest Job # JC62879

Company Name: ARCADIS
Project Name: NATIONAL GRID / PHILLY CORE
Street Address: SEE PAGE 1
City: PHILA
Project Contact: DAN SHEELAN
Collection Table with columns for Date, Time, Sampled by, Matrix, # of bottles, and various chemical parameters (HCL, NH3, HNO3, H2SO4, NONE, DI-NITR, MECH, ENCORE).

- DW - Drinking W
GW - Ground W
WW - Waste
SW - Surface W
SO - Soil
SL - Sludge
SED-Sediment
OI - Oil
LIQ - Other Liq
AIR - Air
SOL - Other S
WIP - Wipe
FB-Field Blak
EB-Equipment B
RB- Rinse Bla
TB-Trip Blak

5.1
5

Turnaround Time (Business days)
Data Deliverable Information
Approved By (SGS Accutest PM): / Date:
Commercial "A" (Level 1)
Commercial "B" (Level 2)
FULLT1 (Level 3+4)
NJ Reduced
Commercial "C"
NJ Data of Known Quality Protocol Reporting
Commercial "A" = Results Only, Commercial "B" = Results + QC Summary
NJ Reduced = Results + QC Summary + Partial Raw data
Sample inventory is verified upon receipt in the Laboratory

Emergency & Rush T/A data available VIA Lablink
Sample Custody must be documented below each time samples change possession, including courier delivery.
Relinquished by: [Signature] Date Time: 3/22/18 15:40
Received By: [Signature] Date Time: 3/23/18 16:30

Form:SM088-01CRev.Date:9/13/16

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Report of Analysis

Page 1 of 2

Client Sample ID: PCMW-01	Date Sampled: 03/19/18
Lab Sample ID: JC62879-1	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	2D174436.D	1	03/27/18 13:51	JP	n/a	n/a	V2D7344

Run #1	Purge Volume
Run #2	5.0 ml

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	5.0	ug/l	UJ
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK) ^a	ND	10	4.8	ug/l	UJ
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane ^b	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane ^b	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-01	Date Sampled:	03/19/18
Lab Sample ID:	JC62879-1	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene ^b	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene ^b	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		80-120%
17060-07-0	1,2-Dichloroethane-D4	106%		81-124%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	98%		80-120%

(a) Associated CCV outside of control limits low.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-01	Date Sampled:	03/19/18
Lab Sample ID:	JC62879-1	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F175216.D	1	03/27/18 15:37	CS	03/26/18 18:30	OP10877	EF7460
Run #2							

Run #	Initial Volume	Final Volume
Run #1	950 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.3	0.86	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.3	0.94	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.1	1.3	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.3	2.6	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.3	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.3	1.4	ug/l	
95-48-7	2-Methylphenol	ND	2.1	0.93	ug/l	
	3&4-Methylphenol	ND	2.1	0.93	ug/l	
88-75-5	2-Nitrophenol	ND	5.3	1.0	ug/l	
100-02-7	4-Nitrophenol	ND	11	1.2	ug/l	
87-86-5	Pentachlorophenol ^a	ND	4.2	1.5	ug/l	
108-95-2	Phenol	ND	2.1	0.41	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol ^a	ND	5.3	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.3	1.4	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.3	0.97	ug/l	
83-32-9	Acenaphthene	ND	1.1	0.20	ug/l	
208-96-8	Acenaphthylene	ND	1.1	0.14	ug/l	
98-86-2	Acetophenone	ND	2.1	0.22	ug/l	
120-12-7	Anthracene	ND	1.1	0.22	ug/l	
1912-24-9	Atrazine	ND	2.1	0.47	ug/l	
100-52-7	Benzaldehyde	ND	5.3	0.30	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.1	0.21	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.1	0.22	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.1	0.22	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.1	0.36	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.1	0.22	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.1	0.43	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.1	0.48	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.1	0.22	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.1	0.25	ug/l	
106-47-8	4-Chloroaniline	ND	5.3	0.36	ug/l	
86-74-8	Carbazole	ND	1.1	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-01	Date Sampled:	03/19/18
Lab Sample ID:	JC62879-1	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.1	0.68	ug/l	
218-01-9	Chrysene	ND	1.1	0.19	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.1	0.29	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.1	0.26	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.1	0.42	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.1	0.39	ug/l	
121-14-2	2,4-Dinitrotoluene ^a	ND	1.1	0.58	ug/l	
606-20-2	2,6-Dinitrotoluene ^a	ND	1.1	0.50	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.1	0.53	ug/l	
53-70-3	Dibenzo(a,h)anthracene ^a	ND	1.1	0.35	ug/l	
132-64-9	Dibenzofuran	ND	5.3	0.23	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.1	0.52	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.1	0.25	ug/l	
84-66-2	Diethyl phthalate	ND	2.1	0.28	ug/l	
131-11-3	Dimethyl phthalate	ND	2.1	0.23	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.1	1.7	ug/l	
206-44-0	Fluoranthene	ND	1.1	0.18	ug/l	
86-73-7	Fluorene	ND	1.1	0.18	ug/l	
118-74-1	Hexachlorobenzene	ND	1.1	0.34	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.1	0.52	ug/l	
77-47-4	Hexachlorocyclopentadiene ^a	ND	11	2.9	ug/l	
67-72-1	Hexachloroethane	ND	2.1	0.41	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.1	0.35	ug/l	
78-59-1	Isophorone	ND	2.1	0.29	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.1	0.22	ug/l	
88-74-4	2-Nitroaniline	ND	5.3	0.29	ug/l	
99-09-2	3-Nitroaniline	ND	5.3	0.41	ug/l	
100-01-6	4-Nitroaniline	ND	5.3	0.46	ug/l	
91-20-3	Naphthalene	ND	1.1	0.24	ug/l	
98-95-3	Nitrobenzene	ND	2.1	0.68	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.1	0.51	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.3	0.23	ug/l	
85-01-8	Phenanthrene	ND	1.1	0.18	ug/l	
129-00-0	Pyrene	ND	1.1	0.23	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.1	0.39	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	58%		10-110%
4165-62-2	Phenol-d5	38%		10-110%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-01	
Lab Sample ID: JC62879-1	Date Sampled: 03/19/18
Matrix: AQ - Ground Water	Date Received: 03/23/18
Method: SW846 8270D SW846 3510C	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	103%		36-151%
4165-60-0	Nitrobenzene-d5	74%		34-128%
321-60-8	2-Fluorobiphenyl	76%		38-119%
1718-51-0	Terphenyl-d14	89%		26-129%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: PCMW-01	Date Sampled: 03/19/18
Lab Sample ID: JC62879-1	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8081B SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	4G90993.D	1	03/27/18 12:10	CP	03/26/18 18:20	OP10876	G4G2399

Run #1	Initial Volume	Final Volume
Run #2	275 ml	2.0 ml

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0073	0.0038	ug/l	
319-84-6	alpha-BHC	ND	0.0073	0.0038	ug/l	
319-85-7	beta-BHC	ND	0.0073	0.0058	ug/l	
319-86-8	delta-BHC	ND	0.0073	0.0048	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0073	0.0044	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0073	0.0036	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0073	0.0031	ug/l	
60-57-1	Dieldrin	ND	0.0073	0.0056	ug/l	
72-54-8	4,4'-DDD	ND	0.0073	0.0042	ug/l	
72-55-9	4,4'-DDE	ND	0.0073	0.0037	ug/l	
50-29-3	4,4'-DDT	ND	0.0073	0.0050	ug/l	
72-20-8	Endrin	ND	0.0073	0.0044	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0073	0.0040	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0073	0.0049	ug/l	
53494-70-5	Endrin ketone	ND	0.0073	0.0045	ug/l	
959-98-8	Endosulfan-I	ND	0.0073	0.0038	ug/l	
33213-65-9	Endosulfan-II	ND	0.0073	0.0035	ug/l	
76-44-8	Heptachlor	ND	0.0073	0.0033	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0073	0.0044	ug/l	
72-43-5	Methoxychlor	ND	0.015	0.0049	ug/l	
8001-35-2	Toxaphene	ND	0.18	0.12	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	84%		13-153%
877-09-8	Tetrachloro-m-xylene	84%		13-153%
2051-24-3	Decachlorobiphenyl	73%		10-138%
2051-24-3	Decachlorobiphenyl	66%		10-138%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: PCMW-01	Date Sampled: 03/19/18
Lab Sample ID: JC62879-1	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8082A SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181182.D	1	03/27/18 14:15	HB	03/26/18 18:20	OP10875	GEF6202
Run #2							

Run #	Initial Volume	Final Volume
Run #1	275 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.36	0.14	ug/l	
11104-28-2	Aroclor 1221	ND	0.36	0.30	ug/l	
11141-16-5	Aroclor 1232	ND	0.36	0.19	ug/l	
53469-21-9	Aroclor 1242	ND	0.36	0.17	ug/l	
12672-29-6	Aroclor 1248	ND	0.36	0.092	ug/l	
11097-69-1	Aroclor 1254	ND	0.36	0.30	ug/l	
11096-82-5	Aroclor 1260	ND	0.36	0.11	ug/l	
11100-14-4	Aroclor 1268	ND	0.36	0.13	ug/l	
37324-23-5	Aroclor 1262	ND	0.36	0.14	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	77%		11-166%
877-09-8	Tetrachloro-m-xylene	82%		11-166%
2051-24-3	Decachlorobiphenyl	70%		10-150%
2051-24-3	Decachlorobiphenyl	70%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-01 Lab Sample ID: JC62879-1 Matrix: AQ - Ground Water Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 03/19/18 Date Received: 03/23/18 Percent Solids: n/a
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Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Arsenic	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Barium	< 200	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Calcium	72200	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Copper	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Iron	7790	100	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Lead	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Magnesium	19300	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Manganese	863	15	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	03/27/18	03/27/18	JA SW846 7470A ¹	SW846 7470A ³
Nickel	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Potassium	< 10000	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Silver	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Sodium	14100	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Zinc	34.6	20	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴

(1) Instrument QC Batch: MA44080

(2) Instrument QC Batch: MA44135

(3) Prep QC Batch: MP6364

(4) Prep QC Batch: MP6402

RL = Reporting Limit

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Report of Analysis

Client Sample ID: PCMW-01	Date Sampled: 03/19/18
Lab Sample ID: JC62879-1	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010 UJ	0.010	mg/l	1	03/29/18 09:18	BM	EPA 335.4/LACHAT

RL = Reporting Limit

4.1
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Report of Analysis

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Client Sample ID:	PCMW-04	Date Sampled:	03/19/18
Lab Sample ID:	JC62879-2	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D174437.D	1	03/27/18 14:21	JP	n/a	n/a	V2D7344
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	5.0	ug/l	UJ
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK) ^a	ND	10	4.8	ug/l	UJ
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane ^b	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane ^b	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-04	Date Sampled:	03/19/18
Lab Sample ID:	JC62879-2	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	4.8	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene ^b	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene ^b	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		80-120%
17060-07-0	1,2-Dichloroethane-D4	105%		81-124%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	98%		80-120%

(a) Associated CCV outside of control limits low.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-04	Date Sampled:	03/19/18
Lab Sample ID:	JC62879-2	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F175217.D	1	03/27/18 16:05	CS	03/26/18 18:30	OP10877	EF7460
Run #2							

Run #	Initial Volume	Final Volume
Run #1	940 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.3	0.87	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.3	0.95	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.1	1.4	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.3	2.6	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.3	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.3	1.4	ug/l	
95-48-7	2-Methylphenol	ND	2.1	0.94	ug/l	
	3&4-Methylphenol	ND	2.1	0.94	ug/l	
88-75-5	2-Nitrophenol	ND	5.3	1.0	ug/l	
100-02-7	4-Nitrophenol	ND	11	1.2	ug/l	
87-86-5	Pentachlorophenol ^a	ND	4.3	1.5	ug/l	
108-95-2	Phenol	ND	2.1	0.42	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol ^a	ND	5.3	1.6	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.3	1.4	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.3	0.98	ug/l	
83-32-9	Acenaphthene	ND	1.1	0.20	ug/l	
208-96-8	Acenaphthylene	ND	1.1	0.14	ug/l	
98-86-2	Acetophenone	ND	2.1	0.22	ug/l	
120-12-7	Anthracene	ND	1.1	0.22	ug/l	
1912-24-9	Atrazine	ND	2.1	0.48	ug/l	
100-52-7	Benzaldehyde	ND	5.3	0.31	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.1	0.22	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.1	0.23	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.1	0.22	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.1	0.36	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.1	0.22	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.1	0.43	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.1	0.49	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.1	0.23	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.1	0.25	ug/l	
106-47-8	4-Chloroaniline	ND	5.3	0.36	ug/l	
86-74-8	Carbazole	ND	1.1	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-04	Date Sampled:	03/19/18
Lab Sample ID:	JC62879-2	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.1	0.69	ug/l	
218-01-9	Chrysene	ND	1.1	0.19	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.1	0.30	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.1	0.26	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.1	0.43	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.1	0.39	ug/l	
121-14-2	2,4-Dinitrotoluene ^a	ND	1.1	0.59	ug/l	
606-20-2	2,6-Dinitrotoluene ^a	ND	1.1	0.51	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.1	0.54	ug/l	
53-70-3	Dibenzo(a,h)anthracene ^a	ND	1.1	0.35	ug/l	
132-64-9	Dibenzofuran	ND	5.3	0.23	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.1	0.53	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.1	0.25	ug/l	
84-66-2	Diethyl phthalate	ND	2.1	0.28	ug/l	
131-11-3	Dimethyl phthalate	ND	2.1	0.23	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.1	1.8	ug/l	
206-44-0	Fluoranthene	ND	1.1	0.18	ug/l	
86-73-7	Fluorene	ND	1.1	0.18	ug/l	
118-74-1	Hexachlorobenzene	ND	1.1	0.35	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.1	0.52	ug/l	
77-47-4	Hexachlorocyclopentadiene ^a	ND	11	3.0	ug/l	
67-72-1	Hexachloroethane	ND	2.1	0.41	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.1	0.35	ug/l	
78-59-1	Isophorone	ND	2.1	0.29	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.1	0.22	ug/l	
88-74-4	2-Nitroaniline	ND	5.3	0.29	ug/l	
99-09-2	3-Nitroaniline	ND	5.3	0.41	ug/l	
100-01-6	4-Nitroaniline	ND	5.3	0.47	ug/l	
91-20-3	Naphthalene	ND	1.1	0.25	ug/l	
98-95-3	Nitrobenzene	ND	2.1	0.68	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.1	0.51	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.3	0.24	ug/l	
85-01-8	Phenanthrene	ND	1.1	0.19	ug/l	
129-00-0	Pyrene	ND	1.1	0.23	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.1	0.39	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	50%		10-110%
14165-62-2	Phenol-d5	35%		10-110%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-04	Date Sampled: 03/19/18
Lab Sample ID: JC62879-2	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	83%		36-151%
4165-60-0	Nitrobenzene-d5	53%		34-128%
321-60-8	2-Fluorobiphenyl	60%		38-119%
1718-51-0	Terphenyl-d14	76%		26-129%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

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Report of Analysis

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Client Sample ID:	PCMW-04	Date Sampled:	03/19/18
Lab Sample ID:	JC62879-2	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8081B SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G90994.D	1	03/27/18 12:27	CP	03/26/18 18:20	OP10876	G4G2399
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane ^a	0.0045	0.0067	0.0028	ug/l	J
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	57%		13-153%
877-09-8	Tetrachloro-m-xylene	60%		13-153%
2051-24-3	Decachlorobiphenyl	56%		10-138%
2051-24-3	Decachlorobiphenyl	51%		10-138%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: PCMW-04	Date Sampled: 03/19/18
Lab Sample ID: JC62879-2	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8082A SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181183.D	1	03/27/18 14:40	HB	03/26/18 18:20	OP10875	GEF6202
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	52%		11-166%
877-09-8	Tetrachloro-m-xylene	52%		11-166%
2051-24-3	Decachlorobiphenyl	49%		10-150%
2051-24-3	Decachlorobiphenyl	52%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-04 Lab Sample ID: JC62879-2 Matrix: AQ - Ground Water Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 03/19/18 Date Received: 03/23/18 Percent Solids: n/a
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Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	209	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Arsenic	6.3	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Barium	< 200	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Calcium	119000	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Copper	23.5	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Iron	7130	100	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Lead	17.8	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Magnesium	37400	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Manganese	654	15	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	03/27/18	03/27/18	JA SW846 7470A ¹	SW846 7470A ³
Nickel	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Potassium	< 10000	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Silver	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Sodium	< 10000	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Zinc	58.0	20	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴

(1) Instrument QC Batch: MA44080

(2) Instrument QC Batch: MA44135

(3) Prep QC Batch: MP6364

(4) Prep QC Batch: MP6402

RL = Reporting Limit

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Report of Analysis

Client Sample ID: PCMW-04	Date Sampled: 03/19/18
Lab Sample ID: JC62879-2	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010 UJ	0.010	mg/l	1	03/29/18 09:19	BM	EPA 335.4/LACHAT

RL = Reporting Limit

4.2
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Report of Analysis

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Client Sample ID:	PCMW-9S	Date Sampled:	03/19/18
Lab Sample ID:	JC62879-3	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D174438.D	1	03/27/18 14:51	JP	n/a	n/a	V2D7344
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	5.0	ug/l	UJ
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK) ^a	ND	10	4.8	ug/l	UJ
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane ^b	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane ^b	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-9S	Date Sampled:	03/19/18
Lab Sample ID:	JC62879-3	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene ^b	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene ^b	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		80-120%
17060-07-0	1,2-Dichloroethane-D4	105%		81-124%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	99%		80-120%

(a) Associated CCV outside of control limits low.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-9S	Date Sampled:	03/19/18
Lab Sample ID:	JC62879-3	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F175218.D	1	03/27/18 16:33	CS	03/26/18 18:30	OP10877	EF7460
Run #2							

Run #	Initial Volume	Final Volume
Run #1	950 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.3	0.86	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.3	0.94	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.1	1.3	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.3	2.6	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.3	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.3	1.4	ug/l	
95-48-7	2-Methylphenol	ND	2.1	0.93	ug/l	
	3&4-Methylphenol	ND	2.1	0.93	ug/l	
88-75-5	2-Nitrophenol	ND	5.3	1.0	ug/l	
100-02-7	4-Nitrophenol	ND	11	1.2	ug/l	
87-86-5	Pentachlorophenol ^a	ND	4.2	1.5	ug/l	
108-95-2	Phenol	ND	2.1	0.41	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol ^a	ND	5.3	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.3	1.4	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.3	0.97	ug/l	
83-32-9	Acenaphthene	ND	1.1	0.20	ug/l	
208-96-8	Acenaphthylene	ND	1.1	0.14	ug/l	
98-86-2	Acetophenone	ND	2.1	0.22	ug/l	
120-12-7	Anthracene	ND	1.1	0.22	ug/l	
1912-24-9	Atrazine	ND	2.1	0.47	ug/l	
100-52-7	Benzaldehyde	ND	5.3	0.30	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.1	0.21	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.1	0.22	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.1	0.22	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.1	0.36	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.1	0.22	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.1	0.43	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.1	0.48	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.1	0.22	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.1	0.25	ug/l	
106-47-8	4-Chloroaniline	ND	5.3	0.36	ug/l	
86-74-8	Carbazole	ND	1.1	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-9S	Date Sampled:	03/19/18
Lab Sample ID:	JC62879-3	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.1	0.68	ug/l	
218-01-9	Chrysene	ND	1.1	0.19	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.1	0.29	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.1	0.26	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.1	0.42	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.1	0.39	ug/l	
121-14-2	2,4-Dinitrotoluene ^a	ND	1.1	0.58	ug/l	
606-20-2	2,6-Dinitrotoluene ^a	ND	1.1	0.50	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.1	0.53	ug/l	
53-70-3	Dibenzo(a,h)anthracene ^a	ND	1.1	0.35	ug/l	
132-64-9	Dibenzofuran	ND	5.3	0.23	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.1	0.52	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.1	0.25	ug/l	
84-66-2	Diethyl phthalate	ND	2.1	0.28	ug/l	
131-11-3	Dimethyl phthalate	ND	2.1	0.23	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.1	1.7	ug/l	
206-44-0	Fluoranthene	ND	1.1	0.18	ug/l	
86-73-7	Fluorene	ND	1.1	0.18	ug/l	
118-74-1	Hexachlorobenzene	ND	1.1	0.34	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.1	0.52	ug/l	
77-47-4	Hexachlorocyclopentadiene ^a	ND	11	2.9	ug/l	
67-72-1	Hexachloroethane	ND	2.1	0.41	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.1	0.35	ug/l	
78-59-1	Isophorone	ND	2.1	0.29	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.1	0.22	ug/l	
88-74-4	2-Nitroaniline	ND	5.3	0.29	ug/l	
99-09-2	3-Nitroaniline	ND	5.3	0.41	ug/l	
100-01-6	4-Nitroaniline	ND	5.3	0.46	ug/l	
91-20-3	Naphthalene	ND	1.1	0.24	ug/l	
98-95-3	Nitrobenzene	ND	2.1	0.68	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.1	0.51	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.3	0.23	ug/l	
85-01-8	Phenanthrene	ND	1.1	0.18	ug/l	
129-00-0	Pyrene	ND	1.1	0.23	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.1	0.39	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	52%		10-110%
4165-62-2	Phenol-d5	36%		10-110%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-9S Lab Sample ID: JC62879-3 Matrix: AQ - Ground Water Method: SW846 8270D SW846 3510C Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 03/19/18 Date Received: 03/23/18 Percent Solids: n/a
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ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	94%		36-151%
4165-60-0	Nitrobenzene-d5	67%		34-128%
321-60-8	2-Fluorobiphenyl	72%		38-119%
1718-51-0	Terphenyl-d14	71%		26-129%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: PCMW-9S	Date Sampled: 03/19/18
Lab Sample ID: JC62879-3	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8081B SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G90995.D	1	03/27/18 12:44	CP	03/26/18 18:20	OP10876	G4G2399
Run #2							

Run #	Initial Volume	Final Volume
Run #1	280 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0071	0.0037	ug/l	
319-84-6	alpha-BHC	ND	0.0071	0.0037	ug/l	
319-85-7	beta-BHC	ND	0.0071	0.0057	ug/l	
319-86-8	delta-BHC	ND	0.0071	0.0047	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0071	0.0043	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0071	0.0035	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0071	0.0030	ug/l	
60-57-1	Dieldrin	ND	0.0071	0.0055	ug/l	
72-54-8	4,4'-DDD	ND	0.0071	0.0041	ug/l	
72-55-9	4,4'-DDE	ND	0.0071	0.0036	ug/l	
50-29-3	4,4'-DDT	ND	0.0071	0.0049	ug/l	
72-20-8	Endrin	ND	0.0071	0.0043	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0071	0.0039	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0071	0.0048	ug/l	
53494-70-5	Endrin ketone	ND	0.0071	0.0044	ug/l	
959-98-8	Endosulfan-I	ND	0.0071	0.0038	ug/l	
33213-65-9	Endosulfan-II	ND	0.0071	0.0035	ug/l	
76-44-8	Heptachlor	ND	0.0071	0.0032	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0071	0.0043	ug/l	
72-43-5	Methoxychlor	ND	0.014	0.0048	ug/l	
8001-35-2	Toxaphene	ND	0.18	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	87%		13-153%
877-09-8	Tetrachloro-m-xylene	86%		13-153%
2051-24-3	Decachlorobiphenyl	63%		10-138%
2051-24-3	Decachlorobiphenyl	58%		10-138%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 1

Client Sample ID: PCMW-9S	Date Sampled: 03/19/18
Lab Sample ID: JC62879-3	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8082A SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181184.D	1	03/27/18 15:05	HB	03/26/18 18:20	OP10875	GEF6202
Run #2							

Run #	Initial Volume	Final Volume
Run #1	280 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.36	0.14	ug/l	
11104-28-2	Aroclor 1221	ND	0.36	0.30	ug/l	
11141-16-5	Aroclor 1232	ND	0.36	0.19	ug/l	
53469-21-9	Aroclor 1242	ND	0.36	0.16	ug/l	
12672-29-6	Aroclor 1248	ND	0.36	0.090	ug/l	
11097-69-1	Aroclor 1254	ND	0.36	0.30	ug/l	
11096-82-5	Aroclor 1260	ND	0.36	0.11	ug/l	
11100-14-4	Aroclor 1268	ND	0.36	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.36	0.14	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	84%		11-166%
877-09-8	Tetrachloro-m-xylene	88%		11-166%
2051-24-3	Decachlorobiphenyl	60%		10-150%
2051-24-3	Decachlorobiphenyl	61%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-9S	Date Sampled: 03/19/18
Lab Sample ID: JC62879-3	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	275	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Antimony	< 6.0	6.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Arsenic	19.2	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Barium	< 200	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Calcium	186000	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Chromium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Cobalt	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Copper	24.5	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Iron	6760	100	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Lead	21.2	3.0	ug/l	1	03/29/18	04/04/18	SW846 6010C ³	SW846 3010A ⁵
Magnesium	101000	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Manganese	515	15	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Mercury	< 0.20	0.20	ug/l	1	03/27/18	03/27/18	JA SW846 7470A ¹	SW846 7470A ⁴
Nickel	20.0	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Potassium	13600	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Selenium	11.3	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Silver	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Sodium	21900	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Thallium	< 2.0	2.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Vanadium	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Zinc	85.2	20	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵

- (1) Instrument QC Batch: MA44080
- (2) Instrument QC Batch: MA44135
- (3) Instrument QC Batch: MA44142
- (4) Prep QC Batch: MP6364
- (5) Prep QC Batch: MP6402

RL = Reporting Limit

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Report of Analysis

Client Sample ID: PCMW-9S	Date Sampled: 03/19/18
Lab Sample ID: JC62879-3	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010 UJ	0.010	mg/l	1	03/29/18 09:23	BM	EPA 335.4/LACHAT

RL = Reporting Limit

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Report of Analysis

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Client Sample ID: PCMW-16D	Date Sampled: 03/19/18
Lab Sample ID: JC62879-4	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D174439.D	1	03/27/18 15:21	JP	n/a	n/a	V2D7344
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	5.0	ug/l	UJ
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK) ^a	ND	10	4.8	ug/l	UJ
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	1.4	1.0	0.24	ug/l	
75-00-3	Chloroethane ^b	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane ^b	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-16D	Date Sampled:	03/19/18
Lab Sample ID:	JC62879-4	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene ^b	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene ^b	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		80-120%
17060-07-0	1,2-Dichloroethane-D4	105%		81-124%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	99%		80-120%

(a) Associated CCV outside of control limits low.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-16D	Date Sampled:	03/19/18
Lab Sample ID:	JC62879-4	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F175219.D	1	03/27/18 17:01	CS	03/26/18 18:30	OP10877	EF7460
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	0.82	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	0.89	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.3	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.4	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.0	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.0	1.3	ug/l	
95-48-7	2-Methylphenol	ND	2.0	0.89	ug/l	
	3&4-Methylphenol	ND	2.0	0.88	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	0.96	ug/l	
100-02-7	4-Nitrophenol	ND	10	1.2	ug/l	
87-86-5	Pentachlorophenol ^a	ND	4.0	1.4	ug/l	
108-95-2	Phenol	ND	2.0	0.39	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol ^a	ND	5.0	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	0.92	ug/l	
83-32-9	Acenaphthene	ND	1.0	0.19	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.14	ug/l	
98-86-2	Acetophenone	ND	2.0	0.21	ug/l	
120-12-7	Anthracene	ND	1.0	0.21	ug/l	
1912-24-9	Atrazine	ND	2.0	0.45	ug/l	
100-52-7	Benzaldehyde	ND	5.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.21	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.21	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.34	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.21	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.40	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.46	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.21	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.24	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.34	ug/l	
86-74-8	Carbazole	ND	1.0	0.23	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-16D	Date Sampled:	03/19/18
Lab Sample ID:	JC62879-4	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.65	ug/l	
218-01-9	Chrysene	ND	1.0	0.18	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.28	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.25	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.40	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.37	ug/l	
121-14-2	2,4-Dinitrotoluene ^b	13.3	1.0	0.55	ug/l	J
606-20-2	2,6-Dinitrotoluene ^a	ND	1.0	0.48	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.51	ug/l	
53-70-3	Dibenzo(a,h)anthracene ^a	ND	1.0	0.33	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.22	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.50	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.23	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.26	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.22	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.7	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.17	ug/l	
86-73-7	Fluorene	ND	1.0	0.17	ug/l	
118-74-1	Hexachlorobenzene	ND	1.0	0.33	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.49	ug/l	
77-47-4	Hexachlorocyclopentadiene ^a	ND	10	2.8	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.39	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.33	ug/l	
78-59-1	Isophorone	ND	2.0	0.28	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.21	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.39	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	0.44	ug/l	
91-20-3	Naphthalene	ND	1.0	0.23	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.64	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.48	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.22	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.18	ug/l	
129-00-0	Pyrene	ND	1.0	0.22	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.37	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	58%		10-110%
14165-62-2	Phenol-d5	37%		10-110%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-16D	Date Sampled: 03/19/18
Lab Sample ID: JC62879-4	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	96%		36-151%
4165-60-0	Nitrobenzene-d5	77%		34-128%
321-60-8	2-Fluorobiphenyl	75%		38-119%
1718-51-0	Terphenyl-d14	80%		26-129%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits high.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: PCMW-16D	Date Sampled: 03/19/18
Lab Sample ID: JC62879-4	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8081B SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G90996.D	1	03/27/18 13:01	CP	03/26/18 18:20	OP10876	G4G2399
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	0.038	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	68%		13-153%
877-09-8	Tetrachloro-m-xylene	71%		13-153%
2051-24-3	Decachlorobiphenyl	59%		10-138%
2051-24-3	Decachlorobiphenyl	56%		10-138%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: PCMW-16D	Date Sampled: 03/19/18
Lab Sample ID: JC62879-4	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8082A SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181189.D	1	03/27/18 17:10	HB	03/26/18 18:20	OP10875	GEF6202
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	74%		11-166%
877-09-8	Tetrachloro-m-xylene	82%		11-166%
2051-24-3	Decachlorobiphenyl	64%		10-150%
2051-24-3	Decachlorobiphenyl	65%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-16D	Date Sampled: 03/19/18
Lab Sample ID: JC62879-4	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	343	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Arsenic	93.5	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Barium	< 200	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Calcium	51800	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Copper	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Iron	61600	100	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Lead	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Magnesium	28900	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Manganese	3610	15	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	03/27/18	03/27/18	JA SW846 7470A ¹	SW846 7470A ³
Nickel	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Potassium	< 10000	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Silver	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Sodium	61300	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Zinc	< 20	20	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴

(1) Instrument QC Batch: MA44080

(2) Instrument QC Batch: MA44135

(3) Prep QC Batch: MP6364

(4) Prep QC Batch: MP6402

RL = Reporting Limit

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Report of Analysis

Client Sample ID: PCMW-16D	Date Sampled: 03/19/18
Lab Sample ID: JC62879-4	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010 UJ	0.010	mg/l	1	03/29/18 09:25	BM	EPA 335.4/LACHAT

RL = Reporting Limit

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Report of Analysis

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Client Sample ID: MW-5	Date Sampled: 03/19/18
Lab Sample ID: JC62879-5	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D174440.D	1	03/27/18 15:51	JP	n/a	n/a	V2D7344
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	5.0	ug/l	UJ
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK) ^a	ND	10	4.8	ug/l	UJ
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane ^b	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane ^b	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	28.3	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-5	Date Sampled:	03/19/18
Lab Sample ID:	JC62879-5	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	1.1	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene ^b	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene ^b	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	6.1	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		80-120%
17060-07-0	1,2-Dichloroethane-D4	105%		81-124%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	99%		80-120%

(a) Associated CCV outside of control limits low.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	MW-5	Date Sampled:	03/19/18
Lab Sample ID:	JC62879-5	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F175220.D	1	03/27/18 17:29	CS	03/26/18 18:30	OP10877	EF7460
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	0.82	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	0.89	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.3	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.4	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.0	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.0	1.3	ug/l	
95-48-7	2-Methylphenol	ND	2.0	0.89	ug/l	
	3&4-Methylphenol	ND	2.0	0.88	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	0.96	ug/l	
100-02-7	4-Nitrophenol	ND	10	1.2	ug/l	
87-86-5	Pentachlorophenol ^a	ND	4.0	1.4	ug/l	
108-95-2	Phenol	ND	2.0	0.39	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol ^a	ND	5.0	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	0.92	ug/l	
83-32-9	Acenaphthene	0.78	1.0	0.19	ug/l	J
208-96-8	Acenaphthylene	ND	1.0	0.14	ug/l	
98-86-2	Acetophenone	ND	2.0	0.21	ug/l	
120-12-7	Anthracene	ND	1.0	0.21	ug/l	
1912-24-9	Atrazine	ND	2.0	0.45	ug/l	
100-52-7	Benzaldehyde	ND	5.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.21	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.21	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.34	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.21	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.40	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.46	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.21	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.24	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.34	ug/l	
86-74-8	Carbazole	ND	1.0	0.23	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-5	Date Sampled:	03/19/18
Lab Sample ID:	JC62879-5	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.65	ug/l	
218-01-9	Chrysene	ND	1.0	0.18	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.28	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.25	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.40	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.37	ug/l	
121-14-2	2,4-Dinitrotoluene ^a	ND	1.0	0.55	ug/l	
606-20-2	2,6-Dinitrotoluene ^a	ND	1.0	0.48	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.51	ug/l	
53-70-3	Dibenzo(a,h)anthracene ^a	ND	1.0	0.33	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.22	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.50	ug/l	
117-84-0	Di-n-octyl phthalate	0.0	2.0	0.23	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.26	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.22	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.7	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.17	ug/l	
86-73-7	Fluorene	ND	1.0	0.17	ug/l	
118-74-1	Hexachlorobenzene	ND	1.0	0.33	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.49	ug/l	
77-47-4	Hexachlorocyclopentadiene ^a	ND	10	2.8	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.39	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.33	ug/l	
78-59-1	Isophorone	ND	2.0	0.28	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.21	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.39	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	0.44	ug/l	
91-20-3	Naphthalene	ND	1.0	0.23	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.64	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.48	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.22	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.18	ug/l	
129-00-0	Pyrene	ND	1.0	0.22	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.37	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	47%		10-110%
4165-62-2	Phenol-d5	30%		10-110%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-5 Lab Sample ID: JC62879-5 Matrix: AQ - Ground Water Method: SW846 8270D SW846 3510C Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 03/19/18 Date Received: 03/23/18 Percent Solids: n/a
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ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	91%		36-151%
4165-60-0	Nitrobenzene-d5	62%		34-128%
321-60-8	2-Fluorobiphenyl	66%		38-119%
1718-51-0	Terphenyl-d14	79%		26-129%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	MW-5	Date Sampled:	03/19/18
Lab Sample ID:	JC62879-5	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8081B SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G90997.D	1	03/27/18 13:18	CP	03/26/18 18:20	OP10876	G4G2399
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	73%		13-153%
877-09-8	Tetrachloro-m-xylene	75%		13-153%
2051-24-3	Decachlorobiphenyl	56%		10-138%
2051-24-3	Decachlorobiphenyl	52%		10-138%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	MW-5	Date Sampled:	03/19/18
Lab Sample ID:	JC62879-5	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8082A SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181190.D	1	03/27/18 17:35	HB	03/26/18 18:20	OP10875	GEF6202
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	77%		11-166%
877-09-8	Tetrachloro-m-xylene	82%		11-166%
2051-24-3	Decachlorobiphenyl	57%		10-150%
2051-24-3	Decachlorobiphenyl	58%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-5	Date Sampled: 03/19/18
Lab Sample ID: JC62879-5	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Arsenic	3.7	3.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Barium	< 200	200	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Calcium	29800	5000	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Copper	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Iron	14100	100	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Lead	4.2	3.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Magnesium	15500	5000	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Manganese	326	15	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	03/27/18	03/27/18	JA	SW846 7470A ¹ SW846 7470A ³
Nickel	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Potassium	< 10000	10000	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Silver	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Sodium	< 10000	10000	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Zinc	< 20	20	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴

(1) Instrument QC Batch: MA44080

(2) Instrument QC Batch: MA44135

(3) Prep QC Batch: MP6364

(4) Prep QC Batch: MP6402

RL = Reporting Limit

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Report of Analysis

Client Sample ID: MW-5	Date Sampled: 03/19/18
Lab Sample ID: JC62879-5	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010 UJ	0.010	mg/l	1	03/29/18 09:26	BM	EPA 335.4/LACHAT

RL = Reporting Limit

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Report of Analysis

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Client Sample ID:	PCMW-15S	Date Sampled:	03/20/18
Lab Sample ID:	JC62879-6	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D174441.D	1	03/27/18 16:20	JP	n/a	n/a	V2D7344
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	5.0	ug/l	UJ
71-43-2	Benzene	0.20	0.50	0.17	ug/l	J
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK) ^a	ND	10	4.8	ug/l	UJ
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane ^b	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane ^b	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-15S	Date Sampled:	03/20/18
Lab Sample ID:	JC62879-6	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene ^b	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene ^b	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		80-120%
17060-07-0	1,2-Dichloroethane-D4	107%		81-124%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	99%		80-120%

(a) Associated CCV outside of control limits low.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-15S	Date Sampled:	03/20/18
Lab Sample ID:	JC62879-6	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	F175221.D	1	03/27/18 17:57	CS	03/26/18 18:30	OP10877	EF7460
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	0.82	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	0.89	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.3	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.4	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.0	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.0	1.3	ug/l	
95-48-7	2-Methylphenol	ND	2.0	0.89	ug/l	
	3&4-Methylphenol	ND	2.0	0.88	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	0.96	ug/l	
100-02-7	4-Nitrophenol	ND	10	1.2	ug/l	
87-86-5	Pentachlorophenol ^a	ND	4.0	1.4	ug/l	
108-95-2	Phenol	ND	2.0	0.39	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol ^a	ND	5.0	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	0.92	ug/l	
83-32-9	Acenaphthene	ND	1.0	0.19	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.14	ug/l	
98-86-2	Acetophenone	ND	2.0	0.21	ug/l	
120-12-7	Anthracene	ND	1.0	0.21	ug/l	
1912-24-9	Atrazine	ND	2.0	0.45	ug/l	
100-52-7	Benzaldehyde	ND	5.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.21	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.21	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.34	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.21	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.40	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.46	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.21	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.24	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.34	ug/l	
86-74-8	Carbazole	ND	1.0	0.23	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-15S	Date Sampled:	03/20/18
Lab Sample ID:	JC62879-6	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.65	ug/l	
218-01-9	Chrysene	ND	1.0	0.18	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.28	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.25	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.40	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.37	ug/l	
121-14-2	2,4-Dinitrotoluene ^a	ND	1.0	0.55	ug/l	
606-20-2	2,6-Dinitrotoluene ^a	ND	1.0	0.48	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.51	ug/l	
53-70-3	Dibenzo(a,h)anthracene ^a	ND	1.0	0.33	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.22	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.50	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.23	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.26	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.22	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.7	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.17	ug/l	
86-73-7	Fluorene	ND	1.0	0.17	ug/l	
118-74-1	Hexachlorobenzene	ND	1.0	0.33	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.49	ug/l	
77-47-4	Hexachlorocyclopentadiene ^a	ND	10	2.8	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.39	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.33	ug/l	
78-59-1	Isophorone	ND	2.0	0.28	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.21	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.39	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	0.44	ug/l	
91-20-3	Naphthalene	ND	1.0	0.23	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.64	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.48	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.22	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.18	ug/l	
129-00-0	Pyrene	ND	1.0	0.22	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.37	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	51%		10-110%
4165-62-2	Phenol-d5	33%		10-110%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-15S	Date Sampled: 03/20/18
Lab Sample ID: JC62879-6	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	95%		36-151%
4165-60-0	Nitrobenzene-d5	68%		34-128%
321-60-8	2-Fluorobiphenyl	69%		38-119%
1718-51-0	Terphenyl-d14	79%		26-129%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-15S	Date Sampled:	03/20/18
Lab Sample ID:	JC62879-6	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8081B SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G90998.D	1	03/27/18 13:34	CP	03/26/18 18:20	OP10876	G4G2399
Run #2							

Run #	Initial Volume	Final Volume
Run #1	295 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0068	0.0035	ug/l	
319-84-6	alpha-BHC	ND	0.0068	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0068	0.0054	ug/l	
319-86-8	delta-BHC	ND	0.0068	0.0045	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0068	0.0041	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0068	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0068	0.0029	ug/l	
60-57-1	Dieldrin	ND	0.0068	0.0052	ug/l	
72-54-8	4,4'-DDD	ND	0.0068	0.0039	ug/l	
72-55-9	4,4'-DDE	ND	0.0068	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0068	0.0046	ug/l	
72-20-8	Endrin	ND	0.0068	0.0041	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0068	0.0037	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0068	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0068	0.0042	ug/l	
959-98-8	Endosulfan-I	ND	0.0068	0.0036	ug/l	
33213-65-9	Endosulfan-II	ND	0.0068	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0068	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0068	0.0041	ug/l	
72-43-5	Methoxychlor	ND	0.014	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	83%		13-153%
877-09-8	Tetrachloro-m-xylene	82%		13-153%
2051-24-3	Decachlorobiphenyl	80%		10-138%
2051-24-3	Decachlorobiphenyl	74%		10-138%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-15S	Date Sampled:	03/20/18
Lab Sample ID:	JC62879-6	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8082A SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181191.D	1	03/27/18 18:00	HB	03/26/18 18:20	OP10875	GEF6202
Run #2							

Run #	Initial Volume	Final Volume
Run #1	295 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.34	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.34	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.34	0.18	ug/l	
53469-21-9	Aroclor 1242	ND	0.34	0.16	ug/l	
12672-29-6	Aroclor 1248	ND	0.34	0.085	ug/l	
11097-69-1	Aroclor 1254	ND	0.34	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.34	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.34	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.34	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	68%		11-166%
877-09-8	Tetrachloro-m-xylene	74%		11-166%
2051-24-3	Decachlorobiphenyl	68%		10-150%
2051-24-3	Decachlorobiphenyl	67%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-15S	Date Sampled: 03/20/18
Lab Sample ID: JC62879-6	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	267	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Antimony	< 6.0	6.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Arsenic ^a	< 15	15	ug/l	5	03/29/18	04/04/18	SW846 6010C ³	SW846 3010A ⁵
Barium	< 200	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Calcium	21000	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Chromium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Cobalt	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Copper	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Iron	10300	100	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Lead ^a	< 15	15	ug/l	5	03/29/18	04/04/18	SW846 6010C ³	SW846 3010A ⁵
Magnesium	135000	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Manganese	5290	15	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Mercury	0.29	0.20	ug/l	1	03/27/18	03/27/18	JA SW846 7470A ¹	SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Potassium	< 10000	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Selenium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Silver	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Sodium	90300	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Thallium ^a	< 10	10	ug/l	5	03/29/18	04/04/18	SW846 6010C ³	SW846 3010A ⁵
Vanadium	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Zinc	25.9	20	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵

- (1) Instrument QC Batch: MA44080
- (2) Instrument QC Batch: MA44135
- (3) Instrument QC Batch: MA44142
- (4) Prep QC Batch: MP6364
- (5) Prep QC Batch: MP6402

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

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Report of Analysis

Client Sample ID: PCMW-15S	Date Sampled: 03/20/18
Lab Sample ID: JC62879-6	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.21 J	0.010	mg/l	1	03/29/18 09:27	BM	EPA 335.4/LACHAT

RL = Reporting Limit

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Report of Analysis

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Client Sample ID:	PCMW-15D	Date Sampled:	03/20/18
Lab Sample ID:	JC62879-7	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	2D174442.D	1	03/27/18 16:50	JP	n/a	n/a	V2D7344

Run #1	Purge Volume
Run #2	5.0 ml

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	5.0	ug/l	UJ
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK) ^a	ND	10	4.8	ug/l	UJ
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane ^b	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane ^b	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-15D	Date Sampled:	03/20/18
Lab Sample ID:	JC62879-7	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene ^b	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene ^b	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		80-120%
17060-07-0	1,2-Dichloroethane-D4	107%		81-124%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	98%		80-120%

(a) Associated CCV outside of control limits low.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-15D	Date Sampled:	03/20/18
Lab Sample ID:	JC62879-7	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	F175222.D	1	03/27/18 18:25	CS	03/26/18 18:30	OP10877	EF7460

Run #1	Initial Volume	Final Volume
Run #2	1000 ml	1.0 ml

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	0.82	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	0.89	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.3	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.4	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.0	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.0	1.3	ug/l	
95-48-7	2-Methylphenol	ND	2.0	0.89	ug/l	
	3&4-Methylphenol	ND	2.0	0.88	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	0.96	ug/l	
100-02-7	4-Nitrophenol	ND	10	1.2	ug/l	
87-86-5	Pentachlorophenol ^a	ND	4.0	1.4	ug/l	
108-95-2	Phenol	ND	2.0	0.39	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol ^a	ND	5.0	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	0.92	ug/l	
83-32-9	Acenaphthene	ND	1.0	0.19	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.14	ug/l	
98-86-2	Acetophenone	ND	2.0	0.21	ug/l	
120-12-7	Anthracene	ND	1.0	0.21	ug/l	
1912-24-9	Atrazine	ND	2.0	0.45	ug/l	
100-52-7	Benzaldehyde	ND	5.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.21	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.21	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.34	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.21	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.40	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.46	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.21	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.24	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.34	ug/l	
86-74-8	Carbazole	ND	1.0	0.23	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-15D	Date Sampled:	03/20/18
Lab Sample ID:	JC62879-7	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.65	ug/l	
218-01-9	Chrysene	ND	1.0	0.18	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.28	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.25	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.40	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.37	ug/l	
121-14-2	2,4-Dinitrotoluene ^a	ND	1.0	0.55	ug/l	
606-20-2	2,6-Dinitrotoluene ^a	ND	1.0	0.48	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.51	ug/l	
53-70-3	Dibenzo(a,h)anthracene ^a	ND	1.0	0.33	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.22	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.50	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.23	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.26	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.22	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.7	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.17	ug/l	
86-73-7	Fluorene	ND	1.0	0.17	ug/l	
118-74-1	Hexachlorobenzene	ND	1.0	0.33	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.49	ug/l	
77-47-4	Hexachlorocyclopentadiene ^a	ND	10	2.8	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.39	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.33	ug/l	
78-59-1	Isophorone	ND	2.0	0.28	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.21	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.39	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	0.44	ug/l	
91-20-3	Naphthalene	ND	1.0	0.23	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.64	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.48	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.22	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.18	ug/l	
129-00-0	Pyrene	ND	1.0	0.22	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.37	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	49%		10-110%
14165-62-2	Phenol-d5	32%		10-110%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-15D	
Lab Sample ID: JC62879-7	Date Sampled: 03/20/18
Matrix: AQ - Ground Water	Date Received: 03/23/18
Method: SW846 8270D SW846 3510C	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	85%		36-151%
4165-60-0	Nitrobenzene-d5	65%		34-128%
321-60-8	2-Fluorobiphenyl	68%		38-119%
1718-51-0	Terphenyl-d14	72%		26-129%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-15D	Date Sampled:	03/20/18
Lab Sample ID:	JC62879-7	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8081B SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G90999.D	1	03/27/18 13:51	CP	03/26/18 18:20	OP10876	G4G2399
Run #2							

Run #	Initial Volume	Final Volume
Run #1	290 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0069	0.0036	ug/l	
319-84-6	alpha-BHC	ND	0.0069	0.0036	ug/l	
319-85-7	beta-BHC	ND	0.0069	0.0055	ug/l	
319-86-8	delta-BHC	ND	0.0069	0.0045	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0069	0.0041	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0069	0.0034	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0069	0.0029	ug/l	
60-57-1	Dieldrin	ND	0.0069	0.0053	ug/l	
72-54-8	4,4'-DDD	ND	0.0069	0.0040	ug/l	
72-55-9	4,4'-DDE	ND	0.0069	0.0035	ug/l	
50-29-3	4,4'-DDT	ND	0.0069	0.0047	ug/l	
72-20-8	Endrin	ND	0.0069	0.0042	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0069	0.0038	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0069	0.0046	ug/l	
53494-70-5	Endrin ketone	ND	0.0069	0.0043	ug/l	
959-98-8	Endosulfan-I	ND	0.0069	0.0036	ug/l	
33213-65-9	Endosulfan-II	ND	0.0069	0.0034	ug/l	
76-44-8	Heptachlor	ND	0.0069	0.0031	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0069	0.0041	ug/l	
72-43-5	Methoxychlor	ND	0.014	0.0046	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	75%		13-153%
877-09-8	Tetrachloro-m-xylene	76%		13-153%
2051-24-3	Decachlorobiphenyl	62%		10-138%
2051-24-3	Decachlorobiphenyl	56%		10-138%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-15D	Date Sampled:	03/20/18
Lab Sample ID:	JC62879-7	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8082A SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181192.D	1	03/27/18 18:25	HB	03/26/18 18:20	OP10875	GEF6202
Run #2							

Run #	Initial Volume	Final Volume
Run #1	290 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.34	0.14	ug/l	
11104-28-2	Aroclor 1221	ND	0.34	0.29	ug/l	
11141-16-5	Aroclor 1232	ND	0.34	0.18	ug/l	
53469-21-9	Aroclor 1242	ND	0.34	0.16	ug/l	
12672-29-6	Aroclor 1248	ND	0.34	0.087	ug/l	
11097-69-1	Aroclor 1254	ND	0.34	0.29	ug/l	
11096-82-5	Aroclor 1260	ND	0.34	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.34	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.34	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	76%		11-166%
877-09-8	Tetrachloro-m-xylene	83%		11-166%
2051-24-3	Decachlorobiphenyl	69%		10-150%
2051-24-3	Decachlorobiphenyl	63%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-15D Lab Sample ID: JC62879-7 Matrix: AQ - Ground Water Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 03/20/18 Date Received: 03/23/18 Percent Solids: n/a
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Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Arsenic	27.3	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Barium	< 200	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Calcium	124000	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Copper	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Iron	26800	100	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Lead	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Magnesium	49600	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Manganese	5070	15	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	03/27/18	03/27/18	JA SW846 7470A ¹	SW846 7470A ³
Nickel	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Potassium	13300	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Silver	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Sodium	54800	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Zinc	< 20	20	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴

(1) Instrument QC Batch: MA44080

(2) Instrument QC Batch: MA44135

(3) Prep QC Batch: MP6364

(4) Prep QC Batch: MP6402

RL = Reporting Limit

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Report of Analysis

Client Sample ID: PCMW-15D	Date Sampled: 03/20/18
Lab Sample ID: JC62879-7	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.020 J	0.010	mg/l	1	03/29/18 09:29	BM	EPA 335.4/LACHAT

RL = Reporting Limit

4.7
4

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Report of Analysis

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Client Sample ID:	PCMW-8S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-8	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	2D174443.D	1	03/27/18 17:21	JP	n/a	n/a	V2D7344

Run #1	Purge Volume
Run #2	5.0 ml

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	5.0	ug/l	UJ
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK) ^a	ND	10	4.8	ug/l	UJ
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane ^b	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane ^b	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-8S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-8	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene ^b	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene ^b	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		80-120%
17060-07-0	1,2-Dichloroethane-D4	107%		81-124%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	98%		80-120%

(a) Associated CCV outside of control limits low.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 3

Client Sample ID:	PCMW-8S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-8	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P78143.D	1	03/28/18 21:17	JB	03/28/18 00:25	OP10883	E2P3440
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	0.82	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	0.89	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.3	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.4	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.0	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.0	1.3	ug/l	
95-48-7	2-Methylphenol	ND	2.0	0.89	ug/l	
	3&4-Methylphenol	ND	2.0	0.88	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	0.96	ug/l	
100-02-7	4-Nitrophenol	ND	10	1.2	ug/l	
87-86-5	Pentachlorophenol	ND	4.0	1.4	ug/l	
108-95-2	Phenol	ND	2.0	0.39	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.0	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	0.92	ug/l	
83-32-9	Acenaphthene	ND	1.0	0.19	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.14	ug/l	
98-86-2	Acetophenone	ND	2.0	0.21	ug/l	
120-12-7	Anthracene	ND	1.0	0.21	ug/l	
1912-24-9	Atrazine	ND	2.0	0.45	ug/l	
100-52-7	Benzaldehyde	ND	5.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.21	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.21	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.34	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.21	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.40	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.46	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.21	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.24	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.34	ug/l	
86-74-8	Carbazole	ND	1.0	0.23	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-8S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-8	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.65	ug/l	
218-01-9	Chrysene	ND	1.0	0.18	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.28	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.25	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.40	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.37	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.0	0.55	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.0	0.48	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.51	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.33	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.22	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.50	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.23	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.26	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.22	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.7	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.17	ug/l	
86-73-7	Fluorene	ND	1.0	0.17	ug/l	
118-74-1	Hexachlorobenzene	ND	1.0	0.33	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.49	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	2.8	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.39	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.33	ug/l	
78-59-1	Isophorone	ND	2.0	0.28	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.21	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.39	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	0.44	ug/l	
91-20-3	Naphthalene	ND	1.0	0.23	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.64	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.48	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.22	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.18	ug/l	
129-00-0	Pyrene	ND	1.0	0.22	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.37	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	34%		10-110%
14165-62-2	Phenol-d5	24%		10-110%

ND = Not detected

MDL = Method Detection Limit

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RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-8S	
Lab Sample ID: JC62879-8	Date Sampled: 03/22/18
Matrix: AQ - Ground Water	Date Received: 03/23/18
Method: SW846 8270D SW846 3510C	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	86%		36-151%
4165-60-0	Nitrobenzene-d5	59%		34-128%
321-60-8	2-Fluorobiphenyl	67%		38-119%
1718-51-0	Terphenyl-d14	72%		26-129%

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Report of Analysis

Page 1 of 1

Client Sample ID: PCMW-8S	Date Sampled: 03/22/18
Lab Sample ID: JC62879-8	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8081B SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G144707.D	1	03/28/18 02:18	CP	03/27/18 18:10	OP10885	G1G4598
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	84%		13-153%
877-09-8	Tetrachloro-m-xylene	80%		13-153%
2051-24-3	Decachlorobiphenyl	109%		10-138%
2051-24-3	Decachlorobiphenyl	83%		10-138%

ND = Not detected

MDL = Method Detection Limit

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Report of Analysis

Page 1 of 1

Client Sample ID: PCMW-8S	Date Sampled: 03/22/18
Lab Sample ID: JC62879-8	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8082A SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181224.D	1	03/28/18 20:19	HB	03/27/18 18:10	OP10884	GEF6203
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	84%		11-166%
877-09-8	Tetrachloro-m-xylene	89%		11-166%
2051-24-3	Decachlorobiphenyl	80%		10-150%
2051-24-3	Decachlorobiphenyl	82%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-8S	Date Sampled: 03/22/18
Lab Sample ID: JC62879-8	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Antimony	9.9	6.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Arsenic	3.4	3.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Barium	< 200	200	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Calcium	170000	5000	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Copper	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Iron	163	100	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Lead	5.3	3.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Magnesium	149000	5000	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Manganese	41.7	15	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	03/27/18	03/27/18	JA	SW846 7470A ¹ SW846 7470A ³
Nickel	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Potassium	17400	10000	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Selenium	11.9	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Silver	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Sodium	13900	10000	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Zinc	48.2	20	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴

(1) Instrument QC Batch: MA44080

(2) Instrument QC Batch: MA44135

(3) Prep QC Batch: MP6364

(4) Prep QC Batch: MP6402

RL = Reporting Limit

4.8
4

Report of Analysis

Client Sample ID: PCMW-8S	Date Sampled: 03/22/18
Lab Sample ID: JC62879-8	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.018 J	0.010	mg/l	1	03/29/18 09:30	BM	EPA 335.4/LACHAT

RL = Reporting Limit

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Report of Analysis

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Client Sample ID: PCMW-8D	Date Sampled: 03/22/18
Lab Sample ID: JC62879-9	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D174435.D	1	03/27/18 13:21	JP	n/a	n/a	V2D7344
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	5.0	ug/l	UJ
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK) ^a	ND	10	4.8	ug/l	UJ
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane ^b	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane ^b	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-8D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-9	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene ^b	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene ^b	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		80-120%
17060-07-0	1,2-Dichloroethane-D4	105%		81-124%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	98%		80-120%

(a) Associated CCV outside of control limits low.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 3

Client Sample ID:	PCMW-8D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-9	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P78144.D	1	03/28/18 21:38	JB	03/28/18 00:25	OP10883	E2P3440
Run #2							

Run #	Initial Volume	Final Volume
Run #1	980 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.1	0.84	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.1	0.91	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.3	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.1	2.5	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.1	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.1	1.3	ug/l	
95-48-7	2-Methylphenol	ND	2.0	0.91	ug/l	
	3&4-Methylphenol	ND	2.0	0.90	ug/l	
88-75-5	2-Nitrophenol	ND	5.1	0.98	ug/l	
100-02-7	4-Nitrophenol	ND	10	1.2	ug/l	
87-86-5	Pentachlorophenol	ND	4.1	1.4	ug/l	
108-95-2	Phenol	ND	2.0	0.40	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.1	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.1	1.4	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.1	0.94	ug/l	
83-32-9	Acenaphthene	3.9	1.0	0.19	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.14	ug/l	
98-86-2	Acetophenone	ND	2.0	0.21	ug/l	
120-12-7	Anthracene	ND	1.0	0.22	ug/l	
1912-24-9	Atrazine	ND	2.0	0.46	ug/l	
100-52-7	Benzaldehyde	ND	5.1	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.21	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.22	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.21	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.35	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.21	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.41	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.47	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.22	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.24	ug/l	
106-47-8	4-Chloroaniline	ND	5.1	0.35	ug/l	UJ
86-74-8	Carbazole	ND	1.0	0.23	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-8D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-9	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.66	ug/l	
218-01-9	Chrysene	ND	1.0	0.18	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.28	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.25	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.41	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.37	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.0	0.56	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.0	0.49	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.52	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.34	ug/l	
132-64-9	Dibenzofuran	ND	5.1	0.22	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.51	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.24	ug/l	
84-66-2	Diethyl phthalate	1.0	2.0	0.27	ug/l	J
131-11-3	Dimethyl phthalate	ND	2.0	0.22	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.7	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.17	ug/l	
86-73-7	Fluorene	ND	1.0	0.17	ug/l	
118-74-1	Hexachlorobenzene	ND	1.0	0.33	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.50	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	2.8	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.40	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.34	ug/l	
78-59-1	Isophorone	ND	2.0	0.28	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.21	ug/l	
88-74-4	2-Nitroaniline	ND	5.1	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	5.1	0.39	ug/l	
100-01-6	4-Nitroaniline	ND	5.1	0.45	ug/l	
91-20-3	Naphthalene	ND	1.0	0.24	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.66	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.49	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.1	0.23	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.18	ug/l	
129-00-0	Pyrene	ND	1.0	0.22	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.38	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	37%		10-110%
14165-62-2	Phenol-d5	27%		10-110%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-8D		Date Sampled: 03/22/18
Lab Sample ID: JC62879-9		Date Received: 03/23/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	95%		36-151%
4165-60-0	Nitrobenzene-d5	65%		34-128%
321-60-8	2-Fluorobiphenyl	72%		38-119%
1718-51-0	Terphenyl-d14	71%		26-129%

ND = Not detected MDL = Method Detection Limit
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 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-8D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-9	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8081B SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G144708.D	1	03/28/18 02:35	CP	03/27/18 18:10	OP10885	G1G4598
Run #2							

Run #	Initial Volume	Final Volume
Run #1	290 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0069	0.0036	ug/l	
319-84-6	alpha-BHC	ND	0.0069	0.0036	ug/l	
319-85-7	beta-BHC	ND	0.0069	0.0055	ug/l	
319-86-8	delta-BHC	ND	0.0069	0.0045	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0069	0.0041	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0069	0.0034	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0069	0.0029	ug/l	
60-57-1	Dieldrin	ND	0.0069	0.0053	ug/l	
72-54-8	4,4'-DDD	ND	0.0069	0.0040	ug/l	
72-55-9	4,4'-DDE	ND	0.0069	0.0035	ug/l	
50-29-3	4,4'-DDT	ND	0.0069	0.0047	ug/l	
72-20-8	Endrin	ND	0.0069	0.0042	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0069	0.0038	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0069	0.0046	ug/l	
53494-70-5	Endrin ketone	ND	0.0069	0.0043	ug/l	
959-98-8	Endosulfan-I	ND	0.0069	0.0036	ug/l	
33213-65-9	Endosulfan-II	ND	0.0069	0.0034	ug/l	
76-44-8	Heptachlor	ND	0.0069	0.0031	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0069	0.0041	ug/l	
72-43-5	Methoxychlor	ND	0.014	0.0046	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	49%		13-153%
877-09-8	Tetrachloro-m-xylene	53%		13-153%
2051-24-3	Decachlorobiphenyl	22%		10-138%
2051-24-3	Decachlorobiphenyl	23%		10-138%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: PCMW-8D	Date Sampled: 03/22/18
Lab Sample ID: JC62879-9	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8082A SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181220.D	1	03/28/18 18:39	HB	03/27/18 18:10	OP10884	GEF6203
Run #2							

Run #	Initial Volume	Final Volume
Run #1	290 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.34	0.14	ug/l	
11104-28-2	Aroclor 1221	ND	0.34	0.29	ug/l	
11141-16-5	Aroclor 1232	ND	0.34	0.18	ug/l	
53469-21-9	Aroclor 1242	ND	0.34	0.16	ug/l	
12672-29-6	Aroclor 1248	ND	0.34	0.087	ug/l	
11097-69-1	Aroclor 1254	ND	0.34	0.29	ug/l	
11096-82-5	Aroclor 1260	ND	0.34	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.34	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.34	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	54%		11-166%
877-09-8	Tetrachloro-m-xylene	53%		11-166%
2051-24-3	Decachlorobiphenyl	29%		10-150%
2051-24-3	Decachlorobiphenyl	28%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-8D	Date Sampled: 03/22/18
Lab Sample ID: JC62879-9	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum ^a	< 1000	1000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Antimony ^a	< 30	30	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Arsenic ^a	< 15	15	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Barium ^a	< 1000	1000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Beryllium ^a	< 5.0	5.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Cadmium ^a	< 15	15	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Calcium ^a	63500	25000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Chromium ^a	< 50	50	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Cobalt ^a	< 250	250	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Copper ^a	< 50	50	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Iron ^a	165000	500	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Lead ^a	< 15	15	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Magnesium ^a	26800	25000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Manganese ^a	6640	75	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Mercury ^a	< 0.60	0.60	ug/l	1	03/27/18	03/27/18	JA SW846 7470A ¹	SW846 7470A ³
Nickel ^a	< 50	50	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Potassium ^a	< 50000	50000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Selenium ^a	< 50	50	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Silver ^a	< 50	50	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Sodium ^a	79000	50000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Thallium ^a	< 10	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Vanadium ^a	< 250	250	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Zinc ^a	< 100	100	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴

(1) Instrument QC Batch: MA44080

(2) Instrument QC Batch: MA44114

(3) Prep QC Batch: MP6364

(4) Prep QC Batch: MP6399

(a) Elevated sample detection limit due to difficult sample matrix.

RL = Reporting Limit

4.9
4

Report of Analysis

Client Sample ID: PCMW-8D	Date Sampled: 03/22/18
Lab Sample ID: JC62879-9	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.060 J	0.010	mg/l	1	03/29/18 09:31	BM	EPA 335.4/LACHAT

RL = Reporting Limit

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Report of Analysis

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Client Sample ID:	PCMW-17S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-10	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D174444.D	1	03/27/18 17:51	JP	n/a	n/a	V2D7344
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	5.0	ug/l	UJ
71-43-2	Benzene	1.1	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK) ^a	ND	10	4.8	ug/l	UJ
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane ^b	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane ^b	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-17S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-10	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene ^b	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene ^b	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		80-120%
17060-07-0	1,2-Dichloroethane-D4	106%		81-124%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	98%		80-120%

(a) Associated CCV outside of control limits low.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-17S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-10	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P78145.D	1	03/28/18 22:00	JB	03/28/18 00:25	OP10883	E2P3440
Run #2							

Run #	Initial Volume	Final Volume
Run #1	980 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.1	0.84	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.1	0.91	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.3	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.1	2.5	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.1	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.1	1.3	ug/l	
95-48-7	2-Methylphenol	ND	2.0	0.91	ug/l	
	3&4-Methylphenol	ND	2.0	0.90	ug/l	
88-75-5	2-Nitrophenol	ND	5.1	0.98	ug/l	
100-02-7	4-Nitrophenol	ND	10	1.2	ug/l	
87-86-5	Pentachlorophenol	ND	4.1	1.4	ug/l	
108-95-2	Phenol	ND	2.0	0.40	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.1	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.1	1.4	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.1	0.94	ug/l	
83-32-9	Acenaphthene	1.2	1.0	0.19	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.14	ug/l	
98-86-2	Acetophenone	ND	2.0	0.21	ug/l	
120-12-7	Anthracene	ND	1.0	0.22	ug/l	
1912-24-9	Atrazine	ND	2.0	0.46	ug/l	
100-52-7	Benzaldehyde	ND	5.1	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.21	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.22	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.21	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.35	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.21	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.41	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.47	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.22	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.24	ug/l	
106-47-8	4-Chloroaniline	ND	5.1	0.35	ug/l	
86-74-8	Carbazole	ND	1.0	0.23	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-17S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-10	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.66	ug/l	
218-01-9	Chrysene	ND	1.0	0.18	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.28	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.25	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.41	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.37	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.0	0.56	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.0	0.49	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.52	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.34	ug/l	
132-64-9	Dibenzofuran	ND	5.1	0.22	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.51	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.24	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.27	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.22	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.7	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.17	ug/l	
86-73-7	Fluorene	0.76	1.0	0.17	ug/l	J
118-74-1	Hexachlorobenzene	ND	1.0	0.33	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.50	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	2.8	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.40	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.34	ug/l	
78-59-1	Isophorone	ND	2.0	0.28	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.21	ug/l	
88-74-4	2-Nitroaniline	ND	5.1	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	5.1	0.39	ug/l	
100-01-6	4-Nitroaniline	ND	5.1	0.45	ug/l	
91-20-3	Naphthalene	ND	1.0	0.24	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.66	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.49	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.1	0.23	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.18	ug/l	
129-00-0	Pyrene	ND	1.0	0.22	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.38	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	35%		10-110%
4165-62-2	Phenol-d5	25%		10-110%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-17S		Date Sampled: 03/22/18
Lab Sample ID: JC62879-10		Date Received: 03/23/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	89%		36-151%
4165-60-0	Nitrobenzene-d5	59%		34-128%
321-60-8	2-Fluorobiphenyl	67%		38-119%
1718-51-0	Terphenyl-d14	72%		26-129%

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 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 1

Client Sample ID:	PCMW-17S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-10	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8081B SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G144711.D	1	03/28/18 03:27	CP	03/27/18 18:10	OP10885	G1G4598
Run #2							

Run #	Initial Volume	Final Volume
Run #1	290 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0069	0.0036	ug/l	
319-84-6	alpha-BHC	ND	0.0069	0.0036	ug/l	
319-85-7	beta-BHC	ND	0.0069	0.0055	ug/l	
319-86-8	delta-BHC	ND	0.0069	0.0045	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0069	0.0041	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0069	0.0034	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0069	0.0029	ug/l	
60-57-1	Dieldrin	ND	0.0069	0.0053	ug/l	
72-54-8	4,4'-DDD	ND	0.0069	0.0040	ug/l	
72-55-9	4,4'-DDE	ND	0.0069	0.0035	ug/l	
50-29-3	4,4'-DDT	ND	0.0069	0.0047	ug/l	
72-20-8	Endrin	ND	0.0069	0.0042	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0069	0.0038	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0069	0.0046	ug/l	
53494-70-5	Endrin ketone	ND	0.0069	0.0043	ug/l	
959-98-8	Endosulfan-I	ND	0.0069	0.0036	ug/l	
33213-65-9	Endosulfan-II	ND	0.0069	0.0034	ug/l	
76-44-8	Heptachlor	ND	0.0069	0.0031	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0069	0.0041	ug/l	
72-43-5	Methoxychlor	ND	0.014	0.0046	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	80%		13-153%
877-09-8	Tetrachloro-m-xylene	74%		13-153%
2051-24-3	Decachlorobiphenyl	105%		10-138%
2051-24-3	Decachlorobiphenyl	75%		10-138%

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Report of Analysis

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Client Sample ID:	PCMW-17S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-10	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8082A SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181229.D	1	03/28/18 22:24	HB	03/27/18 18:10	OP10884	GEF6203
Run #2							

Run #	Initial Volume	Final Volume
Run #1	290 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.34	0.14	ug/l	
11104-28-2	Aroclor 1221	ND	0.34	0.29	ug/l	
11141-16-5	Aroclor 1232	ND	0.34	0.18	ug/l	
53469-21-9	Aroclor 1242	ND	0.34	0.16	ug/l	
12672-29-6	Aroclor 1248	ND	0.34	0.087	ug/l	
11097-69-1	Aroclor 1254	ND	0.34	0.29	ug/l	
11096-82-5	Aroclor 1260	ND	0.34	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.34	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.34	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	76%		11-166%
877-09-8	Tetrachloro-m-xylene	79%		11-166%
2051-24-3	Decachlorobiphenyl	73%		10-150%
2051-24-3	Decachlorobiphenyl	73%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-17S	Date Sampled: 03/22/18
Lab Sample ID: JC62879-10	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	1020	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Antimony	< 6.0	6.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Arsenic ^a	< 15	15	ug/l	5	03/29/18	04/04/18	SW846 6010C ³	SW846 3010A ⁵
Barium	< 200	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Cadmium	3.3	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Calcium	188000	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Chromium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Cobalt	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Copper	30.6	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Iron	22100	100	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Lead ^a	< 15	15	ug/l	5	03/29/18	04/04/18	SW846 6010C ³	SW846 3010A ⁵
Magnesium	34500	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Manganese	2120	15	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Mercury	< 0.20	0.20	ug/l	1	03/27/18	03/27/18	JA SW846 7470A ¹	SW846 7470A ⁴
Nickel	93.4	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Potassium	< 10000	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Selenium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Silver	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Sodium	11100	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Thallium ^a	< 10	10	ug/l	5	03/29/18	04/04/18	SW846 6010C ³	SW846 3010A ⁵
Vanadium	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Zinc	1130	20	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵

- (1) Instrument QC Batch: MA44080
- (2) Instrument QC Batch: MA44135
- (3) Instrument QC Batch: MA44142
- (4) Prep QC Batch: MP6364
- (5) Prep QC Batch: MP6402

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

4.10
4

Report of Analysis

Client Sample ID: PCMW-17S	Date Sampled: 03/22/18
Lab Sample ID: JC62879-10	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010 UJ	0.010	mg/l	1	03/29/18 09:33	BM	EPA 335.4/LACHAT

RL = Reporting Limit

4.10
4

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Report of Analysis

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Client Sample ID:	PCMW-17D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-11	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	2E141954.D	1	03/29/18 10:03	SS	n/a	n/a	V2E6206

Run #1	Purge Volume
Run #2	5.0 ml

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	5.0	ug/l	UJ
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-17D Lab Sample ID: JC62879-11 Matrix: AQ - Ground Water Method: SW846 8260C Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 03/22/18 Date Received: 03/23/18 Percent Solids: n/a
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VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		80-120%
17060-07-0	1,2-Dichloroethane-D4	102%		81-124%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	101%		80-120%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.11
4

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Report of Analysis

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Client Sample ID:	PCMW-17D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-11	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P78146.D	1	03/28/18 22:21	JB	03/28/18 00:25	OP10883	E2P3440
Run #2							

Run #	Initial Volume	Final Volume
Run #1	900 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.6	0.91	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.6	0.99	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.2	1.4	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.6	2.7	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.6	1.7	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.6	1.4	ug/l	
95-48-7	2-Methylphenol	ND	2.2	0.99	ug/l	
	3&4-Methylphenol	ND	2.2	0.98	ug/l	
88-75-5	2-Nitrophenol	ND	5.6	1.1	ug/l	
100-02-7	4-Nitrophenol	ND	11	1.3	ug/l	
87-86-5	Pentachlorophenol	ND	4.4	1.5	ug/l	
108-95-2	Phenol	ND	2.2	0.44	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.6	1.6	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.6	1.5	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.6	1.0	ug/l	
83-32-9	Acenaphthene	ND	1.1	0.21	ug/l	
208-96-8	Acenaphthylene	ND	1.1	0.15	ug/l	
98-86-2	Acetophenone	ND	2.2	0.23	ug/l	
120-12-7	Anthracene	ND	1.1	0.23	ug/l	
1912-24-9	Atrazine	ND	2.2	0.50	ug/l	
100-52-7	Benzaldehyde	ND	5.6	0.32	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.1	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.1	0.24	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.1	0.23	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.1	0.38	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.1	0.23	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.2	0.45	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.2	0.51	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.1	0.24	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.2	0.26	ug/l	
106-47-8	4-Chloroaniline	ND	5.6	0.38	ug/l	
86-74-8	Carbazole	ND	1.1	0.25	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-17D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-11	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.2	0.72	ug/l	
218-01-9	Chrysene	ND	1.1	0.20	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.2	0.31	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.2	0.28	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.2	0.45	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.2	0.41	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.1	0.61	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.1	0.53	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.2	0.56	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.1	0.37	ug/l	
132-64-9	Dibenzofuran	ND	5.6	0.24	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.2	0.55	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.2	0.26	ug/l	
84-66-2	Diethyl phthalate	ND	2.2	0.29	ug/l	
131-11-3	Dimethyl phthalate	ND	2.2	0.24	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.2	1.8	ug/l	
206-44-0	Fluoranthene	ND	1.1	0.19	ug/l	
86-73-7	Fluorene	ND	1.1	0.19	ug/l	
118-74-1	Hexachlorobenzene	ND	1.1	0.36	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.1	0.55	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	11	3.1	ug/l	
67-72-1	Hexachloroethane	ND	2.2	0.43	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.1	0.37	ug/l	
78-59-1	Isophorone	ND	2.2	0.31	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.1	0.23	ug/l	
88-74-4	2-Nitroaniline	ND	5.6	0.31	ug/l	
99-09-2	3-Nitroaniline	ND	5.6	0.43	ug/l	
100-01-6	4-Nitroaniline	ND	5.6	0.49	ug/l	
91-20-3	Naphthalene	ND	1.1	0.26	ug/l	
98-95-3	Nitrobenzene	ND	2.2	0.71	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.2	0.53	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.6	0.25	ug/l	
85-01-8	Phenanthrene	ND	1.1	0.19	ug/l	
129-00-0	Pyrene	ND	1.1	0.24	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.2	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	42%		10-110%
14165-62-2	Phenol-d5	31%		10-110%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-17D		Date Sampled: 03/22/18
Lab Sample ID: JC62879-11		Date Received: 03/23/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	91%		36-151%
4165-60-0	Nitrobenzene-d5	71%		34-128%
321-60-8	2-Fluorobiphenyl	73%		38-119%
1718-51-0	Terphenyl-d14	60%		26-129%

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Report of Analysis

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Client Sample ID:	PCMW-17D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-11	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8081B SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G144712.D	1	03/28/18 03:44	CP	03/27/18 18:10	OP10885	G1G4598
Run #2							

Run #	Initial Volume	Final Volume
Run #1	290 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0069	0.0036	ug/l	
319-84-6	alpha-BHC	ND	0.0069	0.0036	ug/l	
319-85-7	beta-BHC	ND	0.0069	0.0055	ug/l	
319-86-8	delta-BHC	ND	0.0069	0.0045	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0069	0.0041	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0069	0.0034	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0069	0.0029	ug/l	
60-57-1	Dieldrin	0.046	0.0069	0.0053	ug/l	
72-54-8	4,4'-DDD	ND	0.0069	0.0040	ug/l	
72-55-9	4,4'-DDE	ND	0.0069	0.0035	ug/l	
50-29-3	4,4'-DDT	ND	0.0069	0.0047	ug/l	
72-20-8	Endrin	ND	0.0069	0.0042	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0069	0.0038	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0069	0.0046	ug/l	
53494-70-5	Endrin ketone	ND	0.0069	0.0043	ug/l	
959-98-8	Endosulfan-I	ND	0.0069	0.0036	ug/l	
33213-65-9	Endosulfan-II	ND	0.0069	0.0034	ug/l	
76-44-8	Heptachlor	ND	0.0069	0.0031	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0069	0.0041	ug/l	
72-43-5	Methoxychlor	ND	0.014	0.0046	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
877-09-8	Tetrachloro-m-xylene	82%		13-153%		
877-09-8	Tetrachloro-m-xylene	79%		13-153%		
2051-24-3	Decachlorobiphenyl	77%		10-138%		
2051-24-3	Decachlorobiphenyl	69%		10-138%		

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N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: PCMW-17D	Date Sampled: 03/22/18
Lab Sample ID: JC62879-11	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8082A SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181230.D	1	03/28/18 22:49	HB	03/27/18 18:10	OP10884	GEF6203
Run #2							

Run #	Initial Volume	Final Volume
Run #1	290 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.34	0.14	ug/l	
11104-28-2	Aroclor 1221	ND	0.34	0.29	ug/l	
11141-16-5	Aroclor 1232	ND	0.34	0.18	ug/l	
53469-21-9	Aroclor 1242	ND	0.34	0.16	ug/l	
12672-29-6	Aroclor 1248	ND	0.34	0.087	ug/l	
11097-69-1	Aroclor 1254	ND	0.34	0.29	ug/l	
11096-82-5	Aroclor 1260	ND	0.34	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.34	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.34	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	87%		11-166%
877-09-8	Tetrachloro-m-xylene	92%		11-166%
2051-24-3	Decachlorobiphenyl	80%		10-150%
2051-24-3	Decachlorobiphenyl	69%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-17D	Date Sampled: 03/22/18
Lab Sample ID: JC62879-11	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	1170	200	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Arsenic	< 3.0	3.0	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Barium	< 200	200	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Calcium	58900	5000	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Copper	< 10	10	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Iron	5830	100	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Lead	< 3.0	3.0	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Magnesium	32000	5000	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Manganese	4750	15	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	03/27/18	03/27/18	JA SW846 7470A ¹	SW846 7470A ³
Nickel	< 10	10	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Potassium	< 10000	10000	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Silver	< 10	10	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Sodium	50100	10000	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴
Zinc	< 20	20	ug/l	1	03/29/18	03/30/18	ND SW846 6010C ²	SW846 3010A ⁴

(1) Instrument QC Batch: MA44080

(2) Instrument QC Batch: MA44103

(3) Prep QC Batch: MP6364

(4) Prep QC Batch: MP6402

RL = Reporting Limit

4.11
4

Report of Analysis

Client Sample ID: PCMW-17D	Date Sampled: 03/22/18
Lab Sample ID: JC62879-11	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010 UJ	0.010	mg/l	1	03/29/18 09:34	BM	EPA 335.4/LACHAT

RL = Reporting Limit

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Report of Analysis

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Client Sample ID:	PCMW-20S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-12	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3B145279.D	1	03/29/18 00:11	EH	n/a	n/a	V3B6426
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-20S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-12	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		80-120%
17060-07-0	1,2-Dichloroethane-D4	109%		81-124%
2037-26-5	Toluene-D8	95%		80-120%
460-00-4	4-Bromofluorobenzene	93%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 3

Client Sample ID:	PCMW-20S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-12	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P78147.D	1	03/28/18 22:43	JB	03/28/18 00:25	OP10883	E2P3440
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	0.82	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	0.89	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.3	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.4	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.0	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.0	1.3	ug/l	
95-48-7	2-Methylphenol	ND	2.0	0.89	ug/l	
	3&4-Methylphenol	ND	2.0	0.88	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	0.96	ug/l	
100-02-7	4-Nitrophenol	ND	10	1.2	ug/l	
87-86-5	Pentachlorophenol	ND	4.0	1.4	ug/l	
108-95-2	Phenol	ND	2.0	0.39	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.0	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	0.92	ug/l	
83-32-9	Acenaphthene	ND	1.0	0.19	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.14	ug/l	
98-86-2	Acetophenone	ND	2.0	0.21	ug/l	
120-12-7	Anthracene	ND	1.0	0.21	ug/l	
1912-24-9	Atrazine	ND	2.0	0.45	ug/l	
100-52-7	Benzaldehyde	ND	5.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.21	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.21	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.34	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.21	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.40	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.46	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.21	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.24	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.34	ug/l	
86-74-8	Carbazole	ND	1.0	0.23	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-20S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-12	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.65	ug/l	
218-01-9	Chrysene	ND	1.0	0.18	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.28	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.25	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.40	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.37	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.0	0.55	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.0	0.48	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.51	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.33	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.22	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.50	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.23	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.26	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.22	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.7	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.17	ug/l	
86-73-7	Fluorene	ND	1.0	0.17	ug/l	
118-74-1	Hexachlorobenzene	ND	1.0	0.33	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.49	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	2.8	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.39	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.33	ug/l	
78-59-1	Isophorone	ND	2.0	0.28	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.21	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.39	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	0.44	ug/l	
91-20-3	Naphthalene	ND	1.0	0.23	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.64	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.48	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.22	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.18	ug/l	
129-00-0	Pyrene	ND	1.0	0.22	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.37	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	35%		10-110%
4165-62-2	Phenol-d5	25%		10-110%

ND = Not detected

MDL = Method Detection Limit

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N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-20S	Date Sampled: 03/22/18
Lab Sample ID: JC62879-12	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	85%		36-151%
4165-60-0	Nitrobenzene-d5	65%		34-128%
321-60-8	2-Fluorobiphenyl	69%		38-119%
1718-51-0	Terphenyl-d14	68%		26-129%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
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Report of Analysis

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Client Sample ID:	PCMW-20S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-12	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8081B SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G144715.D	1	03/28/18 04:35	CP	03/27/18 18:10	OP10885	G1G4598
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
877-09-8	Tetrachloro-m-xylene	90%		13-153%		
877-09-8	Tetrachloro-m-xylene	89%		13-153%		
2051-24-3	Decachlorobiphenyl	98%		10-138%		
2051-24-3	Decachlorobiphenyl	80%		10-138%		

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Report of Analysis

Page 1 of 1

Client Sample ID:	PCMW-20S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-12	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8082A SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181233.D	1	03/29/18 00:04	HB	03/27/18 18:10	OP10884	GEF6203
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	81%		11-166%
877-09-8	Tetrachloro-m-xylene	84%		11-166%
2051-24-3	Decachlorobiphenyl	82%		10-150%
2051-24-3	Decachlorobiphenyl	73%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-20S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-12	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Philly Coke, Philadelphia PA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Arsenic	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Barium	< 200	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Calcium	31300	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Copper	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Iron	7420	100	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Lead	4.0	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Magnesium	< 5000	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Manganese	613	15	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	03/27/18	03/27/18	JA SW846 7470A ¹	SW846 7470A ³
Nickel	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Potassium	< 10000	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Silver	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Sodium	< 10000	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Zinc	42.4	20	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴

(1) Instrument QC Batch: MA44080

(2) Instrument QC Batch: MA44135

(3) Prep QC Batch: MP6364

(4) Prep QC Batch: MP6402

RL = Reporting Limit

Report of Analysis

Client Sample ID: PCMW-20S	Date Sampled: 03/22/18
Lab Sample ID: JC62879-12	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

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General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010 UJ	0.010	mg/l	1	03/29/18 09:36	BM	EPA 335.4/LACHAT

RL = Reporting Limit

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Report of Analysis

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Client Sample ID:	PCMW-20D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-13	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3B145280.D	1	03/29/18 00:40	EH	n/a	n/a	V3B6426
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-20D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-13	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		80-120%
17060-07-0	1,2-Dichloroethane-D4	110%		81-124%
2037-26-5	Toluene-D8	95%		80-120%
460-00-4	4-Bromofluorobenzene	93%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 3

Client Sample ID:	PCMW-20D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-13	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P78148.D	1	03/28/18 23:04	JB	03/28/18 00:25	OP10883	E2P3440
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1020 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	4.9	0.80	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	4.9	0.87	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.2	ug/l	
105-67-9	2,4-Dimethylphenol	ND	4.9	2.4	ug/l	
51-28-5	2,4-Dinitrophenol	ND	4.9	1.5	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	4.9	1.3	ug/l	
95-48-7	2-Methylphenol	ND	2.0	0.87	ug/l	
	3&4-Methylphenol	ND	2.0	0.86	ug/l	
88-75-5	2-Nitrophenol	ND	4.9	0.94	ug/l	
100-02-7	4-Nitrophenol	ND	9.8	1.1	ug/l	
87-86-5	Pentachlorophenol	ND	3.9	1.4	ug/l	
108-95-2	Phenol	ND	2.0	0.38	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	4.9	1.4	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	4.9	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	4.9	0.91	ug/l	
83-32-9	Acenaphthene	ND	0.98	0.19	ug/l	
208-96-8	Acenaphthylene	ND	0.98	0.13	ug/l	
98-86-2	Acetophenone	ND	2.0	0.20	ug/l	
120-12-7	Anthracene	ND	0.98	0.21	ug/l	
1912-24-9	Atrazine	ND	2.0	0.44	ug/l	
100-52-7	Benzaldehyde	ND	4.9	0.28	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.98	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.98	0.21	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.98	0.20	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.98	0.33	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.98	0.20	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.40	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.45	ug/l	
92-52-4	1,1'-Biphenyl	ND	0.98	0.21	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.23	ug/l	
106-47-8	4-Chloroaniline	ND	4.9	0.33	ug/l	
86-74-8	Carbazole	ND	0.98	0.22	ug/l	

ND = Not detected

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RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-20D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-13	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.64	ug/l	
218-01-9	Chrysene	ND	0.98	0.17	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.27	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.24	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.40	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.36	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	0.98	0.54	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	0.98	0.47	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.50	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.98	0.32	ug/l	
132-64-9	Dibenzofuran	ND	4.9	0.22	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.49	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.23	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.26	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.21	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.6	ug/l	
206-44-0	Fluoranthene	ND	0.98	0.17	ug/l	
86-73-7	Fluorene	ND	0.98	0.17	ug/l	
118-74-1	Hexachlorobenzene	ND	0.98	0.32	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.98	0.48	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	9.8	2.7	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.38	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.98	0.33	ug/l	
78-59-1	Isophorone	ND	2.0	0.27	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.98	0.21	ug/l	
88-74-4	2-Nitroaniline	ND	4.9	0.27	ug/l	
99-09-2	3-Nitroaniline	ND	4.9	0.38	ug/l	
100-01-6	4-Nitroaniline	ND	4.9	0.43	ug/l	
91-20-3	Naphthalene	ND	0.98	0.23	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.63	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.47	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	4.9	0.22	ug/l	
85-01-8	Phenanthrene	ND	0.98	0.17	ug/l	
129-00-0	Pyrene	ND	0.98	0.21	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.36	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	32%		10-110%
4165-62-2	Phenol-d5	23%		10-110%

ND = Not detected

MDL = Method Detection Limit

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E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-20D		Date Sampled: 03/22/18
Lab Sample ID: JC62879-13		Date Received: 03/23/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	78%		36-151%
4165-60-0	Nitrobenzene-d5	70%		34-128%
321-60-8	2-Fluorobiphenyl	65%		38-119%
1718-51-0	Terphenyl-d14	54%		26-129%

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Report of Analysis

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Client Sample ID:	PCMW-20D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-13	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8081B SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G144716.D	1	03/28/18 04:52	CP	03/27/18 18:10	OP10885	G1G4598
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
877-09-8	Tetrachloro-m-xylene	52%		13-153%		
877-09-8	Tetrachloro-m-xylene	62%		13-153%		
2051-24-3	Decachlorobiphenyl	48%		10-138%		
2051-24-3	Decachlorobiphenyl	46%		10-138%		

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Report of Analysis

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Client Sample ID: PCMW-20D	Date Sampled: 03/22/18
Lab Sample ID: JC62879-13	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8082A SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181234.D	1	03/29/18 00:29	HB	03/27/18 18:10	OP10884	GEF6203
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	72%		11-166%
877-09-8	Tetrachloro-m-xylene	64%		11-166%
2051-24-3	Decachlorobiphenyl	54%		10-150%
2051-24-3	Decachlorobiphenyl	56%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-20D Lab Sample ID: JC62879-13 Matrix: AQ - Ground Water Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 03/22/18 Date Received: 03/23/18 Percent Solids: n/a
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Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	996	200	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Arsenic	17.4	3.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Barium	< 200	200	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Calcium	28300	5000	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Copper	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Iron	8400	100	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Lead	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Magnesium	13900	5000	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Manganese	641	15	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Mercury ^a	< 0.40	0.40	ug/l	1	03/27/18	03/27/18	JA	SW846 7470A ¹ SW846 7470A ³
Nickel	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Potassium	< 10000	10000	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Silver	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Sodium	241000	10000	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Zinc	< 20	20	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴

(1) Instrument QC Batch: MA44080

(2) Instrument QC Batch: MA44135

(3) Prep QC Batch: MP6364

(4) Prep QC Batch: MP6402

(a) Elevated sample detection limit due to difficult sample matrix.

RL = Reporting Limit

4.13
4

Report of Analysis

Client Sample ID: PCMW-20D	Date Sampled: 03/22/18
Lab Sample ID: JC62879-13	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.12 J	0.010	mg/l	1	03/29/18 09:40	BM	EPA 335.4/LACHAT

RL = Reporting Limit

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Report of Analysis

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Client Sample ID:	PCMW-19S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-14	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3B145281.D	1	03/29/18 01:08	EH	n/a	n/a	V3B6426
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-19S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-14	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		80-120%
17060-07-0	1,2-Dichloroethane-D4	108%		81-124%
2037-26-5	Toluene-D8	94%		80-120%
460-00-4	4-Bromofluorobenzene	92%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 3

Client Sample ID:	PCMW-19S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-14	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P78149.D	1	03/28/18 23:26	JB	03/28/18 00:25	OP10883	E2P3440
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1050 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	4.8	0.78	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	4.8	0.85	ug/l	
120-83-2	2,4-Dichlorophenol	ND	1.9	1.2	ug/l	
105-67-9	2,4-Dimethylphenol	ND	4.8	2.3	ug/l	
51-28-5	2,4-Dinitrophenol	ND	4.8	1.5	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	4.8	1.2	ug/l	
95-48-7	2-Methylphenol	ND	1.9	0.85	ug/l	
	3&4-Methylphenol	ND	1.9	0.84	ug/l	
88-75-5	2-Nitrophenol	ND	4.8	0.91	ug/l	
100-02-7	4-Nitrophenol	ND	9.5	1.1	ug/l	
87-86-5	Pentachlorophenol	ND	3.8	1.3	ug/l	
108-95-2	Phenol	ND	1.9	0.37	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	4.8	1.4	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	4.8	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	4.8	0.88	ug/l	
83-32-9	Acenaphthene	ND	0.95	0.18	ug/l	
208-96-8	Acenaphthylene	ND	0.95	0.13	ug/l	
98-86-2	Acetophenone	ND	1.9	0.20	ug/l	
120-12-7	Anthracene	ND	0.95	0.20	ug/l	
1912-24-9	Atrazine	ND	1.9	0.43	ug/l	
100-52-7	Benzaldehyde	ND	4.8	0.28	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.95	0.19	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.95	0.20	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.95	0.20	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.95	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.95	0.20	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	1.9	0.38	ug/l	
85-68-7	Butyl benzyl phthalate	ND	1.9	0.44	ug/l	
92-52-4	1,1'-Biphenyl	ND	0.95	0.20	ug/l	
91-58-7	2-Chloronaphthalene	ND	1.9	0.22	ug/l	
106-47-8	4-Chloroaniline	ND	4.8	0.32	ug/l	
86-74-8	Carbazole	ND	0.95	0.22	ug/l	

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Report of Analysis

Client Sample ID:	PCMW-19S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-14	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	1.9	0.62	ug/l	
218-01-9	Chrysene	ND	0.95	0.17	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	1.9	0.26	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	1.9	0.24	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	1.9	0.38	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	1.9	0.35	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	0.95	0.53	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	0.95	0.45	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	1.9	0.48	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.95	0.32	ug/l	
132-64-9	Dibenzofuran	ND	4.8	0.21	ug/l	
84-74-2	Di-n-butyl phthalate	ND	1.9	0.47	ug/l	
117-84-0	Di-n-octyl phthalate	ND	1.9	0.22	ug/l	
84-66-2	Diethyl phthalate	ND	1.9	0.25	ug/l	
131-11-3	Dimethyl phthalate	ND	1.9	0.21	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	1.9	1.6	ug/l	
206-44-0	Fluoranthene	ND	0.95	0.16	ug/l	
86-73-7	Fluorene	ND	0.95	0.16	ug/l	
118-74-1	Hexachlorobenzene	ND	0.95	0.31	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.95	0.47	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	9.5	2.6	ug/l	
67-72-1	Hexachloroethane	ND	1.9	0.37	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.95	0.32	ug/l	
78-59-1	Isophorone	ND	1.9	0.26	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.95	0.20	ug/l	
88-74-4	2-Nitroaniline	ND	4.8	0.26	ug/l	
99-09-2	3-Nitroaniline	ND	4.8	0.37	ug/l	
100-01-6	4-Nitroaniline	ND	4.8	0.42	ug/l	
91-20-3	Naphthalene	ND	0.95	0.22	ug/l	
98-95-3	Nitrobenzene	ND	1.9	0.61	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	1.9	0.46	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	4.8	0.21	ug/l	
85-01-8	Phenanthrene	ND	0.95	0.17	ug/l	
129-00-0	Pyrene	ND	0.95	0.21	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	1.9	0.35	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	34%		10-110%
14165-62-2	Phenol-d5	24%		10-110%

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Report of Analysis

Client Sample ID: PCMW-19S		Date Sampled: 03/22/18
Lab Sample ID: JC62879-14		Date Received: 03/23/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	81%		36-151%
4165-60-0	Nitrobenzene-d5	63%		34-128%
321-60-8	2-Fluorobiphenyl	70%		38-119%
1718-51-0	Terphenyl-d14	66%		26-129%

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Report of Analysis

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Client Sample ID:	PCMW-19S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-14	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8081B SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G144717.D	1	03/28/18 05:09	CP	03/27/18 18:10	OP10885	G1G4598
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
877-09-8	Tetrachloro-m-xylene	79%		13-153%		
877-09-8	Tetrachloro-m-xylene	81%		13-153%		
2051-24-3	Decachlorobiphenyl	56%		10-138%		
2051-24-3	Decachlorobiphenyl	45%		10-138%		

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Report of Analysis

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Client Sample ID: PCMW-19S	Date Sampled: 03/22/18
Lab Sample ID: JC62879-14	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8082A SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181235.D	1	03/29/18 00:54	HB	03/27/18 18:10	OP10884	GEF6203
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	86%		11-166%
877-09-8	Tetrachloro-m-xylene	88%		11-166%
2051-24-3	Decachlorobiphenyl	52%		10-150%
2051-24-3	Decachlorobiphenyl	52%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-19S	Date Sampled: 03/22/18
Lab Sample ID: JC62879-14	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	393	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Arsenic	33.2	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Barium	< 200	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Calcium	87800	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Copper	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Iron	12700	100	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Lead	11.5	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Magnesium	15800	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Manganese	1300	15	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	03/27/18	03/27/18	JA SW846 7470A ¹	SW846 7470A ³
Nickel	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Potassium	< 10000	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Silver	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Sodium	< 10000	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Zinc	23.2	20	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴

(1) Instrument QC Batch: MA44080

(2) Instrument QC Batch: MA44135

(3) Prep QC Batch: MP6364

(4) Prep QC Batch: MP6402

RL = Reporting Limit

4.14
4

Report of Analysis

Client Sample ID: PCMW-19S	Date Sampled: 03/22/18
Lab Sample ID: JC62879-14	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

4.14
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010 UJ	0.010	mg/l	1	03/29/18 09:41	BM	EPA 335.4/LACHAT

RL = Reporting Limit

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Report of Analysis

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Client Sample ID:	PCMW-19D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-15	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3B145282.D	1	03/29/18 01:37	EH	n/a	n/a	V3B6426
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

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E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-19D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-15	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		80-120%
17060-07-0	1,2-Dichloroethane-D4	109%		81-124%
2037-26-5	Toluene-D8	95%		80-120%
460-00-4	4-Bromofluorobenzene	93%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-19D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-15	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P78150.D	1	03/28/18 23:47	JB	03/28/18 00:25	OP10883	E2P3440
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1020 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	4.9	0.80	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	4.9	0.87	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.2	ug/l	
105-67-9	2,4-Dimethylphenol	ND	4.9	2.4	ug/l	
51-28-5	2,4-Dinitrophenol	ND	4.9	1.5	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	4.9	1.3	ug/l	
95-48-7	2-Methylphenol	ND	2.0	0.87	ug/l	
	3&4-Methylphenol	ND	2.0	0.86	ug/l	
88-75-5	2-Nitrophenol	ND	4.9	0.94	ug/l	
100-02-7	4-Nitrophenol	ND	9.8	1.1	ug/l	
87-86-5	Pentachlorophenol	ND	3.9	1.4	ug/l	
108-95-2	Phenol	ND	2.0	0.38	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	4.9	1.4	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	4.9	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	4.9	0.91	ug/l	
83-32-9	Acenaphthene	ND	0.98	0.19	ug/l	
208-96-8	Acenaphthylene	ND	0.98	0.13	ug/l	
98-86-2	Acetophenone	ND	2.0	0.20	ug/l	
120-12-7	Anthracene	ND	0.98	0.21	ug/l	
1912-24-9	Atrazine	ND	2.0	0.44	ug/l	
100-52-7	Benzaldehyde	ND	4.9	0.28	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.98	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.98	0.21	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.98	0.20	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.98	0.33	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.98	0.20	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.40	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.45	ug/l	
92-52-4	1,1'-Biphenyl	ND	0.98	0.21	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.23	ug/l	
106-47-8	4-Chloroaniline	ND	4.9	0.33	ug/l	
86-74-8	Carbazole	ND	0.98	0.22	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-19D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-15	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.64	ug/l	
218-01-9	Chrysene	ND	0.98	0.17	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.27	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.24	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.40	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.36	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	0.98	0.54	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	0.98	0.47	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.50	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.98	0.32	ug/l	
132-64-9	Dibenzofuran	ND	4.9	0.22	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.49	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.23	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.26	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.21	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.6	ug/l	
206-44-0	Fluoranthene	ND	0.98	0.17	ug/l	
86-73-7	Fluorene	ND	0.98	0.17	ug/l	
118-74-1	Hexachlorobenzene	ND	0.98	0.32	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.98	0.48	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	9.8	2.7	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.38	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.98	0.33	ug/l	
78-59-1	Isophorone	ND	2.0	0.27	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.98	0.21	ug/l	
88-74-4	2-Nitroaniline	ND	4.9	0.27	ug/l	
99-09-2	3-Nitroaniline	ND	4.9	0.38	ug/l	
100-01-6	4-Nitroaniline	ND	4.9	0.43	ug/l	
91-20-3	Naphthalene	ND	0.98	0.23	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.63	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.47	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	4.9	0.22	ug/l	
85-01-8	Phenanthrene	ND	0.98	0.17	ug/l	
129-00-0	Pyrene	ND	0.98	0.21	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.36	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	34%		10-110%
14165-62-2	Phenol-d5	25%		10-110%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-19D		Date Sampled: 03/22/18
Lab Sample ID: JC62879-15		Date Received: 03/23/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	83%		36-151%
4165-60-0	Nitrobenzene-d5	66%		34-128%
321-60-8	2-Fluorobiphenyl	72%		38-119%
1718-51-0	Terphenyl-d14	63%		26-129%

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 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-19D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-15	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8081B SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G144718.D	1	03/28/18 05:27	CP	03/27/18 18:10	OP10885	G1G4598
Run #2							

Run #	Initial Volume	Final Volume
Run #1	290 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0069	0.0036	ug/l	
319-84-6	alpha-BHC	ND	0.0069	0.0036	ug/l	
319-85-7	beta-BHC	ND	0.0069	0.0055	ug/l	
319-86-8	delta-BHC	ND	0.0069	0.0045	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0069	0.0041	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0069	0.0034	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0069	0.0029	ug/l	
60-57-1	Dieldrin	ND	0.0069	0.0053	ug/l	
72-54-8	4,4'-DDD	ND	0.0069	0.0040	ug/l	
72-55-9	4,4'-DDE	ND	0.0069	0.0035	ug/l	
50-29-3	4,4'-DDT	ND	0.0069	0.0047	ug/l	
72-20-8	Endrin	ND	0.0069	0.0042	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0069	0.0038	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0069	0.0046	ug/l	
53494-70-5	Endrin ketone	ND	0.0069	0.0043	ug/l	
959-98-8	Endosulfan-I	ND	0.0069	0.0036	ug/l	
33213-65-9	Endosulfan-II	ND	0.0069	0.0034	ug/l	
76-44-8	Heptachlor	ND	0.0069	0.0031	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0069	0.0041	ug/l	
72-43-5	Methoxychlor	ND	0.014	0.0046	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
877-09-8	Tetrachloro-m-xylene	70%		13-153%		
877-09-8	Tetrachloro-m-xylene	68%		13-153%		
2051-24-3	Decachlorobiphenyl	51%		10-138%		
2051-24-3	Decachlorobiphenyl	38%		10-138%		

ND = Not detected MDL = Method Detection Limit

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E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

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Report of Analysis

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Client Sample ID: PCMW-19D	Date Sampled: 03/22/18
Lab Sample ID: JC62879-15	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8082A SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181240.D	1	03/29/18 02:59	HB	03/27/18 18:10	OP10884	GEF6203
Run #2							

Run #	Initial Volume	Final Volume
Run #1	290 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.34	0.14	ug/l	
11104-28-2	Aroclor 1221	ND	0.34	0.29	ug/l	
11141-16-5	Aroclor 1232	ND	0.34	0.18	ug/l	
53469-21-9	Aroclor 1242	ND	0.34	0.16	ug/l	
12672-29-6	Aroclor 1248	ND	0.34	0.087	ug/l	
11097-69-1	Aroclor 1254	ND	0.34	0.29	ug/l	
11096-82-5	Aroclor 1260	ND	0.34	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.34	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.34	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	73%		11-166%
877-09-8	Tetrachloro-m-xylene	74%		11-166%
2051-24-3	Decachlorobiphenyl	44%		10-150%
2051-24-3	Decachlorobiphenyl	43%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-19D	Date Sampled: 03/22/18
Lab Sample ID: JC62879-15	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	1440	200	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Arsenic	13.4	3.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Barium	< 200	200	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Calcium	83900	5000	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Copper	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Iron	21300	100	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Lead	3.5	3.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Magnesium	35900	5000	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Manganese	5690	15	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	03/27/18	03/27/18	JA	SW846 7470A ¹ SW846 7470A ³
Nickel	11.9	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Potassium	< 10000	10000	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Silver	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Sodium	34600	10000	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Zinc	< 20	20	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴

(1) Instrument QC Batch: MA44080

(2) Instrument QC Batch: MA44135

(3) Prep QC Batch: MP6364

(4) Prep QC Batch: MP6402

RL = Reporting Limit

4.15
4

Report of Analysis

Client Sample ID: PCMW-19D	Date Sampled: 03/22/18
Lab Sample ID: JC62879-15	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010 UJ	0.010	mg/l	1	03/29/18 09:42	BM	EPA 335.4/LACHAT

RL = Reporting Limit

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Report of Analysis

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Client Sample ID: DUP-03222018	Date Sampled: 03/22/18
Lab Sample ID: JC62879-16	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	3B145283.D	1	03/29/18 02:05	EH	n/a	n/a	V3B6426

Run #1	Purge Volume
Run #2	5.0 ml

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	DUP-03222018	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-16	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	108%		80-120%
17060-07-0	1,2-Dichloroethane-D4	110%		81-124%
2037-26-5	Toluene-D8	96%		80-120%
460-00-4	4-Bromofluorobenzene	93%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	DUP-03222018	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-16	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P78151.D	1	03/29/18 00:09	JB	03/28/18 00:25	OP10883	E2P3440
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1050 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	4.8	0.78	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	4.8	0.85	ug/l	
120-83-2	2,4-Dichlorophenol	ND	1.9	1.2	ug/l	
105-67-9	2,4-Dimethylphenol	ND	4.8	2.3	ug/l	
51-28-5	2,4-Dinitrophenol	ND	4.8	1.5	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	4.8	1.2	ug/l	
95-48-7	2-Methylphenol	ND	1.9	0.85	ug/l	
	3&4-Methylphenol	ND	1.9	0.84	ug/l	
88-75-5	2-Nitrophenol	ND	4.8	0.91	ug/l	
100-02-7	4-Nitrophenol	ND	9.5	1.1	ug/l	
87-86-5	Pentachlorophenol	ND	3.8	1.3	ug/l	
108-95-2	Phenol	ND	1.9	0.37	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	4.8	1.4	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	4.8	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	4.8	0.88	ug/l	
83-32-9	Acenaphthene	ND	0.95	0.18	ug/l	
208-96-8	Acenaphthylene	ND	0.95	0.13	ug/l	
98-86-2	Acetophenone	ND	1.9	0.20	ug/l	
120-12-7	Anthracene	ND	0.95	0.20	ug/l	
1912-24-9	Atrazine	ND	1.9	0.43	ug/l	
100-52-7	Benzaldehyde	ND	4.8	0.28	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.95	0.19	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.95	0.20	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.95	0.20	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.95	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.95	0.20	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	1.9	0.38	ug/l	
85-68-7	Butyl benzyl phthalate	ND	1.9	0.44	ug/l	
92-52-4	1,1'-Biphenyl	ND	0.95	0.20	ug/l	
91-58-7	2-Chloronaphthalene	ND	1.9	0.22	ug/l	
106-47-8	4-Chloroaniline	ND	4.8	0.32	ug/l	
86-74-8	Carbazole	ND	0.95	0.22	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	DUP-03222018	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-16	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	1.9	0.62	ug/l	
218-01-9	Chrysene	ND	0.95	0.17	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	1.9	0.26	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	1.9	0.24	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	1.9	0.38	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	1.9	0.35	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	0.95	0.53	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	0.95	0.45	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	1.9	0.48	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.95	0.32	ug/l	
132-64-9	Dibenzofuran	ND	4.8	0.21	ug/l	
84-74-2	Di-n-butyl phthalate	ND	1.9	0.47	ug/l	
117-84-0	Di-n-octyl phthalate	ND	1.9	0.22	ug/l	
84-66-2	Diethyl phthalate	ND	1.9	0.25	ug/l	
131-11-3	Dimethyl phthalate	ND	1.9	0.21	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	1.9	1.6	ug/l	
206-44-0	Fluoranthene	ND	0.95	0.16	ug/l	
86-73-7	Fluorene	ND	0.95	0.16	ug/l	
118-74-1	Hexachlorobenzene	ND	0.95	0.31	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.95	0.47	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	9.5	2.6	ug/l	
67-72-1	Hexachloroethane	ND	1.9	0.37	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.95	0.32	ug/l	
78-59-1	Isophorone	ND	1.9	0.26	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.95	0.20	ug/l	
88-74-4	2-Nitroaniline	ND	4.8	0.26	ug/l	
99-09-2	3-Nitroaniline	ND	4.8	0.37	ug/l	
100-01-6	4-Nitroaniline	ND	4.8	0.42	ug/l	
91-20-3	Naphthalene	ND	0.95	0.22	ug/l	
98-95-3	Nitrobenzene	ND	1.9	0.61	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	1.9	0.46	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	4.8	0.21	ug/l	
85-01-8	Phenanthrene	ND	0.95	0.17	ug/l	
129-00-0	Pyrene	ND	0.95	0.21	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	1.9	0.35	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	34%		10-110%
14165-62-2	Phenol-d5	24%		10-110%

ND = Not detected

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E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: DUP-03222018		Date Sampled: 03/22/18
Lab Sample ID: JC62879-16		Date Received: 03/23/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	89%		36-151%
4165-60-0	Nitrobenzene-d5	62%		34-128%
321-60-8	2-Fluorobiphenyl	68%		38-119%
1718-51-0	Terphenyl-d14	63%		26-129%

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	DUP-03222018	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-16	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8081B SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G144719.D	1	03/28/18 05:44	CP	03/27/18 18:10	OP10885	G1G4598
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0069	0.0036	ug/l	
319-84-6	alpha-BHC	ND	0.0069	0.0036	ug/l	
319-85-7	beta-BHC	ND	0.0069	0.0055	ug/l	
319-86-8	delta-BHC	ND	0.0069	0.0045	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0069	0.0041	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0069	0.0034	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0069	0.0029	ug/l	
60-57-1	Dieldrin	ND	0.0069	0.0053	ug/l	
72-54-8	4,4'-DDD	ND	0.0069	0.0040	ug/l	
72-55-9	4,4'-DDE	ND	0.0069	0.0035	ug/l	
50-29-3	4,4'-DDT	ND	0.0069	0.0047	ug/l	
72-20-8	Endrin	ND	0.0069	0.0042	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0069	0.0038	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0069	0.0046	ug/l	
53494-70-5	Endrin ketone	ND	0.0069	0.0043	ug/l	
959-98-8	Endosulfan-I	ND	0.0069	0.0036	ug/l	
33213-65-9	Endosulfan-II	ND	0.0069	0.0034	ug/l	
76-44-8	Heptachlor	ND	0.0069	0.0031	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0069	0.0041	ug/l	
72-43-5	Methoxychlor	ND	0.014	0.0046	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	74%		13-153%
877-09-8	Tetrachloro-m-xylene	72%		13-153%
2051-24-3	Decachlorobiphenyl	52%		10-138%
2051-24-3	Decachlorobiphenyl	38%		10-138%

ND = Not detected

MDL = Method Detection Limit

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B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: DUP-03222018	Date Sampled: 03/22/18
Lab Sample ID: JC62879-16	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8082A SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181241.D	1	03/29/18 03:24	HB	03/27/18 18:10	OP10884	GEF6203
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	71%		11-166%
877-09-8	Tetrachloro-m-xylene	75%		11-166%
2051-24-3	Decachlorobiphenyl	40%		10-150%
2051-24-3	Decachlorobiphenyl	40%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: DUP-03222018	Date Sampled: 03/22/18
Lab Sample ID: JC62879-16	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	1130	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Arsenic	12.8	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Barium	< 200	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Calcium	81800	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Copper	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Iron	20100	100	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Lead	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Magnesium	34900	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Manganese	5530	15	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	03/27/18	03/27/18	JA SW846 7470A ¹	SW846 7470A ³
Nickel	11.7	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Potassium	< 10000	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Silver	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Sodium	33400	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Zinc	< 20	20	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴

(1) Instrument QC Batch: MA44080

(2) Instrument QC Batch: MA44135

(3) Prep QC Batch: MP6364

(4) Prep QC Batch: MP6402

RL = Reporting Limit

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Report of Analysis

Client Sample ID: DUP-03222018	Date Sampled: 03/22/18
Lab Sample ID: JC62879-16	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010 UJ	0.010	mg/l	1	03/29/18 09:44	BM	EPA 335.4/LACHAT

RL = Reporting Limit

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Report of Analysis

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Client Sample ID: PCMW-10S	Date Sampled: 03/22/18
Lab Sample ID: JC62879-17	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2E141955.D	1	03/29/18 11:26	SS	n/a	n/a	V2E6206
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	5.0	ug/l	UJ
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-10S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-17	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		80-120%
17060-07-0	1,2-Dichloroethane-D4	102%		81-124%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	100%		80-120%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
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J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-10S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-17	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P78152.D	1	03/29/18 00:30	JB	03/28/18 00:25	OP10883	E2P3440
Run #2							

Run #	Initial Volume	Final Volume
Run #1	900 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.6	0.91	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.6	0.99	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.2	1.4	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.6	2.7	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.6	1.7	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.6	1.4	ug/l	
95-48-7	2-Methylphenol	ND	2.2	0.99	ug/l	
	3&4-Methylphenol	ND	2.2	0.98	ug/l	
88-75-5	2-Nitrophenol	ND	5.6	1.1	ug/l	
100-02-7	4-Nitrophenol	ND	11	1.3	ug/l	
87-86-5	Pentachlorophenol	ND	4.4	1.5	ug/l	
108-95-2	Phenol	ND	2.2	0.44	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.6	1.6	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.6	1.5	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.6	1.0	ug/l	
83-32-9	Acenaphthene	ND	1.1	0.21	ug/l	
208-96-8	Acenaphthylene	ND	1.1	0.15	ug/l	
98-86-2	Acetophenone	ND	2.2	0.23	ug/l	
120-12-7	Anthracene	ND	1.1	0.23	ug/l	
1912-24-9	Atrazine	ND	2.2	0.50	ug/l	
100-52-7	Benzaldehyde	ND	5.6	0.32	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.1	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.1	0.24	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.1	0.23	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.1	0.38	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.1	0.23	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.2	0.45	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.2	0.51	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.1	0.24	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.2	0.26	ug/l	
106-47-8	4-Chloroaniline	ND	5.6	0.38	ug/l	
86-74-8	Carbazole	ND	1.1	0.25	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

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E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-10S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-17	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.2	0.72	ug/l	
218-01-9	Chrysene	ND	1.1	0.20	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.2	0.31	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.2	0.28	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.2	0.45	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.2	0.41	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.1	0.61	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.1	0.53	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.2	0.56	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.1	0.37	ug/l	
132-64-9	Dibenzofuran	ND	5.6	0.24	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.2	0.55	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.2	0.26	ug/l	
84-66-2	Diethyl phthalate	ND	2.2	0.29	ug/l	
131-11-3	Dimethyl phthalate	ND	2.2	0.24	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.2	1.8	ug/l	
206-44-0	Fluoranthene	ND	1.1	0.19	ug/l	
86-73-7	Fluorene	ND	1.1	0.19	ug/l	
118-74-1	Hexachlorobenzene	ND	1.1	0.36	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.1	0.55	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	11	3.1	ug/l	
67-72-1	Hexachloroethane	ND	2.2	0.43	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.1	0.37	ug/l	
78-59-1	Isophorone	ND	2.2	0.31	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.1	0.23	ug/l	
88-74-4	2-Nitroaniline	ND	5.6	0.31	ug/l	
99-09-2	3-Nitroaniline	ND	5.6	0.43	ug/l	
100-01-6	4-Nitroaniline	ND	5.6	0.49	ug/l	
91-20-3	Naphthalene	ND	1.1	0.26	ug/l	
98-95-3	Nitrobenzene	ND	2.2	0.71	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.2	0.53	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.6	0.25	ug/l	
85-01-8	Phenanthrene	ND	1.1	0.19	ug/l	
129-00-0	Pyrene	ND	1.1	0.24	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.2	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	30%		10-110%
4165-62-2	Phenol-d5	21%		10-110%

ND = Not detected

MDL = Method Detection Limit

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E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-10S		Date Sampled: 03/22/18
Lab Sample ID: JC62879-17		Date Received: 03/23/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	82%		36-151%
4165-60-0	Nitrobenzene-d5	53%		34-128%
321-60-8	2-Fluorobiphenyl	62%		38-119%
1718-51-0	Terphenyl-d14	52%		26-129%

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 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-10S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-17	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8081B SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G144720.D	1	03/28/18 06:01	CP	03/27/18 18:10	OP10885	G1G4598
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	86%		13-153%
877-09-8	Tetrachloro-m-xylene	82%		13-153%
2051-24-3	Decachlorobiphenyl	101%		10-138%
2051-24-3	Decachlorobiphenyl	83%		10-138%

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Report of Analysis

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Client Sample ID:	PCMW-10S	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-17	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8082A SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181242.D	1	03/29/18 03:49	HB	03/27/18 18:10	OP10884	GEF6203
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	90%		11-166%
877-09-8	Tetrachloro-m-xylene	92%		11-166%
2051-24-3	Decachlorobiphenyl	82%		10-150%
2051-24-3	Decachlorobiphenyl	83%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-10S	Date Sampled: 03/22/18
Lab Sample ID: JC62879-17	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Antimony	< 6.0	6.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Arsenic ^a	< 9.0	9.0	ug/l	3	03/29/18	04/04/18	SW846 6010C ³	SW846 3010A ⁵
Barium	< 200	200	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Calcium	299000	15000	ug/l	3	03/29/18	04/04/18	SW846 6010C ³	SW846 3010A ⁵
Chromium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Cobalt	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Copper	15.2	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Iron	462	100	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Lead ^a	< 9.0	9.0	ug/l	3	03/29/18	04/04/18	SW846 6010C ³	SW846 3010A ⁵
Magnesium	165000	5000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Manganese	125	15	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Mercury	< 0.20	0.20	ug/l	1	03/27/18	03/27/18	JA SW846 7470A ¹	SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Potassium	20700	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Selenium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Silver	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Sodium	14700	10000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Thallium ^a	< 6.0	6.0	ug/l	3	03/29/18	04/04/18	SW846 6010C ³	SW846 3010A ⁵
Vanadium	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵
Zinc	88.6	20	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁵

- (1) Instrument QC Batch: MA44080
- (2) Instrument QC Batch: MA44135
- (3) Instrument QC Batch: MA44142
- (4) Prep QC Batch: MP6364
- (5) Prep QC Batch: MP6402

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

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Report of Analysis

Client Sample ID: PCMW-10S	Date Sampled: 03/22/18
Lab Sample ID: JC62879-17	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010 UJ	0.010	mg/l	1	03/29/18 09:45	BM	EPA 335.4/LACHAT

RL = Reporting Limit

4.17
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Report of Analysis

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Client Sample ID:	PCMW-10D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-18	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2E141956.D	1	03/29/18 11:53	SS	n/a	n/a	V2E6206
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	5.0	ug/l	UJ
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	0.28	1.0	0.24	ug/l	J
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-10D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-18	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	0.80	1.0	0.25	ug/l	J
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		80-120%
17060-07-0	1,2-Dichloroethane-D4	102%		81-124%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	101%		80-120%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-10D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-18	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P78153.D	1	03/29/18 00:51	JB	03/28/18 00:25	OP10883	E2P3440
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	0.82	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	0.89	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.3	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.4	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.0	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.0	1.3	ug/l	
95-48-7	2-Methylphenol	ND	2.0	0.89	ug/l	
	3&4-Methylphenol	ND	2.0	0.88	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	0.96	ug/l	
100-02-7	4-Nitrophenol	ND	10	1.2	ug/l	
87-86-5	Pentachlorophenol	ND	4.0	1.4	ug/l	
108-95-2	Phenol	ND	2.0	0.39	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.0	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	0.92	ug/l	
83-32-9	Acenaphthene	ND	1.0	0.19	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.14	ug/l	
98-86-2	Acetophenone	ND	2.0	0.21	ug/l	
120-12-7	Anthracene	ND	1.0	0.21	ug/l	
1912-24-9	Atrazine	ND	2.0	0.45	ug/l	
100-52-7	Benzaldehyde	ND	5.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.21	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.21	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.34	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.21	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.40	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.46	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.21	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.24	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.34	ug/l	
86-74-8	Carbazole	ND	1.0	0.23	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-10D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-18	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.65	ug/l	
218-01-9	Chrysene	ND	1.0	0.18	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.28	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.25	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.40	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.37	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.0	0.55	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.0	0.48	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.51	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.33	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.22	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.50	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.23	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.26	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.22	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.7	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.17	ug/l	
86-73-7	Fluorene	ND	1.0	0.17	ug/l	
118-74-1	Hexachlorobenzene	ND	1.0	0.33	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.49	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	2.8	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.39	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.33	ug/l	
78-59-1	Isophorone	ND	2.0	0.28	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.21	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.39	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	0.44	ug/l	
91-20-3	Naphthalene	ND	1.0	0.23	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.64	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.48	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.22	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.18	ug/l	
129-00-0	Pyrene	ND	1.0	0.22	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.37	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	36%		10-110%
14165-62-2	Phenol-d5	27%		10-110%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-10D		Date Sampled: 03/22/18
Lab Sample ID: JC62879-18		Date Received: 03/23/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	85%		36-151%
4165-60-0	Nitrobenzene-d5	59%		34-128%
321-60-8	2-Fluorobiphenyl	65%		38-119%
1718-51-0	Terphenyl-d14	55%		26-129%

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-10D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-18	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8081B SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G144725.D	1	03/28/18 07:27	CP	03/27/18 18:10	OP10885	G1G4598
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
877-09-8	Tetrachloro-m-xylene	68%		13-153%		
877-09-8	Tetrachloro-m-xylene	79%		13-153%		
2051-24-3	Decachlorobiphenyl	26%		10-138%		
2051-24-3	Decachlorobiphenyl	23%		10-138%		

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-10D	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-18	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8082A SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181243.D	1	03/29/18 04:14	HB	03/27/18 18:10	OP10884	GEF6203
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	84%		11-166%
877-09-8	Tetrachloro-m-xylene	82%		11-166%
2051-24-3	Decachlorobiphenyl	33%		10-150%
2051-24-3	Decachlorobiphenyl	25%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-10D	Date Sampled: 03/22/18
Lab Sample ID: JC62879-18	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	1740	1000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Antimony	< 30	30	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Arsenic	< 15	15	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Barium	< 1000	1000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Beryllium	< 5.0	5.0	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Cadmium	< 15	15	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Calcium	92400	25000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Chromium	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Cobalt	< 250	250	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Copper	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Iron	64600	500	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Lead	< 15	15	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Magnesium	38000	25000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Manganese	7650	75	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Mercury ^a	< 0.60	0.60	ug/l	1	03/27/18	03/27/18	JA SW846 7470A ¹	SW846 7470A ³
Nickel	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Potassium	< 50000	50000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Selenium	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Silver	< 50	50	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Sodium	103000	50000	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Thallium	< 10	10	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Vanadium	< 250	250	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴
Zinc	< 100	100	ug/l	1	03/29/18	04/03/18	ND SW846 6010C ²	SW846 3010A ⁴

(1) Instrument QC Batch: MA44080

(2) Instrument QC Batch: MA44135

(3) Prep QC Batch: MP6364

(4) Prep QC Batch: MP6402

(a) Elevated sample detection limit due to difficult sample matrix.

RL = Reporting Limit

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Report of Analysis

Client Sample ID: PCMW-10D	Date Sampled: 03/22/18
Lab Sample ID: JC62879-18	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.35 J	0.010	mg/l	1	03/29/18 09:46	BM	EPA 335.4/LACHAT

RL = Reporting Limit

4.18
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Report of Analysis

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Client Sample ID:	TRIP BLANK	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-19	Date Received:	03/23/18
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2E141957.D	1	03/29/18 12:22	SS	n/a	n/a	V2E6206
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	5.0	ug/l	UJ
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-19	Date Received:	03/23/18
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		80-120%
17060-07-0	1,2-Dichloroethane-D4	101%		81-124%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	101%		80-120%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	MW-6	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-20	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	4B80684.D	1	03/30/18 16:02	HT	n/a	n/a	V4B3335

Run #1	Purge Volume
Run #2	5.0 ml

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform ^a	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropan ^a	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-6	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-20	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK ^a)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	UJ
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		80-120%
17060-07-0	1,2-Dichloroethane-D4	99%		81-124%
2037-26-5	Toluene-D8	88%		80-120%
460-00-4	4-Bromofluorobenzene	93%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	MW-6	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-20	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P78154.D	1	03/29/18 01:13	JB	03/28/18 00:25	OP10883	E2P3440
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1020 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	4.9	0.80	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	4.9	0.87	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.2	ug/l	
105-67-9	2,4-Dimethylphenol	ND	4.9	2.4	ug/l	
51-28-5	2,4-Dinitrophenol	ND	4.9	1.5	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	4.9	1.3	ug/l	
95-48-7	2-Methylphenol	ND	2.0	0.87	ug/l	
	3&4-Methylphenol	ND	2.0	0.86	ug/l	
88-75-5	2-Nitrophenol	ND	4.9	0.94	ug/l	
100-02-7	4-Nitrophenol	ND	9.8	1.1	ug/l	
87-86-5	Pentachlorophenol	ND	3.9	1.4	ug/l	
108-95-2	Phenol	ND	2.0	0.38	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	4.9	1.4	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	4.9	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	4.9	0.91	ug/l	
83-32-9	Acenaphthene	1.6	0.98	0.19	ug/l	
208-96-8	Acenaphthylene	ND	0.98	0.13	ug/l	
98-86-2	Acetophenone	ND	2.0	0.20	ug/l	
120-12-7	Anthracene	ND	0.98	0.21	ug/l	
1912-24-9	Atrazine	ND	2.0	0.44	ug/l	
100-52-7	Benzaldehyde	ND	4.9	0.28	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.98	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.98	0.21	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.98	0.20	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.98	0.33	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.98	0.20	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.40	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.45	ug/l	
92-52-4	1,1'-Biphenyl	ND	0.98	0.21	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.23	ug/l	
106-47-8	4-Chloroaniline	ND	4.9	0.33	ug/l	
86-74-8	Carbazole	ND	0.98	0.22	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-6	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-20	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.64	ug/l	
218-01-9	Chrysene	ND	0.98	0.17	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.27	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.24	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.40	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.36	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	0.98	0.54	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	0.98	0.47	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.50	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.98	0.32	ug/l	
132-64-9	Dibenzofuran	ND	4.9	0.22	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.49	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.23	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.26	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.21	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.6	ug/l	
206-44-0	Fluoranthene	ND	0.98	0.17	ug/l	
86-73-7	Fluorene	ND	0.98	0.17	ug/l	
118-74-1	Hexachlorobenzene	ND	0.98	0.32	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.98	0.48	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	9.8	2.7	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.38	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.98	0.33	ug/l	
78-59-1	Isophorone	ND	2.0	0.27	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.98	0.21	ug/l	
88-74-4	2-Nitroaniline	ND	4.9	0.27	ug/l	
99-09-2	3-Nitroaniline	ND	4.9	0.38	ug/l	
100-01-6	4-Nitroaniline	ND	4.9	0.43	ug/l	
91-20-3	Naphthalene	ND	0.98	0.23	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.63	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.47	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	4.9	0.22	ug/l	
85-01-8	Phenanthrene	ND	0.98	0.17	ug/l	
129-00-0	Pyrene	ND	0.98	0.21	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.36	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	34%		10-110%
4165-62-2	Phenol-d5	23%		10-110%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-6		Date Sampled: 03/22/18
Lab Sample ID: JC62879-20		Date Received: 03/23/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	84%		36-151%
4165-60-0	Nitrobenzene-d5	61%		34-128%
321-60-8	2-Fluorobiphenyl	63%		38-119%
1718-51-0	Terphenyl-d14	68%		26-129%

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	MW-6	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-20	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8081B SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G144726.D	1	03/28/18 07:44	CP	03/27/18 18:10	OP10885	G1G4598
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
877-09-8	Tetrachloro-m-xylene	83%		13-153%		
877-09-8	Tetrachloro-m-xylene	76%		13-153%		
2051-24-3	Decachlorobiphenyl	104%		10-138%		
2051-24-3	Decachlorobiphenyl	77%		10-138%		

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	MW-6	Date Sampled:	03/22/18
Lab Sample ID:	JC62879-20	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8082A SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181223.D	1	03/28/18 19:54	HB	03/27/18 18:10	OP10884	GEF6203
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	79%		11-166%
877-09-8	Tetrachloro-m-xylene	82%		11-166%
2051-24-3	Decachlorobiphenyl	82%		10-150%
2051-24-3	Decachlorobiphenyl	78%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-6	Date Sampled: 03/22/18
Lab Sample ID: JC62879-20	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Arsenic	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Barium	< 200	200	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Calcium	71100	5000	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Copper	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Iron	12300	100	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Lead	3.0	3.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Magnesium	20200	5000	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Manganese	948	15	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	03/27/18	03/27/18	JA	SW846 7470A ¹ SW846 7470A ³
Nickel	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Potassium	< 10000	10000	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Silver	< 10	10	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Sodium	< 10000	10000	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴
Zinc	< 20	20	ug/l	1	03/29/18	04/03/18	ND	SW846 6010C ² SW846 3010A ⁴

(1) Instrument QC Batch: MA44080

(2) Instrument QC Batch: MA44135

(3) Prep QC Batch: MP6364

(4) Prep QC Batch: MP6402

RL = Reporting Limit

4.20
4

Report of Analysis

Client Sample ID: MW-6	Date Sampled: 03/22/18
Lab Sample ID: JC62879-20	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

4.20
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.010 J	0.010	mg/l	1	03/29/18 09:48	BM	EPA 335.4/LACHAT

RL = Reporting Limit

National Grid
Philly Coke

DATA REVIEW

Philadelphia, Pennsylvania

Volatile Organic Compound (VOC), Semivolatile Organic Compound (SVOC), Pesticides, Polychlorinated Biphenyls (PCBs), Metals, and Cyanide Analyses

SDG #: JC62881

Analyses Performed By:
SGS Laboratories
Dayton, New Jersey

Report #: 29631R
Review Level: Tier II
Project: B0036790.0001.00003

DATA REVIEW REPORT

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) # JC62881 for samples collected in association with the National Grid Philly Coke site in Philadelphia, Pennsylvania. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data as reported by the laboratory were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets and chain of custody. Analyses were performed for the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOCs	SVOC	Pest./PCB	Metals	CN-
JC62881	PCMW-05	JC62881-1	Water	03/23/2018		X	X	X	X	X
	DUP-03232018	JC62881-2	Water	03/23/2018	PCMW-05	X	X	X	X	X
	PCMW-06	JC62881-3	Water	03/23/2018		X	X	X	X	X
	PCMW-11S	JC62881-4	Water	03/23/2018		X	X	X	X	X
	PCMW-18S	JC62881-5	Water	03/23/2018		X	X	X	X	X
	PCMW-18D	JC62881-6	Water	03/23/2018		X	X	X	X	X
	TRIP BLANK	JC62881-7	Water	03/23/2018		X	X	X	X	X

DATA REVIEW REPORT

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of quality assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW REPORT

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Methods 8260C, 8270D, 8081B and 8082A. Validation was performed following the procedures specified in *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (October 1999).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected as unusable. The compound may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

DATA REVIEW REPORT

that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
VOCs by 8260C	Water	14 days from collection to analysis (preserved) 7 days from collection to analysis (non-preserved)	Cool to <6 °C; preserved to a pH of less than 2 s.u.

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks, trip blanks, and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure sample storage contamination. Rinse blanks also measure contamination of samples during field operations.

If an analyte is detected in a blank at a concentration greater than the method detection limit (MDL), a blank action level (BAL) is calculated as five times the concentration detected in the blank. The BAL for common laboratory contaminants (e.g. acetone, methylene chloride) is calculated at ten times the blank concentration. Detected analytes in the associated samples are compared to the BAL. If the result is greater than the BAL, no qualification is required, and any laboratory-assigned flags are removed.

Target compounds were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited surrogate recoveries within the control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked compounds used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

The MS analysis exhibited acceptable recoveries.

DATA REVIEW REPORT

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS analysis must exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with LCS analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery
PCMW-05 DUP-03232018 PCMW-06 PCMW-11S PCMW-18S PCMW-18D TRIP BLANK	Bromoform	>UL
	1,2-Dibromo-3-chloropropane	>UL

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

6. Field Duplicate Sample Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PCMW-05/DUP-03232018	All compounds	U	U	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

DATA REVIEW REPORT

7. System Performance and Overall Assessment

The laboratory narrative states that several compounds exhibited continuing calibration verification percent differences (%D) greater than the control limit of 20%.

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified as presented in the following table.

Initial/Continuing	Criteria	Sample Result	Qualification
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260B	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Trip blanks		X		X	
Laboratory Control Sample (LCS)		X	X		
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)		X		X	
Matrix Spike Duplicate(MSD)	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

- %RSD Relative standard deviation
- %R Percent recovery
- RPD Relative percent difference
- %D Percent difference

DATA REVIEW REPORT

SEMI-VOLATILE ORGANIC COMPOUNDS (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SVOCs by 8270D	Water	7 days from collection to extraction and 28 days from extraction to analysis	Cool to <6 °C; preserved with Sodium Bisulfate (NaHSO ₄) to a pH of less than 4 s.u.

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

If an analyte is detected in a blank at a concentration greater than the method detection limit (MDL), a blank action level (BAL) is calculated as five times the concentration detected in the blank. The BAL for common laboratory contaminants (e.g. acetone, methylene chloride) is calculated at ten times the blank concentration. Detected analytes in the associated samples are compared to the BAL. If the result is greater than the BAL, no qualification is required, and any laboratory-assigned flags are removed.

Target compounds were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD was not performed on a sample within this SDG.

DATA REVIEW REPORT

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the LCS/LCSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Sample locations associated with LCS/LCSD recoveries exhibiting an RPD greater than the control limit are presented in the following table.

Sample Locations	Compound
PCMW-05	4-Chloroaniline

The criteria used to evaluate the RPD between the MS/MSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PCMW-05/DUP-03232018	3&4-Methylphenol	4.3	4.6	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

The laboratory narrative states that several compounds exhibited continuing calibration verification percent differences (%D) greater than the control limit of 20%.

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified as presented in the following table.

DATA REVIEW REPORT

Initial/Continuing	Criteria	Sample Result	Qualification
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: 8270D	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X	X		
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

PESTICIDES ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8081A	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to < 6 °C

All samples were extracted and analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. Pesticide analysis requires that at least one of the two pesticide surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited surrogate recoveries within the control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked compounds used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

The MS/MSD was not performed on a sample within this SDG.

DATA REVIEW REPORT

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS/LCSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the LCS and LCSD results must be within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Sample Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PCMW-05/DUP-03232018	All compounds	U	U	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows for both the primary and confirmation columns. When dual column analysis is performed the relative percent difference (%RPD) of detected sample results must be less than 40%.

Pesticides were not detected in the samples; therefore, column RPD was not evaluated.

9. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR PESTICIDES

Pesticides: SW-846 8081A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Gas Chromatography (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate (LCSD)		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS)	X				X
Matrix Spike Duplicate (MSD)	X				X
MS/MSD Precision (RPD)	X				X
Laboratory Duplicate Sample RPD	X				X
Field Duplicate Sample RPD		X		X	
Surrogate Spike Recoveries		X		X	
Column %D \leq 40% (If dual column is performed for reporting - not confirmation)		X		X	
Dilution Factor		X		X	
Compound identification and quantitation		X		X	

Notes:

%R = percent recovery

RPD = relative percent difference

DATA REVIEW REPORT

POLYCHLORINATED BIPHENYLS (PCBs) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8082A	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

Note:

The holding time above is a recommendation. PCBs are very stable in a variety of matrices, and holding times, under the conditions listed above, may be as long as a year per SW-846 8082A (February 2007).

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. PCB analysis requires that the two PCB surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries reported from the primary column were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

DATA REVIEW REPORT

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PCMW-05/DUP-03232018	All compounds	U	U	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows for both the primary and confirmation columns. When dual column analysis is performed the relative percent difference (%RPD) of detected sample results must be less than 40%.

The dual column analysis exhibited an acceptable %RPD between columns.

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR PCBs

PCBs: SW-846 8082A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate (MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Column (RPD) (If dual column is performed-not confirmation purposes only)		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Methods 6010C, 7470A, and 335.4. Data were reviewed in accordance with USEPA National Functional Guidelines of October 2002.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW846 6010C	Water	180 days from collection to analysis	Preserved to a pH of less than 2.
SW-846 7470A	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis /Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS/MSD was not performed on a sample within this SDG.

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

DATA REVIEW REPORT

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD was not performed on a sample within this SDG.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Analyte	Sample Result	Duplicate Result	RPD
PCMW-05/DUP-03232018	Arsenic	3.4	3.7	AC
	Barium	240	238	AC
	Calcium	104000	104000	0.0%
	Copper	27.4	28.6	4.3%
	Iron	3130	3090	1.3%
	Lead	112	110	1.8%
	Magnesium	113	112	0.9%
	Manganese	157	160	1.9%
	Nickel	450	465	3.3%
	Zinc	2680	2700	0.7%

AC = Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR METAL

METALS; 6010C/7470A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	

Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)

Tier II Validation

Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Instrument Blanks		X		X	
B. Method Blanks		X		X	
C. Equipment/Field Blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate (MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Total vs. Dissolved	X				X
Reporting Limit Verification		X		X	

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Cyanide by EPA 335.4	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of greater than 12.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

The correct number and type of standards were analyzed. The correlation coefficient of the initial calibration was greater than 0.995 and all initial calibration verification standard recoveries were within control limits.

All calibration standard recoveries were within the control limit.

4. Matrix Spike (MS)/Laboratory Duplicate Analysis

MS and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

4.1 MS Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS recovery control limits do not apply for MS performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

DATA REVIEW REPORT

All analytes associated with MS recoveries were within control limits with the exception of the following analytes present in the table below.

Sample Location	Analytes	MS Recovery
DUP-03232018	Cyanide	44.4%

The criteria used to evaluate MS recoveries are presented in the following table. In the case of an MS deviation, the sample results are qualified. The qualifications are applied to all sample results associated with this SDG except those which an acceptable laboratory duplicate analysis was performed.

Control limit	Sample Result	Qualification
MS percent recovery 30% to 75%	Non-detect	UJ
	Detect	J
MS percent recovery <30%	Non-detect	R
	Detect	J
MS percent recovery >125%	Non-detect	No Action
	Detect	J

4.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

All analytes associated with laboratory duplicate RPD were within the control limit.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PCMW-05/DUP-03232018	All compounds	U	U	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

DATA REVIEW REPORT

6. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: 335.4	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X	X		
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%RSD – relative standard deviation

%R - percent recovery

RPD - relative percent difference,

%D – difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: May 1, 2018

PEER REVIEW: Dennis Capria

DATE: May 4, 2018

CHAIN OF CUSTODY AND CORRECTED SAMPLE ANALYSIS DATA SHEETS



GW WTB

CHAIN OF CUSTODY

Quick

SGS Accutest - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

FED-EX Tracking #
Bottle Order Control #
SGS Accutest Quote #
SGS Accutest Job #

Form containing company details (ARCADIS, NATIONAL G210 / PAILEY COKE), project information, and a detailed table of sample collection data including dates, times, and various test results.

- Matrix Cod
DW - Drinking W
GW - Ground W
WW - Waste
SW - Surface W
SO - Soil
SL - Sludge
SED - Sedime
OI - Oil
LIQ - Other Liq
AIR - Air
SOL - Other S
WP - Wipe
FB-Field Blak
EB-Equipment
RB- Rinse Bla
TB-Trip Blan

LAB USE ON
A36
E8
GTR2
V1212

Form for data deliverable information, including checkboxes for 'Std. 10 Business Days', 'Commercial A/B/C', and 'FULLT1'. Includes a signature line for 'INITIAL ASSESSMENT' and 'LABEL VERIFICATION'.

Table detailing the chain of custody with columns for 'Relinquished by', 'Date/Time', 'Received By', and 'Date/Time' for multiple samples.

2.8°, 3.1°, 3.1°, 2.9°, 4.1°, 4.7°, 4.0°, 1.0°

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Report of Analysis

Page 1 of 2

Client Sample ID: PCMW-05	Date Sampled: 03/23/18
Lab Sample ID: JC62881-1	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	2B159329.D	1	03/30/18 11:37	SS	n/a	n/a	V2B7094

Run #1	Purge Volume
Run #2	5.0 ml

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform ^a	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropan ^a	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane ^b	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-05		Date Sampled: 03/23/18
Lab Sample ID: JC62881-1		Date Received: 03/23/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		80-120%
17060-07-0	1,2-Dichloroethane-D4	122%		81-124%
2037-26-5	Toluene-D8	93%		80-120%
460-00-4	4-Bromofluorobenzene	92%		80-120%

- (a) Associated CCV outside of control limits high, sample was ND. This compound in BS is outside in house QC limits bias high.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
4

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Report of Analysis

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Client Sample ID: PCMW-05	Date Sampled: 03/23/18
Lab Sample ID: JC62881-1	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M102973.D	1	04/02/18 17:56	CC	03/30/18 17:00	OP10986	E2M4581
Run #2							

Run #	Initial Volume	Final Volume
Run #1	955 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.2	0.86	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.2	0.93	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.1	1.3	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.2	2.6	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.2	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.2	1.4	ug/l	
95-48-7	2-Methylphenol	ND	2.1	0.93	ug/l	
	3&4-Methylphenol	4.3	2.1	0.92	ug/l	
88-75-5	2-Nitrophenol	ND	5.2	1.0	ug/l	
100-02-7	4-Nitrophenol	ND	10	1.2	ug/l	
87-86-5	Pentachlorophenol	ND	4.2	1.4	ug/l	
108-95-2	Phenol	ND	2.1	0.41	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.2	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.2	1.4	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.2	0.97	ug/l	
83-32-9	Acenaphthene	ND	1.0	0.20	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.14	ug/l	
98-86-2	Acetophenone	ND	2.1	0.22	ug/l	
120-12-7	Anthracene	ND	1.0	0.22	ug/l	
1912-24-9	Atrazine	ND	2.1	0.47	ug/l	
100-52-7	Benzaldehyde	ND	5.2	0.30	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.21	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.22	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.21	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.36	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.21	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.1	0.42	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.1	0.48	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.22	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.1	0.25	ug/l	
106-47-8	4-Chloroaniline	ND	5.2	0.36	ug/l	UJ
86-74-8	Carbazole	ND	1.0	0.24	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-05	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-1	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.1	0.68	ug/l	
218-01-9	Chrysene	ND	1.0	0.18	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.1	0.29	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.1	0.26	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.1	0.42	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.1	0.38	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.0	0.58	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.0	0.50	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.1	0.53	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.35	ug/l	
132-64-9	Dibenzofuran	ND	5.2	0.23	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.1	0.52	ug/l	
117-84-0	Di-n-octyl phthalate ^a	ND	2.1	0.25	ug/l	
84-66-2	Diethyl phthalate	ND	2.1	0.27	ug/l	
131-11-3	Dimethyl phthalate	ND	2.1	0.23	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.1	1.7	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.18	ug/l	
86-73-7	Fluorene	ND	1.0	0.18	ug/l	
118-74-1	Hexachlorobenzene	ND	1.0	0.34	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.52	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	2.9	ug/l	
67-72-1	Hexachloroethane	ND	2.1	0.41	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.35	ug/l	
78-59-1	Isophorone	ND	2.1	0.29	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.22	ug/l	
88-74-4	2-Nitroaniline	ND	5.2	0.29	ug/l	
99-09-2	3-Nitroaniline	ND	5.2	0.41	ug/l	
100-01-6	4-Nitroaniline	ND	5.2	0.46	ug/l	
91-20-3	Naphthalene	ND	1.0	0.24	ug/l	
98-95-3	Nitrobenzene	ND	2.1	0.67	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.1	0.50	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.2	0.23	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.18	ug/l	
129-00-0	Pyrene	ND	1.0	0.23	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.1	0.39	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	57%		10-110%
14165-62-2	Phenol-d5	40%		10-110%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-05 Lab Sample ID: JC62881-1 Matrix: AQ - Ground Water Method: SW846 8270D SW846 3510C Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 03/23/18 Date Received: 03/23/18 Percent Solids: n/a
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ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	89%		36-151%
4165-60-0	Nitrobenzene-d5	80%		34-128%
321-60-8	2-Fluorobiphenyl	72%		38-119%
1718-51-0	Terphenyl-d14	70%		26-129%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: PCMW-05	Date Sampled: 03/23/18
Lab Sample ID: JC62881-1	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8081B SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	1G144727.D	1	03/28/18 08:02	CP	03/27/18 18:10	OP10885	G1G4598

Run #1	Initial Volume	Final Volume
Run #2	300 ml	2.0 ml

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	72%		13-153%
877-09-8	Tetrachloro-m-xylene	69%		13-153%
2051-24-3	Decachlorobiphenyl	71%		10-138%
2051-24-3	Decachlorobiphenyl	58%		10-138%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 1

Client Sample ID: PCMW-05	Date Sampled: 03/23/18
Lab Sample ID: JC62881-1	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8082A SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181245.D	1	03/29/18 05:04	HB	03/27/18 18:10	OP10884	GEF6203
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	70%		11-166%
877-09-8	Tetrachloro-m-xylene	68%		11-166%
2051-24-3	Decachlorobiphenyl	49%		10-150%
2051-24-3	Decachlorobiphenyl	52%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-05 Lab Sample ID: JC62881-1 Matrix: AQ - Ground Water Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 03/23/18 Date Received: 03/23/18 Percent Solids: n/a
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Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Arsenic	3.4	3.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Barium	240	200	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Calcium	104000	5000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Copper	27.4	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Iron	3130	100	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Lead	112	3.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Magnesium	11300	5000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Manganese	157	15	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Mercury ^a	< 0.40	0.40	ug/l	1	03/26/18	03/26/18	MS SW846 7470A ¹	SW846 7470A ³
Nickel	450	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Potassium	< 10000	10000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Silver	< 10	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Sodium	< 10000	10000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Zinc	2680	20	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴

(1) Instrument QC Batch: MA44075

(2) Instrument QC Batch: MA44114

(3) Prep QC Batch: MP6361

(4) Prep QC Batch: MP6399

(a) Elevated sample detection limit due to difficult sample matrix.

RL = Reporting Limit

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Report of Analysis

Client Sample ID: PCMW-05	Date Sampled: 03/23/18
Lab Sample ID: JC62881-1	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010	0.010	mg/l	1	03/30/18 11:58	TG	EPA 335.4/LACHAT

RL = Reporting Limit

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Report of Analysis

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Client Sample ID:	DUP-03232018	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-2	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2B159330.D	1	03/30/18 12:07	SS	n/a	n/a	V2B7094
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform ^a	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropan ^a	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane ^b	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	DUP-03232018	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-2	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		80-120%
17060-07-0	1,2-Dichloroethane-D4	121%		81-124%
2037-26-5	Toluene-D8	92%		80-120%
460-00-4	4-Bromofluorobenzene	94%		80-120%

- (a) Associated CCV outside of control limits high, sample was ND. This compound in BS is outside in house QC limits bias high.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	DUP-03232018	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-2	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	M144918.D	1	03/28/18 20:03	CC	03/28/18 06:30	OP10886	EM6152

Run #1	Initial Volume	Final Volume
Run #2	920 ml	1.0 ml

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.4	0.89	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.4	0.97	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.2	1.4	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.4	2.7	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.4	1.7	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.4	1.4	ug/l	
95-48-7	2-Methylphenol	ND	2.2	0.97	ug/l	
	3&4-Methylphenol	4.6	2.2	0.96	ug/l	
88-75-5	2-Nitrophenol	ND	5.4	1.0	ug/l	
100-02-7	4-Nitrophenol ^a	ND	11	1.3	ug/l	
87-86-5	Pentachlorophenol	ND	4.3	1.5	ug/l	
108-95-2	Phenol	ND	2.2	0.43	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.4	1.6	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.4	1.4	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.4	1.0	ug/l	
83-32-9	Acenaphthene	ND	1.1	0.21	ug/l	
208-96-8	Acenaphthylene	ND	1.1	0.15	ug/l	
98-86-2	Acetophenone	ND	2.2	0.23	ug/l	
120-12-7	Anthracene	ND	1.1	0.23	ug/l	
1912-24-9	Atrazine	ND	2.2	0.49	ug/l	
100-52-7	Benzaldehyde	ND	5.4	0.31	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.1	0.22	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.1	0.23	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.1	0.22	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.1	0.37	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.1	0.22	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.2	0.44	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.2	0.50	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.1	0.23	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.2	0.26	ug/l	
106-47-8	4-Chloroaniline	ND	5.4	0.37	ug/l	
86-74-8	Carbazole	ND	1.1	0.25	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	DUP-03232018	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-2	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	2.2	0.71	ug/l	
218-01-9	Chrysene	ND	1.1	0.19	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.2	0.30	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.2	0.27	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.2	0.44	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.2	0.40	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.1	0.60	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.1	0.52	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.2	0.55	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.1	0.36	ug/l	
132-64-9	Dibenzofuran	ND	5.4	0.24	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.2	0.54	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.2	0.25	ug/l	
84-66-2	Diethyl phthalate	ND	2.2	0.28	ug/l	
131-11-3	Dimethyl phthalate	ND	2.2	0.24	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.2	1.8	ug/l	
206-44-0	Fluoranthene	ND	1.1	0.18	ug/l	
86-73-7	Fluorene	ND	1.1	0.19	ug/l	
118-74-1	Hexachlorobenzene	ND	1.1	0.35	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.1	0.53	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	11	3.0	ug/l	
67-72-1	Hexachloroethane	ND	2.2	0.42	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.1	0.36	ug/l	
78-59-1	Isophorone	ND	2.2	0.30	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.1	0.23	ug/l	
88-74-4	2-Nitroaniline	ND	5.4	0.30	ug/l	
99-09-2	3-Nitroaniline	ND	5.4	0.42	ug/l	
100-01-6	4-Nitroaniline	ND	5.4	0.48	ug/l	
91-20-3	Naphthalene	ND	1.1	0.25	ug/l	
98-95-3	Nitrobenzene	ND	2.2	0.70	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.2	0.52	ug/l	
86-30-6	N-Nitrosodiphenylamine ^b	ND	5.4	0.24	ug/l	UJ
85-01-8	Phenanthrene	ND	1.1	0.19	ug/l	
129-00-0	Pyrene	ND	1.1	0.24	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.2	0.40	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	30%		10-110%
14165-62-2	Phenol-d5	24%		10-110%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: DUP-03232018 Lab Sample ID: JC62881-2 Matrix: AQ - Ground Water Method: SW846 8270D SW846 3510C Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 03/23/18 Date Received: 03/23/18 Percent Solids: n/a
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ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	74%		36-151%
4165-60-0	Nitrobenzene-d5	75%		34-128%
321-60-8	2-Fluorobiphenyl	62%		38-119%
1718-51-0	Terphenyl-d14	35%		26-129%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits low.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	DUP-03232018	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-2	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8081B SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G144728.D	1	03/28/18 08:19	CP	03/27/18 18:10	OP10885	G1G4598
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	82%		13-153%
877-09-8	Tetrachloro-m-xylene	76%		13-153%
2051-24-3	Decachlorobiphenyl	78%		10-138%
2051-24-3	Decachlorobiphenyl	65%		10-138%

ND = Not detected

MDL = Method Detection Limit

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N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	DUP-03232018	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-2	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8082A SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181246.D	1	03/29/18 05:29	HB	03/27/18 18:10	OP10884	GEF6203
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	73%		11-166%
877-09-8	Tetrachloro-m-xylene	70%		11-166%
2051-24-3	Decachlorobiphenyl	53%		10-150%
2051-24-3	Decachlorobiphenyl	59%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	DUP-03232018	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-2	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	National Grid, Philly Coke, Philadelphia PA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Arsenic	3.7	3.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Barium	238	200	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Calcium	104000	5000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Copper	28.6	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Iron	3090	100	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Lead	110	3.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Magnesium	11200	5000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Manganese	160	15	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	03/26/18	03/26/18	MS SW846 7470A ¹	SW846 7470A ³
Nickel	465	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Potassium	< 10000	10000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Silver	< 10	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Sodium	< 10000	10000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Zinc	2700	20	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴

(1) Instrument QC Batch: MA44075

(2) Instrument QC Batch: MA44114

(3) Prep QC Batch: MP6361

(4) Prep QC Batch: MP6399

RL = Reporting Limit

Report of Analysis

Client Sample ID: DUP-03232018	Date Sampled: 03/23/18
Lab Sample ID: JC62881-2	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010 UJ	0.010	mg/l	1	03/30/18 12:00	TG	EPA 335.4/LACHAT

RL = Reporting Limit

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Report of Analysis

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Client Sample ID: PCMW-06	Date Sampled: 03/23/18
Lab Sample ID: JC62881-3	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	2B159334.D	1	03/30/18 14:08	SS	n/a	n/a	V2B7094

Run #1	Purge Volume
Run #2	5.0 ml

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform ^a	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropan ^a	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane ^b	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-06	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-3	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		80-120%
17060-07-0	1,2-Dichloroethane-D4	123%		81-124%
2037-26-5	Toluene-D8	93%		80-120%
460-00-4	4-Bromofluorobenzene	91%		80-120%

(a) Associated CCV outside of control limits high, sample was ND. This compound in BS is outside in house QC limits bias high.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

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N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-06	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-3	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	M144919.D	1	03/28/18 20:32	CC	03/28/18 06:30	OP10886	EM6152

Run #1	Initial Volume	Final Volume
Run #2	1000 ml	1.0 ml

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	0.82	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	0.89	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.3	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.4	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.0	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.0	1.3	ug/l	
95-48-7	2-Methylphenol	ND	2.0	0.89	ug/l	
	3&4-Methylphenol	ND	2.0	0.88	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	0.96	ug/l	
100-02-7	4-Nitrophenol ^a	ND	10	1.2	ug/l	
87-86-5	Pentachlorophenol	ND	4.0	1.4	ug/l	
108-95-2	Phenol	ND	2.0	0.39	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.0	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	0.92	ug/l	
83-32-9	Acenaphthene	ND	1.0	0.19	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.14	ug/l	
98-86-2	Acetophenone	ND	2.0	0.21	ug/l	
120-12-7	Anthracene	ND	1.0	0.21	ug/l	
1912-24-9	Atrazine	ND	2.0	0.45	ug/l	
100-52-7	Benzaldehyde	ND	5.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.21	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.21	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.34	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.21	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.40	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.46	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.21	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.24	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.34	ug/l	
86-74-8	Carbazole	ND	1.0	0.23	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

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N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-06	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-3	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	2.0	0.65	ug/l	
218-01-9	Chrysene	ND	1.0	0.18	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.28	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.25	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.40	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.37	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.0	0.55	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.0	0.48	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.51	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.33	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.22	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.50	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.23	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.26	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.22	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.7	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.17	ug/l	
86-73-7	Fluorene	ND	1.0	0.17	ug/l	
118-74-1	Hexachlorobenzene	ND	1.0	0.33	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.49	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	2.8	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.39	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.33	ug/l	
78-59-1	Isophorone	ND	2.0	0.28	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.21	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.39	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	0.44	ug/l	
91-20-3	Naphthalene	ND	1.0	0.23	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.64	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.48	ug/l	
86-30-6	N-Nitrosodiphenylamine ^b	ND	5.0	0.22	ug/l	UJ
85-01-8	Phenanthrene	ND	1.0	0.18	ug/l	
129-00-0	Pyrene	ND	1.0	0.22	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.37	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	32%		10-110%
14165-62-2	Phenol-d5	24%		10-110%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-06 Lab Sample ID: JC62881-3 Matrix: AQ - Ground Water Method: SW846 8270D SW846 3510C Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 03/23/18 Date Received: 03/23/18 Percent Solids: n/a
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ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	78%		36-151%
4165-60-0	Nitrobenzene-d5	87%		34-128%
321-60-8	2-Fluorobiphenyl	75%		38-119%
1718-51-0	Terphenyl-d14	58%		26-129%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits low.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

4.3
4

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Report of Analysis

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Client Sample ID: PCMW-06	Date Sampled: 03/23/18
Lab Sample ID: JC62881-3	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8081B SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G144729.D	1	03/28/18 08:36	CP	03/27/18 18:10	OP10885	G1G4598
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
877-09-8	Tetrachloro-m-xylene	72%		13-153%		
877-09-8	Tetrachloro-m-xylene	81%		13-153%		
2051-24-3	Decachlorobiphenyl	98%		10-138%		
2051-24-3	Decachlorobiphenyl	87%		10-138%		

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: PCMW-06	Date Sampled: 03/23/18
Lab Sample ID: JC62881-3	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8082A SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181251.D	1	03/29/18 07:34	HB	03/27/18 18:10	OP10884	GEF6203
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	75%		11-166%
877-09-8	Tetrachloro-m-xylene	73%		11-166%
2051-24-3	Decachlorobiphenyl	76%		10-150%
2051-24-3	Decachlorobiphenyl	78%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-06	Date Sampled: 03/23/18
Lab Sample ID: JC62881-3	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Arsenic	3.2	3.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Barium	< 200	200	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Calcium	72100	5000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Copper	16.9	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Iron	1030	100	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Lead	42.3	3.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Magnesium	8070	5000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Manganese	48.9	15	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	03/26/18	03/26/18	MS SW846 7470A ¹	SW846 7470A ³
Nickel	< 10	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Potassium	< 10000	10000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Silver	< 10	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Sodium	< 10000	10000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Zinc	158	20	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴

(1) Instrument QC Batch: MA44075

(2) Instrument QC Batch: MA44114

(3) Prep QC Batch: MP6361

(4) Prep QC Batch: MP6399

RL = Reporting Limit

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Report of Analysis

Client Sample ID: PCMW-06	Date Sampled: 03/23/18
Lab Sample ID: JC62881-3	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010 UJ	0.010	mg/l	1	03/30/18 12:01	TG	EPA 335.4/LACHAT

RL = Reporting Limit

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Report of Analysis

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Client Sample ID:	PCMW-11S	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-4	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2B159327.D	1	03/30/18 10:37	SS	n/a	n/a	V2B7094
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	0.23	0.50	0.17	ug/l	J
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform ^a	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropan ^a	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane ^b	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-11S	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-4	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		80-120%
17060-07-0	1,2-Dichloroethane-D4	121%		81-124%
2037-26-5	Toluene-D8	92%		80-120%
460-00-4	4-Bromofluorobenzene	94%		80-120%

(a) Associated CCV outside of control limits high, sample was ND. This compound in BS is outside in house QC limits bias high.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-11S	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-4	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	M144920.D	1	03/28/18 21:01	CC	03/28/18 06:30	OP10886	EM6152

Run #1	Initial Volume	Final Volume
Run #2	900 ml	1.0 ml

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.6	0.91	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.6	0.99	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.2	1.4	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.6	2.7	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.6	1.7	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.6	1.4	ug/l	
95-48-7	2-Methylphenol	ND	2.2	0.99	ug/l	
	3&4-Methylphenol	ND	2.2	0.98	ug/l	
88-75-5	2-Nitrophenol	ND	5.6	1.1	ug/l	
100-02-7	4-Nitrophenol ^a	ND	11	1.3	ug/l	
87-86-5	Pentachlorophenol	ND	4.4	1.5	ug/l	
108-95-2	Phenol	ND	2.2	0.44	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.6	1.6	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.6	1.5	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.6	1.0	ug/l	
83-32-9	Acenaphthene	ND	1.1	0.21	ug/l	
208-96-8	Acenaphthylene	ND	1.1	0.15	ug/l	
98-86-2	Acetophenone	ND	2.2	0.23	ug/l	
120-12-7	Anthracene	ND	1.1	0.23	ug/l	
1912-24-9	Atrazine	ND	2.2	0.50	ug/l	
100-52-7	Benzaldehyde	ND	5.6	0.32	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.1	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.1	0.24	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.1	0.23	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.1	0.38	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.1	0.23	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.2	0.45	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.2	0.51	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.1	0.24	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.2	0.26	ug/l	
106-47-8	4-Chloroaniline	ND	5.6	0.38	ug/l	
86-74-8	Carbazole	ND	1.1	0.25	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-11S	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-4	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	2.2	0.72	ug/l	
218-01-9	Chrysene	ND	1.1	0.20	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.2	0.31	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.2	0.28	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.2	0.45	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.2	0.41	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.1	0.61	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.1	0.53	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.2	0.56	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.1	0.37	ug/l	
132-64-9	Dibenzofuran	ND	5.6	0.24	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.2	0.55	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.2	0.26	ug/l	
84-66-2	Diethyl phthalate	ND	2.2	0.29	ug/l	
131-11-3	Dimethyl phthalate	ND	2.2	0.24	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.2	1.8	ug/l	
206-44-0	Fluoranthene	ND	1.1	0.19	ug/l	
86-73-7	Fluorene	ND	1.1	0.19	ug/l	
118-74-1	Hexachlorobenzene	ND	1.1	0.36	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.1	0.55	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	11	3.1	ug/l	
67-72-1	Hexachloroethane	ND	2.2	0.43	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.1	0.37	ug/l	
78-59-1	Isophorone	ND	2.2	0.31	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.1	0.23	ug/l	
88-74-4	2-Nitroaniline	ND	5.6	0.31	ug/l	
99-09-2	3-Nitroaniline	ND	5.6	0.43	ug/l	
100-01-6	4-Nitroaniline	ND	5.6	0.49	ug/l	
91-20-3	Naphthalene	ND	1.1	0.26	ug/l	
98-95-3	Nitrobenzene	ND	2.2	0.71	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.2	0.53	ug/l	
86-30-6	N-Nitrosodiphenylamine ^b	ND	5.6	0.25	ug/l	UJ
85-01-8	Phenanthrene	ND	1.1	0.19	ug/l	
129-00-0	Pyrene	ND	1.1	0.24	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.2	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	34%		10-110%
14165-62-2	Phenol-d5	27%		10-110%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-11S	Date Sampled: 03/23/18
Lab Sample ID: JC62881-4	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	76%		36-151%
4165-60-0	Nitrobenzene-d5	85%		34-128%
321-60-8	2-Fluorobiphenyl	70%		38-119%
1718-51-0	Terphenyl-d14	60%		26-129%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-11S	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-4	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8081B SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G144730.D	1	03/28/18 08:53	CP	03/27/18 18:10	OP10885	G1G4598
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
877-09-8	Tetrachloro-m-xylene	76%		13-153%		
877-09-8	Tetrachloro-m-xylene	76%		13-153%		
2051-24-3	Decachlorobiphenyl	63%		10-138%		
2051-24-3	Decachlorobiphenyl	47%		10-138%		

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: PCMW-11S	Date Sampled: 03/23/18
Lab Sample ID: JC62881-4	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8082A SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181252.D	1	03/29/18 07:59	HB	03/27/18 18:10	OP10884	GEF6203
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	77%		11-166%
877-09-8	Tetrachloro-m-xylene	67%		11-166%
2051-24-3	Decachlorobiphenyl	31%		10-150%
2051-24-3	Decachlorobiphenyl	36%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-11S	Date Sampled: 03/23/18
Lab Sample ID: JC62881-4	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	226	200	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Antimony	< 6.0	6.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Arsenic	6.3	3.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Barium	< 200	200	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Calcium	203000	5000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Chromium	< 10	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Cobalt	< 50	50	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Copper	23.4	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Iron	40500	100	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Lead	< 3.0	3.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Magnesium	96300	5000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Manganese	1300	15	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Mercury	< 0.20	0.20	ug/l	1	03/26/18	03/26/18	MS SW846 7470A ¹	SW846 7470A ⁴
Nickel	68.3	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Potassium	13800	10000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Selenium	< 10	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Silver	< 10	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Sodium	19000	10000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Thallium ^a	< 4.0	4.0	ug/l	2	03/29/18	04/04/18	SW846 6010C ³	SW846 3010A ⁵
Vanadium	< 50	50	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Zinc	233	20	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵

- (1) Instrument QC Batch: MA44075
- (2) Instrument QC Batch: MA44114
- (3) Instrument QC Batch: MA44142
- (4) Prep QC Batch: MP6361
- (5) Prep QC Batch: MP6399

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

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Report of Analysis

Client Sample ID: PCMW-11S	Date Sampled: 03/23/18
Lab Sample ID: JC62881-4	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010 UJ	0.010	mg/l	1	03/30/18 12:02	TG	EPA 335.4/LACHAT

RL = Reporting Limit

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Report of Analysis

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Client Sample ID:	PCMW-18S	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-5	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2B159328.D	1	03/30/18 11:07	SS	n/a	n/a	V2B7094
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform ^a	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropan ^a	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	0.71	1.0	0.50	ug/l	J
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane ^b	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-18S	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-5	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		80-120%
17060-07-0	1,2-Dichloroethane-D4	120%		81-124%
2037-26-5	Toluene-D8	93%		80-120%
460-00-4	4-Bromofluorobenzene	93%		80-120%

(a) Associated CCV outside of control limits high, sample was ND. This compound in BS is outside in house QC limits bias high.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-18S	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-5	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	M144921.D	1	03/28/18 21:31	CC	03/28/18 06:30	OP10886	EM6152

Run #1	Initial Volume	Final Volume
Run #2	900 ml	1.0 ml

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.6	0.91	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.6	0.99	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.2	1.4	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.6	2.7	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.6	1.7	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.6	1.4	ug/l	
95-48-7	2-Methylphenol	ND	2.2	0.99	ug/l	
	3&4-Methylphenol	ND	2.2	0.98	ug/l	
88-75-5	2-Nitrophenol	ND	5.6	1.1	ug/l	
100-02-7	4-Nitrophenol ^a	ND	11	1.3	ug/l	
87-86-5	Pentachlorophenol	ND	4.4	1.5	ug/l	
108-95-2	Phenol	ND	2.2	0.44	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.6	1.6	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.6	1.5	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.6	1.0	ug/l	
83-32-9	Acenaphthene	ND	1.1	0.21	ug/l	
208-96-8	Acenaphthylene	ND	1.1	0.15	ug/l	
98-86-2	Acetophenone	ND	2.2	0.23	ug/l	
120-12-7	Anthracene	ND	1.1	0.23	ug/l	
1912-24-9	Atrazine	ND	2.2	0.50	ug/l	
100-52-7	Benzaldehyde	ND	5.6	0.32	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.1	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.1	0.24	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.1	0.23	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.1	0.38	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.1	0.23	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.2	0.45	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.2	0.51	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.1	0.24	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.2	0.26	ug/l	
106-47-8	4-Chloroaniline	ND	5.6	0.38	ug/l	
86-74-8	Carbazole	ND	1.1	0.25	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-18S	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-5	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	2.2	0.72	ug/l	
218-01-9	Chrysene	ND	1.1	0.20	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.2	0.31	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.2	0.28	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.2	0.45	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.2	0.41	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.1	0.61	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.1	0.53	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.2	0.56	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.1	0.37	ug/l	
132-64-9	Dibenzofuran	ND	5.6	0.24	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.2	0.55	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.2	0.26	ug/l	
84-66-2	Diethyl phthalate	ND	2.2	0.29	ug/l	
131-11-3	Dimethyl phthalate	ND	2.2	0.24	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	3.7	2.2	1.8	ug/l	
206-44-0	Fluoranthene	ND	1.1	0.19	ug/l	
86-73-7	Fluorene	ND	1.1	0.19	ug/l	
118-74-1	Hexachlorobenzene	ND	1.1	0.36	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.1	0.55	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	11	3.1	ug/l	
67-72-1	Hexachloroethane	ND	2.2	0.43	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.1	0.37	ug/l	
78-59-1	Isophorone	ND	2.2	0.31	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.1	0.23	ug/l	
88-74-4	2-Nitroaniline	ND	5.6	0.31	ug/l	
99-09-2	3-Nitroaniline	ND	5.6	0.43	ug/l	
100-01-6	4-Nitroaniline	ND	5.6	0.49	ug/l	
91-20-3	Naphthalene	ND	1.1	0.26	ug/l	
98-95-3	Nitrobenzene	ND	2.2	0.71	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.2	0.53	ug/l	
86-30-6	N-Nitrosodiphenylamine ^b	ND	5.6	0.25	ug/l	UJ
85-01-8	Phenanthrene	ND	1.1	0.19	ug/l	
129-00-0	Pyrene	ND	1.1	0.24	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.2	0.41	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	34%		10-110%
4165-62-2	Phenol-d5	26%		10-110%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-18S	Date Sampled: 03/23/18
Lab Sample ID: JC62881-5	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	77%		36-151%
4165-60-0	Nitrobenzene-d5	86%		34-128%
321-60-8	2-Fluorobiphenyl	72%		38-119%
1718-51-0	Terphenyl-d14	65%		26-129%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-18S	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-5	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8081B SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G144731.D	1	03/28/18 09:11	CP	03/27/18 18:10	OP10885	G1G4598
Run #2							

Run #	Initial Volume	Final Volume
Run #1	290 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0069	0.0036	ug/l	
319-84-6	alpha-BHC	ND	0.0069	0.0036	ug/l	
319-85-7	beta-BHC	ND	0.0069	0.0055	ug/l	
319-86-8	delta-BHC	ND	0.0069	0.0045	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0069	0.0041	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0069	0.0034	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0069	0.0029	ug/l	
60-57-1	Dieldrin	ND	0.0069	0.0053	ug/l	
72-54-8	4,4'-DDD	ND	0.0069	0.0040	ug/l	
72-55-9	4,4'-DDE	ND	0.0069	0.0035	ug/l	
50-29-3	4,4'-DDT	ND	0.0069	0.0047	ug/l	
72-20-8	Endrin	ND	0.0069	0.0042	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0069	0.0038	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0069	0.0046	ug/l	
53494-70-5	Endrin ketone	ND	0.0069	0.0043	ug/l	
959-98-8	Endosulfan-I	ND	0.0069	0.0036	ug/l	
33213-65-9	Endosulfan-II	ND	0.0069	0.0034	ug/l	
76-44-8	Heptachlor	ND	0.0069	0.0031	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0069	0.0041	ug/l	
72-43-5	Methoxychlor	ND	0.014	0.0046	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	80%		13-153%
877-09-8	Tetrachloro-m-xylene	67%		13-153%
2051-24-3	Decachlorobiphenyl	80%		10-138%
2051-24-3	Decachlorobiphenyl	55%		10-138%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: PCMW-18S	Date Sampled: 03/23/18
Lab Sample ID: JC62881-5	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8082A SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181253.D	1	03/29/18 08:24	HB	03/27/18 18:10	OP10884	GEF6203
Run #2							

Run #	Initial Volume	Final Volume
Run #1	290 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.34	0.14	ug/l	
11104-28-2	Aroclor 1221	ND	0.34	0.29	ug/l	
11141-16-5	Aroclor 1232	ND	0.34	0.18	ug/l	
53469-21-9	Aroclor 1242	ND	0.34	0.16	ug/l	
12672-29-6	Aroclor 1248	ND	0.34	0.087	ug/l	
11097-69-1	Aroclor 1254	ND	0.34	0.29	ug/l	
11096-82-5	Aroclor 1260	ND	0.34	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.34	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.34	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	61%		11-166%
877-09-8	Tetrachloro-m-xylene	72%		11-166%
2051-24-3	Decachlorobiphenyl	52%		10-150%
2051-24-3	Decachlorobiphenyl	55%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-18S	Date Sampled: 03/23/18
Lab Sample ID: JC62881-5	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Antimony	< 6.0	6.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Arsenic	4.9	3.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Barium	< 200	200	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Beryllium	< 1.0	1.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Cadmium	< 3.0	3.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Calcium	217000	5000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Chromium	< 10	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Cobalt	< 50	50	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Copper	< 10	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Iron	2960	100	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Lead	< 3.0	3.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Magnesium	77600	5000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Manganese	4430	15	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Mercury	< 0.20	0.20	ug/l	1	03/26/18	03/26/18	MS SW846 7470A ¹	SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Potassium	95000	10000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Selenium	< 10	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Silver	< 10	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Sodium	49100	10000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Thallium ^a	< 4.0	4.0	ug/l	2	03/29/18	04/04/18	SW846 6010C ³	SW846 3010A ⁵
Vanadium	< 50	50	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵
Zinc	< 20	20	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁵

- (1) Instrument QC Batch: MA44075
- (2) Instrument QC Batch: MA44114
- (3) Instrument QC Batch: MA44142
- (4) Prep QC Batch: MP6361
- (5) Prep QC Batch: MP6399

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

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Report of Analysis

Client Sample ID: PCMW-18S	Date Sampled: 03/23/18
Lab Sample ID: JC62881-5	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010 UJ	0.010	mg/l	1	03/30/18 12:04	TG	EPA 335.4/LACHAT

RL = Reporting Limit

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Report of Analysis

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Client Sample ID: PCMW-18D	Date Sampled: 03/23/18
Lab Sample ID: JC62881-6	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	2B159336.D	1	03/30/18 15:08	SS	n/a	n/a	V2B7094

Run #1	Purge Volume
Run #2	5.0 ml

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform ^a	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	12.3	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropan ^a	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane ^b	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCMW-18D	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-6	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	1.5	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		80-120%
17060-07-0	1,2-Dichloroethane-D4	123%		81-124%
2037-26-5	Toluene-D8	93%		80-120%
460-00-4	4-Bromofluorobenzene	92%		80-120%

- (a) Associated CCV outside of control limits high, sample was ND. This compound in BS is outside in house QC limits bias high.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-18D	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-6	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	M144922.D	1	03/28/18 22:00	CC	03/28/18 06:30	OP10886	EM6152

Run #1	Initial Volume	Final Volume
Run #2	900 ml	1.0 ml

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.6	0.91	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.6	0.99	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.2	1.4	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.6	2.7	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.6	1.7	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.6	1.4	ug/l	
95-48-7	2-Methylphenol	ND	2.2	0.99	ug/l	
	3&4-Methylphenol	ND	2.2	0.98	ug/l	
88-75-5	2-Nitrophenol	ND	5.6	1.1	ug/l	
100-02-7	4-Nitrophenol ^a	ND	11	1.3	ug/l	
87-86-5	Pentachlorophenol	ND	4.4	1.5	ug/l	
108-95-2	Phenol	ND	2.2	0.44	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.6	1.6	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.6	1.5	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.6	1.0	ug/l	
83-32-9	Acenaphthene	ND	1.1	0.21	ug/l	
208-96-8	Acenaphthylene	ND	1.1	0.15	ug/l	
98-86-2	Acetophenone	ND	2.2	0.23	ug/l	
120-12-7	Anthracene	ND	1.1	0.23	ug/l	
1912-24-9	Atrazine	ND	2.2	0.50	ug/l	
100-52-7	Benzaldehyde	ND	5.6	0.32	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.1	0.23	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.1	0.24	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.1	0.23	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.1	0.38	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.1	0.23	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.2	0.45	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.2	0.51	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.1	0.24	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.2	0.26	ug/l	
106-47-8	4-Chloroaniline	ND	5.6	0.38	ug/l	
86-74-8	Carbazole	ND	1.1	0.25	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-18D Lab Sample ID: JC62881-6 Matrix: AQ - Ground Water Method: SW846 8270D SW846 3510C Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 03/23/18 Date Received: 03/23/18 Percent Solids: n/a
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ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	64%		36-151%
4165-60-0	Nitrobenzene-d5	70%		34-128%
321-60-8	2-Fluorobiphenyl	54%		38-119%
1718-51-0	Terphenyl-d14	52%		26-129%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits low.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCMW-18D	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-6	Date Received:	03/23/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8081B SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G144732.D	1	03/28/18 09:28	CP	03/27/18 18:10	OP10885	G1G4598
Run #2							

Run #	Initial Volume	Final Volume
Run #1	295 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0068	0.0035	ug/l	
319-84-6	alpha-BHC	ND	0.0068	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0068	0.0054	ug/l	
319-86-8	delta-BHC	ND	0.0068	0.0045	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0068	0.0041	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0068	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0068	0.0029	ug/l	
60-57-1	Dieldrin	ND	0.0068	0.0052	ug/l	
72-54-8	4,4'-DDD	ND	0.0068	0.0039	ug/l	
72-55-9	4,4'-DDE	ND	0.0068	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0068	0.0046	ug/l	
72-20-8	Endrin	ND	0.0068	0.0041	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0068	0.0037	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0068	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0068	0.0042	ug/l	
959-98-8	Endosulfan-I	ND	0.0068	0.0036	ug/l	
33213-65-9	Endosulfan-II	ND	0.0068	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0068	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0068	0.0041	ug/l	
72-43-5	Methoxychlor	ND	0.014	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	69%		13-153%
877-09-8	Tetrachloro-m-xylene	77%		13-153%
2051-24-3	Decachlorobiphenyl	58%		10-138%
2051-24-3	Decachlorobiphenyl	43%		10-138%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 1

Client Sample ID: PCMW-18D	Date Sampled: 03/23/18
Lab Sample ID: JC62881-6	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8082A SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF181254.D	1	03/29/18 08:49	HB	03/27/18 18:10	OP10884	GEF6203
Run #2							

Run #	Initial Volume	Final Volume
Run #1	295 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.34	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.34	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.34	0.18	ug/l	
53469-21-9	Aroclor 1242	ND	0.34	0.16	ug/l	
12672-29-6	Aroclor 1248	ND	0.34	0.085	ug/l	
11097-69-1	Aroclor 1254	ND	0.34	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.34	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.34	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.34	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	73%		11-166%
877-09-8	Tetrachloro-m-xylene	86%		11-166%
2051-24-3	Decachlorobiphenyl	47%		10-150%
2051-24-3	Decachlorobiphenyl	47%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCMW-18D	Date Sampled: 03/23/18
Lab Sample ID: JC62881-6	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum ^a	9320	1000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Antimony ^a	< 30	30	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Arsenic ^a	< 15	15	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Barium ^a	< 1000	1000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Beryllium ^a	< 5.0	5.0	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Cadmium ^a	< 15	15	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Calcium ^a	48300	25000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Chromium ^a	< 50	50	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Cobalt ^a	< 250	250	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Copper ^a	< 50	50	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Iron ^a	245000	500	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Lead ^a	< 15	15	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Magnesium ^a	< 25000	25000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Manganese ^a	611	75	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Mercury ^a	< 0.60	0.60	ug/l	1	03/26/18	03/26/18	MS SW846 7470A ¹	SW846 7470A ³
Nickel ^a	< 50	50	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Potassium ^a	< 50000	50000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Selenium ^a	< 50	50	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Silver ^a	< 50	50	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Sodium ^a	58500	50000	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Thallium ^a	< 10	10	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Vanadium ^a	< 250	250	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴
Zinc ^a	< 100	100	ug/l	1	03/29/18	03/31/18	SW846 6010C ²	SW846 3010A ⁴

(1) Instrument QC Batch: MA44075

(2) Instrument QC Batch: MA44114

(3) Prep QC Batch: MP6361

(4) Prep QC Batch: MP6399

(a) Elevated sample detection limit due to difficult sample matrix.

RL = Reporting Limit

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Report of Analysis

Client Sample ID: PCMW-18D	Date Sampled: 03/23/18
Lab Sample ID: JC62881-6	Date Received: 03/23/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.012 J	0.010	mg/l	1	03/30/18 12:05	TG	EPA 335.4/LACHAT

RL = Reporting Limit

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Report of Analysis

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Client Sample ID:	TRIP BLANK	Date Sampled:	03/23/18
Lab Sample ID:	JC62881-7	Date Received:	03/23/18
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2B159335.D	1	03/30/18 14:38	SS	n/a	n/a	V2B7094
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform ^a	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropan ^a	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane ^b	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TRIP BLANK	
Lab Sample ID: JC62881-7	Date Sampled: 03/23/18
Matrix: AQ - Trip Blank Water	Date Received: 03/23/18
Method: SW846 8260C	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		80-120%
17060-07-0	1,2-Dichloroethane-D4	123%		81-124%
2037-26-5	Toluene-D8	93%		80-120%
460-00-4	4-Bromofluorobenzene	92%		80-120%

- (a) Associated CCV outside of control limits high, sample was ND. This compound in BS is outside in house QC limits bias high.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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National Grid
Philly Coke

DATA REVIEW

Philadelphia, Pennsylvania

Volatile Organic Compound (VOC), Semivolatile Organic Compound (SVOC), Pesticides, Polychlorinated Biphenyls (PCBs), Metals, and Cyanide Analyses

SDGs #: JC66384, JC66927, JC67003, JC67110, J136777-1

Analyses Performed By:
SGS Laboratories
Dayton, New Jersey

TestAmeirca
Amherst, New York

Report #: 30058R
Review Level: Tier II
Project: B0036790.0001.00003

DATA REVIEW REPORT

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) # JC66384, JC66927, JC67003, JC67110, J136777-1 for samples collected in association with the National Grid Philly Coke site in Philadelphia, Pennsylvania. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data as reported by the laboratory were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets and chain of custody. Analyses were performed for the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOCs	SVOC	Pest./PCB	Metals	CN-
JC66384	MW-103(6-7)	JC66384-1	Soil	5/16/2018		X	X	X	X	X
	MW-103(15-16)	JC66384-2	Soil	5/16/2018		X	X	X	X	X
	TRIP BLANK	JC66384-3	Water	5/16/2018		X	X	X	X	X
	MW-102(12-13)	JC66384-4	Soil	5/16/2018		X	X	X	X	X
JC66927	MW-106	JC66927-1	Water	5/29/2018		X	X	X	X	X
	PCMW-19S	JC66927-2	Water	5/29/2018					X	
	TRIP BLANK	JC66927-3	Water	5/29/2018		X				
JC67003	MW-104	JC67003-1	Water	5/30/2018		X	X	X	X	X
	MW-101	JC67003-2	Water	5/30/2018		X	X	X	X	X
	MW-105	JC67003-3	Water	5/30/2018		X	X	X	X	X
	PCMW-06	JC67003-4	Water	5/30/2018					X	
	PCMW-05	JC67003-5	Water	5/30/2018					X	
	PCMW-04	JC67003-6	Water	5/30/2018					X	
	MW-107	JC67003-7	Water	5/30/2018		X	X	X	X	X
	TRIP BLANK	JC67003-8	Water	5/30/2018		X				
JC67110	PCMW-08S	JC67110-1	Water	5/31/2018					X	
	PCMW-09S	JC67110-2	Water	5/31/2018					X	
	MW-102	JC67110-3	Water	5/31/2018		X	X	X	X	X
	MW-103	JC67110-4	Water	5/31/2018		X	X	X	X	X
	DUP-05312018	JC67110-5	Water	5/31/2018	MW-102	X	X	X	X	X
480-136777-1	PCMW-16D	480-136777-1	Water	5/30/2018						X
	DUP-05302018	480-136777-2	Water	5/30/2018						X

DATA REVIEW REPORT

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X	X		
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of quality assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

Note: The Trip Blank for SDG JC67110 was indicated on the COC but was not received at the laboratory.

DATA REVIEW REPORT

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Methods 8260C, 8270D, 8081B and 8082A. Validation was performed following the procedures specified in *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (October 1999).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected as unusable. The compound may or may not be present in the sample.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

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that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

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VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
VOCs by 8260C	Water	14 days from collection to analysis (preserved) 7 days from collection to analysis (non-preserved)	Cool to <6 °C; preserved to a pH of less than 2 s.u.

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e. laboratory method blanks, trip blanks, and equipment rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure sample storage contamination. Rinse blanks also measure contamination of samples during field operations.

If an analyte is detected in a blank at a concentration greater than the method detection limit (MDL), a blank action level (BAL) is calculated as five times the concentration detected in the blank. The BAL for common laboratory contaminants (e.g. acetone, methylene chloride) is calculated at ten times the blank concentration. Detected analytes in the associated samples are compared to the BAL. If the result is greater than the BAL, no qualification is required, and any laboratory-assigned flags are removed.

Target compounds were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited surrogate recoveries within the control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked compounds used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

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Sample Locations	Compound	MS Recovery	MSD Recovery
<u>SDG JC67003</u> MW-101	Dichlorodifluoromethane	>UL	--
<u>SDG JC67110</u> MW-103	Bromoform	>UL	AC
	1,2-Dibromo-3-chloropropane	>UL	AC
	1,1,1,2-Tetrachloroethane	>UL	AC

Note:

AC Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Parent sample concentration > four times the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

Sample locations associated with MS/MSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

Sample Locations	Compound
<u>SDG JC67110</u> MW-103	Bromomethane

The criteria used to evaluate the RPD between the MS/MSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

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5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS analysis must exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with LCS analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery
<u>SDG JC67003</u> MW-101 MW-105 MW-107 TRIP BLANK	Dichlorodifluoromethane	>UL

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

6. Field Duplicate Sample Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-102/DUP-05312018	All compounds	U	U	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

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7. System Performance and Overall Assessment

The laboratory narrative states that several compounds exhibited continuing calibration verification percent differences (%D) greater than the control limit of 20%.

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified as presented in the following table.

Initial/Continuing	Criteria	Sample Result	Qualification
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260B	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Trip blanks		X		X	
Laboratory Control Sample (LCS)		X	X		
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)		X	X		
Matrix Spike Duplicate(MSD)		X		X	
MS/MSD Precision (RPD)		X	X		
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

- %RSD Relative standard deviation
- %R Percent recovery
- RPD Relative percent difference
- %D Percent difference

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SEMI-VOLATILE ORGANIC COMPOUNDS (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SVOCs by 8270D	Water	28 days from collection to extraction and 28 days from extraction to analysis	Cool to <6 °C; preserved with Sodium Bisulfate (NaHSO ₄) to a pH of less than 4 s.u.

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

If an analyte is detected in a blank at a concentration greater than the method detection limit (MDL), a blank action level (BAL) is calculated as five times the concentration detected in the blank. The BAL for common laboratory contaminants (e.g. acetone, methylene chloride) is calculated at ten times the blank concentration. Detected analytes in the associated samples are compared to the BAL. If the result is greater than the BAL, no qualification is required, and any laboratory-assigned flags are removed.

Target compounds were not detected above the MDL in the associated blanks; therefore, detected sample results are not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
MW-102(12-13)	Phenol-d5	AC
	2-Fluorophenol	<LL but >10%
	2,4,6-Tribromophenol	< 10%
	Nitrobenzene-d5	AC
	2-Fluorobiphenyl	AC
	Terphenyl-d14	AC

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Notes:

AC Acceptable

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
	Detect	J
< LL but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

Note:

The sample was reanalyzed and the surrogate recoveries were confirmed. The associated non-detect sample results were qualified as rejected and detected results were qualified as estimated.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS analysis exhibiting recoveries outside of the control limits presented in the following table.

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Sample Locations	Compound	LCS Recovery
SDG JC66384 MW-103(6-7) MW-103(15-16) MW-102(12-13)	4-Chloroaniline	<LL but >10%

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-102/DUP-05312018	All compounds	U	U	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. System Performance and Overall Assessment

The laboratory narrative states that several compounds exhibited continuing calibration verification percent differences (%D) greater than the control limit of 20%.

The criteria used to evaluate the initial and continuing calibration are presented in the following table. In the case of a calibration deviation, the sample results are qualified as presented in the following table.

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Initial/Continuing	Criteria	Sample Result	Qualification
Continuing Calibration	%D >20% (increase in sensitivity)	Non-detect	No Action
		Detect	J
	%D >20% (decrease in sensitivity)	Non-detect	UJ
		Detect	J

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: 8270D	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X	X		
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

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PESTICIDES ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8081B	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to < 6 °C

All samples were extracted and analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. Pesticide analysis requires that at least one of the two pesticide surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All samples exhibited surrogate recoveries within the control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The spiked compounds used in the MS/MSD analysis must exhibit recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS and MSD results must be within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSDs performed on samples where the compound concentration detected in the parent sample exceeds the MS/MSD spiking concentration by a factor of four or greater. Sample results associated with MS/MSD exceedances where the parent samples are not site-specific are not qualified.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The spiked compounds used in the LCS/LCSD analysis must exhibit

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recoveries within the laboratory-established acceptance limits. The relative percent difference (RPD) between the LCS and LCSD results must be within the laboratory-established acceptance limits.

Sample locations associated with LCS/LCSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

Sample Locations	Compound
SDG JC66384 MW-103(6-7) MW-103(15-16) MW-102(12-13)	Aldrin alpha-BHC gamma-BHC (Lindane) Heptachlor

The criteria used to evaluate the RPD between the LCS/LCSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

6. Field Duplicate Sample Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-102/DUP-05312018	All compounds	U	U	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows for both the primary and confirmation columns. When dual column analysis is performed the relative percent difference (%RPD) of detected sample results must be less than 40%.

The dual column analysis exhibited an acceptable %RPD between columns.

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9. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR PESTICIDES

Pesticides: SW-846 8081B	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Gas Chromatography (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate (LCSD)		X		X	
LCS/LCSD Precision (RPD)		X	X		
Matrix Spike (MS)		X		X	
Matrix Spike Duplicate (MSD)		X		X	
MS/MSD Precision (RPD)		X		X	
Laboratory Duplicate Sample RPD	X				X
Field Duplicate Sample RPD		X		X	
Surrogate Spike Recoveries		X		X	
Column %D \leq 40% (If dual column is performed for reporting - not confirmation)		X		X	
Dilution Factor		X		X	
Compound identification and quantitation		X		X	

Notes:

%R = percent recovery

RPD = relative percent difference

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POLYCHLORINATED BIPHENYLS (PCBs) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8082A	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

Note:

The holding time above is a recommendation. PCBs are very stable in a variety of matrices, and holding times, under the conditions listed above, may be as long as a year per SW-846 8082A (February 2007).

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. PCB analysis requires that the two PCB surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries reported from the primary column were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

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5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-102/DUP-05312018	All compounds	U	U	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows for both the primary and confirmation columns. When dual column analysis is performed the relative percent difference (%RPD) of detected sample results must be less than 40%.

The dual column analysis exhibited an acceptable %RPD between columns.

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR PCBs

PCBs: SW-846 8082A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate (LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Column (RPD) (If dual column is performed-not confirmation purposes only)		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

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INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Methods 6010C, 7470A, and 335.4. Data were reviewed in accordance with USEPA National Functional Guidelines of October 2002.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

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METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW846 6010C	Water	180 days from collection to analysis	Preserved to a pH of less than 2.
SW-846 7470A	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis /Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

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MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD recoveries exhibited acceptable RPD.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Analyte	Sample Result	Duplicate Result	RPD
MW-102/DUP-05312018	Aluminum	661	275	AC
	Arsenic	6.7	6.6	1.5%
	Barium	352	350	0.6%
	Calcium	103000	103000	0.0%
	Iron	3560	2900	20.4%
	Lead	4.8	3.0 U	AC
	Magnesium	74200	74900	0.9%
	Manganese	383	370	3.5%
	Potassium	14900	15000	0.7%
	Sodium	47600	47800	0.4%

AC = Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR METAL

METALS; 6010C/7470A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	

Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)

Tier II Validation

Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Instrument Blanks		X		X	
B. Method Blanks		X		X	
C. Equipment/Field Blanks		X		X	
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Total vs. Dissolved	X				X
Reporting Limit Verification		X		X	

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Cyanide by EPA 335.4	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of greater than 12.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

The correct number and type of standards were analyzed. The correlation coefficient of the initial calibration was greater than 0.995 and all initial calibration verification standard recoveries were within control limits.

All calibration standard recoveries were within the control limit.

4. Matrix Spike (MS)/Laboratory Duplicate Analysis

MS and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

4.1 MS Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS recovery control limits do not apply for MS performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

DATA REVIEW REPORT

All analytes associated with MS recoveries were within control limits with the exception of the following analytes present in the table below.

Sample Location	Analytes	MS Recovery
MW-102	Cyanide	69.6%
PCMW-16D	Cyanide	69%

The criteria used to evaluate MS recoveries are presented in the following table. In the case of an MS deviation, the sample results are qualified. The qualifications are applied to all associated sample results in this SDG.

Control limit	Sample Result	Qualification
MS percent recovery 30% to 75%	Non-detect	UJ
	Detect	J
MS percent recovery <30%	Non-detect	R
	Detect	J
MS percent recovery >125%	Non-detect	No Action
	Detect	J

4.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

All analytes associated with laboratory duplicate RPD were within the control limit.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-102/DUP-05312018	All compounds	U	U	AC
PCMW-16D/DUP-05302018	Cyanide	9.1	18.0	65.7%

Notes:

AC Acceptable

DATA REVIEW REPORT

Cyanide associated with sample locations PCMW-16D and DUP-05302018 exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed analyte were qualified as estimated.

6. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: 335.4	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X	X		
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%RSD – relative standard deviation

%R - percent recovery

RPD - relative percent difference,

%D – difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: July 2, 2018

PEER REVIEW: Joseph C. Houser

DATE: July 5, 2018

CHAIN OF CUSTODY AND CORRECTED SAMPLE ANALYSIS DATA SHEETS



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Report of Analysis

Page 1 of 2

Client Sample ID: MW-103(6-7)	Date Sampled: 05/16/18
Lab Sample ID: JC66384-1	Date Received: 05/17/18
Matrix: SO - Soil	Percent Solids: 80.1
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	C222006.D	1	05/19/18 15:24	RS	n/a	n/a	VC8227

Run #1	Initial Weight
Run #2	6.1 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	38.0	10	6.6	ug/kg	J
71-43-2	Benzene	ND	0.51	0.11	ug/kg	
74-97-5	Bromochloromethane	ND	5.1	0.45	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	0.25	ug/kg	
75-25-2	Bromoform	ND	5.1	0.32	ug/kg	
74-83-9	Bromomethane	ND	5.1	0.72	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	5.4	ug/kg	
75-15-0	Carbon disulfide	ND	2.0	0.62	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	0.66	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	0.29	ug/kg	
75-00-3	Chloroethane	ND	5.1	0.92	ug/kg	
67-66-3	Chloroform	ND	2.0	0.33	ug/kg	
74-87-3	Chloromethane	ND	5.1	1.0	ug/kg	
110-82-7	Cyclohexane	ND	2.0	0.35	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	0.39	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	0.25	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.53	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.29	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.49	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.1	0.62	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	0.27	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.18	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	0.72	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.41	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.60	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.0	0.41	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	0.39	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	0.24	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.30	ug/kg	
76-13-1	Freon 113	ND	5.1	0.69	ug/kg	
591-78-6	2-Hexanone	ND	5.1	2.9	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-103(6-7)	Date Sampled:	05/16/18
Lab Sample ID:	JC66384-1	Date Received:	05/17/18
Matrix:	SO - Soil	Percent Solids:	80.1
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.0	0.25	ug/kg	
79-20-9	Methyl Acetate ^b	ND	5.1	2.6	ug/kg	
108-87-2	Methylcyclohexane	ND	2.0	0.56	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.44	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.1	1.8	ug/kg	
75-09-2	Methylene chloride	3.5	5.1	2.6	ug/kg	J
100-42-5	Styrene	ND	2.0	0.51	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	0.26	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	0.65	ug/kg	
108-88-3	Toluene	ND	1.0	0.56	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.1	1.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.1	1.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	0.59	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	0.43	ug/kg	
79-01-6	Trichloroethene	ND	1.0	0.56	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.1	0.49	ug/kg	
75-01-4	Vinyl chloride	ND	2.0	0.78	ug/kg	
	m,p-Xylene	ND	1.0	0.56	ug/kg	
95-47-6	o-Xylene	ND	1.0	0.26	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.26	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	111%		75-127%
17060-07-0	1,2-Dichloroethane-D4	106%		75-130%
2037-26-5	Toluene-D8	105%		80-120%
460-00-4	4-Bromofluorobenzene	104%		79-127%

(a) Associated CCV outside of control limits low.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	MW-103(6-7)	Date Sampled:	05/16/18
Lab Sample ID:	JC66384-1	Date Received:	05/17/18
Matrix:	SO - Soil	Percent Solids:	80.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	2M104472.D	1	05/27/18 02:45	GS	05/23/18 16:50	OP12196	E2M4641

Run #1	Initial Weight	Final Volume
Run #2	30.8 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	81	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	25	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	35	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	72	ug/kg	
51-28-5	2,4-Dinitrophenol ^a	ND	200	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	200	43	ug/kg	
95-48-7	2-Methylphenol	ND	81	26	ug/kg	
	3&4-Methylphenol	ND	81	33	ug/kg	
88-75-5	2-Nitrophenol	ND	200	27	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	410	110	ug/kg	
87-86-5	Pentachlorophenol	ND	160	38	ug/kg	
108-95-2	Phenol	ND	81	21	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	27	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	30	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	24	ug/kg	
83-32-9	Acenaphthene	291	41	14	ug/kg	
208-96-8	Acenaphthylene	94.5	41	21	ug/kg	
98-86-2	Acetophenone	ND	200	8.7	ug/kg	
120-12-7	Anthracene	708	41	25	ug/kg	
1912-24-9	Atrazine	ND	81	17	ug/kg	
56-55-3	Benzo(a)anthracene	1340	41	11	ug/kg	
50-32-8	Benzo(a)pyrene	1210	41	18	ug/kg	
205-99-2	Benzo(b)fluoranthene	1450	41	18	ug/kg	
191-24-2	Benzo(g,h,i)perylene	776	41	20	ug/kg	
207-08-9	Benzo(k)fluoranthene	482	41	19	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	81	16	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	81	9.9	ug/kg	
92-52-4	1,1'-Biphenyl	22.3	81	5.6	ug/kg	J
100-52-7	Benzaldehyde	24.8	200	10	ug/kg	J
91-58-7	2-Chloronaphthalene	ND	81	9.6	ug/kg	
106-47-8	4-Chloroaniline	ND	200	15	ug/kg	UJ
86-74-8	Carbazole	236	81	5.9	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-103(6-7)	Date Sampled:	05/16/18
Lab Sample ID:	JC66384-1	Date Received:	05/17/18
Matrix:	SO - Soil	Percent Solids:	80.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	81	16	ug/kg	
218-01-9	Chrysene	1380	41	13	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	81	8.7	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	81	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	81	15	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	81	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	41	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	41	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	81	34	ug/kg	
123-91-1	1,4-Dioxane	ND	41	27	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	191	41	18	ug/kg	
132-64-9	Dibenzofuran	179	81	16	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	81	6.6	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	81	10	ug/kg	
84-66-2	Diethyl phthalate	ND	81	8.6	ug/kg	
131-11-3	Dimethyl phthalate	ND	81	7.2	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	81	9.5	ug/kg	
206-44-0	Fluoranthene	2930	41	18	ug/kg	
86-73-7	Fluorene	342	41	19	ug/kg	
118-74-1	Hexachlorobenzene	ND	81	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	41	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	410	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	20	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	836	41	19	ug/kg	
78-59-1	Isophorone	ND	81	8.7	ug/kg	
91-57-6	2-Methylnaphthalene	60.4	41	9.2	ug/kg	
88-74-4	2-Nitroaniline	ND	200	9.6	ug/kg	
99-09-2	3-Nitroaniline	ND	200	10	ug/kg	
100-01-6	4-Nitroaniline	ND	200	10	ug/kg	
91-20-3	Naphthalene	189	41	11	ug/kg	
98-95-3	Nitrobenzene	ND	81	16	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	81	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	15	ug/kg	
85-01-8	Phenanthrene	2330	41	14	ug/kg	
129-00-0	Pyrene	2720	41	13	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	67%		23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-103(6-7)	Date Sampled: 05/16/18
Lab Sample ID: JC66384-1	Date Received: 05/17/18
Matrix: SO - Soil	Percent Solids: 80.1
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	68%		27-114%
118-79-6	2,4,6-Tribromophenol	71%		19-152%
4165-60-0	Nitrobenzene-d5	73%		26-134%
321-60-8	2-Fluorobiphenyl	72%		39-124%
1718-51-0	Terphenyl-d14	81%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

4.1
4

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Report of Analysis

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Client Sample ID: MW-103(6-7)	Date Sampled: 05/16/18
Lab Sample ID: JC66384-1	Date Received: 05/17/18
Matrix: SO - Soil	Percent Solids: 80.1
Method: SW846 8081B SW846 3546	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G56749.D	1	05/30/18 12:39	CP	05/25/18 07:20	OP12247	G6G1694
Run #2							

Run #	Initial Weight	Final Volume
Run #1	15.2 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.82	0.68	ug/kg	UJ
319-84-6	alpha-BHC	ND	0.82	0.67	ug/kg	UJ
319-85-7	beta-BHC	ND	0.82	0.74	ug/kg	
319-86-8	delta-BHC	ND	0.82	0.79	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.82	0.61	ug/kg	UJ
5103-71-9	alpha-Chlordane	ND	0.82	0.66	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.82	0.37	ug/kg	
60-57-1	Dieldrin	ND	0.82	0.56	ug/kg	
72-54-8	4,4'-DDD	ND	0.82	0.75	ug/kg	
72-55-9	4,4'-DDE	ND	0.82	0.72	ug/kg	
50-29-3	4,4'-DDT	ND	0.82	0.73	ug/kg	
72-20-8	Endrin	ND	0.82	0.64	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.82	0.64	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.82	0.47	ug/kg	
959-98-8	Endosulfan-I	ND	0.82	0.47	ug/kg	
33213-65-9	Endosulfan-II	ND	0.82	0.51	ug/kg	
76-44-8	Heptachlor	ND	0.82	0.71	ug/kg	UJ
1024-57-3	Heptachlor epoxide	ND	0.82	0.58	ug/kg	
72-43-5	Methoxychlor	ND	1.6	0.65	ug/kg	
53494-70-5	Endrin ketone	ND	0.82	0.59	ug/kg	
8001-35-2	Toxaphene	ND	21	19	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	76%		25-135%
877-09-8	Tetrachloro-m-xylene	71%		25-135%
2051-24-3	Decachlorobiphenyl	28%		10-156%
2051-24-3	Decachlorobiphenyl	10%		10-156%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 1

Client Sample ID: MW-103(6-7)	Date Sampled: 05/16/18
Lab Sample ID: JC66384-1	Date Received: 05/17/18
Matrix: SO - Soil	Percent Solids: 80.1
Method: SW846 8082A SW846 3546	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G164445.D	1	05/28/18 05:48	TR	05/25/18 07:20	OP12244	G2G4347
Run #2							

Run #	Initial Weight	Final Volume
Run #1	15.2 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	41	17	ug/kg	
11104-28-2	Aroclor 1221	ND	41	17	ug/kg	
11141-16-5	Aroclor 1232	ND	41	11	ug/kg	
53469-21-9	Aroclor 1242	ND	41	6.5	ug/kg	
12672-29-6	Aroclor 1248	ND	41	24	ug/kg	
11097-69-1	Aroclor 1254	200	41	10	ug/kg	
11096-82-5	Aroclor 1260	ND	41	13	ug/kg	
11100-14-4	Aroclor 1268	ND	41	6.1	ug/kg	
37324-23-5	Aroclor 1262	ND	41	3.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	94%		24-152%
877-09-8	Tetrachloro-m-xylene	91%		24-152%
2051-24-3	Decachlorobiphenyl	94%		10-166%
2051-24-3	Decachlorobiphenyl	101%		10-166%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-103(6-7)	Date Sampled:	05/16/18
Lab Sample ID:	JC66384-1	Date Received:	05/17/18
Matrix:	SO - Soil	Percent Solids:	80.1
Project:	National Grid, Philly Coke, Philadelphia PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	9660	61	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Antimony	< 2.4	2.4	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Arsenic	5.4	2.4	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Barium	118	24	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Beryllium	0.53	0.24	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Cadmium	< 0.61	0.61	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Calcium	16100	610	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Chromium	22.9	1.2	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Cobalt	6.2	6.1	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Copper	36.2	3.1	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Iron	17500	61	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Lead	229	2.4	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Magnesium	4000	610	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Manganese	228	1.8	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Mercury	0.30	0.037	mg/kg	1	05/18/18	05/18/18	JA	SW846 7471B ¹ SW846 7471B ³
Nickel	14.3	4.9	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Potassium	1260	1200	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Selenium	< 2.4	2.4	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Silver	< 0.61	0.61	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Sodium	< 1200	1200	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Thallium	< 1.2	1.2	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Vanadium	23.3	6.1	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴
Zinc	169	6.1	mg/kg	1	05/21/18	05/22/18	ND	SW846 6010C ² SW846 3050B ⁴

(1) Instrument QC Batch: MA44439

(2) Instrument QC Batch: MA44471

(3) Prep QC Batch: MP7227

(4) Prep QC Batch: MP7257

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-103(6-7)	Date Sampled: 05/16/18
Lab Sample ID: JC66384-1	Date Received: 05/17/18
Matrix: SO - Soil	Percent Solids: 80.1
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.25	0.22	mg/kg	1	05/24/18 16:54	BM	SW846 9012B/LACHAT
Solids, Percent	80.1		%	1	05/21/18 22:50	JV	SM2540 G-97

RL = Reporting Limit

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Report of Analysis

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Client Sample ID:	MW-103(15-16)	Date Sampled:	05/16/18
Lab Sample ID:	JC66384-2	Date Received:	05/17/18
Matrix:	SO - Soil	Percent Solids:	70.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	C222007.D	1	05/19/18 15:53	RS	n/a	n/a	VC8227
Run #2							

Run #	Initial Weight
Run #1	5.9 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	94.0	12	7.7	ug/kg	J
71-43-2	Benzene	ND	0.60	0.13	ug/kg	
74-97-5	Bromochloromethane	ND	6.0	0.52	ug/kg	
75-27-4	Bromodichloromethane	ND	2.4	0.29	ug/kg	
75-25-2	Bromoform	ND	6.0	0.37	ug/kg	
74-83-9	Bromomethane	ND	6.0	0.84	ug/kg	
78-93-3	2-Butanone (MEK)	23.9	12	6.3	ug/kg	
75-15-0	Carbon disulfide	ND	2.4	0.73	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.4	0.78	ug/kg	
108-90-7	Chlorobenzene	ND	2.4	0.35	ug/kg	
75-00-3	Chloroethane	ND	6.0	1.1	ug/kg	
67-66-3	Chloroform	ND	2.4	0.39	ug/kg	
74-87-3	Chloromethane	ND	6.0	1.2	ug/kg	
110-82-7	Cyclohexane	ND	2.4	0.41	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.4	0.81	ug/kg	
124-48-1	Dibromochloromethane	ND	2.4	0.46	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.2	0.29	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.2	0.62	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.2	0.34	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.2	0.57	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.0	0.73	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.2	0.31	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.2	0.22	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.2	0.85	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.2	0.48	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.2	0.70	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.4	0.48	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.4	0.46	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.4	0.28	ug/kg	
100-41-4	Ethylbenzene	ND	1.2	0.35	ug/kg	
76-13-1	Freon 113	ND	6.0	0.81	ug/kg	
591-78-6	2-Hexanone	ND	6.0	3.3	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-103(15-16)	Date Sampled:	05/16/18
Lab Sample ID:	JC66384-2	Date Received:	05/17/18
Matrix:	SO - Soil	Percent Solids:	70.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.4	0.30	ug/kg	
79-20-9	Methyl Acetate ^b	ND	6.0	3.0	ug/kg	
108-87-2	Methylcyclohexane	ND	2.4	0.65	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.2	0.51	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.0	2.2	ug/kg	
75-09-2	Methylene chloride	3.6	6.0	3.0	ug/kg	J
100-42-5	Styrene	ND	2.4	0.59	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.4	0.30	ug/kg	
127-18-4	Tetrachloroethene	ND	2.4	0.76	ug/kg	
108-88-3	Toluene	ND	1.2	0.66	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.0	1.2	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.0	1.2	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.4	0.70	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.4	0.50	ug/kg	
79-01-6	Trichloroethene	ND	1.2	0.66	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.0	0.58	ug/kg	
75-01-4	Vinyl chloride	ND	2.4	0.92	ug/kg	
	m,p-Xylene	ND	1.2	0.66	ug/kg	
95-47-6	o-Xylene	ND	1.2	0.30	ug/kg	
1330-20-7	Xylene (total)	ND	1.2	0.30	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	112%		75-127%
17060-07-0	1,2-Dichloroethane-D4	109%		75-130%
2037-26-5	Toluene-D8	105%		80-120%
460-00-4	4-Bromofluorobenzene	103%		79-127%

(a) Associated CCV outside of control limits low.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	MW-103(15-16)	Date Sampled:	05/16/18
Lab Sample ID:	JC66384-2	Date Received:	05/17/18
Matrix:	SO - Soil	Percent Solids:	70.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M104467.D	1	05/27/18 00:35	GS	05/23/18 16:50	OP12196	E2M4641
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	93	23	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	230	29	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	230	40	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	230	83	ug/kg	
51-28-5	2,4-Dinitrophenol ^a	ND	230	170	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	230	50	ug/kg	
95-48-7	2-Methylphenol	ND	93	30	ug/kg	
	3&4-Methylphenol	ND	93	38	ug/kg	
88-75-5	2-Nitrophenol	ND	230	31	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	470	120	ug/kg	
87-86-5	Pentachlorophenol	ND	190	44	ug/kg	
108-95-2	Phenol	ND	93	24	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	230	31	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	230	35	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	230	28	ug/kg	
83-32-9	Acenaphthene	ND	47	16	ug/kg	
208-96-8	Acenaphthylene	ND	47	24	ug/kg	
98-86-2	Acetophenone	ND	230	10	ug/kg	
120-12-7	Anthracene	ND	47	29	ug/kg	
1912-24-9	Atrazine	ND	93	20	ug/kg	
56-55-3	Benzo(a)anthracene	24.8	47	13	ug/kg	J
50-32-8	Benzo(a)pyrene	ND	47	21	ug/kg	
205-99-2	Benzo(b)fluoranthene	27.8	47	21	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	ND	47	23	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	47	22	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	93	18	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	93	11	ug/kg	
92-52-4	1,1'-Biphenyl	ND	93	6.4	ug/kg	
100-52-7	Benzaldehyde	ND	230	12	ug/kg	
91-58-7	2-Chloronaphthalene	ND	93	11	ug/kg	
106-47-8	4-Chloroaniline	ND	230	17	ug/kg	UJ
86-74-8	Carbazole	ND	93	6.7	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-103(15-16)	Date Sampled:	05/16/18
Lab Sample ID:	JC66384-2	Date Received:	05/17/18
Matrix:	SO - Soil	Percent Solids:	70.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	93	18	ug/kg	
218-01-9	Chrysene	21.2	47	15	ug/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	93	10	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	93	20	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	93	17	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	93	15	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	47	14	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	47	23	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	93	39	ug/kg	
123-91-1	1,4-Dioxane	ND	47	31	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	47	21	ug/kg	
132-64-9	Dibenzofuran	ND	93	19	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	93	7.6	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	93	12	ug/kg	
84-66-2	Diethyl phthalate	ND	93	9.9	ug/kg	
131-11-3	Dimethyl phthalate	ND	93	8.3	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	93	11	ug/kg	
206-44-0	Fluoranthene	29.6	47	21	ug/kg	J
86-73-7	Fluorene	ND	47	21	ug/kg	
118-74-1	Hexachlorobenzene	ND	93	12	ug/kg	
87-68-3	Hexachlorobutadiene	ND	47	19	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	470	19	ug/kg	
67-72-1	Hexachloroethane	ND	230	23	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	47	22	ug/kg	
78-59-1	Isophorone	ND	93	10	ug/kg	
91-57-6	2-Methylnaphthalene	ND	47	11	ug/kg	
88-74-4	2-Nitroaniline	ND	230	11	ug/kg	
99-09-2	3-Nitroaniline	ND	230	12	ug/kg	
100-01-6	4-Nitroaniline	ND	230	12	ug/kg	
91-20-3	Naphthalene	16.7	47	13	ug/kg	J
98-95-3	Nitrobenzene	ND	93	18	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	93	13	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	230	17	ug/kg	
85-01-8	Phenanthrene	17.4	47	16	ug/kg	J
129-00-0	Pyrene	39.8	47	15	ug/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	230	12	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	69%		23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-103(15-16) Lab Sample ID: JC66384-2 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 05/16/18 Date Received: 05/17/18 Percent Solids: 70.7
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	68%		27-114%
118-79-6	2,4,6-Tribromophenol	73%		19-152%
4165-60-0	Nitrobenzene-d5	72%		26-134%
321-60-8	2-Fluorobiphenyl	72%		39-124%
1718-51-0	Terphenyl-d14	83%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

4.2
4

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Report of Analysis

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Client Sample ID: MW-103(15-16)	Date Sampled: 05/16/18
Lab Sample ID: JC66384-2	Date Received: 05/17/18
Matrix: SO - Soil	Percent Solids: 70.7
Method: SW846 8081B SW846 3546	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G56750.D	1	05/30/18 12:57	CP	05/25/18 07:20	OP12247	G6G1694
Run #2							

Run #	Initial Weight	Final Volume
Run #1	16.3 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.87	0.72	ug/kg	UJ
319-84-6	alpha-BHC	ND	0.87	0.71	ug/kg	UJ
319-85-7	beta-BHC	ND	0.87	0.78	ug/kg	
319-86-8	delta-BHC	ND	0.87	0.83	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.87	0.64	ug/kg	UJ
5103-71-9	alpha-Chlordane	ND	0.87	0.70	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.87	0.39	ug/kg	
60-57-1	Dieldrin	ND	0.87	0.60	ug/kg	
72-54-8	4,4'-DDD	ND	0.87	0.80	ug/kg	
72-55-9	4,4'-DDE	ND	0.87	0.76	ug/kg	
50-29-3	4,4'-DDT	ND	0.87	0.77	ug/kg	
72-20-8	Endrin	ND	0.87	0.67	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.87	0.68	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.87	0.49	ug/kg	
959-98-8	Endosulfan-I	ND	0.87	0.50	ug/kg	
33213-65-9	Endosulfan-II	ND	0.87	0.54	ug/kg	
76-44-8	Heptachlor	ND	0.87	0.75	ug/kg	UJ
1024-57-3	Heptachlor epoxide	ND	0.87	0.61	ug/kg	
72-43-5	Methoxychlor	ND	1.7	0.69	ug/kg	
53494-70-5	Endrin ketone	ND	0.87	0.63	ug/kg	
8001-35-2	Toxaphene	ND	22	20	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	64%		25-135%
877-09-8	Tetrachloro-m-xylene	60%		25-135%
2051-24-3	Decachlorobiphenyl	64%		10-156%
2051-24-3	Decachlorobiphenyl	69%		10-156%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 1

Client Sample ID: MW-103(15-16)	Date Sampled: 05/16/18
Lab Sample ID: JC66384-2	Date Received: 05/17/18
Matrix: SO - Soil	Percent Solids: 70.7
Method: SW846 8082A SW846 3546	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G164523.D	1	05/29/18 11:06	TR	05/25/18 07:20	OP12244	G2G4348
Run #2							

Run #	Initial Weight	Final Volume
Run #1	16.3 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	43	17	ug/kg	
11104-28-2	Aroclor 1221	ND	43	18	ug/kg	
11141-16-5	Aroclor 1232	ND	43	12	ug/kg	
53469-21-9	Aroclor 1242	ND	43	6.9	ug/kg	
12672-29-6	Aroclor 1248	ND	43	25	ug/kg	
11097-69-1	Aroclor 1254	ND	43	11	ug/kg	
11096-82-5	Aroclor 1260	ND	43	14	ug/kg	
11100-14-4	Aroclor 1268	ND	43	6.5	ug/kg	
37324-23-5	Aroclor 1262	ND	43	3.3	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	87%		24-152%
877-09-8	Tetrachloro-m-xylene	86%		24-152%
2051-24-3	Decachlorobiphenyl	73%		10-166%
2051-24-3	Decachlorobiphenyl	76%		10-166%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-103(15-16)	Date Sampled:	05/16/18
Lab Sample ID:	JC66384-2	Date Received:	05/17/18
Matrix:	SO - Soil	Percent Solids:	70.7
Project:	National Grid, Philly Coke, Philadelphia PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	21700	68	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Antimony	< 2.7	2.7	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Arsenic	4.4	2.7	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Barium	159	27	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Beryllium	1.1	0.27	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Cadmium	< 0.68	0.68	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Calcium	2510	680	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Chromium	43.9	1.4	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Cobalt	12.4	6.8	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Copper	9.3	3.4	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Iron	24900	68	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Lead	46.5	2.7	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Magnesium	5320	680	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Manganese	320	2.0	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Mercury	0.17	0.040	mg/kg	1	05/18/18	05/18/18	JA SW846 7471B ¹	SW846 7471B ³
Nickel	28.4	5.4	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Potassium	1690	1400	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Selenium	< 2.7	2.7	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Silver	< 0.68	0.68	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Sodium	< 1400	1400	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Thallium	< 1.4	1.4	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Vanadium	44.3	6.8	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴
Zinc	66.8	6.8	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁴

(1) Instrument QC Batch: MA44439

(2) Instrument QC Batch: MA44471

(3) Prep QC Batch: MP7227

(4) Prep QC Batch: MP7257

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-103(15-16)	Date Sampled: 05/16/18
Lab Sample ID: JC66384-2	Date Received: 05/17/18
Matrix: SO - Soil	Percent Solids: 70.7
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.24	0.24	mg/kg	1	05/24/18 16:55	BM	SW846 9012B/LACHAT
Solids, Percent	70.7		%	1	05/21/18 22:50	JV	SM2540 G-97

RL = Reporting Limit

4.2
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Report of Analysis

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Client Sample ID:	TRIP BLANK	Date Sampled:	05/16/18
Lab Sample ID:	JC66384-3	Date Received:	05/17/18
Matrix:	AQ - Trip Blank Soil	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D175680.D	1	05/19/18 17:04	OI	n/a	n/a	V2D7409
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane ^a	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK	Date Sampled:	05/16/18
Lab Sample ID:	JC66384-3	Date Received:	05/17/18
Matrix:	AQ - Trip Blank Soil	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane ^a	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		80-120%
17060-07-0	1,2-Dichloroethane-D4	110%		81-124%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	101%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	MW-102(12-13)	Date Sampled:	05/16/18
Lab Sample ID:	JC66384-4	Date Received:	05/17/18
Matrix:	SO - Soil	Percent Solids:	53.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1C156909.D	1	05/21/18 13:57	PS	n/a	n/a	V1C6921
Run #2							

Run #	Initial Weight
Run #1	4.0 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	38.3	23	15	ug/kg	
71-43-2	Benzene	1.2	1.2	0.25	ug/kg	
74-97-5	Bromochloromethane	ND	12	1.0	ug/kg	
75-27-4	Bromodichloromethane	ND	4.7	0.57	ug/kg	
75-25-2	Bromoform	ND	12	0.73	ug/kg	
74-83-9	Bromomethane	ND	12	1.6	ug/kg	
78-93-3	2-Butanone (MEK)	ND	23	12	ug/kg	
75-15-0	Carbon disulfide	33.4	4.7	1.4	ug/kg	
56-23-5	Carbon tetrachloride	ND	4.7	1.5	ug/kg	
108-90-7	Chlorobenzene	ND	4.7	0.68	ug/kg	
75-00-3	Chloroethane	ND	12	2.1	ug/kg	
67-66-3	Chloroform	ND	4.7	0.76	ug/kg	
74-87-3	Chloromethane	ND	12	2.3	ug/kg	
110-82-7	Cyclohexane	ND	4.7	0.80	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	4.7	1.6	ug/kg	
124-48-1	Dibromochloromethane	ND	4.7	0.89	ug/kg	
106-93-4	1,2-Dibromoethane	ND	2.3	0.57	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	2.3	1.2	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	2.3	0.67	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	2.3	1.1	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	12	1.4	ug/kg	
75-34-3	1,1-Dichloroethane	ND	2.3	0.61	ug/kg	
107-06-2	1,2-Dichloroethane	ND	2.3	0.42	ug/kg	
75-35-4	1,1-Dichloroethene	ND	2.3	1.7	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	2.3	0.94	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	2.3	1.4	ug/kg	
78-87-5	1,2-Dichloropropane	ND	4.7	0.93	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	4.7	0.90	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	4.7	0.56	ug/kg	
100-41-4	Ethylbenzene	ND	2.3	0.68	ug/kg	
76-13-1	Freon 113	ND	12	1.6	ug/kg	
591-78-6	2-Hexanone	ND	12	6.5	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-102(12-13)		Date Sampled: 05/16/18
Lab Sample ID: JC66384-4		Date Received: 05/17/18
Matrix: SO - Soil		Percent Solids: 53.3
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	4.7	0.58	ug/kg	
79-20-9	Methyl Acetate	ND	12	5.9	ug/kg	
108-87-2	Methylcyclohexane	ND	4.7	1.3	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	2.3	1.0	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	12	4.2	ug/kg	
75-09-2	Methylene chloride	ND	12	5.9	ug/kg	
100-42-5	Styrene	ND	4.7	1.2	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	4.7	0.60	ug/kg	
127-18-4	Tetrachloroethene	ND	4.7	1.5	ug/kg	
108-88-3	Toluene	2.0	2.3	1.3	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	12	2.3	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	12	2.3	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	4.7	1.4	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	4.7	0.98	ug/kg	
79-01-6	Trichloroethene	ND	2.3	1.3	ug/kg	
75-69-4	Trichlorofluoromethane	ND	12	1.1	ug/kg	
75-01-4	Vinyl chloride	ND	4.7	1.8	ug/kg	
	m,p-Xylene	ND	2.3	1.3	ug/kg	
95-47-6	o-Xylene	ND	2.3	0.59	ug/kg	
1330-20-7	Xylene (total)	ND	2.3	0.59	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	76%		75-127%
17060-07-0	1,2-Dichloroethane-D4	96%		75-130%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	97%		79-127%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.4
4

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Report of Analysis

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Client Sample ID:	MW-102(12-13)	Date Sampled:	05/16/18
Lab Sample ID:	JC66384-4	Date Received:	05/17/18
Matrix:	SO - Soil	Percent Solids:	53.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M104480.D	1	05/27/18 06:12	GS	05/23/18 16:50	OP12196	E2M4641
Run #2 ^a	M146640.D	1	06/05/18 13:12	AR	06/04/18 15:00	OP12509	EM6233

Run #	Initial Weight	Final Volume
Run #1	30.8 g	1.0 ml
Run #2	15.9 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	120	30	ug/kg	R
59-50-7	4-Chloro-3-methyl phenol	ND	300	37	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	300	52	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	300	110	ug/kg	
51-28-5	2,4-Dinitrophenol ^b	ND	300	230	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	300	65	ug/kg	
95-48-7	2-Methylphenol	ND	120	39	ug/kg	
	3&4-Methylphenol	ND	120	50	ug/kg	
88-75-5	2-Nitrophenol	ND	300	40	ug/kg	
100-02-7	4-Nitrophenol ^b	ND	610	160	ug/kg	
87-86-5	Pentachlorophenol	ND	240	57	ug/kg	
108-95-2	Phenol	150	120	32	ug/kg	J
58-90-2	2,3,4,6-Tetrachlorophenol	ND	300	40	ug/kg	R
95-95-4	2,4,5-Trichlorophenol	ND	300	46	ug/kg	R
88-06-2	2,4,6-Trichlorophenol	ND	300	36	ug/kg	R
83-32-9	Acenaphthene	106	61	21	ug/kg	
208-96-8	Acenaphthylene	ND	61	31	ug/kg	
98-86-2	Acetophenone	ND	300	13	ug/kg	
120-12-7	Anthracene	84.2	61	37	ug/kg	
1912-24-9	Atrazine	ND	120	26	ug/kg	
56-55-3	Benzo(a)anthracene	156	61	17	ug/kg	
50-32-8	Benzo(a)pyrene	94.4	61	28	ug/kg	
205-99-2	Benzo(b)fluoranthene	87.5	61	27	ug/kg	
191-24-2	Benzo(g,h,i)perylene	61.0	61	30	ug/kg	
207-08-9	Benzo(k)fluoranthene	37.2	61	28	ug/kg	J
101-55-3	4-Bromophenyl phenyl ether	ND	120	24	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	120	15	ug/kg	
92-52-4	1,1'-Biphenyl	54.8	120	8.3	ug/kg	J
100-52-7	Benzaldehyde	ND	300	15	ug/kg	
91-58-7	2-Chloronaphthalene	ND	120	14	ug/kg	
106-47-8	4-Chloroaniline	ND	300	22	ug/kg	UJ
86-74-8	Carbazole	45.0	120	8.8	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-102(12-13)	Date Sampled:	05/16/18
Lab Sample ID:	JC66384-4	Date Received:	05/17/18
Matrix:	SO - Soil	Percent Solids:	53.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	120	24	ug/kg	
218-01-9	Chrysene	322	61	19	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	120	13	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	120	26	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	120	22	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	120	20	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	61	19	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	61	31	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	120	51	ug/kg	
123-91-1	1,4-Dioxane	ND	61	40	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	61	27	ug/kg	
132-64-9	Dibenzofuran	181	120	25	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	120	9.9	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	120	15	ug/kg	
84-66-2	Diethyl phthalate	ND	120	13	ug/kg	
131-11-3	Dimethyl phthalate	ND	120	11	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	120	14	ug/kg	
206-44-0	Fluoranthene	150	61	27	ug/kg	
86-73-7	Fluorene	175	61	28	ug/kg	
118-74-1	Hexachlorobenzene	ND	120	15	ug/kg	
87-68-3	Hexachlorobutadiene	ND	61	24	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	610	24	ug/kg	
67-72-1	Hexachloroethane	ND	300	30	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	48.8	61	29	ug/kg	J
78-59-1	Isophorone	ND	120	13	ug/kg	
91-57-6	2-Methylnaphthalene	244	61	14	ug/kg	
88-74-4	2-Nitroaniline	ND	300	14	ug/kg	
99-09-2	3-Nitroaniline	ND	300	15	ug/kg	
100-01-6	4-Nitroaniline	ND	300	16	ug/kg	
91-20-3	Naphthalene	614	61	17	ug/kg	
98-95-3	Nitrobenzene	ND	120	24	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	120	18	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	300	22	ug/kg	
85-01-8	Phenanthrene	475	61	20	ug/kg	
129-00-0	Pyrene	259	61	19	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	300	15	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	10% ^d	8% ^c	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-102(12-13)	Date Sampled:	05/16/18
Lab Sample ID:	JC66384-4	Date Received:	05/17/18
Matrix:	SO - Soil	Percent Solids:	53.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	42%	37%	27-114%
118-79-6	2,4,6-Tribromophenol	0% ^d	0% ^c	19-152%
4165-60-0	Nitrobenzene-d5	60%	62%	26-134%
321-60-8	2-Fluorobiphenyl	62%	62%	39-124%
1718-51-0	Terphenyl-d14	60%	70%	36-134%

- (a) Confirmation run for surrogate recoveries.
 (b) Associated CCV outside of control limits high, sample was ND.
 (c) Outside control limits due to matrix interference.
 (d) Outside control limits due to matrix interference. The results confirmed by re-extraction outside the holding time.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 1

Client Sample ID: MW-102(12-13)	Date Sampled: 05/16/18
Lab Sample ID: JC66384-4	Date Received: 05/17/18
Matrix: SO - Soil	Percent Solids: 53.3
Method: SW846 8081B SW846 3546	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	6G56628.D	1	05/26/18 11:49	DS	05/25/18 07:20	OP12247	G6G1691

Run #1	Initial Weight	Final Volume
Run #2	16.3 g	10.0 ml

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	1.2	0.95	ug/kg	UJ
319-84-6	alpha-BHC	ND	1.2	0.94	ug/kg	UJ
319-85-7	beta-BHC	ND	1.2	1.0	ug/kg	
319-86-8	delta-BHC	ND	1.2	1.1	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.2	0.85	ug/kg	UJ
5103-71-9	alpha-Chlordane	ND	1.2	0.93	ug/kg	
5103-74-2	gamma-Chlordane	ND	1.2	0.52	ug/kg	
60-57-1	Dieldrin	ND	1.2	0.79	ug/kg	
72-54-8	4,4'-DDD	ND	1.2	1.1	ug/kg	
72-55-9	4,4'-DDE	ND	1.2	1.0	ug/kg	
50-29-3	4,4'-DDT	ND	1.2	1.0	ug/kg	
72-20-8	Endrin	ND	1.2	0.89	ug/kg	
1031-07-8	Endosulfan sulfate	ND	1.2	0.90	ug/kg	
7421-93-4	Endrin aldehyde	ND	1.2	0.65	ug/kg	
959-98-8	Endosulfan-I	ND	1.2	0.66	ug/kg	
33213-65-9	Endosulfan-II	ND	1.2	0.72	ug/kg	
76-44-8	Heptachlor	ND	1.2	0.99	ug/kg	UJ
1024-57-3	Heptachlor epoxide	ND	1.2	0.81	ug/kg	
72-43-5	Methoxychlor	ND	2.3	0.92	ug/kg	
53494-70-5	Endrin ketone	ND	1.2	0.83	ug/kg	
8001-35-2	Toxaphene	ND	29	27	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	81%		25-135%
877-09-8	Tetrachloro-m-xylene	75%		25-135%
2051-24-3	Decachlorobiphenyl	54%		10-156%
2051-24-3	Decachlorobiphenyl	56%		10-156%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 1

Client Sample ID:	MW-102(12-13)	Date Sampled:	05/16/18
Lab Sample ID:	JC66384-4	Date Received:	05/17/18
Matrix:	SO - Soil	Percent Solids:	53.3
Method:	SW846 8082A SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G164453.D	1	05/28/18 08:04	TR	05/25/18 07:20	OP12244	G2G4347
Run #2							

Run #	Initial Weight	Final Volume
Run #1	16.3 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	58	23	ug/kg	
11104-28-2	Aroclor 1221	ND	58	23	ug/kg	
11141-16-5	Aroclor 1232	ND	58	15	ug/kg	
53469-21-9	Aroclor 1242	ND	58	9.2	ug/kg	
12672-29-6	Aroclor 1248	ND	58	34	ug/kg	
11097-69-1	Aroclor 1254	ND	58	14	ug/kg	
11096-82-5	Aroclor 1260	ND	58	18	ug/kg	
11100-14-4	Aroclor 1268	ND	58	8.6	ug/kg	
37324-23-5	Aroclor 1262	ND	58	4.4	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	89%		24-152%
877-09-8	Tetrachloro-m-xylene	80%		24-152%
2051-24-3	Decachlorobiphenyl	52%		10-166%
2051-24-3	Decachlorobiphenyl	45%		10-166%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-102(12-13)	Date Sampled: 05/16/18
Lab Sample ID: JC66384-4	Date Received: 05/17/18
Matrix: SO - Soil	Percent Solids: 53.3
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	1.0	0.33	mg/kg	1	05/24/18 16:57	BM	SW846 9012B/LACHAT
Solids, Percent	53.3		%	1	05/21/18 22:50	JV	SM2540 G-97

RL = Reporting Limit

4.4
4

Report of Analysis

Client Sample ID: MW-102(12-13)	Date Sampled: 05/16/18
Lab Sample ID: JC66384-4	Date Received: 05/17/18
Matrix: SO - Soil	Percent Solids: 53.3
Project: National Grid, Philly Coke, Philadelphia PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	1440	92	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁵
Antimony	< 3.7	3.7	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁵
Arsenic	9.4	3.7	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁵
Barium	< 37	37	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁵
Beryllium	< 0.37	0.37	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁵
Cadmium	< 0.92	0.92	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁵
Calcium	164000	4600	mg/kg	5	05/21/18	05/22/18	ND SW846 6010C ³	SW846 3050B ⁵
Chromium	6.6	1.8	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁵
Cobalt	< 9.2	9.2	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁵
Copper	6.0	4.6	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁵
Iron	3250	92	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁵
Lead	22.6	3.7	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁵
Magnesium	141000	4600	mg/kg	5	05/21/18	05/22/18	ND SW846 6010C ³	SW846 3050B ⁵
Manganese	216	2.8	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁵
Mercury	0.075	0.049	mg/kg	1	05/18/18	05/18/18	JA SW846 7471B ¹	SW846 7471B ⁴
Nickel	9.4	7.4	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁵
Potassium	< 1800	1800	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁵
Selenium	< 3.7	3.7	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁵
Silver ^a	< 4.6	4.6	mg/kg	5	05/21/18	05/22/18	ND SW846 6010C ³	SW846 3050B ⁵
Sodium	< 1800	1800	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁵
Thallium	< 1.8	1.8	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁵
Vanadium	10.3	9.2	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁵
Zinc	15.4	9.2	mg/kg	1	05/21/18	05/22/18	ND SW846 6010C ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA44439
- (2) Instrument QC Batch: MA44471
- (3) Instrument QC Batch: MA44478
- (4) Prep QC Batch: MP7227
- (5) Prep QC Batch: MP7257

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

4.4
4

GW
WTB

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL 732-329-0200 FAX 732-329-3499
www.sgs.com/ehsusa

FED-EX Tracking #
Bottle Order Control # **DH-052218-49**
SGS Quote #
SGS Job # **JC66927**

Client / Reporting Information			Project Information				Requested Analysis (see TEST CODE sheet)											Matrix Codes														
Company Name Arcadis			Project Name National Grid - Philadelphia Coke Site				<p>Requested Analysis Matrix:</p> <table border="1"> <tr><td>V82607C20</td><td>AT580707C20-14DX</td><td>MTAL</td><td>CN</td><td>HG</td><td>P8081PESTC</td><td>P8082TUB1</td></tr> <tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr> </table>											V82607C20	AT580707C20-14DX	MTAL	CN	HG	P8081PESTC	P8082TUB1	X	X	X	X	X	X	X	<p>DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank</p>
V82607C20	AT580707C20-14DX	MTAL	CN	HG	P8081PESTC	P8082TUB1																										
X	X	X	X	X	X	X																										
Street Address 824 N. Market St. Ste 820			Billing Information (if different from Report to)															LAB USE ONLY														
City State Zip Wilmington DE 19801			Company Name Arcadis															E48														
Project Contact Adam Wisneski, Jan Campbell			Street Address 824 N. Market St. Ste 820				A4																									
Phone # 19801			City State Zip Wilmington DE 19801				61472																									
Project # 80036790.0001			Attention:				U582																									
Client Purchase Order #			Collection																													
Lab Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Date	Time	Sampled by	Matrix	# of bottles	HCl	NH3	NO3	HPO4	NO2	D1 Water	MEOH	ENCORE																	
1	MW-106		05/29/18	14:00	AW		11	3	2	6																						
2	PCAW-145		05/29/18	14:00	IC		1		1																							
3	Trip Blank																															
Turnaround Time (Business days)			Data Deliverable Information				Comments / Special Instructions																									
<input checked="" type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day RUSH <input type="checkbox"/> 2 Day RUSH <input type="checkbox"/> 1 Day RUSH <input type="checkbox"/> other			Approved by (SGS Project Manager) Date: _____				<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ Data of Known Quality Protocol Reporting					<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format <input type="checkbox"/> Other						INITIAL ASSESSMENT <i>JR ZA</i> LABEL VERIFICATION _____														
Emergency & Rush T/A data available via LabLink			Commercial "A" = Results Only; Commercial "B" = Results + QC Summary				Sample inventory is verified upon receipt in the Laboratory																									
Sample Custody must be documented below each time samples change possession, including courier delivery.																																
Relinquished by Sampler: <i>Adam Wisneski</i>	Date Time: 5/29/18 1600	Received By: <i>Matthew Fode</i>	Date Time: 5/29/18 1840	Relinquished By: <i>Matthew Fode</i>	Date Time: 5/29/18 1840	Received By: <i>[Signature]</i>	Date Time: 5/29/18 1840	Relinquished By: <i>[Signature]</i>	Date Time: 5/29/18 1840	Received By: <i>[Signature]</i>	Date Time: 5/29/18 1840	Relinquished By: <i>[Signature]</i>	Date Time: 5/29/18 1840	Received By: <i>[Signature]</i>	Date Time: 5/29/18 1840	Relinquished By: <i>[Signature]</i>	Date Time: 5/29/18 1840															
Relinquished by:	Date Time:	Received By:	Date Time:	Relinquished by:	Date Time:	Received By:	Date Time:	Relinquished by:	Date Time:	Received By:	Date Time:	Relinquished by:	Date Time:	Received By:	Date Time:	Relinquished by:	Date Time:															
Custody Seal #														<input type="checkbox"/> Intact <input type="checkbox"/> Not intact		Preserved where applicable <input type="checkbox"/> On Ice <input checked="" type="checkbox"/> 1.8°C Temp																

5.1
5

Report of Analysis

Client Sample ID: MW-106		Date Sampled: 05/29/18
Lab Sample ID: JC66927-1		Date Received: 05/29/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D175995.D	1	05/31/18 17:53	JP	n/a	n/a	V2D7423
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane ^a	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-106		Date Sampled: 05/29/18
Lab Sample ID: JC66927-1		Date Received: 05/29/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		80-120%
17060-07-0	1,2-Dichloroethane-D4	90%		81-124%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	98%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 3

Client Sample ID: MW-106		Date Sampled: 05/29/18
Lab Sample ID: JC66927-1		Date Received: 05/29/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P79968.D	1	06/01/18 08:40	CS	05/31/18 07:15	OP12401	E2P3526
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	0.82	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	0.89	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.3	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.4	ug/l	
51-28-5	2,4-Dinitrophenol ^a	ND	5.0	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.0	1.3	ug/l	
95-48-7	2-Methylphenol	ND	2.0	0.89	ug/l	
	3&4-Methylphenol	ND	2.0	0.88	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	0.96	ug/l	
100-02-7	4-Nitrophenol	ND	10	1.2	ug/l	
87-86-5	Pentachlorophenol	ND	4.0	1.4	ug/l	
108-95-2	Phenol	ND	2.0	0.39	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol ^a	ND	5.0	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	0.92	ug/l	
83-32-9	Acenaphthene	ND	1.0	0.19	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.14	ug/l	
98-86-2	Acetophenone	ND	2.0	0.21	ug/l	
120-12-7	Anthracene	ND	1.0	0.21	ug/l	
1912-24-9	Atrazine	ND	2.0	0.45	ug/l	
100-52-7	Benzaldehyde	ND	5.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.21	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.21	ug/l	
191-24-2	Benzo(g,h,i)perylene ^a	ND	1.0	0.34	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.21	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.40	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.46	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.21	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.24	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.34	ug/l	
86-74-8	Carbazole	ND	1.0	0.23	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-106	Date Sampled:	05/29/18
Lab Sample ID:	JC66927-1	Date Received:	05/29/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.65	ug/l	
218-01-9	Chrysene	ND	1.0	0.18	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.28	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.25	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.40	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether ^a	ND	2.0	0.37	ug/l	
121-14-2	2,4-Dinitrotoluene ^a	ND	1.0	0.55	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.0	0.48	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.51	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.33	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.22	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.50	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.23	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.26	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.22	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.7	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.17	ug/l	
86-73-7	Fluorene	ND	1.0	0.17	ug/l	
118-74-1	Hexachlorobenzene	ND	1.0	0.33	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.49	ug/l	
77-47-4	Hexachlorocyclopentadiene ^a	ND	10	2.8	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.39	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene ^a	ND	1.0	0.33	ug/l	
78-59-1	Isophorone	ND	2.0	0.28	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.21	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.39	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	0.44	ug/l	
91-20-3	Naphthalene	ND	1.0	0.23	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.64	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.48	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.22	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.18	ug/l	
129-00-0	Pyrene	ND	1.0	0.22	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.37	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	34%		10-110%
4165-62-2	Phenol-d5	25%		10-110%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-106 Lab Sample ID: JC66927-1 Matrix: AQ - Ground Water Method: SW846 8270D SW846 3510C Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 05/29/18 Date Received: 05/29/18 Percent Solids: n/a
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ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	88%		36-151%
4165-60-0	Nitrobenzene-d5	67%		34-128%
321-60-8	2-Fluorobiphenyl	86%		38-119%
1718-51-0	Terphenyl-d14	60%		26-129%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID: MW-106		Date Sampled: 05/29/18
Lab Sample ID: JC66927-1		Date Received: 05/29/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8081B SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G56778.D	1	05/31/18 05:42	CP	05/30/18 16:50	OP12372	G6G1694
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	61%		13-153%
877-09-8	Tetrachloro-m-xylene	68%		13-153%
2051-24-3	Decachlorobiphenyl	21%		10-138%
2051-24-3	Decachlorobiphenyl	24%		10-138%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 1

Client Sample ID: MW-106		Date Sampled: 05/29/18
Lab Sample ID: JC66927-1		Date Received: 05/29/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8082A SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G164630.D	1	05/31/18 05:42	CP	05/30/18 16:50	OP12371	G2G4349
Run #2							

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	73%		11-166%
877-09-8	Tetrachloro-m-xylene	71%		11-166%
2051-24-3	Decachlorobiphenyl	23%		10-150%
2051-24-3	Decachlorobiphenyl	26%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-106	Date Sampled: 05/29/18
Lab Sample ID: JC66927-1	Date Received: 05/29/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	781	200	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Antimony	< 6.0	6.0	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Arsenic	< 3.0	3.0	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Barium	< 200	200	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Beryllium	< 1.0	1.0	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Cadmium	< 3.0	3.0	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Calcium	59100	5000	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Chromium	< 10	10	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Cobalt	< 50	50	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Copper	< 10	10	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Iron	20500	100	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Lead	94.4	3.0	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Magnesium	27300	5000	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Manganese	1030	15	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Mercury	< 0.20	0.20	ug/l	1	05/30/18	05/30/18	DP SW846 7470A ¹	SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Potassium	< 10000	10000	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Selenium	< 10	10	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Silver	< 10	10	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Sodium	14200	10000	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Thallium	< 2.0	2.0	ug/l	1	05/31/18	06/04/18	EAL SW846 6010C ³	SW846 3010A ⁵
Vanadium	< 50	50	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Zinc	41.6	20	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵

- (1) Instrument QC Batch: MA44537
- (2) Instrument QC Batch: MA44572
- (3) Instrument QC Batch: MA44586
- (4) Prep QC Batch: MP7394
- (5) Prep QC Batch: MP7404

RL = Reporting Limit

4.1
4

Report of Analysis

Client Sample ID: MW-106	Date Sampled: 05/29/18
Lab Sample ID: JC66927-1	Date Received: 05/29/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010	0.010	mg/l	1	06/05/18 11:50	BM	EPA 335.4/LACHAT

RL = Reporting Limit

4.1
4

Report of Analysis

Client Sample ID: PCMW-19S		Date Sampled: 05/29/18
Lab Sample ID: JC66927-2		Date Received: 05/29/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Antimony	< 6.0	6.0	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Arsenic	38.1	3.0	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Barium	< 200	200	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Beryllium	< 1.0	1.0	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Cadmium	< 3.0	3.0	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Calcium	81300	5000	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Chromium	< 10	10	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Cobalt	< 50	50	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Copper	< 10	10	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Iron	12000	100	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Lead	7.3	3.0	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Magnesium	15000	5000	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Manganese	1210	15	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Mercury	< 0.20	0.20	ug/l	1	05/30/18	05/30/18	DP SW846 7470A ¹	SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Potassium	< 10000	10000	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Selenium	< 10	10	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Silver	< 10	10	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Sodium	< 10000	10000	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Thallium	< 2.0	2.0	ug/l	1	05/31/18	06/04/18	EAL SW846 6010C ³	SW846 3010A ⁵
Vanadium	< 50	50	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵
Zinc	< 20	20	ug/l	1	05/31/18	06/01/18	EAL SW846 6010C ²	SW846 3010A ⁵

- (1) Instrument QC Batch: MA44537
- (2) Instrument QC Batch: MA44572
- (3) Instrument QC Batch: MA44586
- (4) Prep QC Batch: MP7394
- (5) Prep QC Batch: MP7404

RL = Reporting Limit

4.2
4

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Report of Analysis

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Client Sample ID: TRIP BLANK		Date Sampled: 05/29/18
Lab Sample ID: JC66927-3		Date Received: 05/29/18
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D175992.D	1	05/31/18 16:22	JP	n/a	n/a	V2D7423
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane ^a	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK	Date Sampled:	05/29/18
Lab Sample ID:	JC66927-3	Date Received:	05/29/18
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		80-120%
17060-07-0	1,2-Dichloroethane-D4	89%		81-124%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	97%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound



GW
WTS

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
 2235 Route 130, Dayton, NJ 08810
 TEL. 732-329-0200 FAX 732-329-3499
 www.sgs.com/ehsusa

PAGE OF

FED-EX Tracking #	Order Contract #
SGS Quote #	DK-052218-49
	SGS Job #
	JC67003

Client / Reporting Information			Project Information								Requested Analysis (see TEST CODE sheet)										Matrix Codes						
Company Name: Arcadis			Project Name: Philly Coke								AB070TCL20-14DX V8100TCL20 MTAL CN HG P8081PESTCL P8082RUBI										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank						
Street Address: 824 N. Market St. Suite 92			Street: Richmond St			Billing Information (if different from Report to)																	LAB USE ONLY				
City/State/Zip: Wilmington DE 19801			City/State/Zip: bridesburg PA			Company Name																					
Project Contact: Carey/Kealy			Project #					Street Address																			
Phone/Fax: 302-350-3244 / 315-671-9338			Client Purchase Order #					City/State/Zip																			
Sample(s) Name(s): Adam Wissner; Ian Labell			Project Manager					Attention:																			
Lab Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection			Matrix	# of bottles	Number of preserved bottles										LAB USE ONLY									
			Date	Time	Sampled by			HCl	NaOH	HNO3	H2SO4	H3PO4	None	DI Water	MEOH	ENCLOSURE											
1	MW-104		5/30/18	1120	AW	GW	12	3	12	6								ES									
2	MW-101			1320	AW	GW	12	3	12	6								E75									
3	MW-105			0952	AW	GW	12	3	12	6								AZO									
4	PCMW-06			1310	IC	GW	1											62212									
5	PCMW-05			1205	IC	GW	1											V598									
6	PCMW-04			1110	IC	GW	1																				
7	MW-107			0850	IC	GW	12	3	12	6																	
8	Trip Blank						2	2																			
Turnaround Time (Business days)			Data Deliverable Information								Comments / Special Instructions																
<input type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day RUSH <input type="checkbox"/> 2 Day RUSH <input type="checkbox"/> 1 Day RUSH <input type="checkbox"/> other			Approved by (SGS Project Manager)/Date: _____								<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ Data of Known Quality Protocol Reporting <small>Commercial "A" = Results Only; Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data</small>										INITIAL ASSESSMENT: <u>ZA</u>						
											<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format <input type="checkbox"/> Other										LABEL VERIFICATION: _____						
/Emergency & Rush T/A data available via LabLink			Sample inventory is verified upon receipt in the Laboratory																								
Sample custody must be documented below each time samples change possession, including courier delivery.																											
1	Relinquished By: <u>Adam Wissner</u> Date Time: <u>5/30/18 1400</u>	2	Received By: <u>[Signature]</u> Date Time: <u>5/30/18 1600</u>	3	Relinquished By: <u>[Signature]</u> Date Time: <u>5/30/18 2000</u>	4	Received By: <u>[Signature]</u> Date Time: <u>[Blank]</u>											On lot: <u>26,27,28</u>									
3	Relinquished By: <u>[Signature]</u> Date Time: <u>[Blank]</u>	4	Received By: <u>[Signature]</u> Date Time: <u>[Blank]</u>	5	Relinquished By: <u>[Signature]</u> Date Time: <u>[Blank]</u>	6	Received By: <u>[Signature]</u> Date Time: <u>[Blank]</u>																				
5	Relinquished By: <u>[Signature]</u> Date Time: <u>[Blank]</u>	6	Received By: <u>[Signature]</u> Date Time: <u>[Blank]</u>																								
								Custody Seal #		<input type="checkbox"/> Intact <input type="checkbox"/> Not Intact		Preserved where applicable <input type="checkbox"/>															

Form:SM088-03C (revised 2/12/18)

http://www.sgs.com/en/terms-and-conditions.

JC67003: Chain of Custody

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Report of Analysis

Page 1 of 2

Client Sample ID: MW-104		Date Sampled: 05/30/18
Lab Sample ID: JC67003-1		Date Received: 05/30/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4B82374.D	1	06/01/18 12:07	HT	n/a	n/a	V4B3421
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-104		Date Sampled: 05/30/18
Lab Sample ID: JC67003-1		Date Received: 05/30/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		80-120%
17060-07-0	1,2-Dichloroethane-D4	111%		81-124%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	96%		80-120%

ND = Not detected MDL = Method Detection Limit
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J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: MW-104		Date Sampled: 05/30/18
Lab Sample ID: JC67003-1		Date Received: 05/30/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P473601.D	1	06/08/18 05:15	GS	06/01/18 16:00	OP12443	E6P2238
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1050 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	4.8	0.78	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	4.8	0.85	ug/l	
120-83-2	2,4-Dichlorophenol	ND	1.9	1.2	ug/l	
105-67-9	2,4-Dimethylphenol	ND	4.8	2.3	ug/l	
51-28-5	2,4-Dinitrophenol ^a	ND	4.8	1.5	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	4.8	1.2	ug/l	
95-48-7	2-Methylphenol	ND	1.9	0.85	ug/l	
	3&4-Methylphenol	ND	1.9	0.84	ug/l	
88-75-5	2-Nitrophenol	ND	4.8	0.91	ug/l	
100-02-7	4-Nitrophenol	ND	9.5	1.1	ug/l	
87-86-5	Pentachlorophenol	ND	3.8	1.3	ug/l	
108-95-2	Phenol	ND	1.9	0.37	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	4.8	1.4	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	4.8	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	4.8	0.88	ug/l	
83-32-9	Acenaphthene	0.92	0.95	0.18	ug/l	J
208-96-8	Acenaphthylene	ND	0.95	0.13	ug/l	
98-86-2	Acetophenone	ND	1.9	0.20	ug/l	
120-12-7	Anthracene	ND	0.95	0.20	ug/l	
1912-24-9	Atrazine	ND	1.9	0.43	ug/l	
100-52-7	Benzaldehyde	ND	4.8	0.28	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.95	0.19	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.95	0.20	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.95	0.20	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.95	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.95	0.20	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	1.9	0.38	ug/l	
85-68-7	Butyl benzyl phthalate	ND	1.9	0.44	ug/l	
92-52-4	1,1'-Biphenyl	ND	0.95	0.20	ug/l	
91-58-7	2-Chloronaphthalene	ND	1.9	0.22	ug/l	
106-47-8	4-Chloroaniline	ND	4.8	0.32	ug/l	
86-74-8	Carbazole	ND	0.95	0.22	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-104		Date Sampled: 05/30/18
Lab Sample ID: JC67003-1		Date Received: 05/30/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	1.9	0.62	ug/l	
218-01-9	Chrysene	ND	0.95	0.17	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	1.9	0.26	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	1.9	0.24	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	1.9	0.38	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	1.9	0.35	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	0.95	0.53	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	0.95	0.45	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	1.9	0.48	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.95	0.32	ug/l	
132-64-9	Dibenzofuran	ND	4.8	0.21	ug/l	
84-74-2	Di-n-butyl phthalate	ND	1.9	0.47	ug/l	
117-84-0	Di-n-octyl phthalate	ND	1.9	0.22	ug/l	
84-66-2	Diethyl phthalate	ND	1.9	0.25	ug/l	
131-11-3	Dimethyl phthalate	ND	1.9	0.21	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	1.9	1.6	ug/l	
206-44-0	Fluoranthene	0.57	0.95	0.16	ug/l	J
86-73-7	Fluorene	0.48	0.95	0.16	ug/l	J
118-74-1	Hexachlorobenzene	ND	0.95	0.31	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.95	0.47	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	9.5	2.6	ug/l	
67-72-1	Hexachloroethane	ND	1.9	0.37	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.95	0.32	ug/l	
78-59-1	Isophorone	ND	1.9	0.26	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.95	0.20	ug/l	
88-74-4	2-Nitroaniline	ND	4.8	0.26	ug/l	
99-09-2	3-Nitroaniline	ND	4.8	0.37	ug/l	
100-01-6	4-Nitroaniline	ND	4.8	0.42	ug/l	
91-20-3	Naphthalene	ND	0.95	0.22	ug/l	
98-95-3	Nitrobenzene	ND	1.9	0.61	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	1.9	0.46	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	4.8	0.21	ug/l	
85-01-8	Phenanthrene	ND	0.95	0.17	ug/l	
129-00-0	Pyrene	0.57	0.95	0.21	ug/l	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	1.9	0.35	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	33%		10-110%
4165-62-2	Phenol-d5	23%		10-110%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-104 Lab Sample ID: JC67003-1 Matrix: AQ - Ground Water Method: SW846 8270D SW846 3510C Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 05/30/18 Date Received: 05/30/18 Percent Solids: n/a
---	---

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	82%		36-151%
4165-60-0	Nitrobenzene-d5	69%		34-128%
321-60-8	2-Fluorobiphenyl	71%		38-119%
1718-51-0	Terphenyl-d14	76%		26-129%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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4

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Report of Analysis

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Client Sample ID: MW-104	Date Sampled: 05/30/18
Lab Sample ID: JC67003-1	Date Received: 05/30/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8081B SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G56983.D	1	06/06/18 11:41	RK	06/01/18 19:40	OP12449	G6G1701
Run #2 ^a	8G15850.D	5	06/12/18 13:27	DS	06/01/18 19:40	OP12449	G8G513

Run #	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2	300 ml	2.0 ml

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	3% ^b	85%	13-153%
877-09-8	Tetrachloro-m-xylene	60%	89%	13-153%
2051-24-3	Decachlorobiphenyl	1% ^b	55%	10-138%
2051-24-3	Decachlorobiphenyl	38%	54%	10-138%

(a) Confirmation run.

(b) Outside control limits due to matrix interference with the internal standard.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 1

Client Sample ID: MW-104		
Lab Sample ID: JC67003-1		Date Sampled: 05/30/18
Matrix: AQ - Ground Water		Date Received: 05/30/18
Method: SW846 8082A SW846 3510C		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX229852.D	1	06/03/18 05:02	EAL	06/01/18 19:40	OP12448	GXX6375
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	63%		11-166%
877-09-8	Tetrachloro-m-xylene	60%		11-166%
2051-24-3	Decachlorobiphenyl	34%		10-150%
2051-24-3	Decachlorobiphenyl	36%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-104 Lab Sample ID: JC67003-1 Matrix: AQ - Ground Water Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 05/30/18 Date Received: 05/30/18 Percent Solids: n/a
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Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	1080	200	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Antimony	< 6.0	6.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Arsenic	4.1	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Barium	< 200	200	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Beryllium	< 1.0	1.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Cadmium	< 3.0	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Calcium	60200	5000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Chromium	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Cobalt	< 50	50	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Copper	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Iron	2900	100	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Lead	7.7	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁵
Magnesium	10800	5000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Manganese	639	15	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Mercury	< 0.20	0.20	ug/l	1	06/01/18	06/01/18	DP	SW846 7470A ¹ SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Potassium	< 10000	10000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Selenium	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Silver	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Sodium	< 10000	10000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Thallium	< 2.0	2.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁵
Vanadium	< 50	50	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Zinc	34.1	20	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵

- (1) Instrument QC Batch: MA44562
- (2) Instrument QC Batch: MA44612
- (3) Instrument QC Batch: MA44616
- (4) Prep QC Batch: MP7430
- (5) Prep QC Batch: MP7493

RL = Reporting Limit

4.1
4

Report of Analysis

Client Sample ID: MW-104	Date Sampled: 05/30/18
Lab Sample ID: JC67003-1	Date Received: 05/30/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.67	0.010	mg/l	1	06/05/18 14:08	BM	EPA 335.4/LACHAT

RL = Reporting Limit

4.1
4

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Report of Analysis

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Client Sample ID: MW-101		Date Sampled: 05/30/18
Lab Sample ID: JC67003-2		Date Received: 05/30/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2B160775.D	1	06/01/18 02:25	DG	n/a	n/a	V2B7179
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	3.8	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane ^a	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane ^a	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane ^b	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	0.23	1.0	0.22	ug/l	J
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-101		Date Sampled: 05/30/18
Lab Sample ID: JC67003-2		Date Received: 05/30/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride ^a	ND	1.0	0.62	ug/l	
	m,p-Xylene	0.59	1.0	0.43	ug/l	J
95-47-6	o-Xylene	1.7	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	2.3	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	118%		80-120%
17060-07-0	1,2-Dichloroethane-D4	107%		81-124%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	103%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits high, sample was ND. This compound in BS is outside in house QC limits bias high.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: MW-101		
Lab Sample ID: JC67003-2		Date Sampled: 05/30/18
Matrix: AQ - Ground Water		Date Received: 05/30/18
Method: SW846 8270D SW846 3510C		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P473602.D	1	06/08/18 05:40	GS	06/01/18 16:00	OP12443	E6P2238
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	0.82	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	0.89	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.3	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.4	ug/l	
51-28-5	2,4-Dinitrophenol ^a	ND	5.0	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.0	1.3	ug/l	
95-48-7	2-Methylphenol	ND	2.0	0.89	ug/l	
	3&4-Methylphenol	ND	2.0	0.88	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	0.96	ug/l	
100-02-7	4-Nitrophenol	ND	10	1.2	ug/l	
87-86-5	Pentachlorophenol	ND	4.0	1.4	ug/l	
108-95-2	Phenol	ND	2.0	0.39	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.0	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	0.92	ug/l	
83-32-9	Acenaphthene	0.76	1.0	0.19	ug/l	J
208-96-8	Acenaphthylene	ND	1.0	0.14	ug/l	
98-86-2	Acetophenone	ND	2.0	0.21	ug/l	
120-12-7	Anthracene	ND	1.0	0.21	ug/l	
1912-24-9	Atrazine	ND	2.0	0.45	ug/l	
100-52-7	Benzaldehyde	ND	5.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.21	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.21	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.34	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.21	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.40	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.46	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.21	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.24	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.34	ug/l	
86-74-8	Carbazole	0.70	1.0	0.23	ug/l	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-101	Date Sampled:	05/30/18
Lab Sample ID:	JC67003-2	Date Received:	05/30/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.65	ug/l	
218-01-9	Chrysene	ND	1.0	0.18	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.28	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.25	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.40	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.37	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.0	0.55	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.0	0.48	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.51	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.33	ug/l	
132-64-9	Dibenzofuran	0.44	5.0	0.22	ug/l	J
84-74-2	Di-n-butyl phthalate	ND	2.0	0.50	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.23	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.26	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.22	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.7	ug/l	
206-44-0	Fluoranthene	0.44	1.0	0.17	ug/l	J
86-73-7	Fluorene	0.85	1.0	0.17	ug/l	J
118-74-1	Hexachlorobenzene	ND	1.0	0.33	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.49	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	2.8	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.39	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.33	ug/l	
78-59-1	Isophorone	ND	2.0	0.28	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.21	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.39	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	0.44	ug/l	
91-20-3	Naphthalene	1.9	1.0	0.23	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.64	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.48	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.22	ug/l	
85-01-8	Phenanthrene	1.1	1.0	0.18	ug/l	
129-00-0	Pyrene	ND	1.0	0.22	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.37	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	39%		10-110%
4165-62-2	Phenol-d5	27%		10-110%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-101 Lab Sample ID: JC67003-2 Matrix: AQ - Ground Water Method: SW846 8270D SW846 3510C Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 05/30/18 Date Received: 05/30/18 Percent Solids: n/a
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ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	74%		36-151%
4165-60-0	Nitrobenzene-d5	68%		34-128%
321-60-8	2-Fluorobiphenyl	71%		38-119%
1718-51-0	Terphenyl-d14	64%		26-129%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.2
4

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Report of Analysis

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Client Sample ID: MW-101		
Lab Sample ID: JC67003-2		Date Sampled: 05/30/18
Matrix: AQ - Ground Water		Date Received: 05/30/18
Method: SW846 8081B SW846 3510C		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G56984.D	1	06/06/18 11:59	RK	06/01/18 19:40	OP12449	G6G1701
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	70%		13-153%
877-09-8	Tetrachloro-m-xylene	69%		13-153%
2051-24-3	Decachlorobiphenyl	53%		10-138%
2051-24-3	Decachlorobiphenyl	53%		10-138%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 1

Client Sample ID: MW-101		Date Sampled: 05/30/18
Lab Sample ID: JC67003-2		Date Received: 05/30/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8082A SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX229853.D	1	06/03/18 05:18	EAL	06/01/18 19:40	OP12448	GXX6375
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	69%		11-166%
877-09-8	Tetrachloro-m-xylene	73%		11-166%
2051-24-3	Decachlorobiphenyl	52%		10-150%
2051-24-3	Decachlorobiphenyl	53%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-101		Date Sampled: 05/30/18
Lab Sample ID: JC67003-2		Date Received: 05/30/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	508	200	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Antimony	< 6.0	6.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Arsenic	< 3.0	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Barium	543	200	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Beryllium	< 1.0	1.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Cadmium	< 3.0	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Calcium	112000	5000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Chromium	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Cobalt	< 50	50	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Copper	12.2	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Iron	2600	100	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Lead	60.7	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁵
Magnesium	63000	5000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Manganese	156	15	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Mercury	< 0.20	0.20	ug/l	1	06/01/18	06/01/18	DP	SW846 7470A ¹ SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Potassium	< 10000	10000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Selenium	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Silver	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Sodium	37000	10000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Thallium	< 2.0	2.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁵
Vanadium	< 50	50	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Zinc	54.5	20	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵

- (1) Instrument QC Batch: MA44562
- (2) Instrument QC Batch: MA44612
- (3) Instrument QC Batch: MA44616
- (4) Prep QC Batch: MP7430
- (5) Prep QC Batch: MP7493

RL = Reporting Limit

4.2
4

Report of Analysis

Client Sample ID: MW-101	Date Sampled: 05/30/18
Lab Sample ID: JC67003-2	Date Received: 05/30/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.20	0.010	mg/l	1	06/05/18 14:12	BM	EPA 335.4/LACHAT

RL = Reporting Limit

4.2
4

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Report of Analysis

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Client Sample ID: MW-105		Date Sampled: 05/30/18
Lab Sample ID: JC67003-3		Date Received: 05/30/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2B160776.D	1	06/01/18 02:54	DG	n/a	n/a	V2B7179
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane ^a	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane ^a	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane ^b	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-105		Date Sampled: 05/30/18
Lab Sample ID: JC67003-3		Date Received: 05/30/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride ^a	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	119%		80-120%
17060-07-0	1,2-Dichloroethane-D4	106%		81-124%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	104%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits high, sample was ND. This compound in BS is outside in house QC limits bias high.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 3

Client Sample ID: MW-105		Date Sampled: 05/30/18
Lab Sample ID: JC67003-3		Date Received: 05/30/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P473603.D	1	06/08/18 06:04	GS	06/01/18 16:00	OP12443	E6P2238
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	1050 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	4.8	0.78	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	4.8	0.85	ug/l	
120-83-2	2,4-Dichlorophenol	ND	1.9	1.2	ug/l	
105-67-9	2,4-Dimethylphenol	ND	4.8	2.3	ug/l	
51-28-5	2,4-Dinitrophenol ^a	ND	4.8	1.5	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	4.8	1.2	ug/l	
95-48-7	2-Methylphenol	ND	1.9	0.85	ug/l	
	3&4-Methylphenol	ND	1.9	0.84	ug/l	
88-75-5	2-Nitrophenol	ND	4.8	0.91	ug/l	
100-02-7	4-Nitrophenol	ND	9.5	1.1	ug/l	
87-86-5	Pentachlorophenol	ND	3.8	1.3	ug/l	
108-95-2	Phenol	ND	1.9	0.37	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	4.8	1.4	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	4.8	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	4.8	0.88	ug/l	
83-32-9	Acenaphthene	1.3	0.95	0.18	ug/l	
208-96-8	Acenaphthylene	ND	0.95	0.13	ug/l	
98-86-2	Acetophenone	ND	1.9	0.20	ug/l	
120-12-7	Anthracene	ND	0.95	0.20	ug/l	
1912-24-9	Atrazine	ND	1.9	0.43	ug/l	
100-52-7	Benzaldehyde	ND	4.8	0.28	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.95	0.19	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.95	0.20	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.95	0.20	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.95	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.95	0.20	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	1.9	0.38	ug/l	
85-68-7	Butyl benzyl phthalate	ND	1.9	0.44	ug/l	
92-52-4	1,1'-Biphenyl	ND	0.95	0.20	ug/l	
91-58-7	2-Chloronaphthalene	ND	1.9	0.22	ug/l	
106-47-8	4-Chloroaniline	ND	4.8	0.32	ug/l	
86-74-8	Carbazole	ND	0.95	0.22	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-105		Date Sampled: 05/30/18
Lab Sample ID: JC67003-3		Date Received: 05/30/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	1.9	0.62	ug/l	
218-01-9	Chrysene	ND	0.95	0.17	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	1.9	0.26	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	1.9	0.24	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	1.9	0.38	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	1.9	0.35	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	0.95	0.53	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	0.95	0.45	ug/l	
91-94-1	3,3' -Dichlorobenzidine	ND	1.9	0.48	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.95	0.32	ug/l	
132-64-9	Dibenzofuran	ND	4.8	0.21	ug/l	
84-74-2	Di-n-butyl phthalate	ND	1.9	0.47	ug/l	
117-84-0	Di-n-octyl phthalate	ND	1.9	0.22	ug/l	
84-66-2	Diethyl phthalate	ND	1.9	0.25	ug/l	
131-11-3	Dimethyl phthalate	ND	1.9	0.21	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	1.9	1.6	ug/l	
206-44-0	Fluoranthene	0.45	0.95	0.16	ug/l	J
86-73-7	Fluorene	ND	0.95	0.16	ug/l	
118-74-1	Hexachlorobenzene	ND	0.95	0.31	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.95	0.47	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	9.5	2.6	ug/l	
67-72-1	Hexachloroethane	ND	1.9	0.37	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.95	0.32	ug/l	
78-59-1	Isophorone	ND	1.9	0.26	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.95	0.20	ug/l	
88-74-4	2-Nitroaniline	ND	4.8	0.26	ug/l	
99-09-2	3-Nitroaniline	ND	4.8	0.37	ug/l	
100-01-6	4-Nitroaniline	ND	4.8	0.42	ug/l	
91-20-3	Naphthalene	ND	0.95	0.22	ug/l	
98-95-3	Nitrobenzene	ND	1.9	0.61	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	1.9	0.46	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	4.8	0.21	ug/l	
85-01-8	Phenanthrene	ND	0.95	0.17	ug/l	
129-00-0	Pyrene	0.47	0.95	0.21	ug/l	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	1.9	0.35	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	39%		10-110%
4165-62-2	Phenol-d5	27%		10-110%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-105 Lab Sample ID: JC67003-3 Matrix: AQ - Ground Water Method: SW846 8270D SW846 3510C Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 05/30/18 Date Received: 05/30/18 Percent Solids: n/a
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ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	75%		36-151%
4165-60-0	Nitrobenzene-d5	70%		34-128%
321-60-8	2-Fluorobiphenyl	70%		38-119%
1718-51-0	Terphenyl-d14	65%		26-129%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID: MW-105		Date Sampled: 05/30/18
Lab Sample ID: JC67003-3		Date Received: 05/30/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8081B SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G56985.D	1	06/06/18 12:17	RK	06/01/18 19:40	OP12449	G6G1701
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	62%		13-153%
877-09-8	Tetrachloro-m-xylene	68%		13-153%
2051-24-3	Decachlorobiphenyl	34%		10-138%
2051-24-3	Decachlorobiphenyl	38%		10-138%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: MW-105		
Lab Sample ID: JC67003-3		Date Sampled: 05/30/18
Matrix: AQ - Ground Water		Date Received: 05/30/18
Method: SW846 8082A SW846 3510C		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX229854.D	1	06/03/18 05:35	EAL	06/01/18 19:40	OP12448	GXX6375
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	76%		11-166%
877-09-8	Tetrachloro-m-xylene	83%		11-166%
2051-24-3	Decachlorobiphenyl	46%		10-150%
2051-24-3	Decachlorobiphenyl	45%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-105		Date Sampled: 05/30/18
Lab Sample ID: JC67003-3		Date Received: 05/30/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Antimony	< 6.0	6.0	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Arsenic	< 3.0	3.0	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Barium	< 200	200	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Beryllium	< 1.0	1.0	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Cadmium	< 3.0	3.0	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Calcium	242000	5000	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Chromium	< 10	10	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Cobalt	< 50	50	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Copper	< 10	10	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Iron	42600	100	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Lead ^a	< 15	15	ug/l	5	06/05/18	06/08/18	ND SW846 6010C ³	SW846 3010A ⁵
Magnesium	42500	5000	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Manganese	2330	15	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Mercury	< 0.20	0.20	ug/l	1	06/01/18	06/01/18	DP SW846 7470A ¹	SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Potassium	< 10000	10000	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Selenium	< 10	10	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Silver	< 10	10	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Sodium	14600	10000	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Thallium ^a	< 10	10	ug/l	5	06/05/18	06/08/18	ND SW846 6010C ³	SW846 3010A ⁵
Vanadium	< 50	50	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Zinc	< 20	20	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵

- (1) Instrument QC Batch: MA44562
- (2) Instrument QC Batch: MA44612
- (3) Instrument QC Batch: MA44616
- (4) Prep QC Batch: MP7430
- (5) Prep QC Batch: MP7493

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

4.3
4

Report of Analysis

Client Sample ID: MW-105	Date Sampled: 05/30/18
Lab Sample ID: JC67003-3	Date Received: 05/30/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.11	0.010	mg/l	1	06/05/18 14:13	BM	EPA 335.4/LACHAT

RL = Reporting Limit

4.3
4

Report of Analysis

Client Sample ID: PCMW-06 Lab Sample ID: JC67003-4 Matrix: AQ - Ground Water Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 05/30/18 Date Received: 05/30/18 Percent Solids: n/a
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Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Antimony	< 6.0	6.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Arsenic	< 3.0	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Barium	227	200	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Beryllium	< 1.0	1.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Cadmium	< 3.0	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Calcium	82900	5000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Chromium	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Cobalt	< 50	50	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Copper	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Iron	912	100	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Lead	24.1	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁵
Magnesium	8650	5000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Manganese	45.4	15	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Mercury	< 0.20	0.20	ug/l	1	06/01/18	06/01/18	DP	SW846 7470A ¹ SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Potassium	< 10000	10000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Selenium	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Silver	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Sodium	< 10000	10000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Thallium	< 2.0	2.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁵
Vanadium	< 50	50	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Zinc	117	20	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵

- (1) Instrument QC Batch: MA44562
- (2) Instrument QC Batch: MA44612
- (3) Instrument QC Batch: MA44616
- (4) Prep QC Batch: MP7430
- (5) Prep QC Batch: MP7493

RL = Reporting Limit

4.4
4

Report of Analysis

Client Sample ID: PCMW-05 Lab Sample ID: JC67003-5 Matrix: AQ - Ground Water Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 05/30/18 Date Received: 05/30/18 Percent Solids: n/a
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Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Antimony	< 6.0	6.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Arsenic	4.2	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Barium	318	200	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Beryllium	< 1.0	1.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Cadmium	< 3.0	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Calcium	159000	5000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Chromium	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Cobalt	< 50	50	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Copper	28.4	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Iron	2990	100	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Lead	80.1	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁵
Magnesium	14600	5000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Manganese	360	15	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Mercury	< 0.20	0.20	ug/l	1	06/01/18	06/01/18	DP	SW846 7470A ¹ SW846 7470A ⁴
Nickel	524	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Potassium	< 10000	10000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Selenium	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Silver	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Sodium	< 10000	10000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Thallium	< 2.0	2.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁵
Vanadium	< 50	50	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Zinc	2070	20	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵

- (1) Instrument QC Batch: MA44562
- (2) Instrument QC Batch: MA44612
- (3) Instrument QC Batch: MA44616
- (4) Prep QC Batch: MP7430
- (5) Prep QC Batch: MP7493

RL = Reporting Limit

4.5
4

Report of Analysis

Client Sample ID: PCMW-04 Lab Sample ID: JC67003-6 Matrix: AQ - Ground Water Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 05/30/18 Date Received: 05/30/18 Percent Solids: n/a
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Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Antimony	< 6.0	6.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Arsenic	3.7	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Barium	< 200	200	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Beryllium	< 1.0	1.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Cadmium	< 3.0	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Calcium	97200	5000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁵
Chromium	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Cobalt	< 50	50	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Copper	14.9	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Iron	8270	100	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁵
Lead	9.0	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁵
Magnesium	33900	5000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁵
Manganese	593	15	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Mercury	< 0.20	0.20	ug/l	1	06/01/18	06/01/18	DP	SW846 7470A ¹ SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Potassium	13700	10000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Selenium	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Silver	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Sodium	< 10000	10000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Thallium	< 2.0	2.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁵
Vanadium	< 50	50	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵
Zinc	< 20	20	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁵

- (1) Instrument QC Batch: MA44562
- (2) Instrument QC Batch: MA44612
- (3) Instrument QC Batch: MA44616
- (4) Prep QC Batch: MP7430
- (5) Prep QC Batch: MP7493

RL = Reporting Limit

4.6
4

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Report of Analysis

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Client Sample ID: MW-107		Date Sampled: 05/30/18
Lab Sample ID: JC67003-7		Date Received: 05/30/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2B160777.D	1	06/01/18 03:24	DG	n/a	n/a	V2B7179
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane ^a	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane ^a	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane ^b	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-107		Date Sampled: 05/30/18
Lab Sample ID: JC67003-7		Date Received: 05/30/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	20.7	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride ^a	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	118%		80-120%
17060-07-0	1,2-Dichloroethane-D4	107%		81-124%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	104%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits high, sample was ND. This compound in BS is outside in house QC limits bias high.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: MW-107		Date Sampled: 05/30/18
Lab Sample ID: JC67003-7		Date Received: 05/30/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P473604.D	1	06/08/18 06:29	GS	06/01/18 16:00	OP12443	E6P2238
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	950 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.3	0.86	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.3	0.94	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.1	1.3	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.3	2.6	ug/l	
51-28-5	2,4-Dinitrophenol ^a	ND	5.3	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.3	1.4	ug/l	
95-48-7	2-Methylphenol	ND	2.1	0.93	ug/l	
	3&4-Methylphenol	ND	2.1	0.93	ug/l	
88-75-5	2-Nitrophenol	ND	5.3	1.0	ug/l	
100-02-7	4-Nitrophenol	ND	11	1.2	ug/l	
87-86-5	Pentachlorophenol	ND	4.2	1.5	ug/l	
108-95-2	Phenol	ND	2.1	0.41	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.3	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.3	1.4	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.3	0.97	ug/l	
83-32-9	Acenaphthene	ND	1.1	0.20	ug/l	
208-96-8	Acenaphthylene	0.46	1.1	0.14	ug/l	J
98-86-2	Acetophenone	ND	2.1	0.22	ug/l	
120-12-7	Anthracene	ND	1.1	0.22	ug/l	
1912-24-9	Atrazine	ND	2.1	0.47	ug/l	
100-52-7	Benzaldehyde	ND	5.3	0.30	ug/l	
56-55-3	Benzo(a)anthracene	1.3	1.1	0.21	ug/l	
50-32-8	Benzo(a)pyrene	1.2	1.1	0.22	ug/l	
205-99-2	Benzo(b)fluoranthene	1.7	1.1	0.22	ug/l	
191-24-2	Benzo(g,h,i)perylene	0.95	1.1	0.36	ug/l	J
207-08-9	Benzo(k)fluoranthene	0.53	1.1	0.22	ug/l	J
101-55-3	4-Bromophenyl phenyl ether	ND	2.1	0.43	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.1	0.48	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.1	0.22	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.1	0.25	ug/l	
106-47-8	4-Chloroaniline	ND	5.3	0.36	ug/l	
86-74-8	Carbazole	ND	1.1	0.24	ug/l	

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Report of Analysis

Client Sample ID: MW-107		Date Sampled: 05/30/18
Lab Sample ID: JC67003-7		Date Received: 05/30/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.1	0.68	ug/l	
218-01-9	Chrysene	1.1	1.1	0.19	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.1	0.29	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.1	0.26	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.1	0.42	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.1	0.39	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.1	0.58	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.1	0.50	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.1	0.53	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.1	0.35	ug/l	
132-64-9	Dibenzofuran	ND	5.3	0.23	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.1	0.52	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.1	0.25	ug/l	
84-66-2	Diethyl phthalate	ND	2.1	0.28	ug/l	
131-11-3	Dimethyl phthalate	ND	2.1	0.23	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.1	1.7	ug/l	
206-44-0	Fluoranthene	2.6	1.1	0.18	ug/l	
86-73-7	Fluorene	ND	1.1	0.18	ug/l	
118-74-1	Hexachlorobenzene	ND	1.1	0.34	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.1	0.52	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	11	2.9	ug/l	
67-72-1	Hexachloroethane	ND	2.1	0.41	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	0.74	1.1	0.35	ug/l	J
78-59-1	Isophorone	ND	2.1	0.29	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.1	0.22	ug/l	
88-74-4	2-Nitroaniline	ND	5.3	0.29	ug/l	
99-09-2	3-Nitroaniline	ND	5.3	0.41	ug/l	
100-01-6	4-Nitroaniline	ND	5.3	0.46	ug/l	
91-20-3	Naphthalene	ND	1.1	0.24	ug/l	
98-95-3	Nitrobenzene	ND	2.1	0.68	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.1	0.51	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.3	0.23	ug/l	
85-01-8	Phenanthrene	0.98	1.1	0.18	ug/l	J
129-00-0	Pyrene	2.0	1.1	0.23	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.1	0.39	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	39%		10-110%
4165-62-2	Phenol-d5	27%		10-110%

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Report of Analysis

Client Sample ID: MW-107 Lab Sample ID: JC67003-7 Matrix: AQ - Ground Water Method: SW846 8270D SW846 3510C Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 05/30/18 Date Received: 05/30/18 Percent Solids: n/a
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ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	75%		36-151%
4165-60-0	Nitrobenzene-d5	72%		34-128%
321-60-8	2-Fluorobiphenyl	72%		38-119%
1718-51-0	Terphenyl-d14	66%		26-129%

(a) Associated CCV outside of control limits high, sample was ND.

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J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.7
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Report of Analysis

Client Sample ID: MW-107		Date Sampled: 05/30/18
Lab Sample ID: JC67003-7		Date Received: 05/30/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8081B SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G56986.D	1	06/06/18 12:35	RK	06/01/18 19:40	OP12449	G6G1701
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	71%		13-153%
877-09-8	Tetrachloro-m-xylene	65%		13-153%
2051-24-3	Decachlorobiphenyl	38%		10-138%
2051-24-3	Decachlorobiphenyl	40%		10-138%

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Report of Analysis

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Client Sample ID: MW-107		
Lab Sample ID: JC67003-7		Date Sampled: 05/30/18
Matrix: AQ - Ground Water		Date Received: 05/30/18
Method: SW846 8082A SW846 3510C		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX229855.D	1	06/03/18 05:51	EAL	06/01/18 19:40	OP12448	GXX6375
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	65%		11-166%
877-09-8	Tetrachloro-m-xylene	73%		11-166%
2051-24-3	Decachlorobiphenyl	35%		10-150%
2051-24-3	Decachlorobiphenyl	38%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-107 Lab Sample ID: JC67003-7 Matrix: AQ - Ground Water Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 05/30/18 Date Received: 05/30/18 Percent Solids: n/a
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Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	1570	200	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Antimony	< 6.0	6.0	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Arsenic	9.4	3.0	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Barium	242	200	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Beryllium	< 1.0	1.0	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Cadmium	< 3.0	3.0	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Calcium	104000	5000	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Chromium	< 10	10	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Cobalt	< 50	50	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Copper	16.8	10	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Iron	17100	100	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Lead	206	3.0	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ³	SW846 3010A ⁵
Magnesium	44200	5000	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Manganese	1120	15	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Mercury	< 0.20	0.20	ug/l	1	06/01/18	06/01/18	DP SW846 7470A ¹	SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Potassium	16400	10000	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Selenium	< 10	10	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Silver	< 10	10	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Sodium	12000	10000	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Thallium	< 2.0	2.0	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ³	SW846 3010A ⁵
Vanadium	< 50	50	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵
Zinc	135	20	ug/l	1	06/05/18	06/08/18	ND SW846 6010C ²	SW846 3010A ⁵

- (1) Instrument QC Batch: MA44562
- (2) Instrument QC Batch: MA44612
- (3) Instrument QC Batch: MA44616
- (4) Prep QC Batch: MP7430
- (5) Prep QC Batch: MP7493

RL = Reporting Limit

4.7
4

Report of Analysis

Client Sample ID: MW-107	Date Sampled: 05/30/18
Lab Sample ID: JC67003-7	Date Received: 05/30/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010	0.010	mg/l	1	06/05/18 14:15	BM	EPA 335.4/LACHAT

RL = Reporting Limit

4.7
4

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Report of Analysis

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Client Sample ID: TRIP BLANK		Date Sampled: 05/30/18
Lab Sample ID: JC67003-8		Date Received: 05/30/18
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2B160773.D	1	06/01/18 01:25	DG	n/a	n/a	V2B7179
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane	ND	2.0	1.4	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane ^a	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane ^a	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane ^b	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

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J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK	Date Sampled:	05/30/18
Lab Sample ID:	JC67003-8	Date Received:	05/30/18
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride ^a	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	120%		80-120%
17060-07-0	1,2-Dichloroethane-D4	107%		81-124%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	104%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits high, sample was ND. This compound in BS is outside in house QC limits bias high.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



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Client / Reporting Information Company Name: Alcadis Street Address: 824 N. Market St. Suite 820 City: Wilmington DE Zip: 19801 Project Contact: Carey Healy E-mail: Lawrence.Healy@alcadis.com Phone #: 302-323-2629 Fax #: Sampler(s) Name(s): Adam Wisner, Jan Campbell Phone #: 302-323-2629		Project Information Project Name: Philly Coke Street: Richmond St & Latimer St. City: Bridgeburg PA Company Name: Project #: Client Purchase Order #: Project Manager: Attention:		Requested Analysis (see TEST CODE sheet) VB2607C L20 AB 82707C L20-14 DX MTAL CN HG P8081PESTICL P8082ARB11		Matrix Codes DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment CI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank	
Billing Information (if different from Report to) Company Name: Street Address: City: State: Zip:		Matrix Codes LAB USE ONLY E25 E104 A32 G2273 V618					
Turnaround Time (Business days) <input type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day RUSH <input type="checkbox"/> 2 Day RUSH <input type="checkbox"/> 1 Day RUSH <input type="checkbox"/> other		Approved By (SGS Accutest PM) / Date:		Data Deliverable Information <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ Data of Known Quality Protocol Reporting Commercial "A" = Results Only, Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data		Comments / Special Instructions INITIAL ASSESSMENT 3/31/18 LABEL VERIFICATION	
Emergency & Rush T/A data available VIA Lablink		Sample Custody must be documented below each time samples change possession, including courier delivery.					
Relinquished by: [Signature] Date/Time: 3/31/18 1345		Received By: [Signature] Date/Time: 3/31/18 2110		Relinquished by: [Signature] Date/Time: 5/31/18		Received By: [Signature] Date/Time:	
Relinquished by: Date/Time:		Received By: Date/Time:		Custody Seal # <input type="checkbox"/> Intact <input type="checkbox"/> Not intact		Preserved when applicable <input type="checkbox"/> On Ice <input type="checkbox"/> Cooler Temp. 2.1, 1.6, 1.9 cool	

5.1
5

Form SM088-01C Rev. Date 9/13/16



Report of Analysis

Client Sample ID: PCMW-08S Lab Sample ID: JC67110-1 Matrix: AQ - Ground Water Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 05/31/18 Date Received: 05/31/18 Percent Solids: n/a
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Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Antimony	6.0	6.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Arsenic	34.6	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Barium	< 200	200	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Calcium	155000	5000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Copper	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Iron	9500	100	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Lead	12.6	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁴
Magnesium	126000	5000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Manganese	676	15	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	06/06/18	06/06/18	DP	SW846 7470A ¹ SW846 7470A ⁵
Nickel	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Potassium	17900	10000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Silver	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Sodium	16400	10000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Zinc	57.1	20	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴

- (1) Instrument QC Batch: MA44592
- (2) Instrument QC Batch: MA44612
- (3) Instrument QC Batch: MA44616
- (4) Prep QC Batch: MP7493
- (5) Prep QC Batch: MP7513

RL = Reporting Limit

4.1
4

Report of Analysis

Client Sample ID: PCMW-09S	Date Sampled: 05/31/18
Lab Sample ID: JC67110-2	Date Received: 05/31/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Arsenic	7.4	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Barium	< 200	200	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Calcium	169000	5000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Copper	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Iron	6170	100	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Lead	5.3	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁴
Magnesium	100000	5000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Manganese	488	15	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	06/06/18	06/06/18	DP	SW846 7470A ¹ SW846 7470A ⁵
Nickel	11.3	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Potassium	11800	10000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Silver	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Sodium	18300	10000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Zinc	24.6	20	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴

- (1) Instrument QC Batch: MA44592
- (2) Instrument QC Batch: MA44612
- (3) Instrument QC Batch: MA44616
- (4) Prep QC Batch: MP7493
- (5) Prep QC Batch: MP7513

RL = Reporting Limit

4.2
4

SGS LabLink@1003731 16:46 15-Jun-2018

Report of Analysis

Page 1 of 2

Client Sample ID: MW-102		Date Sampled: 05/31/18
Lab Sample ID: JC67110-3		Date Received: 05/31/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	L301859.D	1	06/02/18 16:13	DG	n/a	n/a	VL8605
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane ^b	ND	2.0	1.4	ug/l	UJ
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane ^c	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-102		Date Sampled: 05/31/18
Lab Sample ID: JC67110-3		Date Received: 05/31/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%		80-120%
17060-07-0	1,2-Dichloroethane-D4	108%		81-124%
2037-26-5	Toluene-D8	114%		80-120%
460-00-4	4-Bromofluorobenzene	99%		80-120%

- (a) This compound does not meet the recommended minimum response factor specified into method 8260c.
 (b) Associated CCV outside of control limits low.
 (c) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-102		Date Sampled: 05/31/18
Lab Sample ID: JC67110-3		Date Received: 05/31/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P50937.D	1	06/05/18 18:55	CC	06/04/18 13:10	OP12498	E5P2426
Run #2							

Run #	Initial Volume	Final Volume
Run #1	850 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.9	0.96	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.9	1.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.4	1.5	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.9	2.9	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.9	1.8	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.9	1.5	ug/l	
95-48-7	2-Methylphenol	ND	2.4	1.0	ug/l	
	3&4-Methylphenol	ND	2.4	1.0	ug/l	
88-75-5	2-Nitrophenol	ND	5.9	1.1	ug/l	
100-02-7	4-Nitrophenol ^a	ND	12	1.4	ug/l	
87-86-5	Pentachlorophenol	ND	4.7	1.6	ug/l	
108-95-2	Phenol	ND	2.4	0.46	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.9	1.7	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.9	1.6	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.9	1.1	ug/l	
83-32-9	Acenaphthene	ND	1.2	0.22	ug/l	
208-96-8	Acenaphthylene	ND	1.2	0.16	ug/l	
98-86-2	Acetophenone	ND	2.4	0.24	ug/l	
120-12-7	Anthracene	ND	1.2	0.25	ug/l	
1912-24-9	Atrazine ^a	ND	2.4	0.53	ug/l	
100-52-7	Benzaldehyde	ND	5.9	0.34	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.2	0.24	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.2	0.25	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.2	0.24	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.2	0.40	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.2	0.24	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.4	0.48	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.4	0.54	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.2	0.25	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.4	0.28	ug/l	
106-47-8	4-Chloroaniline	ND	5.9	0.40	ug/l	
86-74-8	Carbazole	ND	1.2	0.27	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-102	Date Sampled:	05/31/18
Lab Sample ID:	JC67110-3	Date Received:	05/31/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.4	0.76	ug/l	
218-01-9	Chrysene	ND	1.2	0.21	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.4	0.33	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.4	0.29	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.4	0.47	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.4	0.43	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.2	0.65	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.2	0.56	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.4	0.60	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.2	0.39	ug/l	
132-64-9	Dibenzofuran	ND	5.9	0.26	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.4	0.58	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.4	0.28	ug/l	
84-66-2	Diethyl phthalate	ND	2.4	0.31	ug/l	
131-11-3	Dimethyl phthalate	ND	2.4	0.26	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.4	1.9	ug/l	
206-44-0	Fluoranthene	ND	1.2	0.20	ug/l	
86-73-7	Fluorene	ND	1.2	0.20	ug/l	
118-74-1	Hexachlorobenzene	ND	1.2	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.2	0.58	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	12	3.3	ug/l	
67-72-1	Hexachloroethane	ND	2.4	0.46	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.2	0.39	ug/l	
78-59-1	Isophorone	ND	2.4	0.33	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.2	0.25	ug/l	
88-74-4	2-Nitroaniline ^a	ND	5.9	0.33	ug/l	
99-09-2	3-Nitroaniline	ND	5.9	0.46	ug/l	
100-01-6	4-Nitroaniline	ND	5.9	0.52	ug/l	
91-20-3	Naphthalene	ND	1.2	0.27	ug/l	
98-95-3	Nitrobenzene	ND	2.4	0.76	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.4	0.57	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.9	0.26	ug/l	
85-01-8	Phenanthrene	ND	1.2	0.21	ug/l	
129-00-0	Pyrene	ND	1.2	0.26	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene ^a	ND	2.4	0.44	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	45%		10-110%
4165-62-2	Phenol-d5	31%		10-110%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-102 Lab Sample ID: JC67110-3 Matrix: AQ - Ground Water Method: SW846 8270D SW846 3510C Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 05/31/18 Date Received: 05/31/18 Percent Solids: n/a
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ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	83%		36-151%
4165-60-0	Nitrobenzene-d5	82%		34-128%
321-60-8	2-Fluorobiphenyl	80%		38-119%
1718-51-0	Terphenyl-d14	67%		26-129%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.3
4

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Report of Analysis

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Client Sample ID: MW-102		Date Sampled: 05/31/18
Lab Sample ID: JC67110-3		Date Received: 05/31/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8081B SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G56988.D	1	06/06/18 13:11	RK	06/01/18 19:40	OP12449	G6G1701
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	56%		13-153%
877-09-8	Tetrachloro-m-xylene	65%		13-153%
2051-24-3	Decachlorobiphenyl	36%		10-138%
2051-24-3	Decachlorobiphenyl	41%		10-138%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 1

Client Sample ID: MW-102		Date Sampled: 05/31/18
Lab Sample ID: JC67110-3		Date Received: 05/31/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8082A SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX229861.D	1	06/03/18 07:32	EAL	06/01/18 19:40	OP12448	GXX6375
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	73%		11-166%
877-09-8	Tetrachloro-m-xylene	79%		11-166%
2051-24-3	Decachlorobiphenyl	48%		10-150%
2051-24-3	Decachlorobiphenyl	49%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-102 Lab Sample ID: JC67110-3 Matrix: AQ - Ground Water Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 05/31/18 Date Received: 05/31/18 Percent Solids: n/a
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Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	661	200	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Arsenic	6.7	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Barium	352	200	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Calcium	103000	5000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Copper	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Iron	3560	100	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Lead	4.8	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁴
Magnesium	74200	5000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Manganese	383	15	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	06/06/18	06/06/18	DP	SW846 7470A ¹ SW846 7470A ⁵
Nickel	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Potassium	14900	10000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Silver	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Sodium	47600	10000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Zinc	< 20	20	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴

- (1) Instrument QC Batch: MA44592
- (2) Instrument QC Batch: MA44612
- (3) Instrument QC Batch: MA44616
- (4) Prep QC Batch: MP7493
- (5) Prep QC Batch: MP7513

RL = Reporting Limit

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Report of Analysis

Client Sample ID: MW-102	Date Sampled: 05/31/18
Lab Sample ID: JC67110-3	Date Received: 05/31/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010 UJ	0.010	mg/l	1	06/07/18 10:35	BM	EPA 335.4/LACHAT

RL = Reporting Limit

4.3
4

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Report of Analysis

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Client Sample ID: MW-103		Date Sampled: 05/31/18
Lab Sample ID: JC67110-4		Date Received: 05/31/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	L301857.D	1	06/02/18 15:19	DG	n/a	n/a	VL8605
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane ^b	ND	2.0	1.4	ug/l	UJ
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane ^c	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-103		Date Sampled: 05/31/18
Lab Sample ID: JC67110-4		Date Received: 05/31/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	112%		80-120%
17060-07-0	1,2-Dichloroethane-D4	110%		81-124%
2037-26-5	Toluene-D8	113%		80-120%
460-00-4	4-Bromofluorobenzene	101%		80-120%

- (a) This compound does not meet the recommended minimum response factor specified into method 8260c.
 (b) Associated CCV outside of control limits low.
 (c) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 3

Client Sample ID: MW-103		Date Sampled: 05/31/18
Lab Sample ID: JC67110-4		Date Received: 05/31/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P50938.D	1	06/05/18 19:21	CC	06/04/18 13:10	OP12498	E5P2426
Run #2							

Run #	Initial Volume	Final Volume
Run #1	850 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.9	0.96	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.9	1.0	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.4	1.5	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.9	2.9	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.9	1.8	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.9	1.5	ug/l	
95-48-7	2-Methylphenol	ND	2.4	1.0	ug/l	
	3&4-Methylphenol	ND	2.4	1.0	ug/l	
88-75-5	2-Nitrophenol	ND	5.9	1.1	ug/l	
100-02-7	4-Nitrophenol ^a	ND	12	1.4	ug/l	
87-86-5	Pentachlorophenol	ND	4.7	1.6	ug/l	
108-95-2	Phenol	ND	2.4	0.46	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.9	1.7	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.9	1.6	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.9	1.1	ug/l	
83-32-9	Acenaphthene	ND	1.2	0.22	ug/l	
208-96-8	Acenaphthylene	ND	1.2	0.16	ug/l	
98-86-2	Acetophenone	ND	2.4	0.24	ug/l	
120-12-7	Anthracene	ND	1.2	0.25	ug/l	
1912-24-9	Atrazine ^a	ND	2.4	0.53	ug/l	
100-52-7	Benzaldehyde	ND	5.9	0.34	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.2	0.24	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.2	0.25	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.2	0.24	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.2	0.40	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.2	0.24	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.4	0.48	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.4	0.54	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.2	0.25	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.4	0.28	ug/l	
106-47-8	4-Chloroaniline	ND	5.9	0.40	ug/l	
86-74-8	Carbazole	ND	1.2	0.27	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-103	Date Sampled:	05/31/18
Lab Sample ID:	JC67110-4	Date Received:	05/31/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.4	0.76	ug/l	
218-01-9	Chrysene	ND	1.2	0.21	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.4	0.33	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.4	0.29	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.4	0.47	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.4	0.43	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.2	0.65	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.2	0.56	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.4	0.60	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.2	0.39	ug/l	
132-64-9	Dibenzofuran	ND	5.9	0.26	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.4	0.58	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.4	0.28	ug/l	
84-66-2	Diethyl phthalate	ND	2.4	0.31	ug/l	
131-11-3	Dimethyl phthalate	ND	2.4	0.26	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.4	1.9	ug/l	
206-44-0	Fluoranthene	ND	1.2	0.20	ug/l	
86-73-7	Fluorene	ND	1.2	0.20	ug/l	
118-74-1	Hexachlorobenzene	ND	1.2	0.38	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.2	0.58	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	12	3.3	ug/l	
67-72-1	Hexachloroethane	ND	2.4	0.46	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.2	0.39	ug/l	
78-59-1	Isophorone	ND	2.4	0.33	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.2	0.25	ug/l	
88-74-4	2-Nitroaniline ^a	ND	5.9	0.33	ug/l	
99-09-2	3-Nitroaniline	ND	5.9	0.46	ug/l	
100-01-6	4-Nitroaniline	ND	5.9	0.52	ug/l	
91-20-3	Naphthalene	ND	1.2	0.27	ug/l	
98-95-3	Nitrobenzene	ND	2.4	0.76	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.4	0.57	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.9	0.26	ug/l	
85-01-8	Phenanthrene	ND	1.2	0.21	ug/l	
129-00-0	Pyrene	ND	1.2	0.26	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene ^a	ND	2.4	0.44	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	40%		10-110%
4165-62-2	Phenol-d5	30%		10-110%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-103 Lab Sample ID: JC67110-4 Matrix: AQ - Ground Water Method: SW846 8270D SW846 3510C Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 05/31/18 Date Received: 05/31/18 Percent Solids: n/a
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ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	80%		36-151%
4165-60-0	Nitrobenzene-d5	76%		34-128%
321-60-8	2-Fluorobiphenyl	78%		38-119%
1718-51-0	Terphenyl-d14	58%		26-129%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.4
4

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Report of Analysis

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Client Sample ID: MW-103		Date Sampled: 05/31/18
Lab Sample ID: JC67110-4		Date Received: 05/31/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8081B SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G56989.D	1	06/06/18 13:28	RK	06/01/18 19:40	OP12449	G6G1701
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4'-DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4'-DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4'-DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	51%		13-153%
877-09-8	Tetrachloro-m-xylene	56%		13-153%
2051-24-3	Decachlorobiphenyl	39%		10-138%
2051-24-3	Decachlorobiphenyl	43%		10-138%

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E = Indicates value exceeds calibration range

J = Indicates an estimated value

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N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 1

Client Sample ID: MW-103		
Lab Sample ID: JC67110-4		Date Sampled: 05/31/18
Matrix: AQ - Ground Water		Date Received: 05/31/18
Method: SW846 8082A SW846 3510C		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX229842.D	1	06/03/18 02:15	EAL	06/01/18 19:40	OP12448	GXX6375
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	55%		11-166%
877-09-8	Tetrachloro-m-xylene	63%		11-166%
2051-24-3	Decachlorobiphenyl	43%		10-150%
2051-24-3	Decachlorobiphenyl	44%		10-150%

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RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-103 Lab Sample ID: JC67110-4 Matrix: AQ - Ground Water Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 05/31/18 Date Received: 05/31/18 Percent Solids: n/a
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Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Arsenic	< 3.0	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Barium	< 200	200	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Calcium	151000	5000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Copper	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Iron	3100	100	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Lead	15.9	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁴
Magnesium	114000	5000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Manganese	542	15	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	06/06/18	06/06/18	DP	SW846 7470A ¹ SW846 7470A ⁵
Nickel	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Potassium	21500	10000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Silver	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Sodium	62100	10000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Zinc	< 20	20	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴

- (1) Instrument QC Batch: MA44592
- (2) Instrument QC Batch: MA44612
- (3) Instrument QC Batch: MA44616
- (4) Prep QC Batch: MP7493
- (5) Prep QC Batch: MP7513

RL = Reporting Limit

4.4
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Report of Analysis

Client Sample ID: MW-103	Date Sampled: 05/31/18
Lab Sample ID: JC67110-4	Date Received: 05/31/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010	0.010	mg/l	1	06/07/18 10:36	BM	EPA 335.4/LACHAT

RL = Reporting Limit

4.4
4

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Report of Analysis

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Client Sample ID:	DUP-05312018	Date Sampled:	05/31/18
Lab Sample ID:	JC67110-5	Date Received:	05/31/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	L301858.D	1	06/02/18 15:46	DG	n/a	n/a	VL8605
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^a	ND	10	5.0	ug/l	
71-43-2	Benzene	ND	0.50	0.17	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.38	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.22	ug/l	
75-25-2	Bromoform	ND	1.0	0.42	ug/l	
74-83-9	Bromomethane ^b	ND	2.0	1.4	ug/l	UJ
78-93-3	2-Butanone (MEK)	ND	10	4.8	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.34	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.24	ug/l	
75-00-3	Chloroethane	ND	1.0	0.59	ug/l	
67-66-3	Chloroform	ND	1.0	0.29	ug/l	
74-87-3	Chloromethane	ND	1.0	0.53	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.63	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.69	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.16	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.21	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.50	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.50	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.50	ug/l	
75-71-8	Dichlorodifluoromethane ^c	ND	2.0	1.9	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.21	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.47	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.40	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.24	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.22	ug/l	
76-13-1	Freon 113	ND	5.0	1.2	ug/l	
591-78-6	2-Hexanone	ND	5.0	3.3	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	DUP-05312018	Date Sampled:	05/31/18
Lab Sample ID:	JC67110-5	Date Received:	05/31/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.25	ug/l	
79-20-9	Methyl Acetate	ND	5.0	3.1	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	1.8	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.25	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	3.0	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.24	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.17	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.50	ug/l	
108-88-3	Toluene	ND	1.0	0.25	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.25	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.24	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.27	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.60	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.62	ug/l	
	m,p-Xylene	ND	1.0	0.43	ug/l	
95-47-6	o-Xylene	ND	1.0	0.22	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.22	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	108%		80-120%
17060-07-0	1,2-Dichloroethane-D4	106%		81-124%
2037-26-5	Toluene-D8	114%		80-120%
460-00-4	4-Bromofluorobenzene	100%		80-120%

- (a) This compound does not meet the recommended minimum response factor specified into method 8260c.
 (b) Associated CCV outside of control limits low.
 (c) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: DUP-05312018	Date Sampled: 05/31/18
Lab Sample ID: JC67110-5	Date Received: 05/31/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P50939.D	1	06/05/18 19:47	CC	06/04/18 13:10	OP12498	E5P2426
Run #2							

Run #	Initial Volume	Final Volume
Run #1	800 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	6.3	1.0	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	6.3	1.1	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.5	1.6	ug/l	
105-67-9	2,4-Dimethylphenol	ND	6.3	3.1	ug/l	
51-28-5	2,4-Dinitrophenol	ND	6.3	1.9	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	6.3	1.6	ug/l	
95-48-7	2-Methylphenol	ND	2.5	1.1	ug/l	
	3&4-Methylphenol	ND	2.5	1.1	ug/l	
88-75-5	2-Nitrophenol	ND	6.3	1.2	ug/l	
100-02-7	4-Nitrophenol ^a	ND	13	1.4	ug/l	
87-86-5	Pentachlorophenol	ND	5.0	1.7	ug/l	
108-95-2	Phenol	ND	2.5	0.49	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	6.3	1.8	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	6.3	1.7	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	6.3	1.2	ug/l	
83-32-9	Acenaphthene	ND	1.3	0.24	ug/l	
208-96-8	Acenaphthylene	ND	1.3	0.17	ug/l	
98-86-2	Acetophenone	ND	2.5	0.26	ug/l	
120-12-7	Anthracene	ND	1.3	0.26	ug/l	
1912-24-9	Atrazine ^a	ND	2.5	0.56	ug/l	
100-52-7	Benzaldehyde	ND	6.3	0.36	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.3	0.25	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.3	0.27	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.3	0.26	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.3	0.43	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.3	0.26	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.5	0.51	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.5	0.57	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.3	0.27	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.5	0.30	ug/l	
106-47-8	4-Chloroaniline	ND	6.3	0.43	ug/l	
86-74-8	Carbazole	ND	1.3	0.29	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

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J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	DUP-05312018	Date Sampled:	05/31/18
Lab Sample ID:	JC67110-5	Date Received:	05/31/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

ABN TCL List (SOM0 1.1)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.5	0.81	ug/l	
218-01-9	Chrysene	ND	1.3	0.22	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.5	0.35	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.5	0.31	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.5	0.50	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.5	0.46	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.3	0.69	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.3	0.60	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.5	0.63	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.3	0.41	ug/l	
132-64-9	Dibenzofuran	ND	6.3	0.28	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.5	0.62	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.5	0.29	ug/l	
84-66-2	Diethyl phthalate	ND	2.5	0.33	ug/l	
131-11-3	Dimethyl phthalate	ND	2.5	0.27	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	11.3	2.5	2.1	ug/l	
206-44-0	Fluoranthene	ND	1.3	0.21	ug/l	
86-73-7	Fluorene	ND	1.3	0.21	ug/l	
118-74-1	Hexachlorobenzene	ND	1.3	0.41	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.3	0.62	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	13	3.5	ug/l	
67-72-1	Hexachloroethane	ND	2.5	0.49	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.3	0.42	ug/l	
78-59-1	Isophorone	ND	2.5	0.35	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.3	0.26	ug/l	
88-74-4	2-Nitroaniline ^a	ND	6.3	0.35	ug/l	
99-09-2	3-Nitroaniline	ND	6.3	0.48	ug/l	
100-01-6	4-Nitroaniline	ND	6.3	0.55	ug/l	
91-20-3	Naphthalene	ND	1.3	0.29	ug/l	
98-95-3	Nitrobenzene	ND	2.5	0.80	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.5	0.60	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	6.3	0.28	ug/l	
85-01-8	Phenanthrene	ND	1.3	0.22	ug/l	
129-00-0	Pyrene	ND	1.3	0.27	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene ^a	ND	2.5	0.46	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	39%		10-110%
4165-62-2	Phenol-d5	28%		10-110%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: DUP-05312018 Lab Sample ID: JC67110-5 Matrix: AQ - Ground Water Method: SW846 8270D SW846 3510C Project: National Grid, Philly Coke, Philadelphia PA	Date Sampled: 05/31/18 Date Received: 05/31/18 Percent Solids: n/a
---	---

ABN TCL List (SOM0 1.1)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
118-79-6	2,4,6-Tribromophenol	74%		36-151%
4165-60-0	Nitrobenzene-d5	71%		34-128%
321-60-8	2-Fluorobiphenyl	73%		38-119%
1718-51-0	Terphenyl-d14	51%		26-129%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: DUP-05312018		
Lab Sample ID: JC67110-5		Date Sampled: 05/31/18
Matrix: AQ - Ground Water		Date Received: 05/31/18
Method: SW846 8081B SW846 3510C		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G56992.D	1	06/06/18 14:22	RK	06/01/18 19:40	OP12449	G6G1701
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.0067	0.0034	ug/l	
319-84-6	alpha-BHC	ND	0.0067	0.0035	ug/l	
319-85-7	beta-BHC	ND	0.0067	0.0053	ug/l	
319-86-8	delta-BHC	ND	0.0067	0.0044	ug/l	
58-89-9	gamma-BHC (Lindane)	ND	0.0067	0.0040	ug/l	
5103-71-9	alpha-Chlordane	ND	0.0067	0.0033	ug/l	
5103-74-2	gamma-Chlordane	ND	0.0067	0.0028	ug/l	
60-57-1	Dieldrin	ND	0.0067	0.0051	ug/l	
72-54-8	4,4' -DDD	ND	0.0067	0.0038	ug/l	
72-55-9	4,4' -DDE	ND	0.0067	0.0034	ug/l	
50-29-3	4,4' -DDT	ND	0.0067	0.0046	ug/l	
72-20-8	Endrin	ND	0.0067	0.0040	ug/l	
1031-07-8	Endosulfan sulfate	ND	0.0067	0.0036	ug/l	
7421-93-4	Endrin aldehyde	ND	0.0067	0.0045	ug/l	
53494-70-5	Endrin ketone	ND	0.0067	0.0041	ug/l	
959-98-8	Endosulfan-I	ND	0.0067	0.0035	ug/l	
33213-65-9	Endosulfan-II	ND	0.0067	0.0033	ug/l	
76-44-8	Heptachlor	ND	0.0067	0.0030	ug/l	
1024-57-3	Heptachlor epoxide	ND	0.0067	0.0040	ug/l	
72-43-5	Methoxychlor	ND	0.013	0.0045	ug/l	
8001-35-2	Toxaphene	ND	0.17	0.11	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	63%		13-153%
877-09-8	Tetrachloro-m-xylene	72%		13-153%
2051-24-3	Decachlorobiphenyl	40%		10-138%
2051-24-3	Decachlorobiphenyl	43%		10-138%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	DUP-05312018	Date Sampled:	05/31/18
Lab Sample ID:	JC67110-5	Date Received:	05/31/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8082A SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX229862.D	1	06/03/18 07:48	EAL	06/01/18 19:40	OP12448	GXX6375
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	300 ml	2.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	0.33	0.13	ug/l	
11104-28-2	Aroclor 1221	ND	0.33	0.28	ug/l	
11141-16-5	Aroclor 1232	ND	0.33	0.17	ug/l	
53469-21-9	Aroclor 1242	ND	0.33	0.15	ug/l	
12672-29-6	Aroclor 1248	ND	0.33	0.084	ug/l	
11097-69-1	Aroclor 1254	ND	0.33	0.28	ug/l	
11096-82-5	Aroclor 1260	ND	0.33	0.10	ug/l	
11100-14-4	Aroclor 1268	ND	0.33	0.12	ug/l	
37324-23-5	Aroclor 1262	ND	0.33	0.13	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	72%		11-166%
877-09-8	Tetrachloro-m-xylene	76%		11-166%
2051-24-3	Decachlorobiphenyl	44%		10-150%
2051-24-3	Decachlorobiphenyl	46%		10-150%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: DUP-05312018		Date Sampled: 05/31/18
Lab Sample ID: JC67110-5		Date Received: 05/31/18
Matrix: AQ - Ground Water		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	275	200	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Arsenic	6.6	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Barium	350	200	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Calcium	103000	5000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Copper	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Iron	2900	100	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Lead	< 3.0	3.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁴
Magnesium	74900	5000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Manganese	370	15	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	06/06/18	06/06/18	DP	SW846 7470A ¹ SW846 7470A ⁵
Nickel	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Potassium	15000	10000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Silver	< 10	10	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Sodium	47800	10000	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Thallium	< 2.0	2.0	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ³ SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴
Zinc	< 20	20	ug/l	1	06/05/18	06/08/18	ND	SW846 6010C ² SW846 3010A ⁴

- (1) Instrument QC Batch: MA44592
- (2) Instrument QC Batch: MA44612
- (3) Instrument QC Batch: MA44616
- (4) Prep QC Batch: MP7493
- (5) Prep QC Batch: MP7513

RL = Reporting Limit

4.5
4

Report of Analysis


Client Sample ID: DUP-05312018	Date Sampled: 05/31/18
Lab Sample ID: JC67110-5	Date Received: 05/31/18
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010 UJ	0.010	mg/l	1	06/07/18 10:38	BM	EPA 335.4/LACHAT

RL = Reporting Limit

Regulatory Program: DW NPDES RCRA Other:

Client Contact	Company Name: Arcadis Address: 824 N. Market St., Suite 825 City/State/Zip: Wilmington DE 19801 Phone: 302-380-4064 Fax: Project Name: Philly coke Site: Briarburg, PA P.O.#	Project Manager:	Site Contact:	Lab Contact:	Date: _____	COC No. _____ of _____ COCs
Analysis Turnaround Time		Perform MS / MSD (Y / N)		Sampler:		 480-136777 COC
<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Filtered Sample (Y / N)		For J Wal _____ Lab _____ Job / _____		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:
PCMW-16D	5/30/18	0850	G	GW	3	MS/MSD
DUP-05302018	5/30/18		G	GW	1	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other

Possible Hazard Identification: _____
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
 Non-Hazard Flammable Skin Irritant Poison B Unknown

Special Instructions/QC Requirements & Comments:

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal by Lab Archive for _____ Months

Relinquished by: Adam Wan	Company: Arcadis	Date/Time: 5/31/18 135	Received by: [Signature]	Company: JA	Date/Time: 5/31/18 1105	Therm ID No.: #(
Relinquished by: [Signature]	Company: JA	Date/Time: 5/31/18	Received by: [Signature]	Company: JA	Date/Time: 5/31/18 1535	
Relinquished by: [Signature]	Company: JA	Date/Time: 5/31/18	Received in Laboratory by: [Signature]	Company: JA	Date/Time: 5/31/18 1834	



Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Former Philadelphia Coke Facility

TestAmerica Job ID: 480-136777-1

Client Sample ID: PCMW-16D

Lab Sample ID: 480-136777-1

Date Collected: 05/30/18 08:50

Matrix: Water

Date Received: 06/01/18 10:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Free	9.1	FL J	5.0	1.5	ug/L		06/12/18 04:43	06/12/18 15:30	1

Client Sample ID: DUP-05302018

Lab Sample ID: 480-136777-2

Date Collected: 05/30/18 00:00

Matrix: Water

Date Received: 06/01/18 10:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Free	18.0	J	5.0	1.5	ug/L		06/12/18 04:44	06/12/18 15:30	1

National Grid
Philly Coke

DATA REVIEW

Philadelphia, Pennsylvania

Cyanide Analyses

SDG #: 480-139667-1

Analyses Performed By:
SGS Laboratories
Dayton, New Jersey

TestAmeirca
Amherst, New York

Report #: 30509R
Review Level: Tier II
Project: B0036790.0001.00003

DATA REVIEW REPORT

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) # 480-139667-1 for samples collected in association with the National Grid Philly Coke site in Philadelphia, Pennsylvania. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data as reported by the laboratory were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets and chain of custody. Analyses were performed for the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOCs	SVOC	Pest./PCB	Metals	CN-
480-139667-1	PCMW-15S	480-139667-1	Water	7/27/2018						X
	PCMW-10D	480-139667-2	Water	7/27/2018						X
	DUP-07272018	480-139667-3	Water	7/27/2018	PCMW-15S					X

DATA REVIEW REPORT

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of quality assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW REPORT

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Methods 9016. Data were reviewed in accordance with USEPA National Functional Guidelines of October 2002.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Cyanide by SW846 9016	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of greater than 12.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

The correct number and type of standards were analyzed. The correlation coefficient of the initial calibration was greater than 0.995 and all initial calibration verification standard recoveries were within control limits.

All calibration standard recoveries were within the control limit.

4. Matrix Spike (MS)/Laboratory Duplicate Analysis

MS and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

4.1 MS Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS recovery control limits do not apply for MS performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

DATA REVIEW REPORT

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analyte present in the table below.

Sample Location	Analyte	MS Recovery	MSD Recovery
PCMW-10D	Cyanide, Free	55%	60%

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications are applied to all sample results associated with this SDG.

Control limit	Sample Result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery <30%	Non-detect	R
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J

4.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

All analytes associated with laboratory duplicate RPD were within the control limit.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PCMW-15S /DUP-07272018	Cyanide, Free	6.2	9.0	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

DATA REVIEW REPORT

6. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: 9016	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%RSD – relative standard deviation

%R - percent recovery

RPD - relative percent difference,

%D – difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: August 29, 2018

PEER REVIEW: Jeffrey L. Davin

DATE: August 29, 2018

CHAIN OF CUSTODY AND CORRECTED SAMPLE ANALYSIS DATA SHEETS



Anherst, NY 14228
Phone: 716.691.2600 Fax: 716.691.799

Client Contact Company Name: <u>Arcadis</u> Address: <u>24 N. Market St. Suite 200</u> City/State/Zip: <u>Wilmington, DE 19801</u> Phone: <u>302-654-1718</u> Fax: Project Name: <u>Philly Coke</u> Site: <u>Bridgeton, PA</u> P.O.#		Regulatory Program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other:		Project Manager: Tel/Fax:		Site Contact: Lab Contact: <u>9016 Free Wynde</u> Date: _____ Carrier: _____		COC No: _____ of _____ COCs	
Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input checked="" type="checkbox"/> WORKING DAYS TAT if different from Below: <u>5 days</u> <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Sample Identification		Sample Type (C=Comp, G=Grab)		Matrix		# of Cont.	
PCMW-155 PCMW-10D PUR-07272018		7/27/18 1230 7/27/18 1340 7/27/18 -		G G G		GW GW GW		1 3 1	
Sample Specific Notes: <u>ms/msd</u>		480-139667 COC		Perform MS/MSD (Y/N)		Filtered Sample (Y/N)		9016 Free Wynde	
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other		Possible Hazard Identification:		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months		Therm ID No.: _____	
Special Instructions/QC Requirements & Comments:		Custody Seal No.: _____		Cooler Temp. (°C): Obs'd: _____ Cor'd: _____		Received by: _____ Company: _____		Date/Time: _____	
Relinquished by: _____		Company: <u>Arcadis</u>		Date/Time: <u>7/27/18 1345</u>		Received by: _____ Company: _____		Date/Time: <u>7/27/18 1345</u>	
Relinquished by: _____		Company: <u>TA</u>		Date/Time: <u>7/27/18</u>		Received by: _____ Company: _____		Date/Time: <u>7/27/18</u>	
Relinquished by: _____		Company: <u>TA</u>		Date/Time: <u>7/27/18</u>		Received in Laboratory by: <u>Wm Vowliko</u>		Date/Time: <u>8/7/28/18 2950</u>	

Client Sample Results

Client: ARCADIS U.S. Inc
Project/Site: Former Philadelphia Coke Facility

TestAmerica Job ID: 480-139667-1

Client Sample ID: PCMW-15S

Date Collected: 07/27/18 12:30

Date Received: 07/28/18 09:50

Lab Sample ID: 480-139667-1

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Free	6.2	J	5.0	1.5	ug/L		08/01/18 13:50	08/01/18 15:30	1

Client Sample ID: PCMW-10D

Date Collected: 07/27/18 13:40

Date Received: 07/28/18 09:50

Lab Sample ID: 480-139667-2

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Free	4.1	J F	5.0	1.5	ug/L		08/01/18 13:50	08/01/18 15:30	1

Client Sample ID: DUP-07272018

Date Collected: 07/27/18 00:00

Date Received: 07/28/18 09:50

Lab Sample ID: 480-139667-3

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Free	9.0	J	5.0	1.5	ug/L		08/01/18 13:50	08/01/18 15:30	1

National Grid
Philly Coke

DATA REVIEW

Philadelphia, Pennsylvania

Metals and Total Dissolve Solids (TDS) Analyses

SDGs #: JC85367

Analyses Performed By:
SGS Laboratories
Dayton, New Jersey

TestAmeirca
Amherst, New York

Report #: 32438R
Review Level: Tier II
Project: B0036790.0001.00006

DATA REVIEW REPORT

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) # JC85367 for samples collected in association with the National Grid Philly Coke site in Philadelphia, Pennsylvania. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data as reported by the laboratory were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets and chain of custody. Analyses were performed for the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOCs	SVOC	Pest./PCB	Metals	TDS
JC85367	MW-107 (03-28-2019)	JC85367-1	Water	3/28/2019				X	X	
	PCMW-05 (03-28-2019)	JC85367-2	Water	3/28/2019				X	X	
	GW-DUP-0328 (03-28-2019)	JC85367-3	Water	3/28/2019	PCMW-05 (03-28-2019)			X	X	
	PCMW-16D (03-28-2019)	JC85367-4	Water	3/28/2019				X	X	

DATA REVIEW REPORT

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of quality assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW REPORT

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Methods 6010D, 7470A, and Standard Method 2540. Data were reviewed in accordance with USEPA National Functional Guidelines of October 2002.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW846 6010D	Water	180 days from collection to analysis	Preserved to a pH of less than 2.
SW-846 7470A	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL and/or were non-detect. No other qualification of the sample results was required.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis /Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

DATA REVIEW REPORT

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD recoveries exhibited acceptable RPD.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Analyte	Sample Result	Duplicate Result	RPD
PCMW-05 (03-28-2019)/ GW-DUP-0328 (03-28-2019)	Barium	365	360	AC
	Calcium	76700	76200	0.7%
	Iron	99.6 J	99.0 J	AC
	Lead	2.9 J	1.9 J	AC
	Magnesium	9710	9830	AC
	Manganese	182	186	2.2%
	Nickel	85.5	80.9	5.5%
	Potassium	2880 J	2890 J	AC
	Sodium	3790 J	3800 J	AC
	Zinc	27.2	28.2	AC

AC = Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR METAL

METALS; 6010C/7470A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	

Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)

Tier II Validation

Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Instrument Blanks		X		X	
B. Method Blanks		X		X	
C. Equipment/Field Blanks		X		X	
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Total vs. Dissolved	X				X
Reporting Limit Verification		X		X	

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Total Dissolved Solids (TDS) by SM2540C	Water	7 days from collection to analysis	Cool to <6 °C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

The correct number and type of standards were analyzed. The correlation coefficient of the initial calibration was greater than 0.995 and all initial calibration verification standard recoveries were within control limits.

All calibration standard recoveries were within the control limit.

4. Matrix Spike (MS)/Laboratory Duplicate Analysis

MS and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

4.1 MS Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS recovery control limits do not apply for MS performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

An MS analysis was not performed on a sample within this SDG.

DATA REVIEW REPORT

4.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

All analytes associated with laboratory duplicate RPD were within the control limit.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PCMW-05 (03-28-2019)/ GW-DUP-0328 (03-28-2019)	TDS	600	750	22.2%

The calculated RPDs between the parent sample and field duplicate were acceptable.

6. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: SM2540	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%RSD – relative standard deviation

%R - percent recovery

RPD - relative percent difference,

%D – difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: May 9, 2019

PEER REVIEW: Dennis Capria

DATE: May 20, 2019

CHAIN OF CUSTODY AND CORRECTED SAMPLE ANALYSIS DATA SHEETS





GW

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com/ehusa

F

FED-EX Tracking #
SGS Quote #
Bottle or Contnr #
SGS Job #

AK-031919-43
JC85367

Client / Reporting Information		Project Information				Requested Analysis												Matrix Codes
Company Name: Aracis - US		Project Name: National Gr. J, Philly Coke, Philadelphia PA																DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AR - Air SOL - Other Solid WP - Waste FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank
Street Address: 110 W. Fayette St Suite 300		Billing Information (if different from Report to)																
City: Syracuse, NY 13202		Company Name: Samc																LAB USE ONLY C10 G59
State: NY		Street Address: Philadelphia PA																
E-mail: Carly@Aracis.com		City: Philadelphia PA																
Phone #: 315-335-9493		State: PA																
Project Contact: Carly Lawrence		Client Purchase Order #: 80036790.00005																
Phone #: 63-35-2692		City: Philadelphia PA																
Sample(s) Name(s): Evan Green		Client Purchase Order #: 63-35-2692																
Phone #: 63-35-2692		City: Philadelphia PA																
Project Manager: John Bussell		State: PA																
Absence:		City: Philadelphia PA																
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State: PA		City: Philadelphia PA																

Report of Analysis

Client Sample ID: MW-107	Date Sampled: 03/28/19
Lab Sample ID: JC85367-1	Date Received: 03/28/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	560	10	1.8	mg/l	1	03/30/19 11:55 RC	SM2540	C-11

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 B = Indicates a result > = MDL but < RL

4.1
4

Report of Analysis

Client Sample ID: MW-107	Date Sampled: 03/28/19
Lab Sample ID: JC85367-1F	Date Received: 03/28/19
Matrix: AQ - Groundwater Filtered	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	46 U	200	46	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Antimony	4.7 U	6.0	4.7	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Arsenic	2.8 U	3.0	2.8	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Barium	159 B	200	13	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Beryllium	0.50 U	1.0	0.50	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Cadmium	1.0 U	3.0	1.0	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Calcium	106000	5000	99	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Chromium	2.0 U	10	2.0	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Cobalt	2.6 U	50	2.6	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Copper	5.9 U	10	5.9	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Iron	621	100	32	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Lead	1.8 U	3.0	1.8	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Magnesium	43200	5000	140	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Manganese	1190	15	1.4	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Mercury	0.095 U	0.20	0.095	ug/l	1	04/02/19	04/02/19	EAL	SW846 7470A ¹ SW846 7470A ⁴
Nickel	1.7 U	10	1.7	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Potassium	8700 B	10000	200	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Selenium	4.9 U	10	4.9	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Silver	1.9 U	10	1.9	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Sodium	14300	10000	570	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Thallium	1.8 U	10	1.8	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Vanadium	2.0 B	50	1.8	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Zinc	6.9 U	20	6.9	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³

(1) Instrument QC Batch: MA46407

(2) Instrument QC Batch: MA46414

(3) Prep QC Batch: MP13758

(4) Prep QC Batch: MP13777

RL = Reporting Limit

MDL = Method Detection Limit

U = Indicates a result < MDL

B = Indicates a result > = MDL but < RL

4.2
4

Report of Analysis

Client Sample ID: PCMW-05	Date Sampled: 03/28/19
Lab Sample ID: JC85367-2	Date Received: 03/28/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	600	10	1.8	mg/l	1	03/30/19 11:55 RC	SM2540	C-11

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCMW-05		Date Sampled: 03/28/19
Lab Sample ID: JC85367-2F		Date Received: 03/28/19
Matrix: AQ - Groundwater Filtered		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	46 U	200	46	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Antimony	4.7 U	6.0	4.7	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Arsenic	2.8 U	3.0	2.8	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Barium	365	200	13	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Beryllium	0.50 U	1.0	0.50	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Cadmium	1.0 U	3.0	1.0	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Calcium	76700	5000	99	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Chromium	2.0 U	10	2.0	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Cobalt	2.6 U	50	2.6	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Copper	5.9 U	10	5.9	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Iron	99.6 B	100	32	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Lead	2.9 B	3.0	1.8	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Magnesium	9710	5000	140	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Manganese	182	15	1.4	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Mercury	0.095 U	0.20	0.095	ug/l	1	04/02/19	04/02/19	EAL	SW846 7470A ⁴
Nickel	85.5	10	1.7	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Potassium	2880 B	10000	200	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Selenium	4.9 U	10	4.9	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Silver	1.9 U	10	1.9	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Sodium	3790 B	10000	570	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Thallium	1.8 U	10	1.8	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Vanadium	1.8 U	50	1.8	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Zinc	27.2	20	6.9	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³

(1) Instrument QC Batch: MA46407

(2) Instrument QC Batch: MA46414

(3) Prep QC Batch: MP13758

(4) Prep QC Batch: MP13777

RL = Reporting Limit

MDL = Method Detection Limit

U = Indicates a result < MDL

B = Indicates a result > = MDL but < RL

4.4
4

Report of Analysis

Client Sample ID: GW-DUP-0328	Date Sampled: 03/28/19
Lab Sample ID: JC85367-3	Date Received: 03/28/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	750	10	1.8	mg/l	1	03/30/19 11:55 RC	SM2540	C-11

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: GW-DUP-0328	Date Sampled: 03/28/19
Lab Sample ID: JC85367-3F	Date Received: 03/28/19
Matrix: AQ - Groundwater Filtered	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	46 U	200	46	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Antimony	4.7 U	6.0	4.7	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Arsenic	2.8 U	3.0	2.8	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Barium	360	200	13	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Beryllium	0.50 U	1.0	0.50	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Cadmium	1.0 U	3.0	1.0	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Calcium	76200	5000	99	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Chromium	2.0 U	10	2.0	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Cobalt	2.6 U	50	2.6	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Copper	5.9 U	10	5.9	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Iron	99.0 B	100	32	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Lead	1.9 B	3.0	1.8	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Magnesium	9830	5000	140	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Manganese	186	15	1.4	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Mercury	0.095 U	0.20	0.095	ug/l	1	04/02/19	04/02/19	EAL	SW846 7470A ¹	SW846 7470A ⁴
Nickel	80.9	10	1.7	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Potassium	2890 B	10000	200	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Selenium	4.9 U	10	4.9	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Silver	1.9 U	10	1.9	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Sodium	3800 B	10000	570	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Thallium	1.8 U	10	1.8	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Vanadium	1.8 U	50	1.8	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Zinc	28.2	20	6.9	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³

- (1) Instrument QC Batch: MA46407
- (2) Instrument QC Batch: MA46414
- (3) Prep QC Batch: MP13758
- (4) Prep QC Batch: MP13777

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCMW-16D	Date Sampled: 03/28/19
Lab Sample ID: JC85367-4	Date Received: 03/28/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	440	10	1.8	mg/l	1	03/30/19 11:55 RC	SM2540	C-11

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 B = Indicates a result > = MDL but < RL

4.7
4

Report of Analysis

Client Sample ID: PCMW-16D	Date Sampled: 03/28/19
Lab Sample ID: JC85367-4F	Date Received: 03/28/19
Matrix: AQ - Groundwater Filtered	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	46 U	200	46	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Antimony	4.7 U	6.0	4.7	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Arsenic	5.8	3.0	2.8	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Barium	34.6 B	200	13	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Beryllium	0.50 U	1.0	0.50	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Cadmium	1.0 U	3.0	1.0	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Calcium	46700	5000	99	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Chromium	2.0 U	10	2.0	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Cobalt	2.8 B	50	2.6	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Copper	5.9 U	10	5.9	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Iron	27100	100	32	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Lead	1.8 U	3.0	1.8	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Magnesium	24900	5000	140	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Manganese	3130	15	1.4	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ³	SW846 3010A ⁴
Mercury	0.095 U	0.20	0.095	ug/l	1	04/02/19	04/02/19	EAL	SW846 7470A ¹	SW846 7470A ⁵
Nickel	1.7 U	10	1.7	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Potassium	2730 B	10000	200	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Selenium	4.9 U	10	4.9	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Silver	1.9 U	10	1.9	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Sodium	56100	10000	570	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Thallium	1.8 U	10	1.8	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Vanadium	4.5 B	50	1.8	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Zinc	6.9 U	20	6.9	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴

- (1) Instrument QC Batch: MA46407
- (2) Instrument QC Batch: MA46414
- (3) Instrument QC Batch: MA46419
- (4) Prep QC Batch: MP13758
- (5) Prep QC Batch: MP13777

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 B = Indicates a result > = MDL but < RL

National Grid

Philly Coke

DATA REVIEW

Philadelphia, Pennsylvania

Volatile Organic Compound (VOC), Semivolatile Organic Compounds (SVOC), Pesticides, PCBs, Metals,
and Miscellaneous Analyses

SDG # JC86916

Analyses Reported By:
SGS Laboratories
Dayton, New Jersey

Report #33345R
Review Level: Tier II
Project: 30004026 (B0036790.0001) 00006

DATA REVIEW REPORT

SUMMARY

This data review report summarizes the review of Sample Delivery Group (SDG) # JC86916 for samples collected in association with the National Grid Philly Coke site in Philadelphia, Pennsylvania. The review was conducted as a Tier II evaluation and included review of laboratory analytical data package completeness. Field documentation was not included in this review. Included with this assessment are the post-validation annotated sample result sheets, and chain of custody (COC). Analyses were performed on the following samples

SDG Number	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PEST/PCB	Metals	MISC
JC86916	PCTP-66R(0-0.5) (04-24-2019)	JC86916-1	Soil	4/24/2019		X	X	X	X	X
	PCTP-66R(0.5-2.0) (04-24-2019)	JC86916-2	Soil	4/24/2019		X	X	X	X	X
	PCTP-66R(8-10) (04-24-2019)	JC86916-3	Soil	4/24/2019		X	X	X	X	X
	SO-DUP-0424 (04-24-2019)	JC86916-4	Soil	4/24/2019	PCTP-66R(0-0.5) (04-24-2019)	X	X	X	X	X
	S-120(0-1) (04-24-2019)	JC86916-5	Soil	4/24/2019		X	X		X	X
	S-113B(1-3) (04-24-2019)	JC86916-6	Soil	4/24/2019		X	X		X	X
	S-113B(10-12) (04-24-2019)	JC86916-7	Soil	4/24/2019		X	X		X	X
	S-113B(13-15) (04-24-2019)	JC86916-8	Soil	4/24/2019		X	X		X	X
	S-113B (15-17) (04-24-2019)	JC86916-9	Soil	4/24/2019		X	X		X	X
	PSSTP-22R(0.5-2) (04-24-2019)	JC86916-10	Soil	4/24/2019		X	X	X	X	X
	PSSTP-22R(4-6) (04-24-2019)	JC86916-11	Soil	4/24/2019		X	X		X	X
	S-144 (15-17) (04-24-2019)	JC86916-12	Soil	4/24/2019		X	X		X	X
	S-144 (22-24) (04-24-2019)	JC86916-13	Soil	4/24/2019		X	X		X	X
	S-113 (0-1) (04-23-2019)	JC86916-14	Soil	4/23/2019		X	X		X	X
	S-107 (4-5.5) (04-23-2019)	JC86916-15	Soil	4/23/2019		X	X		X	X

Notes:

1. PEST/PCB = Pesticides and polychlorinated biphenyls
2. SVOC = Semivolatile Organic Compounds
3. VOC = Volatile Organic Compound
4. MISC = Miscellaneous (total cyanide)

DATA REVIEW REPORT

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW REPORT

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260C, 8270D, 8081A, and 8082A. Data were reviewed in accordance with the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540/R-2017-002, January 2017 and the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, EPA540/R-99/008, October 1999 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

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that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

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VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times/Preservation

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis (preserved) 7 days from collection to analysis (non-preserved)	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis	Cool to <6 °C.

Note:

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
PCTP-66R(8-10) (04-24-2019) (primary analysis) S-144 (15-17) (04-24-2019)	1,2-Dichloroethane-d4	AC
	4-Bromofluorobenzene	>UL
	Dibromofluoromethane	AC
	Toluene-d8	AC

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Notes:

UL	Upper control limit
AC	Acceptable

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
	Detect	J
< LL but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with MS/MSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

Sample Locations	Compound
S-120(0-1) (04-24-2019)	1,2-Dichlorobenzene 1,4-Dichlorobenzene

The criteria used to evaluate the RPD between the MS/MSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

The LCS/LCSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

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6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PCTP-66R(0-0.5) (04-24-2019)/ SO-DUP-0424 (04-24-2019)	Acetone	20 U	19.9	AC

Notes:

AC Acceptable
NC Not compliant

Benzene associated with sample locations PSSTP-07R (0.5-2) (04-18-2019) and SO-DUP-0418 (04-18-2019) exhibited a field duplicate RPD greater than the control limit. The associated sample results from these sample locations for the listed analyte were qualified as estimated.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

The laboratory narrative indicates internal standard deviations. These deviations are normally not evaluated in a tier II data review. Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

Sample locations associated with internal standards exhibiting responses outside of the control limits are presented in the following table.

Sample Locations	Internal Standard	Response
PCTP-66R(8-10) (04-24-2019)	1,4-Dichlorobenzene-d4	< LL but > 25%

The criteria used to evaluate the internal standard responses are presented in the following table. In the case of an internal standard deviation, the compounds quantitated under the deviant internal standard are qualified as documented in the table below.

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Control limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No action
	Detect	J
< the lower control limit (LL) but > 25%	Non-detect	UJ
	Detect	J
< 25%	Non-detect	R
	Detect	J

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Trip blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)		X		X	
Matrix Spike Duplicate(MSD)		X		X	
MS/MSD Precision (RPD)		X	X		
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

- %RSD Relative standard deviation
- %R Percent recovery
- RPD Relative percent difference
- %D Percent difference

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SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

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Sample Locations	Compound	MS Recovery	MSD Recovery
S-120(0-1) (04-24-2019)	2,6-Dinitrotoluene	<LL but >10%	AC
	3,3'-Dichlorobenzidine	< 10%	< 10%
S-113B(1-3) (04-24-2019)	2,4-Dinitrophenol	AC	< 10%
	4,6-Dinitro-o-cresol	< 10%	< 10%
	Acenaphthene	AC	>UL
	1,1'-Biphenyl	AC	>UL
	Carbazole	>UL	>UL
	Dibenzofuran	>UL	>UL
	Hexachlorocyclopentadiene	< 10%	< 10%
	2-Methylnaphthalene	>UL	>UL
	Naphthalene	>UL	>UL

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

Sample locations associated with MS/MSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

Sample Locations	Compound
S-120(0-1) (04-24-2019)	Benzo(a)anthracene Benzo(a)pyrene Benzo(g,h,i)perylene Fluoranthene Indeno(1,2,3-cd)pyrene Phenanthrene Pyrene
S-113B(1-3) (04-24-2019)	Acenaphthene 1,1'-Biphenyl 3,3'-Dichlorobenzidine

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Sample Locations	Compound
	1,4-Dioxane Dibenzofuran 2-Methylnaphthalene Naphthalene

The criteria used to evaluate the RPD between the MS/MSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

The LCS/LCSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PCTP-66R(0-0.5) (04-24-2019)/ SO-DUP-0424 (04-24-2019)	1,1-Biphenyl	226	4330	NC
	2-Methylnaphthalene	486	10500	NC
	3-Methylphenol, 4-Methylphenol	37 J	420 U	AC
	Acenaphthene	244	4390	178.9 %
	Acenaphthylene	2640	45600	178.1 %
	Acetophenone	32.9 J	1000 U	AC
	Anthracene	4160	70900	177.8 %
	Benz(a)anthracene	8880	77600	158.9 %
	Benzaldehyde	29.7 J	1000 U	AC
	Benzo(a)pyrene	9200	67800	152.2 %

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Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
	Benzo(b)fluoranthene	11700	85600	151.9 %
	Benzo(g,h,i)perylene	5990	38100	145.6 %
	Benzo(k)fluoranthene	2660	27000	164.1 %
	bis(2-Ethylhexyl)phthalate	172	420 U	AC
	Carbazole	1440	19700	172.7 %
	Chrysene	8370	65700	154.7 %
	Dibenz(a,h)anthracene	1450	10100	149.7 %
	Dibenzofuran	1560	39800	184.9 %
	Fluoranthene	19800	200000	163.9 %
	Fluorene	3110	76200	184.3 %
	Indeno(1,2,3-cd)pyrene	6390	42900	148.1 %
	Naphthalene	782	11200	173.8 %
	Phenanthrene	18300	296000	176.7 %
	Phenol	36.4 J	111 J	AC
	Pyrene	15700	147000	161.4 %

Notes:

AC Acceptable
 NC Not compliant

Several compounds associated with sample locations PCTP-66R(0-0.5) (04-24-2019) and SO-DUP-0424 (04-24-2019) exhibited a field duplicate RPD greater than the control limit. The associated sample results from these sample locations for the analytes outside criteria were qualified as estimated.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

Several samples were diluted to bring target compounds within linear range of the instrument. Sample results that were reported from a secondary dilution were qualified with a "D", indicating the result is diluted.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R		X	X		
MS/MSD Precision (RPD)		X	X		
Field/Lab Duplicate (RPD)		X	X		
Surrogate Spike Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

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PESTICIDE ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8081A	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. Herbicide analysis requires that one of the two pesticide surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
PCTP-66R(8-10)	Tetrachloro-m-xylene	> UL
	Decachlorobiphenyl	AC
PSSTP-22R(0.5-2)	Tetrachloro-m-xylene	AC
	Decachlorobiphenyl	> UL

Notes:

Acceptable (AC)

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The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD was not performed on a sample within this SDG.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 40% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PCTP-66R(0-0.5) (04-24-2019)/	4,4-DDE	4.7	4.7	0.0 %
SO-DUP-0424 (04-24-2019)	4,4-DDT	18.4	22.2	18.7 %

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Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
	Dieldrin	0.75 U	4.3	NC
	Endosulfan sulfate	13.6	0.78 U	NC
	Heptachlor epoxide	0.75 U	1.1	AC

Notes:

AC Acceptable
 NC Not compliant

Dieldrin and Endosulfan sulfate associated with sample locations PCTP-66R(0-0.5) (04-24-2019) and SO-DUP-0424 (04-24-2019) exhibited a field duplicate RPD greater than the control limit. The associated sample results from these sample locations for the listed analytes were qualified as estimated.

7. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows for both the primary and confirmation columns. When dual column analysis is performed the percent difference (%D) of detected sample results must be less than 40%.

Sample locations associated with %D analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	%D
PCTP-66R(0-0.5)	4,4'-DDE	62.8%
	4,4'-DDT	40.3%
SO-DUP-0424	4,4'-DDE	59.7%
	Heptachlor epoxide	48.3%
PSSTP-22R(0.5-2)	4,4'-DDD	87.3%

The criteria used to evaluate the %D are presented in the following table. In the case of a %D deviation, the sample results are qualified as documented in the table below.

Control Limit (%D)	Qualification
>40% to 70%	J
>70% to 100%	JN
>100% ¹	R
>100% to 200% (Interference detected) ²	J or JN
>50% (pesticide) sample results less than the RL)	U

When the pesticide sample results are less than the RL and the %D greater than 50% the sample result are raised to the RL and reported as non-detect.

Notes:

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- 1: If the pattern is confirmed sample results will be qualified as estimated (J). If pattern exhibits interference or if the pesticide cannot be positively determined due to weathering the sample results will be qualified as tentative identification estimate (JN).
- 2: If interference is detected in either column the sample results will be qualified as tentative identification estimate (JN).

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR PESTICIDES

Pesticides; SW-846 8081	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)	X				X
Matrix Spike Duplicate(MSD)	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X	X		
Surrogate Spike Recoveries		X	X		
Column %D ≤ 40% (If dual column is performed for reporting-not confirmation)		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%RSD – relative standard deviation

%R - percent recovery

RPD - relative percent difference

%D – difference.

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POLYCHLORINATED BIPHENYLS (PCBs) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8082A	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. PCB analysis requires that one of the two PCB surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
PCTP-66R(8-10)	Tetrachloro-m-xylene	> UL
	Decachlorobiphenyl	AC

Notes:

Acceptable (AC)

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

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Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD was not performed on a sample within this SDG.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PCTP-66R(0-0.5) (04-24-2019)/ SO-DUP-0424 (04-24-2019)	Aroclor 1262	249	336	29.7%

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

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7. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows for both the primary and confirmation columns. When dual column analysis is performed the relative percent difference (%RPD) of detected sample results must be less than 40%.

All Aroclors exhibited RPD between columns within the control limit.

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR PCBs

PCBs; SW-846 8082A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X	X		
Column (%D) (If dual column is performed-not confirmation purposes only)		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

%R - percent recovery

RPD - relative percent difference

%D – difference

DATA REVIEW REPORT

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6010D, 7471A, and 9012B. Data were reviewed in accordance with the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA 540/R-2017-001, January 2017; and the USEPA CLP National Functional Guidelines for Inorganic Data Review, EPA 540-R-01-008, July 2002 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6010D	Water	180 days from collection to analysis	Preserved to a pH of less than 2.
	Soil	180 days from collection to analysis	Cool to <6 °C.
SW-846 7471A	Soil	28 days from collection to analysis	Cool to <6 °C.
SW-846 7470A	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL and/or were non-detect. No qualification of the sample results was required.

3. Matrix Spike (MS)/Matrix Spike Duplicate(MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analyte present in the table below.

DATA REVIEW REPORT

Sample Location	Analyte	MS Recovery	MSD Recovery
S-120(0-1) (04-24-2019)	Calcium	65.0%	77.7%
	Zinc	<30%	<30%
	Aluminum	141.3%	164.7%
	Antimony	71.9%	67.3%
	Barium	<30%	<30%
	Mercury	59.9%	49.8%
S-113B(1-3) (04-24-2019)	Aluminum	134.6%	112.4%
	Antimony	70.5%	73.7%
	Magnesium	126.2%	93.3%
	Calcium	114.3%	74.8%

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications for all metals are applied to all sample results associated with this SDG. The parent samples are only qualified for analytes outside criteria in their corresponding MS/MSD, all other samples are qualified for all analytes outside criteria.

Control limit	Sample Result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery <30%	Non-detect	R
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD analysis exhibited RPDs within the control limits.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

DATA REVIEW REPORT

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PCTP-66R(0-0.5) (04-24-2019)/ SO-DUP-0424 (04-24-2019)	Aluminum	7560	6890	9.2 %
	Antimony	2.8	3.0	6.8 %
	Arsenic	66.6	60.7	9.2 %
	Barium	204	99	69.3 %
	Beryllium	1.1	0.9	20.0 %
	Cadmium	3	2.8	6.8 %
	Calcium	8670	5280	48.6 %
	Chromium	23.2	23.9	2.9 %
	Cobalt	6.0 J	6.4	6.4 %
	Copper	217	217	0.0 %
	Iron	12400	13600	9.2 %
	Lead	392	386	1.5 %
	Magnesium	3560	2390	39.3 %
	Manganese	595	375	45.3 %
	Nickel	32.1	32.3	0.6 %
	Potassium	890 J	1300 U	AC
	Selenium	0.88 J	2.6 U	AC
	Silver	0.22 J	0.64 U	AC
	Sodium	180 J	1300 U	AC
Vanadium	27.1	28.4	4.6 %	
Zinc	490	501	2.2 %	

Notes:

AC Acceptable

Barium associated with samples locations PCTP-66R(0-0.5) (04-24-2019) and SO-DUP-0424 (04-24-2019) exhibited a field duplicate RPD greater than the control limit. The associated sample results from all sample locations for the listed analyte were qualified as estimated.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

DATA REVIEW REPORT

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR METAL

METALS; SW846 6010D/7471A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field Blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate (MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X	X		
Total vs. Dissolved	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Cyanide by SW-846 9012	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of greater than 12.
	Soil		Cool to <6 °C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analyte present in the table below.

Sample Location	Analyte	MS Recovery
S-120(0-1) (04-24-2019)	Cyanide	126.9%
S-113B(1-3) (04-24-2019)	Cyanide	1105%

DATA REVIEW REPORT

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications are applied to all sample results associated with this SDG.

Control limit	Sample Result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery <30%	Non-detect	R
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

The laboratory duplicate analysis exhibited RPD within control limits.

4. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PCTP-66R(0-0.5) (04-24-2019)/ SO-DUP-0424 (04-24-2019)	Cyanide	0.54	1.1	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

DATA REVIEW REPORT

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: EPA 9012	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Dilution Factor		X		X	
Moisture Content					X

Notes:

%R - percent recovery

RPD - relative percent difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: July 20, 2019

PEER REVIEW: Dennis Capria

DATE: July 23, 2019

CHAIN OF CUSTODY SAMPLE ANALYSIS DATA SHEETS





SLL

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com/ehsausa

L

Form containing Client/Reporting Information, Project Information, Requested Analysis, Matrix Codes, and a table of samples with columns for Field ID, Date, Time, Matrix, # of bottles, and various analysis results.

5.1
5



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Report of Analysis

Page 1 of 2

Client Sample ID:	PCTP-66R(0-0.5)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-1	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	79.6
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151601.D	1	05/01/19 11:34	PS	n/a	n/a	V3C6814
Run #2							

Run #	Initial Weight
Run #1	3.1 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	20	10	ug/kg	
71-43-2	Benzene	ND	1.0	0.76	ug/kg	
74-97-5	Bromochloromethane	ND	10	0.87	ug/kg	
75-27-4	Bromodichloromethane	ND	4.1	0.90	ug/kg	
75-25-2	Bromoform	ND	10	0.82	ug/kg	
74-83-9	Bromomethane	ND	10	2.0	ug/kg	
78-93-3	2-Butanone (MEK)	ND	20	7.6	ug/kg	
75-15-0	Carbon disulfide	ND	4.1	1.9	ug/kg	
56-23-5	Carbon tetrachloride	ND	4.1	1.1	ug/kg	
108-90-7	Chlorobenzene	ND	4.1	0.72	ug/kg	
75-00-3	Chloroethane	ND	10	1.4	ug/kg	
67-66-3	Chloroform	ND	4.1	0.75	ug/kg	
74-87-3	Chloromethane	ND	10	4.0	ug/kg	
110-82-7	Cyclohexane	ND	4.1	0.82	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	4.1	1.7	ug/kg	
124-48-1	Dibromochloromethane	ND	4.1	0.68	ug/kg	
106-93-4	1,2-Dibromoethane	ND	2.0	0.66	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	2.0	0.62	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	2.0	0.73	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	2.0	0.70	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	10	1.3	ug/kg	
75-34-3	1,1-Dichloroethane	ND	2.0	0.78	ug/kg	
107-06-2	1,2-Dichloroethane	ND	2.0	0.95	ug/kg	
75-35-4	1,1-Dichloroethene	ND	2.0	1.3	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	2.0	1.9	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	2.0	1.4	ug/kg	
78-87-5	1,2-Dichloropropane	ND	4.1	0.82	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	4.1	0.71	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	4.1	0.66	ug/kg	
100-41-4	Ethylbenzene	ND	2.0	1.1	ug/kg	
76-13-1	Freon 113	ND	10	1.5	ug/kg	
591-78-6	2-Hexanone	ND	10	2.6	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-66R(0-0.5)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-1	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	79.6
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	4.1	1.4	ug/kg	
79-20-9	Methyl Acetate	ND	10	2.8	ug/kg	
108-87-2	Methylcyclohexane	ND	4.1	1.4	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	2.0	0.71	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK ^a)	ND	10	3.2	ug/kg	
75-09-2	Methylene chloride	ND	10	5.1	ug/kg	
100-42-5	Styrene	ND	4.1	1.2	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	4.1	0.79	ug/kg	
127-18-4	Tetrachloroethene	ND	4.1	0.94	ug/kg	
108-88-3	Toluene	ND	2.0	0.76	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	10	2.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	10	2.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	4.1	0.86	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	4.1	0.69	ug/kg	
79-01-6	Trichloroethene	ND	2.0	1.5	ug/kg	
75-69-4	Trichlorofluoromethane ^b	ND	10	1.4	ug/kg	UU
75-01-4	Vinyl chloride	ND	4.1	0.95	ug/kg	
	m,p-Xylene	ND	2.0	1.5	ug/kg	
95-47-6	o-Xylene	ND	2.0	1.2	ug/kg	
1330-20-7	Xylene (total)	ND	2.0	1.2	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		75-127%
17060-07-0	1,2-Dichloroethane-D4	101%		75-130%
2037-26-5	Toluene-D8	105%		80-120%
460-00-4	4-Bromofluorobenzene	108%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCTP-66R(0-0.5)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-1	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	79.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P59166.D	1	05/02/19 17:52	CC	04/29/19 06:45	OP20043	E5P2795
Run #2	5P59221.D	10	05/03/19 20:08	CC	04/29/19 06:45	OP20043	E5P2797

Run #	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2	30.2 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	83	21	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	210	26	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	210	35	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	210	74	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	210	160	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	210	45	ug/kg	
95-48-7	2-Methylphenol	ND	83	27	ug/kg	
	3&4-Methylphenol	37.0	83	34	ug/kg	J
88-75-5	2-Nitrophenol	ND	210	27	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	420	110	ug/kg	
87-86-5	Pentachlorophenol	ND	170	39	ug/kg	
108-95-2	Phenol	36.4	83	22	ug/kg	J
58-90-2	2,3,4,6-Tetrachlorophenol	ND	210	28	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	210	31	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	210	25	ug/kg	
83-32-9	Acenaphthene	244	42	14	ug/kg	J
208-96-8	Acenaphthylene	2640	42	21	ug/kg	J
98-86-2	Acetophenone	32.9	210	8.9	ug/kg	J
120-12-7	Anthracene	4160	42	26	ug/kg	J
1912-24-9	Atrazine	ND	83	18	ug/kg	
56-55-3	Benzo(a)anthracene	8880 ^b	420	120	ug/kg	DJ
50-32-8	Benzo(a)pyrene	9200 ^b	420	190	ug/kg	DJ
205-99-2	Benzo(b)fluoranthene	11700 ^b	420	180	ug/kg	DJ
191-24-2	Benzo(g,h,i)perylene	5990 ^b	420	210	ug/kg	DJ
207-08-9	Benzo(k)fluoranthene	2660	42	19	ug/kg	J
101-55-3	4-Bromophenyl phenyl ether	ND	83	16	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	83	10	ug/kg	
92-52-4	1,1'-Biphenyl	226	83	5.7	ug/kg	J
100-52-7	Benzaldehyde	29.7	210	10	ug/kg	J
91-58-7	2-Chloronaphthalene	ND	83	9.9	ug/kg	
106-47-8	4-Chloroaniline	ND	210	15	ug/kg	
86-74-8	Carbazole	1440	83	6.0	ug/kg	J

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-66R(0-0.5)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-1	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	79.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	83	16	ug/kg	
218-01-9	Chrysene	8370 ^b	420	130	ug/kg	DJ
111-91-1	bis(2-Chloroethoxy)methane	ND	83	8.9	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	83	18	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane) ^a	ND	83	15	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	83	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	42	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	42	21	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	83	35	ug/kg	
123-91-1	1,4-Dioxane	ND	42	27	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	1450	42	18	ug/kg	J
132-64-9	Dibenzofuran	1560	83	17	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	83	6.8	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	83	10	ug/kg	
84-66-2	Diethyl phthalate	ND	83	8.9	ug/kg	
131-11-3	Dimethyl phthalate	ND	83	7.4	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	172	83	9.7	ug/kg	J
206-44-0	Fluoranthene	19800 ^b	420	190	ug/kg	DJ
86-73-7	Fluorene	3110	42	19	ug/kg	
118-74-1	Hexachlorobenzene	ND	83	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	42	17	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	420	17	ug/kg	
67-72-1	Hexachloroethane	ND	210	21	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	6390 ^b	420	200	ug/kg	DJ
78-59-1	Isophorone ^a	ND	83	8.9	ug/kg	
91-57-6	2-Methylnaphthalene	486	42	9.4	ug/kg	J
88-74-4	2-Nitroaniline ^a	ND	210	9.8	ug/kg	
99-09-2	3-Nitroaniline	ND	210	10	ug/kg	
100-01-6	4-Nitroaniline	ND	210	11	ug/kg	
91-20-3	Naphthalene	782	42	12	ug/kg	J
98-95-3	Nitrobenzene	ND	83	16	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	83	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	210	15	ug/kg	
85-01-8	Phenanthrene	18300 ^b	420	140	ug/kg	DJ
129-00-0	Pyrene	15700 ^b	420	130	ug/kg	DJ
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	210	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	43%	43%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-66R(0-0.5) Lab Sample ID: JC86916-1 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/24/19 Date Received: 04/24/19 Percent Solids: 79.6
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	49%	48%	27-114%
118-79-6	2,4,6-Tribromophenol	49%	52%	19-152%
4165-60-0	Nitrobenzene-d5	58%	61%	26-134%
321-60-8	2-Fluorobiphenyl	58%	67%	39-124%
1718-51-0	Terphenyl-d14	55%	61%	36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.1
4

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Report of Analysis

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Client Sample ID:	PCTP-66R(0-0.5)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-1	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	79.6
Method:	SW846 8081B SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G64668.D	1	05/03/19 21:46	MH	05/02/19 10:30	OP20020	G6G2001
Run #2							

Run #	Initial Weight	Final Volume
Run #1	16.8 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.75	0.62	ug/kg	
319-84-6	alpha-BHC	ND	0.75	0.61	ug/kg	
319-85-7	beta-BHC	ND	0.75	0.68	ug/kg	
319-86-8	delta-BHC	ND	0.75	0.72	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.75	0.55	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.75	0.60	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.75	0.34	ug/kg	
60-57-1	Dieldrin	ND	0.75	0.51	ug/kg	UJ
72-54-8	4,4'-DDD	ND	0.75	0.69	ug/kg	
72-55-9	4,4'-DDE ^a	4.7	0.75	0.66	ug/kg	J
50-29-3	4,4'-DDT ^a	18.4	0.75	0.66	ug/kg	J
72-20-8	Endrin	ND	0.75	0.58	ug/kg	
1031-07-8	Endosulfan sulfate	13.6	0.75	0.58	ug/kg	J
7421-93-4	Endrin aldehyde	ND	0.75	0.42	ug/kg	
959-98-8	Endosulfan-I	ND	0.75	0.43	ug/kg	
33213-65-9	Endosulfan-II	ND	0.75	0.47	ug/kg	
76-44-8	Heptachlor	ND	0.75	0.64	ug/kg	
1024-57-3	Heptachlor epoxide	ND	0.75	0.52	ug/kg	
72-43-5	Methoxychlor	ND	1.5	0.59	ug/kg	
53494-70-5	Endrin ketone	ND	0.75	0.54	ug/kg	
8001-35-2	Toxaphene	ND	19	17	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	100%		25-135%
877-09-8	Tetrachloro-m-xylene	79%		25-135%
2051-24-3	Decachlorobiphenyl	79%		10-156%
2051-24-3	Decachlorobiphenyl	184% ^b		10-156%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

(b) Outside control limits due to matrix interference.

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 1

Client Sample ID: PCTP-66R(0-0.5)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-1	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 79.6
Method: SW846 8082A SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX2434628.D	1	05/04/19 19:18	TR	05/02/19 10:30	OP20019	GXX6680
Run #2							

Run #	Initial Weight	Final Volume
Run #1	16.8 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	37	17	ug/kg	
11104-28-2	Aroclor 1221	ND	37	19	ug/kg	
11141-16-5	Aroclor 1232	ND	37	29	ug/kg	
53469-21-9	Aroclor 1242	ND	37	15	ug/kg	
12672-29-6	Aroclor 1248	ND	37	33	ug/kg	
11097-69-1	Aroclor 1254	ND	37	20	ug/kg	
11096-82-5	Aroclor 1260	ND	37	16	ug/kg	
11100-14-4	Aroclor 1268	ND	37	16	ug/kg	
37324-23-5	Aroclor 1262	249	37	24	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	88%		31-146%
877-09-8	Tetrachloro-m-xylene	107%		31-146%
2051-24-3	Decachlorobiphenyl	85%		17-164%
2051-24-3	Decachlorobiphenyl	245% ^a		17-164%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 2

Client Sample ID:	PCTP-66R(0.5-2.0)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-2	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	90.0
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151602.D	1	05/01/19 11:57	PS	n/a	n/a	V3C6814
Run #2							

Run #	Initial Weight
Run #1	4.5 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	12	6.2	ug/kg	
71-43-2	Benzene	ND	0.62	0.47	ug/kg	
74-97-5	Bromochloromethane	ND	6.2	0.53	ug/kg	
75-27-4	Bromodichloromethane	ND	2.5	0.55	ug/kg	
75-25-2	Bromoform	ND	6.2	0.50	ug/kg	
74-83-9	Bromomethane	ND	6.2	1.2	ug/kg	
78-93-3	2-Butanone (MEK)	ND	12	4.6	ug/kg	
75-15-0	Carbon disulfide	ND	2.5	1.1	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.5	0.68	ug/kg	
108-90-7	Chlorobenzene	ND	2.5	0.44	ug/kg	
75-00-3	Chloroethane	ND	6.2	0.85	ug/kg	
67-66-3	Chloroform	ND	2.5	0.46	ug/kg	
74-87-3	Chloromethane	ND	6.2	2.4	ug/kg	
110-82-7	Cyclohexane	ND	2.5	0.50	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.5	1.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.5	0.42	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.2	0.40	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.2	0.38	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.2	0.44	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.2	0.42	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.2	0.78	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.2	0.48	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.2	0.58	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.2	0.81	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.2	1.2	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.2	0.82	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.5	0.50	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.5	0.43	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.5	0.40	ug/kg	
100-41-4	Ethylbenzene	ND	1.2	0.68	ug/kg	
76-13-1	Freon 113	ND	6.2	0.94	ug/kg	
591-78-6	2-Hexanone	ND	6.2	1.6	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-66R(0.5-2.0)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-2	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 90.0
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.5	0.86	ug/kg	
79-20-9	Methyl Acetate	ND	6.2	1.7	ug/kg	
108-87-2	Methylcyclohexane	ND	2.5	0.87	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.2	0.43	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK ^a)	ND	6.2	1.9	ug/kg	
75-09-2	Methylene chloride	ND	6.2	3.1	ug/kg	
100-42-5	Styrene	ND	2.5	0.71	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.5	0.48	ug/kg	
127-18-4	Tetrachloroethene	ND	2.5	0.57	ug/kg	
108-88-3	Toluene	ND	1.2	0.46	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.2	1.2	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.2	1.2	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.5	0.53	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.5	0.42	ug/kg	
79-01-6	Trichloroethene	ND	1.2	0.94	ug/kg	
75-69-4	Trichlorofluoromethane ^b	ND	6.2	0.84	ug/kg	UJ
75-01-4	Vinyl chloride	ND	2.5	0.58	ug/kg	
	m,p-Xylene	ND	1.2	0.92	ug/kg	
95-47-6	o-Xylene	ND	1.2	0.72	ug/kg	
1330-20-7	Xylene (total)	ND	1.2	0.72	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		75-127%
17060-07-0	1,2-Dichloroethane-D4	100%		75-130%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	102%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
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Report of Analysis

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Client Sample ID:	PCTP-66R(0.5-2.0)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-2	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	90.0
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	5P59162.D	1	05/02/19 16:20	CC	04/29/19 06:45	OP20043	E5P2795

Run #1	Initial Weight	Final Volume
Run #2	31.9 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	70	17	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	170	21	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	170	30	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	170	62	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	170	130	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	170	37	ug/kg	
95-48-7	2-Methylphenol	ND	70	22	ug/kg	
	3&4-Methylphenol	ND	70	29	ug/kg	
88-75-5	2-Nitrophenol	ND	170	23	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	350	93	ug/kg	
87-86-5	Pentachlorophenol	ND	140	33	ug/kg	
108-95-2	Phenol	ND	70	18	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	170	23	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	170	26	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	170	21	ug/kg	
83-32-9	Acenaphthene	78.7	35	12	ug/kg	
208-96-8	Acenaphthylene	116	35	18	ug/kg	
98-86-2	Acetophenone	ND	170	7.5	ug/kg	
120-12-7	Anthracene	143	35	21	ug/kg	
1912-24-9	Atrazine	ND	70	15	ug/kg	
56-55-3	Benzo(a)anthracene	393	35	9.9	ug/kg	
50-32-8	Benzo(a)pyrene	515	35	16	ug/kg	
205-99-2	Benzo(b)fluoranthene	681	35	15	ug/kg	
191-24-2	Benzo(g,h,i)perylene	421	35	17	ug/kg	
207-08-9	Benzo(k)fluoranthene	251	35	16	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	70	13	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	70	8.5	ug/kg	
92-52-4	1,1'-Biphenyl	18.5	70	4.8	ug/kg	J
100-52-7	Benzaldehyde	ND	170	8.6	ug/kg	
91-58-7	2-Chloronaphthalene	ND	70	8.3	ug/kg	
106-47-8	4-Chloroaniline	ND	170	13	ug/kg	
86-74-8	Carbazole	30.0	70	5.1	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-66R(0.5-2.0)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-2	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	90.0
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	70	14	ug/kg	
218-01-9	Chrysene	373	35	11	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	70	7.5	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	70	15	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane) ^a	ND	70	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	70	11	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	35	11	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	35	17	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	70	29	ug/kg	
123-91-1	1,4-Dioxane	ND	35	23	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	105	35	15	ug/kg	
132-64-9	Dibenzofuran	49.5	70	14	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	70	5.7	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	70	8.7	ug/kg	
84-66-2	Diethyl phthalate	ND	70	7.4	ug/kg	
131-11-3	Dimethyl phthalate	ND	70	6.2	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	70	8.2	ug/kg	
206-44-0	Fluoranthene	624	35	16	ug/kg	
86-73-7	Fluorene	86.6	35	16	ug/kg	
118-74-1	Hexachlorobenzene	ND	70	8.8	ug/kg	
87-68-3	Hexachlorobutadiene	ND	35	14	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	350	14	ug/kg	
67-72-1	Hexachloroethane	ND	170	17	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	444	35	16	ug/kg	
78-59-1	Isophorone ^a	ND	70	7.5	ug/kg	
91-57-6	2-Methylnaphthalene	106	35	7.9	ug/kg	
88-74-4	2-Nitroaniline ^a	ND	170	8.2	ug/kg	
99-09-2	3-Nitroaniline	ND	170	8.7	ug/kg	
100-01-6	4-Nitroaniline	ND	170	9.0	ug/kg	
91-20-3	Naphthalene	29.4	35	9.8	ug/kg	J
98-95-3	Nitrobenzene	ND	70	13	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	70	10	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	170	13	ug/kg	
85-01-8	Phenanthrene	348	35	12	ug/kg	
129-00-0	Pyrene	523	35	11	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	170	8.8	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	63%		23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-66R(0.5-2.0) Lab Sample ID: JC86916-2 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/24/19 Date Received: 04/24/19 Percent Solids: 90.0
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	69%		27-114%
118-79-6	2,4,6-Tribromophenol	64%		19-152%
4165-60-0	Nitrobenzene-d5	76%		26-134%
321-60-8	2-Fluorobiphenyl	70%		39-124%
1718-51-0	Terphenyl-d14	63%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

4.2
4

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Report of Analysis

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Client Sample ID:	PCTP-66R(0.5-2.0)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-2	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	90.0
Method:	SW846 8081B SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G64669.D	1	05/03/19 22:05	MH	05/02/19 10:30	OP20020	G6G2001
Run #2							

Run #	Initial Weight	Final Volume
Run #1	16.1 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.69	0.57	ug/kg	
319-84-6	alpha-BHC	ND	0.69	0.56	ug/kg	
319-85-7	beta-BHC	ND	0.69	0.62	ug/kg	
319-86-8	delta-BHC	ND	0.69	0.66	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.69	0.51	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.69	0.56	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.69	0.31	ug/kg	
60-57-1	Dieldrin	ND	0.69	0.47	ug/kg	
72-54-8	4,4'-DDD	ND	0.69	0.63	ug/kg	
72-55-9	4,4'-DDE	ND	0.69	0.61	ug/kg	
50-29-3	4,4'-DDT	ND	0.69	0.61	ug/kg	
72-20-8	Endrin	ND	0.69	0.54	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.69	0.54	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.69	0.39	ug/kg	
959-98-8	Endosulfan-I	ND	0.69	0.40	ug/kg	
33213-65-9	Endosulfan-II	ND	0.69	0.43	ug/kg	
76-44-8	Heptachlor	ND	0.69	0.59	ug/kg	
1024-57-3	Heptachlor epoxide	ND	0.69	0.48	ug/kg	
72-43-5	Methoxychlor	ND	1.4	0.55	ug/kg	
53494-70-5	Endrin ketone	ND	0.69	0.50	ug/kg	
8001-35-2	Toxaphene	ND	17	16	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	88%		25-135%
877-09-8	Tetrachloro-m-xylene	81%		25-135%
2051-24-3	Decachlorobiphenyl	74%		10-156%
2051-24-3	Decachlorobiphenyl	89%		10-156%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCTP-66R(0.5-2.0)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-2	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	90.0
Method:	SW846 8082A SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX2434633.D	1	05/04/19 20:50	TR	05/02/19 10:30	OP20019	GXX6680
Run #2							

Run #	Initial Weight	Final Volume
Run #1	16.1 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	35	16	ug/kg	
11104-28-2	Aroclor 1221	ND	35	18	ug/kg	
11141-16-5	Aroclor 1232	ND	35	27	ug/kg	
53469-21-9	Aroclor 1242	ND	35	14	ug/kg	
12672-29-6	Aroclor 1248	ND	35	31	ug/kg	
11097-69-1	Aroclor 1254	ND	35	19	ug/kg	
11096-82-5	Aroclor 1260	ND	35	15	ug/kg	
11100-14-4	Aroclor 1268	ND	35	15	ug/kg	
37324-23-5	Aroclor 1262	ND	35	23	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	96%		31-146%
877-09-8	Tetrachloro-m-xylene	98%		31-146%
2051-24-3	Decachlorobiphenyl	87%		17-164%
2051-24-3	Decachlorobiphenyl	112%		17-164%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Client Sample ID:	PCTP-66R(8-10)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-3	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	58.2
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151603.D	1	05/01/19 12:20	PS	n/a	n/a	V3C6814
Run #2	I225915.D	1	05/02/19 13:14	TDN	n/a	n/a	VI9101

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.0 g		
Run #2	4.5 g	10.0 ml	100 ul

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	238	21	11	ug/kg	J
71-43-2	Benzene	9.3	1.1	0.81	ug/kg	J
74-97-5	Bromochloromethane	ND	11	0.92	ug/kg	
75-27-4	Bromodichloromethane	ND	4.3	0.95	ug/kg	
75-25-2	Bromoform	ND	11	0.87	ug/kg	
74-83-9	Bromomethane	ND	11	2.1	ug/kg	
78-93-3	2-Butanone (MEK)	36.8	21	8.0	ug/kg	J
75-15-0	Carbon disulfide	2.1	4.3	2.0	ug/kg	J
56-23-5	Carbon tetrachloride	ND	4.3	1.2	ug/kg	
108-90-7	Chlorobenzene	ND	4.3	0.76	ug/kg	
75-00-3	Chloroethane	ND	11	1.5	ug/kg	
67-66-3	Chloroform	ND	4.3	0.80	ug/kg	
74-87-3	Chloromethane	ND	11	4.2	ug/kg	
110-82-7	Cyclohexane	12.2	4.3	0.87	ug/kg	J
96-12-8	1,2-Dibromo-3-chloropropane	ND	4.3	1.8	ug/kg	JJ
124-48-1	Dibromochloromethane	ND	4.3	0.73	ug/kg	
106-93-4	1,2-Dibromoethane	ND	2.1	0.70	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	2.1	0.66	ug/kg	JJ
541-73-1	1,3-Dichlorobenzene	ND	2.1	0.77	ug/kg	JJ
106-46-7	1,4-Dichlorobenzene	ND	2.1	0.74	ug/kg	JJ
75-71-8	Dichlorodifluoromethane	ND	11	1.4	ug/kg	
75-34-3	1,1-Dichloroethane	ND	2.1	0.83	ug/kg	
107-06-2	1,2-Dichloroethane	ND	2.1	1.0	ug/kg	
75-35-4	1,1-Dichloroethene	ND	2.1	1.4	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	2.1	2.1	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	2.1	1.4	ug/kg	
78-87-5	1,2-Dichloropropane	ND	4.3	0.87	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	4.3	0.76	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	4.3	0.70	ug/kg	
100-41-4	Ethylbenzene	272	2.1	1.2	ug/kg	J
76-13-1	Freon 113	ND	11	1.6	ug/kg	
591-78-6	2-Hexanone	ND	11	2.7	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-66R(8-10)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-3	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	58.2
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	6370 ^a	450	160	ug/kg	D
79-20-9	Methyl Acetate	ND	11	3.0	ug/kg	
108-87-2	Methylcyclohexane	77.3	4.3	1.5	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	2.1	0.76	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK) ^b	ND	11	3.4	ug/kg	
75-09-2	Methylene chloride	ND	11	5.4	ug/kg	
100-42-5	Styrene	ND	4.3	1.2	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	4.3	0.84	ug/kg	UJ
127-18-4	Tetrachloroethene	ND	4.3	0.99	ug/kg	
108-88-3	Toluene	25.0	2.1	0.81	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	11	2.1	ug/kg	UJ
120-82-1	1,2,4-Trichlorobenzene	ND	11	2.1	ug/kg	UJ
71-55-6	1,1,1-Trichloroethane	ND	4.3	0.91	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	4.3	0.73	ug/kg	
79-01-6	Trichloroethene	ND	2.1	1.6	ug/kg	
75-69-4	Trichlorofluoromethane ^c	ND	11	1.5	ug/kg	UJ
75-01-4	Vinyl chloride	ND	4.3	1.0	ug/kg	
	m,p-Xylene	49.0	2.1	1.6	ug/kg	J
95-47-6	o-Xylene	160	2.1	1.3	ug/kg	J
1330-20-7	Xylene (total)	209	2.1	1.3	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	114%	107%	75-127%
17060-07-0	1,2-Dichloroethane-D4	107%	116%	75-130%
2037-26-5	Toluene-D8	117%	100%	80-120%
460-00-4	4-Bromofluorobenzene	156% ^d	107%	79-127%

(a) Result is from Run# 2

(b) Associated CCV outside of control limits high, sample was ND.

(c) Associated CCV outside of control limits low.

(d) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-66R(8-10)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-3	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	58.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	5P59170.D	2	05/02/19 19:23	CC	04/29/19 06:45	OP20043	E5P2795
Run #2	5P59218.D	20	05/03/19 18:59	CC	04/29/19 06:45	OP20043	E5P2797
Run #3	5P59212.D	200	05/03/19 16:43	CC	04/29/19 06:45	OP20043	E5P2797

Run #	Initial Weight	Final Volume
Run #1	31.0 g	1.0 ml
Run #2	31.0 g	1.0 ml
Run #3	31.0 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	220	55	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	550	68	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	550	95	ug/kg	
105-67-9	2,4-Dimethylphenol ^b	ND	550	200	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	550	420	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	550	120	ug/kg	
95-48-7	2-Methylphenol	ND	220	71	ug/kg	
	3&4-Methylphenol	907	220	91	ug/kg	
88-75-5	2-Nitrophenol	ND	550	73	ug/kg	
100-02-7	4-Nitrophenol ^b	ND	1100	300	ug/kg	
87-86-5	Pentachlorophenol	ND	440	100	ug/kg	
108-95-2	Phenol	150	220	58	ug/kg	J
58-90-2	2,3,4,6-Tetrachlorophenol	ND	550	73	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	550	83	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	550	66	ug/kg	
83-32-9	Acenaphthene	314000 ^c	11000	3800	ug/kg	D
208-96-8	Acenaphthylene	6520	110	56	ug/kg	
98-86-2	Acetophenone	ND	550	24	ug/kg	
120-12-7	Anthracene	203000 ^c	11000	6800	ug/kg	D
1912-24-9	Atrazine	ND	220	47	ug/kg	
56-55-3	Benzo(a)anthracene	54100 ^d	1100	310	ug/kg	D
50-32-8	Benzo(a)pyrene	35500 ^d	1100	500	ug/kg	
205-99-2	Benzo(b)fluoranthene	39300 ^d	1100	490	ug/kg	
191-24-2	Benzo(g,h,i)perylene	14100 ^d	1100	550	ug/kg	
207-08-9	Benzo(k)fluoranthene	15000 ^d	1100	520	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	220	43	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	220	27	ug/kg	
92-52-4	1,1'-Biphenyl	61100 ^d	2200	150	ug/kg	D
100-52-7	Benzaldehyde	ND	550	27	ug/kg	
91-58-7	2-Chloronaphthalene	ND	220	26	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID:	PCTP-66R(8-10)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-3	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	58.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	550	40	ug/kg	
86-74-8	Carbazole	31600 ^d	2200	160	ug/kg	D
105-60-2	Caprolactam ^b	ND	220	44	ug/kg	
218-01-9	Chrysene	58000 ^d	1100	350	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	220	24	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	220	48	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane) ^b	ND	220	40	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	220	36	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	110	34	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	110	56	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	220	92	ug/kg	
123-91-1	1,4-Dioxane	ND	110	73	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	3590	110	49	ug/kg	
132-64-9	Dibenzofuran	180000 ^c	22000	4500	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	220	18	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	220	28	ug/kg	
84-66-2	Diethyl phthalate	ND	220	24	ug/kg	
131-11-3	Dimethyl phthalate	ND	220	20	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	220	26	ug/kg	
206-44-0	Fluoranthene	250000 ^c	11000	4900	ug/kg	D
86-73-7	Fluorene	281000 ^c	11000	5100	ug/kg	D
118-74-1	Hexachlorobenzene	ND	220	28	ug/kg	
87-68-3	Hexachlorobutadiene	ND	110	45	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	1100	44	ug/kg	
67-72-1	Hexachloroethane	ND	550	55	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	14400 ^d	1100	520	ug/kg	D
78-59-1	Isophorone ^b	ND	220	24	ug/kg	
91-57-6	2-Methylnaphthalene	420000 ^c	11000	2500	ug/kg	D
88-74-4	2-Nitroaniline ^b	ND	550	26	ug/kg	
99-09-2	3-Nitroaniline	ND	550	28	ug/kg	
100-01-6	4-Nitroaniline	ND	550	29	ug/kg	
91-20-3	Naphthalene	95300 ^d	1100	310	ug/kg	D
98-95-3	Nitrobenzene	ND	220	43	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	220	32	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	550	41	ug/kg	
85-01-8	Phenanthrene	720000 ^c	11000	3700	ug/kg	D
129-00-0	Pyrene	205000 ^c	11000	3500	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	550	28	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-66R(8-10) Lab Sample ID: JC86916-3 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/24/19 Date Received: 04/24/19 Percent Solids: 58.2
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	59%	56%	0% ^e	23-115%
4165-62-2	Phenol-d5	57%	67%	58%	27-114%
118-79-6	2,4,6-Tribromophenol	88%	67%	0% ^e	19-152%
4165-60-0	Nitrobenzene-d5	62%	78%	54%	26-134%
321-60-8	2-Fluorobiphenyl	59%	82%	108%	39-124%
1718-51-0	Terphenyl-d14	62%	90%	98%	36-134%

- (a) Dilution required due to viscosity of the extract matrix.
- (b) Associated CCV outside of control limits high, sample was ND.
- (c) Result is from Run# 3
- (d) Result is from Run# 2
- (e) Outside control limits due to dilution.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID:	PCTP-66R(8-10)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-3	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	58.2
Method:	SW846 8081B SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G64670.D	1	05/03/19 22:23	MH	05/02/19 10:30	OP20020	G6G2001
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	16.6 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	1.0	0.85	ug/kg	
319-84-6	alpha-BHC	ND	1.0	0.84	ug/kg	
319-85-7	beta-BHC	ND	1.0	0.94	ug/kg	
319-86-8	delta-BHC	ND	1.0	0.99	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	1.0	0.76	ug/kg	
5103-71-9	alpha-Chlordane	ND	1.0	0.84	ug/kg	
5103-74-2	gamma-Chlordane	ND	1.0	0.47	ug/kg	
60-57-1	Dieldrin	ND	1.0	0.71	ug/kg	
72-54-8	4,4'-DDD	ND	1.0	0.95	ug/kg	
72-55-9	4,4'-DDE	ND	1.0	0.91	ug/kg	
50-29-3	4,4'-DDT	ND	1.0	0.92	ug/kg	
72-20-8	Endrin	ND	1.0	0.80	ug/kg	
1031-07-8	Endosulfan sulfate	ND	1.0	0.81	ug/kg	
7421-93-4	Endrin aldehyde	ND	1.0	0.59	ug/kg	
959-98-8	Endosulfan-I	ND	1.0	0.60	ug/kg	
33213-65-9	Endosulfan-II	ND	1.0	0.65	ug/kg	
76-44-8	Heptachlor	ND	1.0	0.89	ug/kg	
1024-57-3	Heptachlor epoxide	ND	1.0	0.73	ug/kg	
72-43-5	Methoxychlor	ND	2.1	0.82	ug/kg	
53494-70-5	Endrin ketone	ND	1.0	0.75	ug/kg	
8001-35-2	Toxaphene	ND	26	24	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	165% ^a		25-135%
877-09-8	Tetrachloro-m-xylene	108%		25-135%
2051-24-3	Decachlorobiphenyl	81%		10-156%
2051-24-3	Decachlorobiphenyl	144%		10-156%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCTP-66R(8-10)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-3	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	58.2
Method:	SW846 8082A SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX2434634.D	1	05/04/19 21:09	TR	05/02/19 10:30	OP20019	GXX6680
Run #2							

Run #	Initial Weight	Final Volume
Run #1	16.6 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	52	24	ug/kg	
11104-28-2	Aroclor 1221	ND	52	26	ug/kg	
11141-16-5	Aroclor 1232	ND	52	40	ug/kg	
53469-21-9	Aroclor 1242	ND	52	21	ug/kg	
12672-29-6	Aroclor 1248	ND	52	46	ug/kg	
11097-69-1	Aroclor 1254	ND	52	28	ug/kg	
11096-82-5	Aroclor 1260	ND	52	22	ug/kg	
11100-14-4	Aroclor 1268	ND	52	22	ug/kg	
37324-23-5	Aroclor 1262	ND	52	34	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	560% ^a		31-146%
877-09-8	Tetrachloro-m-xylene	854% ^a		31-146%
2051-24-3	Decachlorobiphenyl	72%		17-164%
2051-24-3	Decachlorobiphenyl	263% ^a		17-164%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: SO-DUP-0424		
Lab Sample ID: JC86916-4		Date Sampled: 04/24/19
Matrix: SO - Soil		Date Received: 04/24/19
Method: SW846 8260C		Percent Solids: 79.8
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y185005.D	1	05/07/19 16:11	PS	n/a	n/a	VY8028
Run #2							

Run #1	Initial Weight
Run #1	3.3 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	19.9	19	9.5	ug/kg	
71-43-2	Benzene	ND	0.95	0.72	ug/kg	
74-97-5	Bromochloromethane	ND	9.5	0.82	ug/kg	
75-27-4	Bromodichloromethane	ND	3.8	0.84	ug/kg	
75-25-2	Bromoform	ND	9.5	0.77	ug/kg	
74-83-9	Bromomethane	ND	9.5	1.9	ug/kg	
78-93-3	2-Butanone (MEK)	ND	19	7.1	ug/kg	
75-15-0	Carbon disulfide	ND	3.8	1.8	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.8	1.0	ug/kg	
108-90-7	Chlorobenzene	ND	3.8	0.67	ug/kg	
75-00-3	Chloroethane	ND	9.5	1.3	ug/kg	
67-66-3	Chloroform	ND	3.8	0.71	ug/kg	
74-87-3	Chloromethane	ND	9.5	3.7	ug/kg	
110-82-7	Cyclohexane	ND	3.8	0.77	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.8	1.6	ug/kg	
124-48-1	Dibromochloromethane	ND	3.8	0.64	ug/kg	
106-93-4	1,2-Dibromoethane ^a	ND	1.9	0.62	ug/kg	UJ
95-50-1	1,2-Dichlorobenzene	ND	1.9	0.58	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.9	0.68	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.9	0.65	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	9.5	1.2	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.9	0.73	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.9	0.89	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.9	1.2	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.9	1.8	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.9	1.3	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.8	0.77	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.8	0.67	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.8	0.62	ug/kg	
100-41-4	Ethylbenzene	ND	1.9	1.0	ug/kg	
76-13-1	Freon 113	ND	9.5	1.4	ug/kg	
591-78-6	2-Hexanone	ND	9.5	2.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SO-DUP-0424	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-4	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	79.8
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.8	1.3	ug/kg	
79-20-9	Methyl Acetate	ND	9.5	2.6	ug/kg	
108-87-2	Methylcyclohexane	ND	3.8	1.3	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.9	0.67	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	9.5	3.0	ug/kg	
75-09-2	Methylene chloride	ND	9.5	4.7	ug/kg	
100-42-5	Styrene	ND	3.8	1.1	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.8	0.74	ug/kg	
127-18-4	Tetrachloroethene	ND	3.8	0.88	ug/kg	
108-88-3	Toluene	ND	1.9	0.71	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	9.5	1.9	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	9.5	1.9	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.8	0.81	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.8	0.65	ug/kg	
79-01-6	Trichloroethene	ND	1.9	1.4	ug/kg	
75-69-4	Trichlorofluoromethane	ND	9.5	1.3	ug/kg	
75-01-4	Vinyl chloride	ND	3.8	0.89	ug/kg	
	m,p-Xylene	ND	1.9	1.4	ug/kg	
95-47-6	o-Xylene	ND	1.9	1.1	ug/kg	
1330-20-7	Xylene (total)	ND	1.9	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	113%		75-127%
17060-07-0	1,2-Dichloroethane-D4	108%		75-130%
2037-26-5	Toluene-D8	97%		80-120%
460-00-4	4-Bromofluorobenzene	94%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: SO-DUP-0424	
Lab Sample ID: JC86916-4	Date Sampled: 04/24/19
Matrix: SO - Soil	Date Received: 04/24/19
Method: SW846 8270D SW846 3546	Percent Solids: 79.8
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	5P59175.D	5	05/02/19 21:17	CC	04/29/19 06:45	OP20043	E5P2795
Run #2	5P59217.D	50	05/03/19 18:37	CC	04/29/19 06:45	OP20043	E5P2797
Run #3	5P59298.D	100	05/06/19 23:37	CC	04/29/19 06:45	OP20043	E5P2800

Run #	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2	30.1 g	1.0 ml
Run #3	30.1 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	420	100	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	1000	130	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	1000	180	ug/kg	
105-67-9	2,4-Dimethylphenol ^b	ND	1000	370	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	1000	780	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	1000	220	ug/kg	
95-48-7	2-Methylphenol	ND	420	130	ug/kg	
	3&4-Methylphenol	ND	420	170	ug/kg	
88-75-5	2-Nitrophenol	ND	1000	140	ug/kg	
100-02-7	4-Nitrophenol ^b	ND	2100	560	ug/kg	
87-86-5	Pentachlorophenol	ND	830	200	ug/kg	
108-95-2	Phenol	111	420	110	ug/kg	J
58-90-2	2,3,4,6-Tetrachlorophenol	ND	1000	140	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	1000	160	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	1000	120	ug/kg	
83-32-9	Acenaphthene	4390	210	72	ug/kg	J
208-96-8	Acenaphthylene	45600 ^c	2100	1100	ug/kg	DJ
98-86-2	Acetophenone	ND	1000	45	ug/kg	
120-12-7	Anthracene	70900 ^c	2100	1300	ug/kg	DJ
1912-24-9	Atrazine	ND	420	89	ug/kg	
56-55-3	Benzo(a)anthracene	77600 ^c	2100	590	ug/kg	DJ
50-32-8	Benzo(a)pyrene	67800 ^c	2100	950	ug/kg	
205-99-2	Benzo(b)fluoranthene	85600 ^c	2100	920	ug/kg	
191-24-2	Benzo(g,h,i)perylene	38100 ^c	2100	1000	ug/kg	
207-08-9	Benzo(k)fluoranthene	27000 ^c	2100	970	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	420	80	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	420	51	ug/kg	
92-52-4	1,1'-Biphenyl	4330	420	29	ug/kg	J
100-52-7	Benzaldehyde	ND	1000	52	ug/kg	
91-58-7	2-Chloronaphthalene	ND	420	50	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.4
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Report of Analysis

Client Sample ID:	SO-DUP-0424	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-4	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	79.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	1000	75	ug/kg	
86-74-8	Carbazole	19700	420	30	ug/kg	
105-60-2	Caprolactam ^b	ND	420	82	ug/kg	
218-01-9	Chrysene	65700 ^c	2100	660	ug/kg	DJ
111-91-1	bis(2-Chloroethoxy)methane	ND	420	45	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	420	90	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane) ^b	ND	420	75	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	420	67	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	210	65	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	210	100	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	420	170	ug/kg	
123-91-1	1,4-Dioxane	ND	210	140	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	10100	210	92	ug/kg	
132-64-9	Dibenzofuran	39800 ^c	4200	850	ug/kg	DJ
84-74-2	Di-n-butyl phthalate	ND	420	34	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	420	52	ug/kg	
84-66-2	Diethyl phthalate	ND	420	44	ug/kg	
131-11-3	Dimethyl phthalate	ND	420	37	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	420	49	ug/kg	
206-44-0	Fluoranthene	200000 ^c	2100	930	ug/kg	DJ
86-73-7	Fluorene	76200 ^c	2100	960	ug/kg	DJ
118-74-1	Hexachlorobenzene	ND	420	53	ug/kg	
87-68-3	Hexachlorobutadiene	ND	210	84	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	2100	83	ug/kg	
67-72-1	Hexachloroethane	ND	1000	100	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	42900 ^c	2100	980	ug/kg	DJ
78-59-1	Isophorone ^b	ND	420	45	ug/kg	
91-57-6	2-Methylnaphthalene	10500	210	47	ug/kg	J
88-74-4	2-Nitroaniline ^b	ND	1000	49	ug/kg	
99-09-2	3-Nitroaniline	ND	1000	52	ug/kg	
100-01-6	4-Nitroaniline	ND	1000	54	ug/kg	
91-20-3	Naphthalene	11200	210	59	ug/kg	
98-95-3	Nitrobenzene	ND	420	80	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	420	60	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	1000	76	ug/kg	
85-01-8	Phenanthrene	296000 ^d	4200	1400	ug/kg	DJ
129-00-0	Pyrene	147000 ^c	2100	670	ug/kg	DJ
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	1000	53	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SO-DUP-0424	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-4	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	79.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	39%	38%	40%	23-115%
4165-62-2	Phenol-d5	38%	42%	42%	27-114%
118-79-6	2,4,6-Tribromophenol	48%	0% ^e	36%	19-152%
4165-60-0	Nitrobenzene-d5	49%	60%	72%	26-134%
321-60-8	2-Fluorobiphenyl	57%	67%	61%	39-124%
1718-51-0	Terphenyl-d14	50%	67%	61%	36-134%

- (a) Dilution required due to viscosity of the extract matrix.
 (b) Associated CCV outside of control limits high, sample was ND.
 (c) Result is from Run# 2
 (d) Result is from Run# 3
 (e) Outside control limits due to dilution.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SO-DUP-0424	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-4	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	79.8
Method:	SW846 8081B SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G64671.D	1	05/03/19 22:41	MH	05/02/19 10:30	OP20020	G6G2001
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	16.1 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.78	0.64	ug/kg	
319-84-6	alpha-BHC	ND	0.78	0.63	ug/kg	
319-85-7	beta-BHC	ND	0.78	0.70	ug/kg	
319-86-8	delta-BHC	ND	0.78	0.75	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.78	0.57	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.78	0.63	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.78	0.35	ug/kg	
60-57-1	Dieldrin	4.3	0.78	0.53	ug/kg	J
72-54-8	4,4'-DDD	ND	0.78	0.71	ug/kg	
72-55-9	4,4'-DDE ^a	4.7	0.78	0.68	ug/kg	J
50-29-3	4,4'-DDT	22.2	0.78	0.69	ug/kg	
72-20-8	Endrin	ND	0.78	0.60	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.78	0.61	ug/kg	UU
7421-93-4	Endrin aldehyde	ND	0.78	0.44	ug/kg	
959-98-8	Endosulfan-I	ND	0.78	0.45	ug/kg	
33213-65-9	Endosulfan-II	ND	0.78	0.49	ug/kg	
76-44-8	Heptachlor	ND	0.78	0.67	ug/kg	
1024-57-3	Heptachlor epoxide ^a	1.1	0.78	0.55	ug/kg	J
72-43-5	Methoxychlor	ND	1.6	0.62	ug/kg	
53494-70-5	Endrin ketone	ND	0.78	0.56	ug/kg	
8001-35-2	Toxaphene	ND	19	18	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	88%		25-135%
877-09-8	Tetrachloro-m-xylene	66%		25-135%
2051-24-3	Decachlorobiphenyl	78%		10-156%
2051-24-3	Decachlorobiphenyl	141%		10-156%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Client Sample ID: SO-DUP-0424	
Lab Sample ID: JC86916-4	Date Sampled: 04/24/19
Matrix: SO - Soil	Date Received: 04/24/19
Method: SW846 8082A SW846 3546	Percent Solids: 79.8
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX2434635.D	1	05/04/19 21:27	TR	05/02/19 10:30	OP20019	GXX6680
Run #2							

Run #	Initial Weight	Final Volume
Run #1	16.1 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	39	18	ug/kg	
11104-28-2	Aroclor 1221	ND	39	20	ug/kg	
11141-16-5	Aroclor 1232	ND	39	30	ug/kg	
53469-21-9	Aroclor 1242	ND	39	16	ug/kg	
12672-29-6	Aroclor 1248	ND	39	35	ug/kg	
11097-69-1	Aroclor 1254	ND	39	21	ug/kg	
11096-82-5	Aroclor 1260	ND	39	17	ug/kg	
11100-14-4	Aroclor 1268	ND	39	16	ug/kg	
37324-23-5	Aroclor 1262	336	39	25	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	92%		31-146%
877-09-8	Tetrachloro-m-xylene	108%		31-146%
2051-24-3	Decachlorobiphenyl	95%		17-164%
2051-24-3	Decachlorobiphenyl	94%		17-164%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-120(0-1)		
Lab Sample ID: JC86916-5		Date Sampled: 04/24/19
Matrix: SO - Soil		Date Received: 04/24/19
Method: SW846 8260C		Percent Solids: 86.3
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	3C151600.D	1	05/01/19 11:11	PS	n/a	n/a	V3C6814

Run #1	Initial Weight
Run #2	2.1 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	28	14	ug/kg	
71-43-2	Benzene	ND	1.4	1.0	ug/kg	
74-97-5	Bromochloromethane	ND	14	1.2	ug/kg	
75-27-4	Bromodichloromethane	ND	5.5	1.2	ug/kg	
75-25-2	Bromoform	ND	14	1.1	ug/kg	
74-83-9	Bromomethane	ND	14	2.7	ug/kg	
78-93-3	2-Butanone (MEK)	ND	28	10	ug/kg	
75-15-0	Carbon disulfide	ND	5.5	2.6	ug/kg	
56-23-5	Carbon tetrachloride	ND	5.5	1.5	ug/kg	
108-90-7	Chlorobenzene	ND	5.5	0.98	ug/kg	
75-00-3	Chloroethane	ND	14	1.9	ug/kg	
67-66-3	Chloroform	ND	5.5	1.0	ug/kg	
74-87-3	Chloromethane	ND	14	5.4	ug/kg	
110-82-7	Cyclohexane	ND	5.5	1.1	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.5	2.3	ug/kg	
124-48-1	Dibromochloromethane	ND	5.5	0.93	ug/kg	
106-93-4	1,2-Dibromoethane	ND	2.8	0.90	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	2.8	0.84	ug/kg	UJ
541-73-1	1,3-Dichlorobenzene	ND	2.8	0.99	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	2.8	0.95	ug/kg	UJ
75-71-8	Dichlorodifluoromethane	ND	14	1.8	ug/kg	
75-34-3	1,1-Dichloroethane	ND	2.8	1.1	ug/kg	
107-06-2	1,2-Dichloroethane	ND	2.8	1.3	ug/kg	
75-35-4	1,1-Dichloroethene	ND	2.8	1.8	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	2.8	2.6	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	2.8	1.8	ug/kg	
78-87-5	1,2-Dichloropropane	ND	5.5	1.1	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	5.5	0.97	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.5	0.90	ug/kg	
100-41-4	Ethylbenzene	ND	2.8	1.5	ug/kg	
76-13-1	Freon 113	ND	14	2.1	ug/kg	
591-78-6	2-Hexanone	ND	14	3.5	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-120(0-1)		Date Sampled: 04/24/19
Lab Sample ID: JC86916-5		Date Received: 04/24/19
Matrix: SO - Soil		Percent Solids: 86.3
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	5.5	1.9	ug/kg	
79-20-9	Methyl Acetate	ND	14	3.8	ug/kg	
108-87-2	Methylcyclohexane	ND	5.5	2.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	2.8	0.97	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK ^a)	ND	14	4.3	ug/kg	
75-09-2	Methylene chloride	ND	14	6.9	ug/kg	
100-42-5	Styrene	ND	5.5	1.6	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	5.5	1.1	ug/kg	
127-18-4	Tetrachloroethene	ND	5.5	1.3	ug/kg	
108-88-3	Toluene	ND	2.8	1.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	14	2.8	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	14	2.8	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.5	1.2	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.5	0.94	ug/kg	
79-01-6	Trichloroethene	ND	2.8	2.1	ug/kg	
75-69-4	Trichlorofluoromethane ^b	ND	14	1.9	ug/kg	UJ
75-01-4	Vinyl chloride	ND	5.5	1.3	ug/kg	
	m,p-Xylene	ND	2.8	2.1	ug/kg	
95-47-6	o-Xylene	ND	2.8	1.6	ug/kg	
1330-20-7	Xylene (total)	ND	2.8	1.6	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		75-127%
17060-07-0	1,2-Dichloroethane-D4	99%		75-130%
2037-26-5	Toluene-D8	103%		80-120%
460-00-4	4-Bromofluorobenzene	106%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	S-120(0-1)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-5	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	86.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P59163.D	1	05/02/19 16:43	CC	04/29/19 06:45	OP20043	E5P2795
Run #2							

Run #	Initial Weight	Final Volume
Run #1	31.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	74	18	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	32	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	190	66	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	190	40	ug/kg	
95-48-7	2-Methylphenol	ND	74	24	ug/kg	
	3&4-Methylphenol	ND	74	31	ug/kg	
88-75-5	2-Nitrophenol	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	370	99	ug/kg	
87-86-5	Pentachlorophenol	ND	150	35	ug/kg	
108-95-2	Phenol	ND	74	19	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	28	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	22	ug/kg	
83-32-9	Acenaphthene	22.8	37	13	ug/kg	J
208-96-8	Acenaphthylene	115	37	19	ug/kg	
98-86-2	Acetophenone	ND	190	8.0	ug/kg	
120-12-7	Anthracene	122	37	23	ug/kg	
1912-24-9	Atrazine	ND	74	16	ug/kg	
56-55-3	Benzo(a)anthracene	417	37	11	ug/kg	J
50-32-8	Benzo(a)pyrene	516	37	17	ug/kg	J
205-99-2	Benzo(b)fluoranthene	638	37	16	ug/kg	
191-24-2	Benzo(g,h,i)perylene	407	37	19	ug/kg	J
207-08-9	Benzo(k)fluoranthene	253	37	17	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	74	14	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	74	9.1	ug/kg	
92-52-4	1,1'-Biphenyl	10.9	74	5.1	ug/kg	J
100-52-7	Benzaldehyde	11.1	190	9.2	ug/kg	J
91-58-7	2-Chloronaphthalene	ND	74	8.8	ug/kg	
106-47-8	4-Chloroaniline	ND	190	13	ug/kg	
86-74-8	Carbazole	42.0	74	5.4	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-120(0-1)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-5	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	86.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	74	15	ug/kg	
218-01-9	Chrysene	443	37	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	74	7.9	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	74	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane) ^a	ND	74	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	74	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	37	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	37	19	ug/kg	UJ
91-94-1	3,3'-Dichlorobenzidine	R ND	74	31	ug/kg	
123-91-1	1,4-Dioxane	ND	37	25	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	96.4	37	16	ug/kg	
132-64-9	Dibenzofuran	36.4	74	15	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	74	6.1	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	74	9.2	ug/kg	
84-66-2	Diethyl phthalate	ND	74	7.9	ug/kg	
131-11-3	Dimethyl phthalate	ND	74	6.6	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	39.7	74	8.7	ug/kg	J
206-44-0	Fluoranthene	772	37	17	ug/kg	J
86-73-7	Fluorene	54.4	37	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	74	9.4	ug/kg	
87-68-3	Hexachlorobutadiene	ND	37	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	370	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	18	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	406	37	17	ug/kg	J
78-59-1	Isophorone ^a	ND	74	7.9	ug/kg	
91-57-6	2-Methylnaphthalene	36.0	37	8.4	ug/kg	J
88-74-4	2-Nitroaniline ^a	ND	190	8.8	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.3	ug/kg	
100-01-6	4-Nitroaniline	ND	190	9.6	ug/kg	
91-20-3	Naphthalene	114	37	10	ug/kg	
98-95-3	Nitrobenzene	ND	74	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	74	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	574	37	12	ug/kg	J
129-00-0	Pyrene	713	37	12	ug/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.4	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	37%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-120(0-1) Lab Sample ID: JC86916-5 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/24/19 Date Received: 04/24/19 Percent Solids: 86.3
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	41%		27-114%
118-79-6	2,4,6-Tribromophenol	39%		19-152%
4165-60-0	Nitrobenzene-d5	50%		26-134%
321-60-8	2-Fluorobiphenyl	45%		39-124%
1718-51-0	Terphenyl-d14	42%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-113B(1-3)	
Lab Sample ID: JC86916-6	Date Sampled: 04/24/19
Matrix: SO - Soil	Date Received: 04/24/19
Method: SW846 8260C	Percent Solids: 78.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	I225912.D	1	05/02/19 11:46	TDN	n/a	n/a	VI9101
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	2.7 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	2500	1300	ug/kg	
71-43-2	Benzene	935	130	95	ug/kg	
74-97-5	Bromochloromethane	ND	1300	110	ug/kg	
75-27-4	Bromodichloromethane	ND	500	110	ug/kg	
75-25-2	Bromoform	ND	1300	100	ug/kg	
74-83-9	Bromomethane	ND	1300	250	ug/kg	
78-93-3	2-Butanone (MEK)	ND	2500	940	ug/kg	
75-15-0	Carbon disulfide	ND	500	230	ug/kg	
56-23-5	Carbon tetrachloride	ND	500	140	ug/kg	
108-90-7	Chlorobenzene	ND	500	89	ug/kg	
75-00-3	Chloroethane	ND	1300	170	ug/kg	
67-66-3	Chloroform	ND	500	93	ug/kg	
74-87-3	Chloromethane	ND	1300	490	ug/kg	
110-82-7	Cyclohexane	ND	500	100	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	500	210	ug/kg	
124-48-1	Dibromochloromethane	ND	500	85	ug/kg	
106-93-4	1,2-Dibromoethane	ND	250	82	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	250	77	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	250	90	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	250	86	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	1300	160	ug/kg	
75-34-3	1,1-Dichloroethane	ND	250	97	ug/kg	
107-06-2	1,2-Dichloroethane	ND	250	120	ug/kg	
75-35-4	1,1-Dichloroethene	ND	250	160	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	250	240	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	250	170	ug/kg	
78-87-5	1,2-Dichloropropane	ND	500	100	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	500	88	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	500	82	ug/kg	
100-41-4	Ethylbenzene	ND	250	140	ug/kg	
76-13-1	Freon 113	ND	1300	190	ug/kg	
591-78-6	2-Hexanone	ND	1300	320	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-113B(1-3)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-6	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	78.1
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	500	180	ug/kg	
79-20-9	Methyl Acetate	ND	1300	350	ug/kg	
108-87-2	Methylcyclohexane	ND	500	180	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	250	88	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	1300	390	ug/kg	
75-09-2	Methylene chloride	ND	1300	630	ug/kg	
100-42-5	Styrene	ND	500	140	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	500	98	ug/kg	
127-18-4	Tetrachloroethene	ND	500	120	ug/kg	
108-88-3	Toluene	546	250	94	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	1300	250	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	1300	250	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	500	110	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	500	86	ug/kg	
79-01-6	Trichloroethene	ND	250	190	ug/kg	
75-69-4	Trichlorofluoromethane	ND	1300	170	ug/kg	
75-01-4	Vinyl chloride	ND	500	120	ug/kg	
	m,p-Xylene	290	250	190	ug/kg	
95-47-6	o-Xylene	ND	250	150	ug/kg	
1330-20-7	Xylene (total)	290	250	150	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	108%		75-127%
17060-07-0	1,2-Dichloroethane-D4	118%		75-130%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	106%		79-127%

- (a) Diluted due to high concentration of non-target compound.
(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-113B(1-3)	
Lab Sample ID: JC86916-6	Date Sampled: 04/24/19
Matrix: SO - Soil	Date Received: 04/24/19
Method: SW846 8270D SW846 3546	Percent Solids: 78.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	5P59172.D	2	05/02/19 20:09	CC	04/29/19 06:45	OP20043	E5P2795
Run #2	5P59220.D	20	05/03/19 19:45	CC	04/29/19 06:45	OP20043	E5P2797
Run #3	5P59214.D	200	05/03/19 17:29	CC	04/29/19 06:45	OP20043	E5P2797

Run #	Initial Weight	Final Volume
Run #1	32.1 g	1.0 ml
Run #2	32.1 g	1.0 ml
Run #3	32.1 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	160	39	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	400	49	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	400	68	ug/kg	
105-67-9	2,4-Dimethylphenol ^b	ND	400	140	ug/kg	
51-28-5	2,4-Dinitrophenol	R ND	400	300	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	R ND	400	85	ug/kg	
95-48-7	2-Methylphenol	ND	160	51	ug/kg	
	3&4-Methylphenol	ND	160	66	ug/kg	
88-75-5	2-Nitrophenol	ND	400	53	ug/kg	
100-02-7	4-Nitrophenol ^b	ND	800	210	ug/kg	
87-86-5	Pentachlorophenol	ND	320	75	ug/kg	
108-95-2	Phenol	ND	160	42	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	400	53	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	400	60	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	400	48	ug/kg	
83-32-9	Acenaphthene	817	80	28	ug/kg	
208-96-8	Acenaphthylene	16900 ^c	800	410	ug/kg	J
98-86-2	Acetophenone	ND	400	17	ug/kg	
120-12-7	Anthracene	24000 ^c	800	490	ug/kg	D
1912-24-9	Atrazine	ND	160	34	ug/kg	
56-55-3	Benzo(a)anthracene	65900 ^c	800	230	ug/kg	D
50-32-8	Benzo(a)pyrene	55200 ^c	800	360	ug/kg	
205-99-2	Benzo(b)fluoranthene	76600 ^c	800	350	ug/kg	
191-24-2	Benzo(g,h,i)perylene	31100 ^c	800	400	ug/kg	
207-08-9	Benzo(k)fluoranthene	23100 ^c	800	370	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	160	31	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	160	19	ug/kg	
92-52-4	1,1'-Biphenyl	177	160	11	ug/kg	J
100-52-7	Benzaldehyde	ND	400	20	ug/kg	
91-58-7	2-Chloronaphthalene	ND	160	19	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	S-113B(1-3)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-6	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	78.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	400	29	ug/kg	
86-74-8	Carbazole	1820	160	12	ug/kg	J
105-60-2	Caprolactam ^b	ND	160	32	ug/kg	
218-01-9	Chrysene	57000 ^c	800	250	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	160	17	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	160	34	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane) ^b	ND	160	29	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	160	26	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	80	25	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	80	40	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	160	67	ug/kg	UJ
123-91-1	1,4-Dioxane	ND	80	53	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	9600 ^c	800	350	ug/kg	D
132-64-9	Dibenzofuran	2810	160	32	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	160	13	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	160	20	ug/kg	
84-66-2	Diethyl phthalate	ND	160	17	ug/kg	
131-11-3	Dimethyl phthalate	ND	160	14	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	160	19	ug/kg	
206-44-0	Fluoranthene	179000 ^d	8000	3600	ug/kg	D
86-73-7	Fluorene	11000 ^c	800	370	ug/kg	D
118-74-1	Hexachlorobenzene	ND	160	20	ug/kg	
87-68-3	Hexachlorobutadiene	ND	80	32	ug/kg	
77-47-4	Hexachlorocyclopentadiene	R ND	800	32	ug/kg	
67-72-1	Hexachloroethane	ND	400	39	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	36400 ^c	800	370	ug/kg	D
78-59-1	Isophorone ^b	ND	160	17	ug/kg	
91-57-6	2-Methylnaphthalene	522	80	18	ug/kg	J
88-74-4	2-Nitroaniline ^b	ND	400	19	ug/kg	
99-09-2	3-Nitroaniline	ND	400	20	ug/kg	
100-01-6	4-Nitroaniline	ND	400	21	ug/kg	
91-20-3	Naphthalene	1080	80	22	ug/kg	J
98-95-3	Nitrobenzene	ND	160	31	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	160	23	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	400	29	ug/kg	
85-01-8	Phenanthrene	63400 ^c	800	270	ug/kg	D
129-00-0	Pyrene	133000 ^d	8000	2600	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	400	20	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-113B(1-3)	
Lab Sample ID: JC86916-6	Date Sampled: 04/24/19
Matrix: SO - Soil	Date Received: 04/24/19
Method: SW846 8270D SW846 3546	Percent Solids: 78.1
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	46%	60%	0% ^e	23-115%
4165-62-2	Phenol-d5	53%	72%	119% ^e	27-114%
118-79-6	2,4,6-Tribromophenol	56%	56%	0% ^e	19-152%
4165-60-0	Nitrobenzene-d5	69%	76%	56%	26-134%
321-60-8	2-Fluorobiphenyl	70%	81%	79%	39-124%
1718-51-0	Terphenyl-d14	55%	76%	98%	36-134%

- (a) Dilution required due to viscosity of the extract matrix.
 (b) Associated CCV outside of control limits high, sample was ND.
 (c) Result is from Run# 2
 (d) Result is from Run# 3
 (e) Outside control limits due to dilution.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-113B(10-12)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-7	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 60.6
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	3C151755.D	1	05/04/19 16:19	PS	n/a	n/a	V3C6819

Run #1	Initial Weight
Run #2	4.6 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	104	18	9.0	ug/kg	
71-43-2	Benzene	17.5	0.90	0.68	ug/kg	
74-97-5	Bromochloromethane	ND	9.0	0.77	ug/kg	
75-27-4	Bromodichloromethane	ND	3.6	0.79	ug/kg	
75-25-2	Bromoform	ND	9.0	0.72	ug/kg	
74-83-9	Bromomethane	ND	9.0	1.8	ug/kg	
78-93-3	2-Butanone (MEK)	18.2	18	6.7	ug/kg	
75-15-0	Carbon disulfide	ND	3.6	1.7	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.6	0.99	ug/kg	
108-90-7	Chlorobenzene	ND	3.6	0.63	ug/kg	
75-00-3	Chloroethane	ND	9.0	1.2	ug/kg	
67-66-3	Chloroform	ND	3.6	0.67	ug/kg	
74-87-3	Chloromethane	ND	9.0	3.5	ug/kg	
110-82-7	Cyclohexane	1.8	3.6	0.73	ug/kg	J
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.6	1.5	ug/kg	
124-48-1	Dibromochloromethane ^a	ND	3.6	0.61	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.8	0.58	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.8	0.55	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.8	0.64	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.8	0.62	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	9.0	1.1	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.8	0.69	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.8	0.84	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.8	1.2	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.8	1.7	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.8	1.2	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.6	0.73	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.6	0.63	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.6	0.59	ug/kg	
100-41-4	Ethylbenzene	43.7	1.8	0.99	ug/kg	
76-13-1	Freon 113	ND	9.0	1.4	ug/kg	
591-78-6	2-Hexanone	ND	9.0	2.3	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-113B(10-12)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-7	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	60.6
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	139	3.6	1.3	ug/kg	
79-20-9	Methyl Acetate	ND	9.0	2.5	ug/kg	
108-87-2	Methylcyclohexane	13.1	3.6	1.3	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	0.92	1.8	0.63	ug/kg	J
108-10-1	4-Methyl-2-pentanone(MIBK ^a)	ND	9.0	2.8	ug/kg	
75-09-2	Methylene chloride	ND	9.0	4.5	ug/kg	
100-42-5	Styrene	ND	3.6	1.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.6	0.70	ug/kg	
127-18-4	Tetrachloroethene	ND	3.6	0.83	ug/kg	
108-88-3	Toluene	2.7	1.8	0.67	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	9.0	1.8	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	9.0	1.8	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.6	0.76	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.6	0.61	ug/kg	
79-01-6	Trichloroethene	ND	1.8	1.4	ug/kg	
75-69-4	Trichlorofluoromethane	ND	9.0	1.2	ug/kg	
75-01-4	Vinyl chloride	ND	3.6	0.84	ug/kg	
	m,p-Xylene	9.6	1.8	1.3	ug/kg	
95-47-6	o-Xylene	34.0	1.8	1.0	ug/kg	
1330-20-7	Xylene (total)	43.6	1.8	1.0	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		75-127%
17060-07-0	1,2-Dichloroethane-D4	112%		75-130%
2037-26-5	Toluene-D8	106%		80-120%
460-00-4	4-Bromofluorobenzene	124%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-113B(10-12)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-7	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	60.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	270	19	ug/kg	
86-74-8	Carbazole	14800 ^d	1100	77	ug/kg	D
105-60-2	Caprolactam ^b	ND	110	21	ug/kg	
218-01-9	Chrysene	32300 ^d	530	170	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	110	11	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	110	23	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane) ^b	ND	110	19	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	110	17	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	53	17	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	53	27	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	110	44	ug/kg	
123-91-1	1,4-Dioxane	ND	53	35	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	2440	53	24	ug/kg	
132-64-9	Dibenzofuran	69900 ^c	11000	2200	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	110	8.7	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	110	13	ug/kg	
84-66-2	Diethyl phthalate	ND	110	11	ug/kg	
131-11-3	Dimethyl phthalate	ND	110	9.5	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	110	12	ug/kg	
206-44-0	Fluoranthene	126000 ^c	5300	2400	ug/kg	D
86-73-7	Fluorene	118000 ^c	5300	2400	ug/kg	D
118-74-1	Hexachlorobenzene	ND	110	13	ug/kg	
87-68-3	Hexachlorobutadiene	ND	53	21	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	530	21	ug/kg	
67-72-1	Hexachloroethane	ND	270	26	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	7980 ^d	530	250	ug/kg	D
78-59-1	Isophorone ^b	ND	110	11	ug/kg	
91-57-6	2-Methylnaphthalene	153000 ^c	5300	1200	ug/kg	D
88-74-4	2-Nitroaniline ^b	ND	270	13	ug/kg	
99-09-2	3-Nitroaniline	ND	270	13	ug/kg	
100-01-6	4-Nitroaniline	ND	270	14	ug/kg	
91-20-3	Naphthalene	24600 ^d	530	150	ug/kg	D
98-95-3	Nitrobenzene	ND	110	21	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	110	15	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	270	19	ug/kg	
85-01-8	Phenanthrene	322000 ^c	5300	1800	ug/kg	D
129-00-0	Pyrene	108000 ^c	5300	1700	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	270	14	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-113B(10-12)	
Lab Sample ID: JC86916-7	Date Sampled: 04/24/19
Matrix: SO - Soil	Date Received: 04/24/19
Method: SW846 8270D SW846 3546	Percent Solids: 60.6
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	57%	56%	34%	23-115%
4165-62-2	Phenol-d5	60%	58%	43%	27-114%
118-79-6	2,4,6-Tribromophenol	86%	58%	0% ^e	19-152%
4165-60-0	Nitrobenzene-d5	60%	75%	77%	26-134%
321-60-8	2-Fluorobiphenyl	67%	77%	91%	39-124%
1718-51-0	Terphenyl-d14	64%	72%	82%	36-134%

- (a) Associated CCV outside of control limits high.
 (b) Associated CCV outside of control limits high, sample was ND.
 (c) Result is from Run# 3
 (d) Result is from Run# 2
 (e) Outside control limits due to dilution.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-113B(13-15)	
Lab Sample ID: JC86916-8	Date Sampled: 04/24/19
Matrix: SO - Soil	Date Received: 04/24/19
Method: SW846 8260C	Percent Solids: 65.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151825.D	1	05/06/19 18:49	PS	n/a	n/a	V3C6821
Run #2							

Run #1	Initial Weight
Run #1	4.3 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	74.0	18	8.8	ug/kg	
71-43-2	Benzene	ND	0.88	0.67	ug/kg	
74-97-5	Bromochloromethane	ND	8.8	0.76	ug/kg	
75-27-4	Bromodichloromethane	ND	3.5	0.78	ug/kg	
75-25-2	Bromoform	ND	8.8	0.71	ug/kg	
74-83-9	Bromomethane	ND	8.8	1.8	ug/kg	
78-93-3	2-Butanone (MEK)	13.1	18	6.6	ug/kg	J
75-15-0	Carbon disulfide	ND	3.5	1.6	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.5	0.97	ug/kg	
108-90-7	Chlorobenzene	ND	3.5	0.63	ug/kg	
75-00-3	Chloroethane	ND	8.8	1.2	ug/kg	
67-66-3	Chloroform	ND	3.5	0.66	ug/kg	
74-87-3	Chloromethane ^a	ND	8.8	3.5	ug/kg	UJ
110-82-7	Cyclohexane	3.9	3.5	0.72	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.5	1.5	ug/kg	
124-48-1	Dibromochloromethane	ND	3.5	0.60	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.8	0.58	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.8	0.54	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.8	0.64	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.8	0.61	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	8.8	1.1	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.8	0.68	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.8	0.83	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.8	1.2	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.8	1.7	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.8	1.2	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.5	0.72	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.5	0.62	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.5	0.58	ug/kg	
100-41-4	Ethylbenzene	ND	1.8	0.98	ug/kg	
76-13-1	Freon 113	ND	8.8	1.3	ug/kg	
591-78-6	2-Hexanone	ND	8.8	2.2	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-113B(13-15)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-8	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	65.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	22.5	3.5	1.2	ug/kg	
79-20-9	Methyl Acetate ^a	ND	8.8	2.5	ug/kg	UJ
108-87-2	Methylcyclohexane	47.9	3.5	1.3	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.8	0.62	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	8.8	2.8	ug/kg	
75-09-2	Methylene chloride	ND	8.8	4.4	ug/kg	
100-42-5	Styrene	ND	3.5	1.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.5	0.69	ug/kg	
127-18-4	Tetrachloroethene	ND	3.5	0.82	ug/kg	
108-88-3	Toluene	1.1	1.8	0.67	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	8.8	1.8	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	8.8	1.8	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.5	0.75	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.5	0.61	ug/kg	
79-01-6	Trichloroethene	ND	1.8	1.3	ug/kg	
75-69-4	Trichlorofluoromethane	ND	8.8	1.2	ug/kg	
75-01-4	Vinyl chloride	ND	3.5	0.83	ug/kg	
	m,p-Xylene	ND	1.8	1.3	ug/kg	
95-47-6	o-Xylene	3.3	1.8	1.0	ug/kg	
1330-20-7	Xylene (total)	3.3	1.8	1.0	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		75-127%
17060-07-0	1,2-Dichloroethane-D4	110%		75-130%
2037-26-5	Toluene-D8	104%		80-120%
460-00-4	4-Bromofluorobenzene	124%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-113B(13-15)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-8	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	65.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P59168.D	1	05/02/19 18:37	CC	04/29/19 06:45	OP20043	E5P2795
Run #2	5P59223.D	10	05/03/19 20:53	CC	04/29/19 06:45	OP20043	E5P2797

Run #	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2	30.1 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	100	25	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	250	31	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	250	43	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	250	90	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	250	190	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	250	54	ug/kg	
95-48-7	2-Methylphenol	ND	100	32	ug/kg	
	3&4-Methylphenol	1550	100	42	ug/kg	
88-75-5	2-Nitrophenol	ND	250	33	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	510	140	ug/kg	
87-86-5	Pentachlorophenol	ND	200	47	ug/kg	
108-95-2	Phenol	ND	100	26	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	250	33	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	250	38	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	250	30	ug/kg	
83-32-9	Acenaphthene	8240 ^b	510	170	ug/kg	D
208-96-8	Acenaphthylene	962	51	26	ug/kg	
98-86-2	Acetophenone	ND	250	11	ug/kg	
120-12-7	Anthracene	4010	51	31	ug/kg	
1912-24-9	Atrazine	ND	100	22	ug/kg	
56-55-3	Benzo(a)anthracene	3050	51	14	ug/kg	
50-32-8	Benzo(a)pyrene	2750	51	23	ug/kg	
205-99-2	Benzo(b)fluoranthene	3120	51	22	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1450	51	25	ug/kg	
207-08-9	Benzo(k)fluoranthene	873	51	24	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	100	20	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	100	12	ug/kg	
92-52-4	1,1'-Biphenyl	637	100	6.9	ug/kg	
100-52-7	Benzaldehyde	ND	250	13	ug/kg	
91-58-7	2-Chloronaphthalene	ND	100	12	ug/kg	
106-47-8	4-Chloroaniline	ND	250	18	ug/kg	
86-74-8	Carbazole	185	100	7.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-113B(13-15)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-8	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	65.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	100	20	ug/kg	
218-01-9	Chrysene	3770	51	16	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	100	11	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	100	22	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane) ^a	ND	100	18	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	100	16	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	51	16	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	51	25	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	100	42	ug/kg	
123-91-1	1,4-Dioxane	ND	51	33	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	406	51	22	ug/kg	
132-64-9	Dibenzofuran	1080	100	21	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	100	8.2	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	100	13	ug/kg	
84-66-2	Diethyl phthalate	ND	100	11	ug/kg	
131-11-3	Dimethyl phthalate	ND	100	9.0	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	100	12	ug/kg	
206-44-0	Fluoranthene	8570 ^b	510	230	ug/kg	D
86-73-7	Fluorene	4530	51	23	ug/kg	
118-74-1	Hexachlorobenzene	ND	100	13	ug/kg	
87-68-3	Hexachlorobutadiene	ND	51	20	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	510	20	ug/kg	
67-72-1	Hexachloroethane	ND	250	25	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1350	51	24	ug/kg	
78-59-1	Isophorone ^a	ND	100	11	ug/kg	
91-57-6	2-Methylnaphthalene	4820	51	11	ug/kg	
88-74-4	2-Nitroaniline ^a	ND	250	12	ug/kg	
99-09-2	3-Nitroaniline	ND	250	13	ug/kg	
100-01-6	4-Nitroaniline	ND	250	13	ug/kg	
91-20-3	Naphthalene	8960 ^b	510	140	ug/kg	D
98-95-3	Nitrobenzene	ND	100	20	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	100	15	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	250	19	ug/kg	
85-01-8	Phenanthrene	17000 ^b	510	170	ug/kg	D
129-00-0	Pyrene	9480 ^b	510	160	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	250	13	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	66%	67%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-113B(13-15) Lab Sample ID: JC86916-8 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/24/19 Date Received: 04/24/19 Percent Solids: 65.7
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	69%	66%	27-114%
118-79-6	2,4,6-Tribromophenol	76%	68%	19-152%
4165-60-0	Nitrobenzene-d5	84%	102%	26-134%
321-60-8	2-Fluorobiphenyl	69%	80%	39-124%
1718-51-0	Terphenyl-d14	69%	74%	36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: S-113B (15-17)		
Lab Sample ID: JC86916-9		Date Sampled: 04/24/19
Matrix: SO - Soil		Date Received: 04/24/19
Method: SW846 8260C		Percent Solids: 72.1
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151829.D	1	05/06/19 20:22	PS	n/a	n/a	V3C6821
Run #2							

Run #1	Initial Weight
Run #1	5.3 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	18.8	13	6.5	ug/kg	
71-43-2	Benzene	ND	0.65	0.49	ug/kg	
74-97-5	Bromochloromethane	ND	6.5	0.56	ug/kg	
75-27-4	Bromodichloromethane	ND	2.6	0.58	ug/kg	
75-25-2	Bromoform	ND	6.5	0.53	ug/kg	
74-83-9	Bromomethane	ND	6.5	1.3	ug/kg	
78-93-3	2-Butanone (MEK)	ND	13	4.9	ug/kg	
75-15-0	Carbon disulfide	ND	2.6	1.2	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.6	0.72	ug/kg	
108-90-7	Chlorobenzene	ND	2.6	0.46	ug/kg	
75-00-3	Chloroethane	ND	6.5	0.90	ug/kg	
67-66-3	Chloroform	ND	2.6	0.49	ug/kg	
74-87-3	Chloromethane ^a	ND	6.5	2.6	ug/kg	UJ
110-82-7	Cyclohexane	2.2	2.6	0.53	ug/kg	J
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.6	1.1	ug/kg	
124-48-1	Dibromochloromethane	ND	2.6	0.44	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.3	0.43	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.3	0.40	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.3	0.47	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.3	0.45	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.5	0.83	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.3	0.50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.3	0.61	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.3	0.86	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.3	1.3	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.3	0.87	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.6	0.53	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.6	0.46	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.6	0.43	ug/kg	
100-41-4	Ethylbenzene	ND	1.3	0.72	ug/kg	
76-13-1	Freon 113	ND	6.5	1.0	ug/kg	
591-78-6	2-Hexanone	ND	6.5	1.7	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-113B (15-17)		Date Sampled: 04/24/19
Lab Sample ID: JC86916-9		Date Received: 04/24/19
Matrix: SO - Soil		Percent Solids: 72.1
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	9.7	2.6	0.91	ug/kg	
79-20-9	Methyl Acetate ^a	ND	6.5	1.8	ug/kg	UJ
108-87-2	Methylcyclohexane	10.7	2.6	0.93	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.3	0.46	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.5	2.0	ug/kg	
75-09-2	Methylene chloride	ND	6.5	3.3	ug/kg	
100-42-5	Styrene	ND	2.6	0.75	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.6	0.51	ug/kg	
127-18-4	Tetrachloroethene	ND	2.6	0.60	ug/kg	
108-88-3	Toluene	ND	1.3	0.49	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.5	1.3	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.5	1.3	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.6	0.56	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.6	0.45	ug/kg	
79-01-6	Trichloroethene	ND	1.3	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.5	0.89	ug/kg	
75-01-4	Vinyl chloride	ND	2.6	0.61	ug/kg	
	m,p-Xylene	26.4	1.3	0.98	ug/kg	
95-47-6	o-Xylene	1.3	1.3	0.76	ug/kg	
1330-20-7	Xylene (total)	27.7	1.3	0.76	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		75-127%
17060-07-0	1,2-Dichloroethane-D4	108%		75-130%
2037-26-5	Toluene-D8	106%		80-120%
460-00-4	4-Bromofluorobenzene	118%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-113B (15-17)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-9	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	72.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	5P59161.D	1	05/02/19 15:57	CC	04/29/19 06:45	OP20043	E5P2795

Run #1	Initial Weight	Final Volume
Run #2	31.4 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	88	22	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	220	27	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	220	38	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	220	79	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	220	170	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	220	47	ug/kg	
95-48-7	2-Methylphenol	ND	88	28	ug/kg	
	3&4-Methylphenol	ND	88	36	ug/kg	
88-75-5	2-Nitrophenol	ND	220	29	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	440	120	ug/kg	
87-86-5	Pentachlorophenol	ND	180	41	ug/kg	
108-95-2	Phenol	ND	88	23	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	220	29	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	220	33	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	220	26	ug/kg	
83-32-9	Acenaphthene	ND	44	15	ug/kg	
208-96-8	Acenaphthylene	ND	44	22	ug/kg	
98-86-2	Acetophenone	ND	220	9.5	ug/kg	
120-12-7	Anthracene	ND	44	27	ug/kg	
1912-24-9	Atrazine	ND	88	19	ug/kg	
56-55-3	Benzo(a)anthracene	24.9	44	13	ug/kg	J
50-32-8	Benzo(a)pyrene	20.0	44	20	ug/kg	J
205-99-2	Benzo(b)fluoranthene	25.4	44	20	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	ND	44	22	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	44	21	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	88	17	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	88	11	ug/kg	
92-52-4	1,1'-Biphenyl	ND	88	6.1	ug/kg	
100-52-7	Benzaldehyde	ND	220	11	ug/kg	
91-58-7	2-Chloronaphthalene	ND	88	11	ug/kg	
106-47-8	4-Chloroaniline	ND	220	16	ug/kg	
86-74-8	Carbazole	ND	88	6.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-113B (15-17)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-9	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	72.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	88	17	ug/kg	
218-01-9	Chrysene	20.7	44	14	ug/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	88	9.5	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	88	19	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane) ^a	ND	88	16	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	88	14	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	44	14	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	44	22	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	88	37	ug/kg	
123-91-1	1,4-Dioxane	ND	44	29	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	44	20	ug/kg	
132-64-9	Dibenzofuran	ND	88	18	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	88	7.2	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	88	11	ug/kg	
84-66-2	Diethyl phthalate	ND	88	9.4	ug/kg	
131-11-3	Dimethyl phthalate	ND	88	7.9	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	88	10	ug/kg	
206-44-0	Fluoranthene	51.7	44	20	ug/kg	
86-73-7	Fluorene	ND	44	20	ug/kg	
118-74-1	Hexachlorobenzene	ND	88	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	44	18	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	440	18	ug/kg	
67-72-1	Hexachloroethane	ND	220	22	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	44	21	ug/kg	
78-59-1	Isophorone ^a	ND	88	9.5	ug/kg	
91-57-6	2-Methylnaphthalene	ND	44	10	ug/kg	
88-74-4	2-Nitroaniline ^a	ND	220	10	ug/kg	
99-09-2	3-Nitroaniline	ND	220	11	ug/kg	
100-01-6	4-Nitroaniline	ND	220	11	ug/kg	
91-20-3	Naphthalene	93.7	44	12	ug/kg	
98-95-3	Nitrobenzene	ND	88	17	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	88	13	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	220	16	ug/kg	
85-01-8	Phenanthrene	39.1	44	15	ug/kg	J
129-00-0	Pyrene	36.5	44	14	ug/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	220	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	72%		23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-113B (15-17)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-9	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 72.1
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	77%		27-114%
118-79-6	2,4,6-Tribromophenol	74%		19-152%
4165-60-0	Nitrobenzene-d5	85%		26-134%
321-60-8	2-Fluorobiphenyl	80%		39-124%
1718-51-0	Terphenyl-d14	73%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PSSTP-22R(0.5-2)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-10	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	83.0
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151830.D	1	05/06/19 20:45	PS	n/a	n/a	V3C6821
Run #2							

Run #	Initial Weight
Run #1	4.7 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	13	6.4	ug/kg	
71-43-2	Benzene	1.0	0.64	0.48	ug/kg	
74-97-5	Bromochloromethane	ND	6.4	0.55	ug/kg	
75-27-4	Bromodichloromethane	ND	2.6	0.57	ug/kg	
75-25-2	Bromoform	ND	6.4	0.52	ug/kg	
74-83-9	Bromomethane	ND	6.4	1.3	ug/kg	
78-93-3	2-Butanone (MEK)	ND	13	4.8	ug/kg	
75-15-0	Carbon disulfide	1.2	2.6	1.2	ug/kg	J
56-23-5	Carbon tetrachloride	ND	2.6	0.70	ug/kg	
108-90-7	Chlorobenzene	ND	2.6	0.45	ug/kg	
75-00-3	Chloroethane	ND	6.4	0.88	ug/kg	
67-66-3	Chloroform	ND	2.6	0.48	ug/kg	
74-87-3	Chloromethane ^a	ND	6.4	2.5	ug/kg	UJ
110-82-7	Cyclohexane	ND	2.6	0.52	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.6	1.1	ug/kg	
124-48-1	Dibromochloromethane	ND	2.6	0.43	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.3	0.42	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.3	0.39	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.3	0.46	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.3	0.44	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.4	0.81	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.3	0.49	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.3	0.60	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.3	0.84	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.3	1.2	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.3	0.85	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.6	0.52	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.6	0.45	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.6	0.42	ug/kg	
100-41-4	Ethylbenzene	ND	1.3	0.71	ug/kg	
76-13-1	Freon 113	ND	6.4	0.98	ug/kg	
591-78-6	2-Hexanone	ND	6.4	1.6	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-22R(0.5-2)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-10	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	83.0
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.6	0.89	ug/kg	
79-20-9	Methyl Acetate ^a	ND	6.4	1.8	ug/kg	UJ
108-87-2	Methylcyclohexane	ND	2.6	0.91	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.3	0.45	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.4	2.0	ug/kg	
75-09-2	Methylene chloride	ND	6.4	3.2	ug/kg	
100-42-5	Styrene	ND	2.6	0.74	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.6	0.50	ug/kg	
127-18-4	Tetrachloroethene	ND	2.6	0.59	ug/kg	
108-88-3	Toluene	1.6	1.3	0.48	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.4	1.3	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.4	1.3	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.6	0.55	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.6	0.44	ug/kg	
79-01-6	Trichloroethene	ND	1.3	0.98	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.4	0.87	ug/kg	
75-01-4	Vinyl chloride	ND	2.6	0.60	ug/kg	
	m,p-Xylene	2.9	1.3	0.96	ug/kg	
95-47-6	o-Xylene	0.85	1.3	0.75	ug/kg	J
1330-20-7	Xylene (total)	3.8	1.3	0.75	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		75-127%
17060-07-0	1,2-Dichloroethane-D4	109%		75-130%
2037-26-5	Toluene-D8	108%		80-120%
460-00-4	4-Bromofluorobenzene	118%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSSTP-22R(0.5-2)	
Lab Sample ID: JC86916-10	Date Sampled: 04/24/19
Matrix: SO - Soil	Date Received: 04/24/19
Method: SW846 8270D SW846 3546	Percent Solids: 83.0
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	5P59171.D	2	05/02/19 19:46	CC	04/29/19 06:45	OP20043	E5P2795
Run #2	5P59219.D	20	05/03/19 19:22	CC	04/29/19 06:45	OP20043	E5P2797
Run #3	5P59213.D	200	05/03/19 17:06	CC	04/29/19 06:45	OP20043	E5P2797

Run #	Initial Weight	Final Volume
Run #1	30.3 g	1.0 ml
Run #2	30.3 g	1.0 ml
Run #3	30.3 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	160	39	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	400	49	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	400	68	ug/kg	
105-67-9	2,4-Dimethylphenol ^b	181	400	140	ug/kg	J
51-28-5	2,4-Dinitrophenol	ND	400	300	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	400	85	ug/kg	
95-48-7	2-Methylphenol	79.7	160	51	ug/kg	J
	3&4-Methylphenol	304	160	65	ug/kg	
88-75-5	2-Nitrophenol	ND	400	53	ug/kg	
100-02-7	4-Nitrophenol ^c	ND	800	210	ug/kg	
87-86-5	Pentachlorophenol	ND	320	75	ug/kg	
108-95-2	Phenol	212	160	42	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	400	53	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	400	60	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	400	47	ug/kg	
83-32-9	Acenaphthene	1980	80	27	ug/kg	
208-96-8	Acenaphthylene	17700 ^d	800	400	ug/kg	D
98-86-2	Acetophenone	24.5	400	17	ug/kg	J
120-12-7	Anthracene	31100 ^d	800	490	ug/kg	D
1912-24-9	Atrazine	ND	160	34	ug/kg	
56-55-3	Benzo(a)anthracene	58000 ^d	800	230	ug/kg	D
50-32-8	Benzo(a)pyrene	48600 ^d	800	360	ug/kg	D
205-99-2	Benzo(b)fluoranthene	71400 ^d	800	350	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	31000 ^d	800	400	ug/kg	D
207-08-9	Benzo(k)fluoranthene	6680	80	37	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	160	31	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	160	19	ug/kg	
92-52-4	1,1'-Biphenyl	1990	160	11	ug/kg	
100-52-7	Benzaldehyde	ND	400	20	ug/kg	
91-58-7	2-Chloronaphthalene	ND	160	19	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.10
4

Report of Analysis

Client Sample ID:	PSSTP-22R(0.5-2)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-10	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	83.0
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	400	29	ug/kg	
86-74-8	Carbazole	9740 ^d	1600	120	ug/kg	D
105-60-2	Caprolactam ^c	ND	160	31	ug/kg	
218-01-9	Chrysene	52300 ^d	800	250	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	160	17	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	160	34	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane) ^c	ND	160	29	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	160	26	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	80	25	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	80	40	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	160	66	ug/kg	
123-91-1	1,4-Dioxane	ND	80	53	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	6440	80	35	ug/kg	
132-64-9	Dibenzofuran	18100 ^d	1600	320	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	160	13	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	160	20	ug/kg	
84-66-2	Diethyl phthalate	ND	160	17	ug/kg	
131-11-3	Dimethyl phthalate	ND	160	14	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	160	19	ug/kg	
206-44-0	Fluoranthene	139000 ^e	8000	3500	ug/kg	D
86-73-7	Fluorene	18900 ^d	800	370	ug/kg	D
118-74-1	Hexachlorobenzene	ND	160	20	ug/kg	
87-68-3	Hexachlorobutadiene	ND	80	32	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	800	32	ug/kg	
67-72-1	Hexachloroethane	ND	400	39	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	35300 ^d	800	370	ug/kg	D
78-59-1	Isophorone ^c	ND	160	17	ug/kg	
91-57-6	2-Methylnaphthalene	10900 ^d	800	180	ug/kg	D
88-74-4	2-Nitroaniline ^c	ND	400	19	ug/kg	
99-09-2	3-Nitroaniline	ND	400	20	ug/kg	
100-01-6	4-Nitroaniline	ND	400	21	ug/kg	
91-20-3	Naphthalene	18500 ^d	800	220	ug/kg	D
98-95-3	Nitrobenzene	ND	160	31	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	160	23	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	400	29	ug/kg	
85-01-8	Phenanthrene	122000 ^e	8000	2700	ug/kg	D
129-00-0	Pyrene	107000 ^e	8000	2500	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	400	20	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-22R(0.5-2)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-10	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	83.0
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	55%	54%	56%	23-115%
4165-62-2	Phenol-d5	59%	63%	58%	27-114%
118-79-6	2,4,6-Tribromophenol	61%	56%	0% ^f	19-152%
4165-60-0	Nitrobenzene-d5	68%	71%	0% ^f	26-134%
321-60-8	2-Fluorobiphenyl	70%	82%	71%	39-124%
1718-51-0	Terphenyl-d14	57%	70%	98%	36-134%

- (a) Dilution required due to viscosity of the extract matrix.
 (b) Associated CCV outside of control limits high.
 (c) Associated CCV outside of control limits high, sample was ND.
 (d) Result is from Run# 2
 (e) Result is from Run# 3
 (f) Outside control limits due to dilution.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-22R(0.5-2)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-10	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	83.0
Method:	SW846 8081B SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	8G23066.D	1	05/01/19 14:05	MH	04/30/19 09:30	OP20068	G8G783
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	16.1 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.75	0.62	ug/kg	
319-84-6	alpha-BHC	ND	0.75	0.61	ug/kg	
319-85-7	beta-BHC	ND	0.75	0.68	ug/kg	
319-86-8	delta-BHC	ND	0.75	0.72	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.75	0.55	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.75	0.60	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.75	0.34	ug/kg	
60-57-1	Dieldrin	ND	0.75	0.51	ug/kg	
72-54-8	4,4'-DDD ^a	30.6	0.75	0.69	ug/kg	J
72-55-9	4,4'-DDE	ND	0.75	0.66	ug/kg	
50-29-3	4,4'-DDT	ND	0.75	0.66	ug/kg	
72-20-8	Endrin	ND	0.75	0.58	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.75	0.58	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.75	0.42	ug/kg	
959-98-8	Endosulfan-I	ND	0.75	0.43	ug/kg	
33213-65-9	Endosulfan-II	ND	0.75	0.47	ug/kg	
76-44-8	Heptachlor	ND	0.75	0.65	ug/kg	
1024-57-3	Heptachlor epoxide	ND	0.75	0.52	ug/kg	
72-43-5	Methoxychlor	ND	1.5	0.59	ug/kg	
53494-70-5	Endrin ketone	ND	0.75	0.54	ug/kg	
8001-35-2	Toxaphene	ND	19	17	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	61%		25-135%
877-09-8	Tetrachloro-m-xylene	67%		25-135%
2051-24-3	Decachlorobiphenyl	157% ^b		10-156%
2051-24-3	Decachlorobiphenyl	1756% ^b		10-156%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

(b) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PSSTP-22R(0.5-2)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-10	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	83.0
Method:	SW846 8082A SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G179077.D	1	04/30/19 20:25	TR	04/30/19 09:30	OP20066	G2G4644
Run #2							

Run #	Initial Weight	Final Volume
Run #1	16.1 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	37	17	ug/kg	
11104-28-2	Aroclor 1221	ND	37	19	ug/kg	
11141-16-5	Aroclor 1232	ND	37	29	ug/kg	
53469-21-9	Aroclor 1242	ND	37	15	ug/kg	
12672-29-6	Aroclor 1248	ND	37	33	ug/kg	
11097-69-1	Aroclor 1254	ND	37	20	ug/kg	
11096-82-5	Aroclor 1260	ND	37	16	ug/kg	
11100-14-4	Aroclor 1268	ND	37	16	ug/kg	
37324-23-5	Aroclor 1262	ND	37	24	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	107%		31-146%
877-09-8	Tetrachloro-m-xylene	56%		31-146%
2051-24-3	Decachlorobiphenyl	118%		17-164%
2051-24-3	Decachlorobiphenyl	1241% ^a		17-164%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PSSTP-22R(4-6)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-11	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	77.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	I225914.D	1	05/02/19 12:45	TDN	n/a	n/a	VI9101
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.7 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	1500	760	ug/kg	
71-43-2	Benzene	482	76	57	ug/kg	
74-97-5	Bromochloromethane	ND	760	65	ug/kg	
75-27-4	Bromodichloromethane	ND	300	67	ug/kg	
75-25-2	Bromoform	ND	760	61	ug/kg	
74-83-9	Bromomethane	ND	760	150	ug/kg	
78-93-3	2-Butanone (MEK)	ND	1500	570	ug/kg	
75-15-0	Carbon disulfide	ND	300	140	ug/kg	
56-23-5	Carbon tetrachloride	ND	300	84	ug/kg	
108-90-7	Chlorobenzene	ND	300	54	ug/kg	
75-00-3	Chloroethane	ND	760	100	ug/kg	
67-66-3	Chloroform	ND	300	57	ug/kg	
74-87-3	Chloromethane	ND	760	300	ug/kg	
110-82-7	Cyclohexane	ND	300	62	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	300	130	ug/kg	
124-48-1	Dibromochloromethane	ND	300	51	ug/kg	
106-93-4	1,2-Dibromoethane	ND	150	49	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	150	46	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	150	55	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	150	52	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	760	97	ug/kg	
75-34-3	1,1-Dichloroethane	ND	150	59	ug/kg	
107-06-2	1,2-Dichloroethane	ND	150	72	ug/kg	
75-35-4	1,1-Dichloroethene	ND	150	100	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	150	150	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	150	100	ug/kg	
78-87-5	1,2-Dichloropropane	ND	300	62	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	300	54	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	300	50	ug/kg	
100-41-4	Ethylbenzene	170	150	84	ug/kg	
76-13-1	Freon 113	ND	760	120	ug/kg	
591-78-6	2-Hexanone	ND	760	190	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-22R(4-6)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-11	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	77.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	300	110	ug/kg	
79-20-9	Methyl Acetate	ND	760	210	ug/kg	
108-87-2	Methylcyclohexane	ND	300	110	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	150	54	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	760	240	ug/kg	
75-09-2	Methylene chloride	ND	760	380	ug/kg	
100-42-5	Styrene	ND	300	88	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	300	59	ug/kg	
127-18-4	Tetrachloroethene	ND	300	70	ug/kg	
108-88-3	Toluene	1090	150	57	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	760	150	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	760	150	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	300	65	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	300	52	ug/kg	
79-01-6	Trichloroethene	ND	150	120	ug/kg	
75-69-4	Trichlorofluoromethane	ND	760	100	ug/kg	
75-01-4	Vinyl chloride	ND	300	71	ug/kg	
	m,p-Xylene	3200	150	110	ug/kg	
95-47-6	o-Xylene	1110	150	89	ug/kg	
1330-20-7	Xylene (total)	4310	150	89	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		75-127%
17060-07-0	1,2-Dichloroethane-D4	120%		75-130%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	104%		79-127%

- (a) Diluted due to high concentration of non-target compound.
(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSSTP-22R(4-6)	
Lab Sample ID: JC86916-11	Date Sampled: 04/24/19
Matrix: SO - Soil	Date Received: 04/24/19
Method: SW846 8270D SW846 3546	Percent Solids: 77.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P59169.D	1	05/02/19 19:00	CC	04/29/19 06:45	OP20043	E5P2795
Run #2	5P59299.D	10	05/07/19 00:00	CC	04/29/19 06:45	OP20043	E5P2800
Run #3	5P59216.D	100	05/03/19 18:14	CC	04/29/19 06:45	OP20043	E5P2797

Run #	Initial Weight	Final Volume
Run #1	31.0 g	1.0 ml
Run #2	31.0 g	1.0 ml
Run #3	31.0 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	83	21	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	210	26	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	210	36	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	437	210	74	ug/kg	J
51-28-5	2,4-Dinitrophenol	ND	210	160	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	210	45	ug/kg	
95-48-7	2-Methylphenol	173	83	27	ug/kg	
	3&4-Methylphenol	304	83	34	ug/kg	
88-75-5	2-Nitrophenol	ND	210	28	ug/kg	
100-02-7	4-Nitrophenol ^b	ND	420	110	ug/kg	
87-86-5	Pentachlorophenol	ND	170	39	ug/kg	
108-95-2	Phenol	115	83	22	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	210	28	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	210	31	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	210	25	ug/kg	
83-32-9	Acenaphthene	3780	42	14	ug/kg	
208-96-8	Acenaphthylene	13400 ^c	420	210	ug/kg	D
98-86-2	Acetophenone	40.7	210	9.0	ug/kg	J
120-12-7	Anthracene	38900 ^c	420	260	ug/kg	D
1912-24-9	Atrazine	ND	83	18	ug/kg	
56-55-3	Benzo(a)anthracene	39800 ^c	420	120	ug/kg	D
50-32-8	Benzo(a)pyrene	34900 ^c	420	190	ug/kg	D
205-99-2	Benzo(b)fluoranthene	49200 ^d	4200	1800	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	18600 ^c	420	210	ug/kg	D
207-08-9	Benzo(k)fluoranthene	15700 ^c	420	190	ug/kg	D
101-55-3	4-Bromophenyl phenyl ether	ND	83	16	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	83	10	ug/kg	
92-52-4	1,1'-Biphenyl	6850 ^c	830	57	ug/kg	D
100-52-7	Benzaldehyde	ND	210	10	ug/kg	
91-58-7	2-Chloronaphthalene	ND	83	9.9	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.11
4

Report of Analysis

Client Sample ID:	PSSTP-22R(4-6)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-11	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	77.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	210	15	ug/kg	
86-74-8	Carbazole	18800 ^c	830	61	ug/kg	D
105-60-2	Caprolactam ^b	ND	83	16	ug/kg	
218-01-9	Chrysene	36500 ^c	420	130	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	83	8.9	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	83	18	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane) ^b	ND	83	15	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	83	14	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	42	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	42	21	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	83	35	ug/kg	
123-91-1	1,4-Dioxane	ND	42	28	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	5680 ^c	420	180	ug/kg	D
132-64-9	Dibenzofuran	32500 ^c	830	170	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	83	6.8	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	83	10	ug/kg	
84-66-2	Diethyl phthalate	ND	83	8.9	ug/kg	
131-11-3	Dimethyl phthalate	ND	83	7.4	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	83	9.8	ug/kg	
206-44-0	Fluoranthene	107000 ^d	4200	1900	ug/kg	D
86-73-7	Fluorene	54200 ^d	4200	1900	ug/kg	D
118-74-1	Hexachlorobenzene	ND	83	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	42	17	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	420	17	ug/kg	
67-72-1	Hexachloroethane	ND	210	21	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	20700 ^c	420	200	ug/kg	D
78-59-1	Isophorone ^b	ND	83	8.9	ug/kg	
91-57-6	2-Methylnaphthalene	31900 ^c	420	94	ug/kg	D
88-74-4	2-Nitroaniline ^b	ND	210	9.8	ug/kg	
99-09-2	3-Nitroaniline	ND	210	10	ug/kg	
100-01-6	4-Nitroaniline	ND	210	11	ug/kg	
91-20-3	Naphthalene	103000 ^d	4200	1200	ug/kg	D
98-95-3	Nitrobenzene	ND	83	16	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	83	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	210	15	ug/kg	
85-01-8	Phenanthrene	152000 ^d	4200	1400	ug/kg	D
129-00-0	Pyrene	80200 ^d	4200	1300	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	210	11	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-22R(4-6)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-11	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	77.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	49%	40%	44%	23-115%
4165-62-2	Phenol-d5	51%	49%	35%	27-114%
118-79-6	2,4,6-Tribromophenol	62%	43%	0% ^e	19-152%
4165-60-0	Nitrobenzene-d5	70%	72%	42%	26-134%
321-60-8	2-Fluorobiphenyl	58%	60%	67%	39-124%
1718-51-0	Terphenyl-d14	49%	56%	59%	36-134%

- (a) Associated CCV outside of control limits high.
 (b) Associated CCV outside of control limits high, sample was ND.
 (c) Result is from Run# 2
 (d) Result is from Run# 3
 (e) Outside control limits due to dilution.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-144 (15-17)	
Lab Sample ID: JC86916-12	Date Sampled: 04/24/19
Matrix: SO - Soil	Date Received: 04/24/19
Method: SW846 8260C	Percent Solids: 80.4
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151706.D	1	05/03/19 17:42	PS	n/a	n/a	V3C6817
Run #2 ^a	3C151769.D	1	05/04/19 21:43	PS	n/a	n/a	V3C6819

Run #	Initial Weight
Run #1	6.0 g
Run #2	6.3 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	29.4	10	5.2	ug/kg	J
71-43-2	Benzene	ND	0.52	0.39	ug/kg	
74-97-5	Bromochloromethane	ND	5.2	0.45	ug/kg	
75-27-4	Bromodichloromethane	ND	2.1	0.46	ug/kg	
75-25-2	Bromoform	ND	5.2	0.42	ug/kg	
74-83-9	Bromomethane	ND	5.2	1.0	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	3.9	ug/kg	
75-15-0	Carbon disulfide	11.9	2.1	0.96	ug/kg	J
56-23-5	Carbon tetrachloride	ND	2.1	0.57	ug/kg	
108-90-7	Chlorobenzene	ND	2.1	0.37	ug/kg	
75-00-3	Chloroethane	ND	5.2	0.71	ug/kg	
67-66-3	Chloroform	ND	2.1	0.39	ug/kg	
74-87-3	Chloromethane	ND	5.2	2.0	ug/kg	
110-82-7	Cyclohexane	ND	2.1	0.42	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.1	0.87	ug/kg	
124-48-1	Dibromochloromethane	ND	2.1	0.35	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	0.34	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.32	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.37	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.36	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.2	0.66	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	0.40	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.49	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	0.68	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.99	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.69	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.1	0.42	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.1	0.36	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.1	0.34	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.57	ug/kg	
76-13-1	Freon 113	ND	5.2	0.79	ug/kg	
591-78-6	2-Hexanone	ND	5.2	1.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-144 (15-17)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-12	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	80.4
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.1	0.72	ug/kg	
79-20-9	Methyl Acetate	ND	5.2	1.4	ug/kg	
108-87-2	Methylcyclohexane	ND	2.1	0.73	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.36	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.2	1.6	ug/kg	
75-09-2	Methylene chloride	ND	5.2	2.6	ug/kg	
100-42-5	Styrene	ND	2.1	0.60	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.1	0.40	ug/kg	
127-18-4	Tetrachloroethene	ND	2.1	0.48	ug/kg	
108-88-3	Toluene	ND	1.0	0.39	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.2	1.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.2	1.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.1	0.44	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.1	0.35	ug/kg	
79-01-6	Trichloroethene	ND	1.0	0.79	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.2	0.71	ug/kg	
75-01-4	Vinyl chloride	ND	2.1	0.49	ug/kg	
	m,p-Xylene	ND	1.0	0.77	ug/kg	
95-47-6	o-Xylene	ND	1.0	0.60	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.60	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%	99%	75-127%
17060-07-0	1,2-Dichloroethane-D4	105%	103%	75-130%
2037-26-5	Toluene-D8	111%	105%	80-120%
460-00-4	4-Bromofluorobenzene	191% ^b	157% ^c	79-127%

(a) Confirmation run for surrogate recoveries.

(b) Outside control limits due to matrix interference. Confirmed by reanalysis.

(c) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-144 (15-17)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-12	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	80.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P59155.D	1	05/02/19 13:39	CC	04/29/19 06:45	OP20043	E5P2795
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	83	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	210	25	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	210	35	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	210	74	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	210	160	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	210	44	ug/kg	
95-48-7	2-Methylphenol	ND	83	26	ug/kg	
	3&4-Methylphenol	ND	83	34	ug/kg	
88-75-5	2-Nitrophenol	ND	210	27	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	410	110	ug/kg	
87-86-5	Pentachlorophenol	ND	170	39	ug/kg	
108-95-2	Phenol	ND	83	22	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	210	27	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	210	31	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	210	25	ug/kg	
83-32-9	Acenaphthene	ND	41	14	ug/kg	
208-96-8	Acenaphthylene	ND	41	21	ug/kg	
98-86-2	Acetophenone	ND	210	8.9	ug/kg	
120-12-7	Anthracene	ND	41	25	ug/kg	
1912-24-9	Atrazine	ND	83	18	ug/kg	
56-55-3	Benzo(a)anthracene	22.9	41	12	ug/kg	J
50-32-8	Benzo(a)pyrene	23.0	41	19	ug/kg	J
205-99-2	Benzo(b)fluoranthene	29.7	41	18	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	ND	41	21	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	41	19	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	83	16	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	83	10	ug/kg	
92-52-4	1,1'-Biphenyl	ND	83	5.7	ug/kg	
100-52-7	Benzaldehyde	ND	210	10	ug/kg	
91-58-7	2-Chloronaphthalene	ND	83	9.8	ug/kg	
106-47-8	4-Chloroaniline	ND	210	15	ug/kg	
86-74-8	Carbazole	ND	83	6.0	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-144 (15-17)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-12	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	80.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	83	16	ug/kg	
218-01-9	Chrysene	17.2	41	13	ug/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	83	8.8	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	83	18	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane) ^a	ND	83	15	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	83	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	41	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	41	21	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	83	34	ug/kg	
123-91-1	1,4-Dioxane	ND	41	27	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	41	18	ug/kg	
132-64-9	Dibenzofuran	ND	83	17	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	83	6.7	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	83	10	ug/kg	
84-66-2	Diethyl phthalate	ND	83	8.8	ug/kg	
131-11-3	Dimethyl phthalate	ND	83	7.4	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	83	9.7	ug/kg	
206-44-0	Fluoranthene	29.4	41	18	ug/kg	J
86-73-7	Fluorene	ND	41	19	ug/kg	
118-74-1	Hexachlorobenzene	ND	83	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	41	17	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	410	16	ug/kg	
67-72-1	Hexachloroethane	ND	210	20	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	41	19	ug/kg	
78-59-1	Isophorone ^a	ND	83	8.8	ug/kg	
91-57-6	2-Methylnaphthalene	ND	41	9.3	ug/kg	
88-74-4	2-Nitroaniline ^a	ND	210	9.8	ug/kg	
99-09-2	3-Nitroaniline	ND	210	10	ug/kg	
100-01-6	4-Nitroaniline	ND	210	11	ug/kg	
91-20-3	Naphthalene	ND	41	12	ug/kg	
98-95-3	Nitrobenzene	ND	83	16	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	83	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	210	15	ug/kg	
85-01-8	Phenanthrene	17.4	41	14	ug/kg	J
129-00-0	Pyrene	26.7	41	13	ug/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	210	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	56%		23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-144 (15-17)	
Lab Sample ID: JC86916-12	Date Sampled: 04/24/19
Matrix: SO - Soil	Date Received: 04/24/19
Method: SW846 8270D SW846 3546	Percent Solids: 80.4
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	59%		27-114%
118-79-6	2,4,6-Tribromophenol	59%		19-152%
4165-60-0	Nitrobenzene-d5	64%		26-134%
321-60-8	2-Fluorobiphenyl	61%		39-124%
1718-51-0	Terphenyl-d14	61%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-144 (22-24)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-13	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 85.9
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	Y184978.D	1	05/06/19 20:02	PS	n/a	n/a	VY8027

Run #1	Initial Weight
Run #2	4.0 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	55.4	15	7.3	ug/kg	
71-43-2	Benzene	ND	0.73	0.55	ug/kg	
74-97-5	Bromochloromethane	ND	7.3	0.63	ug/kg	
75-27-4	Bromodichloromethane	ND	2.9	0.64	ug/kg	
75-25-2	Bromoform	ND	7.3	0.59	ug/kg	
74-83-9	Bromomethane	ND	7.3	1.4	ug/kg	
78-93-3	2-Butanone (MEK)	ND	15	5.4	ug/kg	
75-15-0	Carbon disulfide	ND	2.9	1.4	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.9	0.80	ug/kg	
108-90-7	Chlorobenzene	ND	2.9	0.52	ug/kg	
75-00-3	Chloroethane	ND	7.3	1.0	ug/kg	
67-66-3	Chloroform	ND	2.9	0.54	ug/kg	
74-87-3	Chloromethane	ND	7.3	2.9	ug/kg	
110-82-7	Cyclohexane	ND	2.9	0.59	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.9	1.2	ug/kg	
124-48-1	Dibromochloromethane	ND	2.9	0.49	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.5	0.47	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.5	0.44	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.5	0.52	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.5	0.50	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	7.3	0.92	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.5	0.56	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.5	0.68	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.5	0.95	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.5	1.4	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.5	0.97	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.9	0.59	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.9	0.51	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.9	0.48	ug/kg	
100-41-4	Ethylbenzene	ND	1.5	0.80	ug/kg	
76-13-1	Freon 113	ND	7.3	1.1	ug/kg	
591-78-6	2-Hexanone	ND	7.3	1.8	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-144 (22-24)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-13	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	85.9
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.9	1.0	ug/kg	
79-20-9	Methyl Acetate	ND	7.3	2.0	ug/kg	
108-87-2	Methylcyclohexane	ND	2.9	1.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.5	0.51	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	7.3	2.3	ug/kg	
75-09-2	Methylene chloride	ND	7.3	3.6	ug/kg	
100-42-5	Styrene	ND	2.9	0.84	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.9	0.57	ug/kg	
127-18-4	Tetrachloroethene	ND	2.9	0.67	ug/kg	
108-88-3	Toluene	ND	1.5	0.55	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	7.3	1.5	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	7.3	1.5	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.9	0.62	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.9	0.50	ug/kg	
79-01-6	Trichloroethene	ND	1.5	1.1	ug/kg	
75-69-4	Trichlorofluoromethane	ND	7.3	0.99	ug/kg	
75-01-4	Vinyl chloride	ND	2.9	0.68	ug/kg	
	m,p-Xylene	ND	1.5	1.1	ug/kg	
95-47-6	o-Xylene	ND	1.5	0.85	ug/kg	
1330-20-7	Xylene (total)	ND	1.5	0.85	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	111%		75-127%
17060-07-0	1,2-Dichloroethane-D4	113%		75-130%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	94%		79-127%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 3

Client Sample ID:	S-144 (22-24)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-13	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	85.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P59156.D	1	05/02/19 14:02	CC	04/29/19 06:45	OP20043	E5P2795
Run #2							

Run #	Initial Weight	Final Volume
Run #1	31.9 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	73	18	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	180	22	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	180	31	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	180	65	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	180	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	180	39	ug/kg	
95-48-7	2-Methylphenol	ND	73	23	ug/kg	
	3&4-Methylphenol	ND	73	30	ug/kg	
88-75-5	2-Nitrophenol	ND	180	24	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	360	97	ug/kg	
87-86-5	Pentachlorophenol	ND	150	34	ug/kg	
108-95-2	Phenol	ND	73	19	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	180	24	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	180	27	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	180	22	ug/kg	
83-32-9	Acenaphthene	ND	36	13	ug/kg	
208-96-8	Acenaphthylene	ND	36	19	ug/kg	
98-86-2	Acetophenone	ND	180	7.8	ug/kg	
120-12-7	Anthracene	ND	36	22	ug/kg	
1912-24-9	Atrazine	ND	73	16	ug/kg	
56-55-3	Benzo(a)anthracene	ND	36	10	ug/kg	
50-32-8	Benzo(a)pyrene	ND	36	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	36	16	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	36	18	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	36	17	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	73	14	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	73	8.9	ug/kg	
92-52-4	1,1'-Biphenyl	ND	73	5.0	ug/kg	
100-52-7	Benzaldehyde	ND	180	9.1	ug/kg	
91-58-7	2-Chloronaphthalene	ND	73	8.7	ug/kg	
106-47-8	4-Chloroaniline	ND	180	13	ug/kg	
86-74-8	Carbazole	ND	73	5.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-144 (22-24)	Date Sampled:	04/24/19
Lab Sample ID:	JC86916-13	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	85.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	73	14	ug/kg	
218-01-9	Chrysene	ND	36	11	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	73	7.8	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	73	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane) ^a	ND	73	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	73	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	36	11	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	36	18	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	73	30	ug/kg	
123-91-1	1,4-Dioxane	ND	36	24	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	36	16	ug/kg	
132-64-9	Dibenzofuran	ND	73	15	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	73	5.9	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	73	9.1	ug/kg	
84-66-2	Diethyl phthalate	ND	73	7.8	ug/kg	
131-11-3	Dimethyl phthalate	ND	73	6.5	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	73	8.5	ug/kg	
206-44-0	Fluoranthene	ND	36	16	ug/kg	
86-73-7	Fluorene	ND	36	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	73	9.2	ug/kg	
87-68-3	Hexachlorobutadiene	ND	36	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	360	15	ug/kg	
67-72-1	Hexachloroethane	ND	180	18	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	36	17	ug/kg	
78-59-1	Isophorone ^a	ND	73	7.8	ug/kg	
91-57-6	2-Methylnaphthalene	ND	36	8.2	ug/kg	
88-74-4	2-Nitroaniline ^a	ND	180	8.6	ug/kg	
99-09-2	3-Nitroaniline	ND	180	9.1	ug/kg	
100-01-6	4-Nitroaniline	ND	180	9.5	ug/kg	
91-20-3	Naphthalene	ND	36	10	ug/kg	
98-95-3	Nitrobenzene	ND	73	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	73	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	180	13	ug/kg	
85-01-8	Phenanthrene	ND	36	12	ug/kg	
129-00-0	Pyrene	ND	36	12	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	180	9.3	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	53%		23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-144 (22-24)	
Lab Sample ID: JC86916-13	Date Sampled: 04/24/19
Matrix: SO - Soil	Date Received: 04/24/19
Method: SW846 8270D SW846 3546	Percent Solids: 85.9
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	56%		27-114%
118-79-6	2,4,6-Tribromophenol	51%		19-152%
4165-60-0	Nitrobenzene-d5	61%		26-134%
321-60-8	2-Fluorobiphenyl	55%		39-124%
1718-51-0	Terphenyl-d14	55%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-113 (0-1)	Date Sampled: 04/23/19
Lab Sample ID: JC86916-14	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 80.2
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	Y184979.D	1	05/06/19 20:31	PS	n/a	n/a	VY8027

Run #1	Initial Weight
Run #2	3.8 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	16	8.2	ug/kg	
71-43-2	Benzene	ND	0.82	0.62	ug/kg	
74-97-5	Bromochloromethane	ND	8.2	0.71	ug/kg	
75-27-4	Bromodichloromethane	ND	3.3	0.73	ug/kg	
75-25-2	Bromoform	ND	8.2	0.66	ug/kg	
74-83-9	Bromomethane	ND	8.2	1.6	ug/kg	
78-93-3	2-Butanone (MEK)	ND	16	6.1	ug/kg	
75-15-0	Carbon disulfide	ND	3.3	1.5	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.3	0.90	ug/kg	
108-90-7	Chlorobenzene	ND	3.3	0.58	ug/kg	
75-00-3	Chloroethane	ND	8.2	1.1	ug/kg	
67-66-3	Chloroform	ND	3.3	0.61	ug/kg	
74-87-3	Chloromethane	ND	8.2	3.2	ug/kg	
110-82-7	Cyclohexane	ND	3.3	0.67	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.3	1.4	ug/kg	
124-48-1	Dibromochloromethane	ND	3.3	0.55	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.6	0.53	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.6	0.50	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.6	0.59	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.6	0.56	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	8.2	1.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.6	0.63	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.6	0.77	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.6	1.1	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.6	1.6	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.6	1.1	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.3	0.67	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.3	0.58	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.3	0.54	ug/kg	
100-41-4	Ethylbenzene	ND	1.6	0.91	ug/kg	
76-13-1	Freon 113	ND	8.2	1.3	ug/kg	
591-78-6	2-Hexanone	ND	8.2	2.1	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-113 (0-1)	Date Sampled:	04/23/19
Lab Sample ID:	JC86916-14	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	80.2
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.3	1.1	ug/kg	
79-20-9	Methyl Acetate	ND	8.2	2.3	ug/kg	
108-87-2	Methylcyclohexane	ND	3.3	1.2	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.6	0.58	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	8.2	2.6	ug/kg	
75-09-2	Methylene chloride	ND	8.2	4.1	ug/kg	
100-42-5	Styrene	ND	3.3	0.94	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.3	0.64	ug/kg	
127-18-4	Tetrachloroethene	ND	3.3	0.76	ug/kg	
108-88-3	Toluene	ND	1.6	0.62	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	8.2	1.6	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	8.2	1.6	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.3	0.70	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.3	0.56	ug/kg	
79-01-6	Trichloroethene	ND	1.6	1.3	ug/kg	
75-69-4	Trichlorofluoromethane	ND	8.2	1.1	ug/kg	
75-01-4	Vinyl chloride	ND	3.3	0.77	ug/kg	
	m,p-Xylene	ND	1.6	1.2	ug/kg	
95-47-6	o-Xylene	ND	1.6	0.96	ug/kg	
1330-20-7	Xylene (total)	ND	1.6	0.96	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		75-127%
17060-07-0	1,2-Dichloroethane-D4	105%		75-130%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	96%		79-127%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-113 (0-1)	
Lab Sample ID: JC86916-14	Date Sampled: 04/23/19
Matrix: SO - Soil	Date Received: 04/24/19
Method: SW846 8270D SW846 3546	Percent Solids: 80.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P481513.D	2	04/30/19 20:51	AR	04/29/19 06:50	OP20044	E6P2577
Run #2	6P481542.D	20	05/01/19 19:50	AR	04/29/19 06:50	OP20044	E6P2578
Run #3	6P481535.D	100	05/01/19 17:01	AR	04/29/19 06:50	OP20044	E6P2578

Run #	Initial Weight	Final Volume
Run #1	30.5 g	1.0 ml
Run #2	30.5 g	1.0 ml
Run #3	30.5 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	160	40	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	410	50	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	410	70	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	158	410	150	ug/kg	J
51-28-5	2,4-Dinitrophenol ^b	ND	410	310	ug/kg	JJ
534-52-1	4,6-Dinitro-o-cresol	ND	410	87	ug/kg	
95-48-7	2-Methylphenol	195	160	52	ug/kg	
	3&4-Methylphenol	610	160	67	ug/kg	
88-75-5	2-Nitrophenol	ND	410	54	ug/kg	
100-02-7	4-Nitrophenol	ND	820	220	ug/kg	
87-86-5	Pentachlorophenol	ND	330	77	ug/kg	
108-95-2	Phenol	646	160	43	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	410	54	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	410	61	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	410	49	ug/kg	
83-32-9	Acenaphthene	1980	82	28	ug/kg	
208-96-8	Acenaphthylene	32300 ^c	820	420	ug/kg	D
98-86-2	Acetophenone	128	410	18	ug/kg	J
120-12-7	Anthracene	52700 ^c	820	500	ug/kg	D
1912-24-9	Atrazine	ND	160	35	ug/kg	
56-55-3	Benzo(a)anthracene	101000 ^d	4100	1200	ug/kg	D
50-32-8	Benzo(a)pyrene	82900 ^d	4100	1900	ug/kg	
205-99-2	Benzo(b)fluoranthene	107000 ^d	4100	1800	ug/kg	
191-24-2	Benzo(g,h,i)perylene	53100 ^c	820	410	ug/kg	
207-08-9	Benzo(k)fluoranthene	43000 ^d	4100	1900	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	160	32	ug/kg	
85-68-7	Butyl benzyl phthalate ^e	ND	160	20	ug/kg	
92-52-4	1,1'-Biphenyl	1200	160	11	ug/kg	
100-52-7	Benzaldehyde	ND	410	20	ug/kg	
91-58-7	2-Chloronaphthalene	ND	160	19	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.14
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Report of Analysis

Client Sample ID:	S-113 (0-1)	Date Sampled:	04/23/19
Lab Sample ID:	JC86916-14	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	80.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	410	29	ug/kg	
86-74-8	Carbazole	9790 ^c	1600	120	ug/kg	D
105-60-2	Caprolactam	ND	160	32	ug/kg	
218-01-9	Chrysene	90900 ^d	4100	1300	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	160	17	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	160	35	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	160	29	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	160	26	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	82	25	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	82	41	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	160	68	ug/kg	
123-91-1	1,4-Dioxane	ND	82	54	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	17100 ^c	820	360	ug/kg	D
132-64-9	Dibenzofuran	10200 ^c	1600	330	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	160	13	ug/kg	
117-84-0	Di-n-octyl phthalate ^e	ND	160	20	ug/kg	
84-66-2	Diethyl phthalate	ND	160	17	ug/kg	
131-11-3	Dimethyl phthalate	ND	160	15	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate ^e	ND	160	19	ug/kg	
206-44-0	Fluoranthene	266000 ^d	4100	1800	ug/kg	D
86-73-7	Fluorene	22300 ^c	820	380	ug/kg	D
118-74-1	Hexachlorobenzene	ND	160	21	ug/kg	
87-68-3	Hexachlorobutadiene	ND	82	33	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	820	33	ug/kg	
67-72-1	Hexachloroethane	ND	410	40	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	49600 ^c	820	380	ug/kg	D
78-59-1	Isophorone	ND	160	17	ug/kg	
91-57-6	2-Methylnaphthalene	2990	82	18	ug/kg	
88-74-4	2-Nitroaniline ^e	ND	410	19	ug/kg	
99-09-2	3-Nitroaniline	ND	410	20	ug/kg	
100-01-6	4-Nitroaniline	ND	410	21	ug/kg	
91-20-3	Naphthalene	7760	82	23	ug/kg	
98-95-3	Nitrobenzene	ND	160	32	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	160	24	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	410	30	ug/kg	
85-01-8	Phenanthrene	183000 ^d	4100	1400	ug/kg	D
129-00-0	Pyrene	187000 ^d	4100	1300	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	410	21	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-113 (0-1)	
Lab Sample ID: JC86916-14	Date Sampled: 04/23/19
Matrix: SO - Soil	Date Received: 04/24/19
Method: SW846 8270D SW846 3546	Percent Solids: 80.2
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	57%	51%	0% ^f	23-115%
4165-62-2	Phenol-d5	61%	54%	0% ^f	27-114%
118-79-6	2,4,6-Tribromophenol	55%	56%	0% ^f	19-152%
4165-60-0	Nitrobenzene-d5	65%	58%	0% ^f	26-134%
321-60-8	2-Fluorobiphenyl	54%	58%	0% ^f	39-124%
1718-51-0	Terphenyl-d14	43%	56%	0% ^f	36-134%

- (a) Associated CCV outside of control limits high.
 (b) Associated CCV outside of control limits low.
 (c) Result is from Run# 2
 (d) Result is from Run# 3
 (e) Associated CCV outside of control limits high, sample was ND.
 (f) Outside control limits due to dilution.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-107 (4-5.5)	Date Sampled: 04/23/19
Lab Sample ID: JC86916-15	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 82.3
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	Y184980.D	1	05/06/19 20:59	PS	n/a	n/a	VY8027

Run #1	Initial Weight
Run #2	5.8 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.2	ug/kg	
71-43-2	Benzene	ND	0.52	0.39	ug/kg	
74-97-5	Bromochloromethane	ND	5.2	0.45	ug/kg	
75-27-4	Bromodichloromethane	ND	2.1	0.46	ug/kg	
75-25-2	Bromoform	ND	5.2	0.42	ug/kg	
74-83-9	Bromomethane	ND	5.2	1.0	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	3.9	ug/kg	
75-15-0	Carbon disulfide	ND	2.1	0.97	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.1	0.58	ug/kg	
108-90-7	Chlorobenzene	ND	2.1	0.37	ug/kg	
75-00-3	Chloroethane	ND	5.2	0.72	ug/kg	
67-66-3	Chloroform	ND	2.1	0.39	ug/kg	
74-87-3	Chloromethane	ND	5.2	2.1	ug/kg	
110-82-7	Cyclohexane	ND	2.1	0.43	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.1	0.88	ug/kg	
124-48-1	Dibromochloromethane	ND	2.1	0.35	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	0.34	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.32	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.38	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.36	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.2	0.67	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	0.40	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.49	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	0.69	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.70	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.1	0.43	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.1	0.37	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.1	0.34	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.58	ug/kg	
76-13-1	Freon 113	ND	5.2	0.80	ug/kg	
591-78-6	2-Hexanone	ND	5.2	1.3	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-107 (4-5.5)	Date Sampled:	04/23/19
Lab Sample ID:	JC86916-15	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	82.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.1	0.73	ug/kg	
79-20-9	Methyl Acetate	ND	5.2	1.5	ug/kg	
108-87-2	Methylcyclohexane	ND	2.1	0.74	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.37	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.2	1.6	ug/kg	
75-09-2	Methylene chloride	ND	5.2	2.6	ug/kg	
100-42-5	Styrene	ND	2.1	0.60	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.1	0.41	ug/kg	
127-18-4	Tetrachloroethene	ND	2.1	0.48	ug/kg	
108-88-3	Toluene	ND	1.0	0.39	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.2	1.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.2	1.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.1	0.45	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.1	0.36	ug/kg	
79-01-6	Trichloroethene	ND	1.0	0.80	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.2	0.71	ug/kg	
75-01-4	Vinyl chloride	ND	2.1	0.49	ug/kg	
	m,p-Xylene	ND	1.0	0.78	ug/kg	
95-47-6	o-Xylene	ND	1.0	0.61	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.61	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		75-127%
17060-07-0	1,2-Dichloroethane-D4	102%		75-130%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	94%		79-127%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-107 (4-5.5)		
Lab Sample ID: JC86916-15		Date Sampled: 04/23/19
Matrix: SO - Soil		Date Received: 04/24/19
Method: SW846 8270D SW846 3546		Percent Solids: 82.3
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P481512.D	1	04/30/19 20:27	AR	04/29/19 06:50	OP20044	E6P2577
Run #2	6P481540.D	5	05/01/19 19:02	AR	04/29/19 06:50	OP20044	E6P2578

Run #1	Initial Weight	Final Volume
Run #1	31.3 g	1.0 ml
Run #2	31.3 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	78	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	24	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	33	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	190	69	ug/kg	
51-28-5	2,4-Dinitrophenol ^b	ND	190	150	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	190	42	ug/kg	
95-48-7	2-Methylphenol	36.1	78	25	ug/kg	J
	3&4-Methylphenol	75.6	78	32	ug/kg	J
88-75-5	2-Nitrophenol	ND	190	26	ug/kg	
100-02-7	4-Nitrophenol	ND	390	100	ug/kg	
87-86-5	Pentachlorophenol	ND	160	36	ug/kg	
108-95-2	Phenol	ND	78	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	26	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	29	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	23	ug/kg	
83-32-9	Acenaphthene	179	39	13	ug/kg	
208-96-8	Acenaphthylene	390	39	20	ug/kg	
98-86-2	Acetophenone	ND	190	8.3	ug/kg	
120-12-7	Anthracene	1980	39	24	ug/kg	
1912-24-9	Atrazine	ND	78	17	ug/kg	
56-55-3	Benzo(a)anthracene	4320 ^c	190	55	ug/kg	D
50-32-8	Benzo(a)pyrene	4510 ^c	190	88	ug/kg	D
205-99-2	Benzo(b)fluoranthene	4840 ^c	190	86	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	2550	39	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	1730	39	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	78	15	ug/kg	
85-68-7	Butyl benzyl phthalate ^a	ND	78	9.5	ug/kg	
92-52-4	1,1'-Biphenyl	35.7	78	5.3	ug/kg	J
100-52-7	Benzaldehyde	ND	190	9.6	ug/kg	
91-58-7	2-Chloronaphthalene	ND	78	9.2	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	436	78	5.6	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-107 (4-5.5)	Date Sampled:	04/23/19
Lab Sample ID:	JC86916-15	Date Received:	04/24/19
Matrix:	SO - Soil	Percent Solids:	82.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	78	15	ug/kg	
218-01-9	Chrysene	4270 ^c	190	61	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	78	8.3	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	78	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	78	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	78	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	39	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	39	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	78	32	ug/kg	
123-91-1	1,4-Dioxane	ND	39	26	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	826	39	17	ug/kg	
132-64-9	Dibenzofuran	200	78	16	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	78	6.3	ug/kg	
117-84-0	Di-n-octyl phthalate ^a	ND	78	9.7	ug/kg	
84-66-2	Diethyl phthalate	ND	78	8.3	ug/kg	
131-11-3	Dimethyl phthalate	ND	78	6.9	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate ^a	ND	78	9.1	ug/kg	
206-44-0	Fluoranthene	6120 ^c	190	87	ug/kg	D
86-73-7	Fluorene	387	39	18	ug/kg	
118-74-1	Hexachlorobenzene	ND	78	9.8	ug/kg	
87-68-3	Hexachlorobutadiene	ND	39	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	390	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	2350	39	18	ug/kg	
78-59-1	Isophorone	ND	78	8.3	ug/kg	
91-57-6	2-Methylnaphthalene	155	39	8.8	ug/kg	
88-74-4	2-Nitroaniline ^a	ND	190	9.2	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.7	ug/kg	
100-01-6	4-Nitroaniline	ND	190	10	ug/kg	
91-20-3	Naphthalene	430	39	11	ug/kg	
98-95-3	Nitrobenzene	ND	78	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	78	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	3300	39	13	ug/kg	
129-00-0	Pyrene	5000 ^c	190	62	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.9	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	62%	59%	23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-107 (4-5.5) Lab Sample ID: JC86916-15 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/23/19 Date Received: 04/24/19 Percent Solids: 82.3
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	64%	59%	27-114%
118-79-6	2,4,6-Tribromophenol	54%	51%	19-152%
4165-60-0	Nitrobenzene-d5	70%	57%	26-134%
321-60-8	2-Fluorobiphenyl	61%	65%	39-124%
1718-51-0	Terphenyl-d14	52%	58%	36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits low.
- (c) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.15
4

Report of Analysis

Client Sample ID: PCTP-66R(0-0.5)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-1	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 79.6
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	7560 J	62	10	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	2.8 J	2.5	0.51	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	66.6	2.5	0.35	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	204 J	25	2.4	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	1.1	0.25	0.10	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	3.0	0.62	0.087	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	8670 J	620	55	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	23.2	1.2	0.46	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	6.0 J	6.2	0.35	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	217	3.1	1.0	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	12400	62	24	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	392	2.5	0.51	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	3560 J	620	17	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	595	1.9	0.51	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	0.20 J	0.039	0.017	mg/kg	1	04/26/19	04/26/19	LL	SW846 7471B ¹ SW846 7471B ³
Nickel	32.1	5.0	0.44	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	890 J	1200	40	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	0.88 J	2.5	0.81	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	0.22 J	0.62	0.21	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	180 J	1200	97	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	0.72 U	1.2	0.72	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	27.1	6.2	0.24	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	490 J	6.2	2.9	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴

(1) Instrument QC Batch: MA46592

(2) Instrument QC Batch: MA46628

(3) Prep QC Batch: MP14594

(4) Prep QC Batch: MP14636

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCTP-66R(0-0.5)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-1	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 79.6
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.54 J	0.38	0.19	mg/kg	1	05/02/19 16:42 KI	SW846	9012B/LACHAT
Solids, Percent	79.6			%	1	05/01/19 16:00 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.1
4

Report of Analysis

Client Sample ID: PCTP-66R(0.5-2.0)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-2	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 90.0
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	8310 J	56	9.0	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Antimony	0.46 U J	2.2	0.46	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Arsenic ^a	6.7	4.4	0.62	mg/kg	2	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Barium	42.9 J	22	2.1	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Beryllium	0.60	0.22	0.089	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Cadmium	0.10 J	0.56	0.078	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Calcium	527 J	560	49	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Chromium	19.2	1.1	0.41	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Cobalt	7.5	5.6	0.31	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Copper ^a	17.2	5.6	1.9	mg/kg	2	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Iron	24400	110	43	mg/kg	2	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Lead	26.8	2.2	0.46	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Magnesium	1430	560	15	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Manganese ^a	209	3.3	0.91	mg/kg	2	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Mercury	0.030 J	0.036	0.016	mg/kg	1	04/26/19	04/26/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	12.1	4.4	0.39	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Potassium	1430	1100	35	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Selenium ^a	1.4 U	4.4	1.4	mg/kg	2	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Silver ^a	0.38 U	1.1	0.38	mg/kg	2	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Sodium	86 U	1100	86	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Thallium ^a	1.3 U	2.2	1.3	mg/kg	2	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Vanadium	22.9	5.6	0.21	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Zinc	60.0 J	5.6	2.6	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46592
- (2) Instrument QC Batch: MA46628
- (3) Instrument QC Batch: MA46638
- (4) Prep QC Batch: MP14594
- (5) Prep QC Batch: MP14636

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCTP-66R(0.5-2.0)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-2	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 90.0
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.2 J	0.29	0.14	mg/kg	1	05/02/19 16:43 KI	SW846	9012B/LACHAT
Solids, Percent	90			%	1	05/01/19 16:00 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.2
4

Report of Analysis

Client Sample ID: PCTP-66R(8-10)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-3	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 58.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	17500 J	88	14	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.75 J	3.5	0.72	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic	59.0	3.5	0.49	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Barium	246 J	35	3.3	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	1.4	0.35	0.14	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	2.7	0.88	0.12	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	31700 J	880	77	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	172	1.8	0.65	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	21.5	8.8	0.49	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Copper	157	4.4	1.5	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Iron	30100	88	34	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Lead	323	3.5	0.72	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Magnesium	4230 J	880	24	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Manganese	747	2.6	0.72	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Mercury	1.3 J	0.054	0.024	mg/kg	1	04/26/19	04/26/19 LL	SW846 7471B ¹	SW846 7471B ³
Nickel	38.7	7.0	0.61	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	1900	1800	56	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	2.3 J	3.5	1.1	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Silver	0.98	0.88	0.30	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Sodium	556 J	1800	140	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Thallium	1.0 U	1.8	1.0	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Vanadium	35.9	8.8	0.33	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	810 J	8.8	4.0	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46592
- (2) Instrument QC Batch: MA46628
- (3) Prep QC Batch: MP14594
- (4) Prep QC Batch: MP14636

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCTP-66R(8-10)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-3	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 58.2
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.9 J	0.49	0.25	mg/kg	1	05/02/19 16:45	KI	SW846 9012B/LACHAT
Solids, Percent	58.2			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: SO-DUP-0424	Date Sampled: 04/24/19
Lab Sample ID: JC86916-4	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 79.8
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	6890 J	64	10	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Antimony	3.0 J	2.6	0.52	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Arsenic	60.7	2.6	0.36	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Barium	99.0 J	26	2.4	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.90	0.26	0.10	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Cadmium	2.8	0.64	0.090	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Calcium	5280 J	640	56	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Chromium	23.9	1.3	0.47	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Cobalt	6.4	6.4	0.36	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Copper	217	3.2	1.1	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Iron	13600	64	25	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Lead	386	2.6	0.52	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Magnesium	2390 J	640	17	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Manganese	375	1.9	0.52	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Mercury	0.34 J	0.041	0.018	mg/kg	1	04/26/19	04/26/19	LL SW846 7471B ¹	SW846 7471B ³
Nickel	32.3	5.1	0.45	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Potassium	858 J	1300	41	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Selenium	0.83 U	2.6	0.83	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Silver	0.22 J	0.64	0.22	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Sodium	375 J	1300	99	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Thallium	0.74 U	1.3	0.74	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Vanadium	28.4	6.4	0.24	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Zinc	501 J	6.4	2.9	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46592
- (2) Instrument QC Batch: MA46628
- (3) Prep QC Batch: MP14594
- (4) Prep QC Batch: MP14636

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.4
4

Report of Analysis

Client Sample ID: SO-DUP-0424	Date Sampled: 04/24/19
Lab Sample ID: JC86916-4	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 79.8
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.1 J	0.34	0.17	mg/kg	1	05/02/19 16:46	KI	SW846 9012B/LACHAT
Solids, Percent	79.8			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.4
4

Report of Analysis

Client Sample ID: S-120(0-1)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-5	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 86.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	5780 J	60	9.6	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Antimony	2.3 J	2.4	0.49	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Arsenic	105	2.4	0.33	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Barium	249 J	24	2.3	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Beryllium	0.59	0.24	0.096	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Cadmium	2.7	0.60	0.084	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Calcium	2650 J	600	53	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Chromium	15.2	1.2	0.44	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Cobalt	5.6 J	6.0	0.33	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Copper	134	3.0	1.0	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Iron	17200	60	23	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Lead	329	2.4	0.49	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Magnesium	1100	600	16	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Manganese	229	1.8	0.49	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Mercury	0.29 J	0.038	0.017	mg/kg	1	04/26/19	04/26/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	18.7	4.8	0.42	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Potassium	651 J	1200	38	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Selenium	0.78 U	2.4	0.78	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Silver	0.20 U	0.60	0.20	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Sodium	93 U	1200	93	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Thallium	0.69 U	1.2	0.69	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Vanadium	19.5	6.0	0.23	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³
Zinc	774 J	6.0	2.7	mg/kg	1	04/26/19	05/02/19 ND	SW846 6010D ²	SW846 3050B ³

- (1) Instrument QC Batch: MA46592
- (2) Instrument QC Batch: MA46628
- (3) Prep QC Batch: MP14579
- (4) Prep QC Batch: MP14594

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-120(0-1)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-5	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 86.3
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.4 J	0.30	0.15	mg/kg	1	05/02/19 16:47	KI	SW846 9012B/LACHAT
Solids, Percent	86.3			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-113B(1-3)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-6	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 78.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	8490 J	65	10	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	2.5 J	2.6	0.53	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic	10.9	2.6	0.36	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Barium	275 J	26	2.5	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.65	0.26	0.10	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.40 J	0.65	0.091	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	6740 J	650	57	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	38.6	1.3	0.48	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	4.6 J	6.5	0.36	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Copper	183	3.2	1.1	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Iron	21700	65	25	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Lead	445	2.6	0.53	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Magnesium	2050 J	650	18	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Manganese	147	1.9	0.53	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Mercury	0.30 J	0.042	0.018	mg/kg	1	04/26/19	04/26/19 LL	SW846 7471B ¹	SW846 7471B ³
Nickel	18.8	5.2	0.45	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	857 J	1300	41	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	1.8 J	2.6	0.84	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Silver	0.22 U	0.65	0.22	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Sodium	100 U	1300	100	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Thallium	0.75 U	1.3	0.75	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Vanadium	32.6	6.5	0.25	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	173	6.5	3.0	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴

(1) Instrument QC Batch: MA46592

(2) Instrument QC Batch: MA46628

(3) Prep QC Batch: MP14594

(4) Prep QC Batch: MP14636

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-113B(1-3)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-6	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 78.1
Project: National Grid, Philly Coke, Philadelphia, PA	

4.6
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	9.8 J	0.26	0.13	mg/kg	1	05/02/19 16:49	KI	SW846 9012B/LACHAT
Solids, Percent	78.1			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-113B(10-12)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-7	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 60.6
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	16800	J 84	14	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.76 J	3.4	0.69	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic	57.8	3.4	0.47	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Barium	219	J 34	3.2	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	1.3	0.34	0.13	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	2.1	0.84	0.12	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	4530	J 840	74	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	194	1.7	0.62	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	19.8	8.4	0.47	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Copper	145	4.2	1.4	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Iron	28700	84	32	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Lead	306	3.4	0.69	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Magnesium	4030	J 840	23	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Manganese	687	2.5	0.69	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Mercury	1.3	J 0.052	0.023	mg/kg	1	04/26/19	04/26/19 LL	SW846 7471B ¹	SW846 7471B ³
Nickel	35.8	6.7	0.59	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	1840	1700	54	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	1.6 J	3.4	1.1	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Silver	1.1	0.84	0.29	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Sodium	516 J	1700	130	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Thallium	0.98 U	1.7	0.98	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Vanadium	33.1	8.4	0.32	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	691	J 8.4	3.9	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴

(1) Instrument QC Batch: MA46592

(2) Instrument QC Batch: MA46628

(3) Prep QC Batch: MP14594

(4) Prep QC Batch: MP14636

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.7
4

Report of Analysis

Client Sample ID: S-113B(10-12)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-7	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 60.6
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.7 J	0.41	0.21	mg/kg	1	05/02/19 16:50	KI	SW846 9012B/LACHAT
Solids, Percent	60.6			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.7
4

Report of Analysis

Client Sample ID: S-113B(13-15)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-8	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 65.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	13400 J	73	12	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Antimony	1.3 J	2.9	0.60	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Arsenic	20.2	2.9	0.41	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Barium	189 J	29	2.8	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Beryllium	1.0	0.29	0.12	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Cadmium	1.3	0.73	0.10	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Calcium	3290 J	730	65	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Chromium	67.3	1.5	0.54	mg/kg	1	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Cobalt	16.9	7.3	0.41	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Copper	73.9	3.7	1.2	mg/kg	1	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Iron	22900	73	28	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Lead	169	2.9	0.60	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Magnesium	3690 J	730	20	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Manganese	595	2.2	0.60	mg/kg	1	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Mercury	0.61 J	0.046	0.020	mg/kg	1	04/26/19	04/26/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	30.7	5.9	0.51	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Potassium	1540	1500	47	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Selenium	0.95 U	2.9	0.95	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Silver	0.80	0.73	0.25	mg/kg	1	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Sodium	387 J	1500	110	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Thallium	0.85 U	1.5	0.85	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Vanadium	26.6	7.3	0.28	mg/kg	1	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Zinc	390 J	7.3	3.4	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46592
- (2) Instrument QC Batch: MA46628
- (3) Instrument QC Batch: MA46638
- (4) Prep QC Batch: MP14594
- (5) Prep QC Batch: MP14636

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.8
4

Report of Analysis

Client Sample ID: S-113B(13-15)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-8	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 65.7
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.5 J	0.35	0.18	mg/kg	1	05/02/19 16:54 KI	SW846	9012B/LACHAT
Solids, Percent	65.7			%	1	05/01/19 16:00 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-113B (15-17)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-9	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 72.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	19300 J	71	11	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.58 U J	2.8	0.58	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic	4.0	2.8	0.40	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Barium	139 J	28	2.7	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.96	0.28	0.11	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.099 U	0.71	0.099	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	2160 J	710	62	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	43.0	1.4	0.52	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	11.6	7.1	0.40	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Copper	6.4	3.5	1.2	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Iron	26000	71	27	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Lead	13.2	2.8	0.58	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Magnesium	5170 J	710	19	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Manganese	402	2.1	0.58	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Mercury	0.020 U J	0.045	0.020	mg/kg	1	04/26/19	04/26/19 LL	SW846 7471B ¹	SW846 7471B ³
Nickel	25.6	5.7	0.50	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	1730	1400	45	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	0.92 U	2.8	0.92	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Silver	0.24 U	0.71	0.24	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Sodium	328 J	1400	110	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Thallium	0.82 U	1.4	0.82	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Vanadium	38.8	7.1	0.27	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	64.0 J	7.1	3.3	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46592
- (2) Instrument QC Batch: MA46628
- (3) Prep QC Batch: MP14594
- (4) Prep QC Batch: MP14636

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.9
 4

Report of Analysis

Client Sample ID: S-113B (15-17)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-9	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 72.1
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.0	J	0.32	mg/kg	1	05/02/19 16:56	KI	SW846 9012B/LACHAT
Solids, Percent	72.1			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PSSTP-22R(0.5-2)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-10	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 83.0
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	12300 J	61	9.8	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Antimony ^a	2.2 J	4.9	1.0	mg/kg	2	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Arsenic ^a	13.5	4.9	0.68	mg/kg	2	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Barium	286 J	24	2.3	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Beryllium	0.91	0.24	0.097	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Cadmium	1.0	0.61	0.085	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Calcium	15800 J	610	54	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Chromium	28.4	1.2	0.45	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Cobalt	10.6	6.1	0.34	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Copper ^a	549	6.1	2.0	mg/kg	2	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Iron	34900	120	47	mg/kg	2	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Lead	1130	4.9	1.0	mg/kg	2	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Magnesium	6530 J	610	17	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Manganese	1050	3.7	1.0	mg/kg	2	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Mercury	0.17 J	0.035	0.015	mg/kg	1	04/26/19	04/26/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	35.2	4.9	0.43	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Potassium	2550	1200	39	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Selenium ^a	1.6 U	4.9	1.6	mg/kg	2	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Silver ^a	0.73 J	1.2	0.41	mg/kg	2	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Sodium	229 J	1200	95	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Thallium ^a	1.4 U	2.4	1.4	mg/kg	2	04/30/19	05/02/19 MET	SW846 6010D ³	SW846 3050B ⁵
Vanadium	38.7	6.1	0.23	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵
Zinc	438 J	6.1	2.8	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46592
- (2) Instrument QC Batch: MA46628
- (3) Instrument QC Batch: MA46638
- (4) Prep QC Batch: MP14594
- (5) Prep QC Batch: MP14636

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PSSTP-22R(0.5-2)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-10	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 83.0
Project: National Grid, Philly Coke, Philadelphia, PA	

4.10
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	8.1 J	0.33	0.16	mg/kg	1	05/02/19 16:57	KI	SW846 9012B/LACHAT
Solids, Percent	83			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PSSTP-22R(4-6)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-11	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 77.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	9590 J	66	11	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	1.1 J	2.6	0.54	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic	12.2	2.6	0.37	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Barium	209 J	26	2.5	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.73	0.26	0.11	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.84	0.66	0.092	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	13200 J	660	58	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	18.8	1.3	0.49	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	4.4 J	6.6	0.37	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Copper	250	3.3	1.1	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Iron	22700	66	25	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Lead	477	2.6	0.54	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Magnesium	6960 J	660	18	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Manganese	575	2.0	0.54	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Mercury	0.82 J	0.037	0.016	mg/kg	1	04/26/19	04/26/19 LL	SW846 7471B ¹	SW846 7471B ³
Nickel	21.7	5.3	0.46	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	1080 J	1300	42	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	0.94 J	2.6	0.86	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Silver	0.22 U	0.66	0.22	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Sodium	281 J	1300	100	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Thallium	0.77 U	1.3	0.77	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Vanadium	25.8	6.6	0.25	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	335 J	6.6	3.0	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴

(1) Instrument QC Batch: MA46592

(2) Instrument QC Batch: MA46628

(3) Prep QC Batch: MP14594

(4) Prep QC Batch: MP14636

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.11
4

Report of Analysis

Client Sample ID: PSSTP-22R(4-6)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-11	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 77.3
Project: National Grid, Philly Coke, Philadelphia, PA	

4.11
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	8.3 J	0.29	0.14	mg/kg	1	05/02/19 16:58 KI	SW846	9012B/LACHAT
Solids, Percent	77.3			%	1	05/01/19 16:00 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-144 (15-17)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-12	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 80.4
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	7290 J	62	9.9	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Antimony	0.50 U J	2.5	0.50	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Arsenic	2.6	2.5	0.34	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Barium	23.6 J	25	2.3	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.28	0.25	0.099	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.086 U	0.62	0.086	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Calcium	245 J	620	54	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Chromium	9.7	1.2	0.46	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Cobalt	7.3	6.2	0.34	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Copper	7.2	3.1	1.0	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Iron	12300	62	24	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Lead	10.3	2.5	0.50	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Magnesium	1820 J	620	17	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Manganese	100	1.8	0.50	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Mercury	0.015 U J	0.034	0.015	mg/kg	1	04/26/19	04/26/19	LL SW846 7471B ¹	SW846 7471B ³
Nickel	13.0	4.9	0.43	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Potassium	896 J	1200	39	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Selenium	0.80 U	2.5	0.80	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Silver	0.21 U	0.62	0.21	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Sodium	96 U	1200	96	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Thallium	0.71 U	1.2	0.71	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Vanadium	9.6	6.2	0.23	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Zinc	43.0 J	6.2	2.8	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46592
- (2) Instrument QC Batch: MA46628
- (3) Prep QC Batch: MP14594
- (4) Prep QC Batch: MP14636

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-144 (15-17)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-12	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 80.4
Project: National Grid, Philly Coke, Philadelphia, PA	

4.12
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.14 U	0.28	0.14	mg/kg	1	05/02/19 17:00	KI	SW846 9012B/LACHAT
Solids, Percent	80.4			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-144 (22-24)		Date Sampled: 04/24/19
Lab Sample ID: JC86916-13		Date Received: 04/24/19
Matrix: SO - Soil		Percent Solids: 85.9
Project: National Grid, Philly Coke, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	7490 J	60	9.7	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Antimony	0.49 U J	2.4	0.49	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Arsenic	1.9 J	2.4	0.34	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Barium	29.0 J	24	2.3	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.31	0.24	0.096	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.084 U	0.60	0.084	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Calcium	218 J	600	53	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Chromium	13.6	1.2	0.44	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Cobalt	3.1 J	6.0	0.34	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Copper	3.2	3.0	1.0	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Iron	5270	60	23	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Lead	5.4	2.4	0.49	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Magnesium	1090 J	600	16	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Manganese	32.6	1.8	0.49	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Mercury	0.015 U J	0.034	0.015	mg/kg	1	04/26/19	04/26/19	LL SW846 7471B ¹	SW846 7471B ³
Nickel	7.3	4.8	0.42	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Potassium	1100 J	1200	38	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Selenium	0.78 U	2.4	0.78	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Silver	0.20 U	0.60	0.20	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Sodium	93 U	1200	93	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Thallium	0.70 U	1.2	0.70	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Vanadium	8.8	6.0	0.23	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴
Zinc	26.6 J	6.0	2.8	mg/kg	1	04/30/19	05/01/19	ND SW846 6010D ²	SW846 3050B ⁴

(1) Instrument QC Batch: MA46592

(2) Instrument QC Batch: MA46628

(3) Prep QC Batch: MP14594

(4) Prep QC Batch: MP14636

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.13
4

Report of Analysis

Client Sample ID: S-144 (22-24)	Date Sampled: 04/24/19
Lab Sample ID: JC86916-13	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 85.9
Project: National Grid, Philly Coke, Philadelphia, PA	

4.13
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.12 U	0.24	0.12	mg/kg	1	05/02/19 17:01	KI	SW846 9012B/LACHAT
Solids, Percent	85.9			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-113 (0-1)	Date Sampled: 04/23/19
Lab Sample ID: JC86916-14	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 80.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	3340	60	9.7	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Antimony	4.9	2.4	0.49	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Arsenic	10.7	2.4	0.34	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Barium	154	24	2.3	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Beryllium	0.24	0.24	0.096	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Cadmium	0.40 J	0.60	0.084	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Calcium	1620	600	53	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Chromium	27.1	1.2	0.44	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Cobalt	2.9 J	6.0	0.34	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Copper	80.2	3.0	1.0	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Iron	19500	60	23	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Lead	460	2.4	0.49	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Magnesium	602	600	16	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Manganese	112	1.8	0.49	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Mercury	0.50	0.037	0.016	mg/kg	1	05/07/19	05/07/19	LL	SW846 7471B ² SW846 7471B ⁴
Nickel	8.3	4.8	0.42	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Potassium	1010 J	1200	38	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Selenium	2.1 J	2.4	0.78	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Silver	0.20 U	0.60	0.20	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Sodium	244 J	1200	93	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Thallium	0.70 U	1.2	0.70	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Vanadium	13.7	6.0	0.23	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³
Zinc	98.4	6.0	2.8	mg/kg	1	04/30/19	05/01/19	ND	SW846 6010D ¹ SW846 3050B ³

(1) Instrument QC Batch: MA46628

(2) Instrument QC Batch: MA46664

(3) Prep QC Batch: MP14636

(4) Prep QC Batch: MP14859

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.14
4

Report of Analysis

Client Sample ID: S-113 (0-1)	Date Sampled: 04/23/19
Lab Sample ID: JC86916-14	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 80.2
Project: National Grid, Philly Coke, Philadelphia, PA	

4.14
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	125 J	2.6	1.3	mg/kg	10	05/03/19 14:51	KI	SW846 9012B/LACHAT
Solids, Percent	80.2			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-107 (4-5.5)	Date Sampled: 04/23/19
Lab Sample ID: JC86916-15	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 82.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	8430 J	63	10	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.53 J	2.5	0.52	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic	20.2	2.5	0.35	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Barium	51.5 J	25	2.4	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.53	0.25	0.10	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.24 J	0.63	0.089	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	1100 J	630	56	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	19.0	1.3	0.47	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	7.4	6.3	0.35	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Copper	40.0	3.2	1.1	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Iron	24500	63	24	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Lead	115	2.5	0.52	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Magnesium	1910 J	630	17	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Manganese	217	1.9	0.52	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Mercury	0.55 J	0.037	0.016	mg/kg	1	04/26/19	04/26/19 LL	SW846 7471B ¹	SW846 7471B ³
Nickel	15.8	5.1	0.44	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	957 J	1300	40	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	0.82 U	2.5	0.82	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Silver	0.22 U	0.63	0.22	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Sodium	98 U	1300	98	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Thallium	0.73 U	1.3	0.73	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Vanadium	20.6	6.3	0.24	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	94.4 J	6.3	2.9	mg/kg	1	04/30/19	05/01/19 ND	SW846 6010D ²	SW846 3050B ⁴

(1) Instrument QC Batch: MA46592

(2) Instrument QC Batch: MA46628

(3) Prep QC Batch: MP14594

(4) Prep QC Batch: MP14636

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.15
4

Report of Analysis

Client Sample ID: S-107 (4-5.5)	Date Sampled: 04/23/19
Lab Sample ID: JC86916-15	Date Received: 04/24/19
Matrix: SO - Soil	Percent Solids: 82.3
Project: National Grid, Philly Coke, Philadelphia, PA	

4.15
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	7.5 J	0.26	0.13	mg/kg	1	05/03/19 13:25	KI	SW846 9012B/LACHAT
Solids, Percent	82.3			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

National Grid

Philly Coke

DATA REVIEW

Philadelphia, Pennsylvania

Volatile Organic Compound (VOC), Semivolatile Organic Compounds (SVOC), Pesticides, PCBs, Metals,
and Miscellaneous Analyses

SDG # JC86986

Analyses Reported By:
SGS Laboratories
Dayton, New Jersey

Report #33346R
Review Level: Tier II
Project: 30004026 (B0036790.0001) 00006

DATA REVIEW REPORT

SUMMARY

This data review report summarizes the review of Sample Delivery Group (SDG) # JC86986 for samples collected in association with the National Grid Philly Coke site in Philadelphia, Pennsylvania. The review was conducted as a Tier II evaluation and included review of laboratory analytical data package completeness. Field documentation was not included in this review. Included with this assessment are the post-validation annotated sample result sheets, and chain of custody (COC). Analyses were performed on the following samples

SDG Number	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PEST/PCB	Metals	MISC
JC86986	S-142(6-6.5) (04-25-2019)	JC86986-1	Soil	4/25/2019						X
	S-142(7-8) (04-25-2019)	JC86986-2	Soil	4/25/2019		X	X		X	X
	S-149(8-10) (04-25-2019)	JC86986-3	Soil	4/25/2019		X	X		X	X
	S-149(18.5-20.5) (04-25-2019)	JC86986-4	Soil	4/25/2019		X	X		X	X
	S-146(14-16) (04-25-2019)	JC86986-5	Soil	4/25/2019		X	X		X	X
	S-146(17-19) (04-25-2019)	JC86986-6	Soil	4/25/2019		X	X		X	X
	S-147(12-14) (04-25-2019)	JC86986-7	Soil	4/25/2019		X	X		X	X
	S-147(18-20) (04-25-2019)	JC86986-8	Soil	4/25/2019		X	X		X	X
	S-148(8-10) (04-25-2019)	JC86986-9	Soil	4/25/2019		X	X		X	X
	S-148(16-18) (04-25-2019)	JC86986-10	Soil	4/25/2019		X	X		X	X
	S-151(0.5-2) (04-25-2019)	JC86986-11	Soil	4/25/2019		X	X		X	X
	S-151(3-5) (04-25-2019)	JC86986-12	Soil	4/25/2019		X	X		X	X
	SO-DUP-0425 (04-25-2019)	JC86986-13	Soil	4/25/2019	S-151(3-5) (04-25-2019)	X	X		X	X

Notes:

1. PEST/PCB = Pesticides and polychlorinated biphenyls
2. SVOC = Semivolatile Organic Compounds
3. VOC = Volatile Organic Compound
4. MISC = Miscellaneous (total cyanide)

DATA REVIEW REPORT

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW REPORT

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260C and 8270D. Data were reviewed in accordance with the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540/R-2017-002, January 2017 and the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, EPA540/R-99/008, October 1999 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

DATA REVIEW REPORT

that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times/Preservation

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis (preserved) 7 days from collection to analysis (non-preserved)	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis	Cool to <6 °C.

Note:

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

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The MS/MSD analysis exhibited recoveries and RPD within control limits.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS/LCSD analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery	LCSD Recovery
S-149(18.5-20.5) (04-25-2019)	Dibromochloromethane	>UL	--
S-147(12-14) (04-25-2019)			
S-147(18-20) (04-25-2019)			
S-148(16-18) (04-25-2019)			
S-151(3-5) (04-25-2019)			
SO-DUP-0425 (04-25-2019)			

Note:

AC = Acceptable

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
S-151(3-5) (04-25-2019)/ SO-DUP-0425 (04-25-2019)	Acetone	13.9	27.8	AC

Notes:

AC Acceptable

NC Not compliant

DATA REVIEW REPORT

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Trip blanks	X				X
Laboratory Control Sample (LCS)		X	X		
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)		X		X	
Matrix Spike Duplicate(MSD)		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

- %RSD Relative standard deviation
- %R Percent recovery
- RPD Relative percent difference
- %D Percent difference

DATA REVIEW REPORT

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD analysis exhibited recoveries and RPD within control limits.

DATA REVIEW REPORT

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

The LCS/LCSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
S-151(3-5) (04-25-2019)/ SO-DUP-0425 (04-25-2019)	Acenaphthene	18.8 J	40 U	AC
	Anthracene	52.6	40 U	AC
	Benz(a)anthracene	138	18.9 J	AC
	Benzo(a)pyrene	134	40 U	AC
	Benzo(b)fluoranthene	154	18.6 J	NC
	Benzo(g,h,i)perylene	82.7	40 U	AC
	Benzo(k)fluoranthene	54.1	40 U	AC
	Carbazole	24.5 J	80 U	AC
	Chrysene	126	14.9 J	AC
	Fluoranthene	282	27.7 J	NC
	Fluorene	21.1 J	40 U	AC
	Indeno(1,2,3-cd)pyrene	68.7	40 U	AC
	Naphthalene	12.2 J	40 U	AC
	Phenanthrene	202	22.8 J	NC
	Pyrene	248	28.6 J	NC

Notes:

AC Acceptable
NC Not compliant

Several compounds associated with sample locations S-151(3-5) (04-25-2019) and SO-DUP-0425 (04-25-2019) exhibited a field duplicate RPD greater than the control limit. The associated sample results from these sample locations for the analytes outside criteria were qualified as estimated.

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7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. Several samples were diluted to bring target compounds within linear range of the instrument. Sample results that were reported from a secondary dilution were qualified with a "D", indicating the result is diluted.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	

GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)

Tier II Validation

Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X	X		
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

DATA REVIEW REPORT

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6010D, 7471A, and 9012B. Data were reviewed in accordance with the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA 540/R-2017-001, January 2017; and the USEPA CLP National Functional Guidelines for Inorganic Data Review, EPA 540-R-01-008, July 2002 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

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METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6010D	Water	180 days from collection to analysis	Preserved to a pH of less than 2.
	Soil	180 days from collection to analysis	Cool to <6 °C.
SW-846 7471A	Soil	28 days from collection to analysis	Cool to <6 °C.
SW-846 7470A	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL and/or were non-detect. No qualification of the sample results was required.

3. Matrix Spike (MS)/Matrix Spike Duplicate(MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analyte present in the table below.

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Sample Location	Analyte	MS Recovery	MSD Recovery
S-142(7-8) (04-25-2019)	Antimony	45.4%	49.5%
	Manganese	83.6%	67.0%
	Mercury	51.7%	70.6%

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications for all metals are applied to all sample results associated with this SDG.

Control limit	Sample Result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery <30%	Non-detect	R
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD analysis exhibited RPDs within the control limits.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
S-151(3-5) (04-25-2019)/ SO-DUP-0425 (04-25-2019)	Aluminum	16100	18500	13.8 %
	Arsenic	2.9	2.4 J	AC
	Barium	151	153	1.3 %

DATA REVIEW REPORT

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
	Beryllium	0.84	0.91	AC
	Calcium	7430	1700	125.5 %
	Chromium	33.2	33.7	1.4 %
	Cobalt	12.2	13.2	7.8 %
	Copper	46.5	54.2	15.2 %
	Iron	26300	30400	14.4 %
	Lead	103	36.8	94.7 %
	Magnesium	8400	9700	14.3 %
	Manganese	382	469	20.4 %
	Nickel	25.1	32.4	25.3 %
	Potassium	7750	10300	28.2 %
	Sodium	173 J	190 J	AC
	Vanadium	36.7	42.9	15.5 %
	Zinc	106	124	15.6 %
	Mercury	0.31	0.054	NC

Notes:

AC Acceptable
 NC Not compliant

Mercury, calcium and lead associated with samples locations S-151(3-5) (04-25-2019) and SO-DUP-0425 (04-25-2019) exhibited a field duplicate RPD greater than the control limit. The associated sample results from all sample locations for the listed analytes were qualified as estimated.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR METAL

METALS; SW846 6010D/7471A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field Blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate (MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X	X		
Total vs. Dissolved	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Cyanide by SW-846 9012	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of greater than 12.
	Soil		Cool to <6 °C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analyte present in the table below.

Sample Location	Analyte	MS Recovery
S-142(7-8) (04-25-2019)	Cyanide	61.7%

DATA REVIEW REPORT

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications are applied to all sample results associated with this SDG.

Control limit	Sample Result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery <30%	Non-detect	R
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

The laboratory duplicate analysis exhibited RPD within control limits.

4. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
S-151(3-5) (04-25-2019)/ SO-DUP-0425 (04-25-2019)	Cyanide	0.30 U	0.20 J	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

DATA REVIEW REPORT

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: EPA 9012	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Dilution Factor		X		X	
Moisture Content					X

Notes:

%R - percent recovery

RPD - relative percent difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: July 21, 2019

PEER REVIEW: Dennis Capria

DATE: July 23, 2019

CHAIN OF CUSTODY SAMPLE ANALYSIS DATA SHEETS





CHAIN OF CUSTODY

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FED-EX Tracking #
Bottle Order Control #
SGS Quote #
SGS Job # JC86986

Client / Reporting Information, Project Information, Requested Analysis, Matrix Codes, Turn Around Time, Deliverable, Comments / Special Instructions, Sample Custody

5.1
5



Report of Analysis

Client Sample ID: S-142(6-6.5)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-1	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 18.3
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.3 J	1.2	0.59	mg/kg	1	05/03/19 13:26	KI	SW846 9012B/LACHAT
Solids, Percent	18.3			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.1
4

SGS North America Inc.

Report of Analysis

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Client Sample ID:	S-142(7-8)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-2	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	53.6
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	1C164399.D	1	05/09/19 12:37	PS	n/a	n/a	V1C7215

Run #1	Initial Weight
Run #2	4.1 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	129	23	11	ug/kg	
71-43-2	Benzene	ND	1.1	0.86	ug/kg	
74-97-5	Bromochloromethane	ND	11	0.98	ug/kg	
75-27-4	Bromodichloromethane	ND	4.6	1.0	ug/kg	
75-25-2	Bromoform	ND	11	0.92	ug/kg	
74-83-9	Bromomethane	ND	11	2.3	ug/kg	
78-93-3	2-Butanone (MEK)	35.5	23	8.5	ug/kg	
75-15-0	Carbon disulfide	ND	4.6	2.1	ug/kg	
56-23-5	Carbon tetrachloride	ND	4.6	1.3	ug/kg	
108-90-7	Chlorobenzene	ND	4.6	0.81	ug/kg	
75-00-3	Chloroethane	ND	11	1.6	ug/kg	
67-66-3	Chloroform	ND	4.6	0.85	ug/kg	
74-87-3	Chloromethane ^a	ND	11	4.5	ug/kg	UJ
110-82-7	Cyclohexane	ND	4.6	0.92	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	4.6	1.9	ug/kg	
124-48-1	Dibromochloromethane	ND	4.6	0.77	ug/kg	
106-93-4	1,2-Dibromoethane	ND	2.3	0.74	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	2.3	0.69	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	2.3	0.82	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	2.3	0.78	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	11	1.4	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	2.3	0.88	ug/kg	
107-06-2	1,2-Dichloroethane	ND	2.3	1.1	ug/kg	
75-35-4	1,1-Dichloroethene	ND	2.3	1.5	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	2.3	2.2	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	2.3	1.5	ug/kg	
78-87-5	1,2-Dichloropropane	ND	4.6	0.93	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	4.6	0.80	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	4.6	0.74	ug/kg	
100-41-4	Ethylbenzene	ND	2.3	1.3	ug/kg	
76-13-1	Freon 113	ND	11	1.7	ug/kg	
591-78-6	2-Hexanone	ND	11	2.9	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-142(7-8)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-2	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	53.6
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	4.6	1.6	ug/kg	
79-20-9	Methyl Acetate	ND	11	3.2	ug/kg	
108-87-2	Methylcyclohexane	ND	4.6	1.6	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	2.3	0.80	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	11	3.5	ug/kg	
75-09-2	Methylene chloride	6.8	11	5.7	ug/kg	J
100-42-5	Styrene	ND	4.6	1.3	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	4.6	0.89	ug/kg	
127-18-4	Tetrachloroethene	ND	4.6	1.1	ug/kg	
108-88-3	Toluene	ND	2.3	0.86	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	11	2.3	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	11	2.3	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	4.6	0.97	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	4.6	0.78	ug/kg	
79-01-6	Trichloroethene	ND	2.3	1.7	ug/kg	
75-69-4	Trichlorofluoromethane	ND	11	1.5	ug/kg	
75-01-4	Vinyl chloride	ND	4.6	1.1	ug/kg	
	m,p-Xylene	ND	2.3	1.7	ug/kg	
95-47-6	o-Xylene	ND	2.3	1.3	ug/kg	
1330-20-7	Xylene (total)	ND	2.3	1.3	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		75-127%
17060-07-0	1,2-Dichloroethane-D4	95%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	99%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	S-142(7-8)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-2	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	53.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	6P481566.D	1	05/02/19 16:39	AR	05/01/19 10:00	OP20081	E6P2579

Run #1	Initial Weight	Final Volume
Run #2	30.0 g	1.0 ml

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	120	31	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	310	38	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	310	53	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	310	110	ug/kg	
51-28-5	2,4-Dinitrophenol ^b	ND	310	230	ug/kg	U
534-52-1	4,6-Dinitro-o-cresol	ND	310	67	ug/kg	
95-48-7	2-Methylphenol	ND	120	40	ug/kg	
	3&4-Methylphenol	349	120	51	ug/kg	
88-75-5	2-Nitrophenol	ND	310	41	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	620	170	ug/kg	
87-86-5	Pentachlorophenol	ND	250	58	ug/kg	
108-95-2	Phenol	ND	120	32	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	310	47	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	310	37	ug/kg	
83-32-9	Acenaphthene	45.3	62	21	ug/kg	J
208-96-8	Acenaphthylene	63.4	62	32	ug/kg	
120-12-7	Anthracene	70.2	62	38	ug/kg	
56-55-3	Benzo(a)anthracene	170	62	18	ug/kg	
50-32-8	Benzo(a)pyrene	200	62	28	ug/kg	
205-99-2	Benzo(b)fluoranthene	207	62	27	ug/kg	
191-24-2	Benzo(g,h,i)perylene	122	62	31	ug/kg	
207-08-9	Benzo(k)fluoranthene	79.8	62	29	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	120	24	ug/kg	
85-68-7	Butyl benzyl phthalate ^a	ND	120	15	ug/kg	
91-58-7	2-Chloronaphthalene	ND	120	15	ug/kg	
106-47-8	4-Chloroaniline	ND	310	22	ug/kg	
86-74-8	Carbazole	18.4	120	9.0	ug/kg	J
218-01-9	Chrysene	181	62	20	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	120	13	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	120	27	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	120	22	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	120	20	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-142(7-8)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-2	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	53.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-50-1	1,2-Dichlorobenzene	ND	120	18	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	120	13	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	120	15	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	62	19	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	62	31	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	120	52	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	28.1	62	27	ug/kg	J
132-64-9	Dibenzofuran	29.2	120	25	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	120	10	ug/kg	
117-84-0	Di-n-octyl phthalate ^a	ND	120	15	ug/kg	
84-66-2	Diethyl phthalate	ND	120	13	ug/kg	
131-11-3	Dimethyl phthalate	ND	120	11	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate ^a	ND	120	15	ug/kg	
206-44-0	Fluoranthene	284	62	28	ug/kg	
86-73-7	Fluorene	54.4	62	29	ug/kg	J
118-74-1	Hexachlorobenzene	ND	120	16	ug/kg	
87-68-3	Hexachlorobutadiene	ND	62	25	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^b	ND	620	25	ug/kg	UJ
67-72-1	Hexachloroethane	ND	310	31	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	95.6	62	29	ug/kg	
78-59-1	Isophorone	ND	120	13	ug/kg	
91-57-6	2-Methylnaphthalene	92.5	62	14	ug/kg	
88-74-4	2-Nitroaniline	ND	310	15	ug/kg	
99-09-2	3-Nitroaniline	ND	310	16	ug/kg	
100-01-6	4-Nitroaniline	ND	310	16	ug/kg	
91-20-3	Naphthalene	406	62	18	ug/kg	
98-95-3	Nitrobenzene	ND	120	24	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	120	18	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	310	23	ug/kg	
85-01-8	Phenanthrene	210	62	21	ug/kg	
129-00-0	Pyrene	336	62	20	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	120	16	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	65%		23-115%
4165-62-2	Phenol-d5	70%		27-114%
118-79-6	2,4,6-Tribromophenol	63%		19-152%
4165-60-0	Nitrobenzene-d5	75%		26-134%
321-60-8	2-Fluorobiphenyl	72%		39-124%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-142(7-8)	
Lab Sample ID: JC86986-2	Date Sampled: 04/25/19
Matrix: SO - Soil	Date Received: 04/25/19
Method: SW846 8270D SW846 3546	Percent Solids: 53.6
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1718-51-0	Terphenyl-d14	73%		36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: S-142(7-8) Lab Sample ID: JC86986-2 Matrix: SO - Soil	Date Sampled: 04/25/19 Date Received: 04/25/19 Percent Solids: 53.6
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	20500	97	16	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Antimony	1.6 J	3.9	0.80	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Arsenic	48.7	3.9	0.54	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Barium	203	39	3.7	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Beryllium	1.5	0.39	0.16	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Cadmium	2.6	0.97	0.14	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Calcium	4500 J	970	86	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Chromium	176	1.9	0.72	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Cobalt	21.5	9.7	0.54	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Copper	148	4.9	1.6	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Iron	33300	97	37	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Lead	279 J	3.9	0.80	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Magnesium	5090	970	27	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Manganese	967 J	2.9	0.80	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Mercury	1.9 J	0.12	0.051	mg/kg	2	04/30/19	04/30/19	EAL	SW846 7471B ¹ SW846 7471B ⁴
Nickel	38.4	7.8	0.68	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Potassium	2280	1900	62	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Selenium	1.6 J	3.9	1.3	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Silver	2.1	0.97	0.33	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Sodium	189 J	1900	150	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Thallium	1.1 U	1.9	1.1	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Vanadium	41.3	9.7	0.37	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Zinc	751	9.7	4.5	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³

(1) Instrument QC Batch: MA46605

(2) Instrument QC Batch: MA46623

(3) Prep QC Batch: MP14617

(4) Prep QC Batch: MP14631

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.2
4

Report of Analysis

Client Sample ID: S-142(7-8)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-2	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 53.6
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.6	J	0.51	mg/kg	1	05/03/19 13:28	KI	SW846 9012B/LACHAT
Solids, Percent	53.6			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.2
4

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID:	S-149(8-10)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-3	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	77.5
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D264378.D	1	05/08/19 17:49	TDN	n/a	n/a	VD10654
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	3.4 g	10.0 ml	20.0 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^b	ND	10000	5100	ug/kg	
71-43-2	Benzene	2310	510	390	ug/kg	
74-97-5	Bromochloromethane	ND	5100	440	ug/kg	
75-27-4	Bromodichloromethane	ND	2000	450	ug/kg	
75-25-2	Bromoform	ND	5100	410	ug/kg	
74-83-9	Bromomethane	ND	5100	1000	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10000	3800	ug/kg	
75-15-0	Carbon disulfide	5320	2000	950	ug/kg	
56-23-5	Carbon tetrachloride	ND	2000	560	ug/kg	
108-90-7	Chlorobenzene	ND	2000	360	ug/kg	
75-00-3	Chloroethane	ND	5100	700	ug/kg	
67-66-3	Chloroform	ND	2000	380	ug/kg	
74-87-3	Chloromethane	ND	5100	2000	ug/kg	
110-82-7	Cyclohexane	ND	2000	410	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2000	850	ug/kg	
124-48-1	Dibromochloromethane	ND	2000	350	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1000	330	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1000	310	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1000	370	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1000	350	ug/kg	
75-71-8	Dichlorodifluoromethane ^c	ND	5100	650	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	1000	390	ug/kg	
107-06-2	1,2-Dichloroethane ^c	ND	1000	480	ug/kg	UJ
75-35-4	1,1-Dichloroethene	ND	1000	670	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1000	980	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1000	680	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2000	420	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2000	360	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2000	330	ug/kg	
100-41-4	Ethylbenzene	1510	1000	560	ug/kg	
76-13-1	Freon 113	ND	5100	780	ug/kg	
591-78-6	2-Hexanone	ND	5100	1300	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-149(8-10) Lab Sample ID: JC86986-3 Matrix: SO - Soil Method: SW846 8260C Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/25/19 Date Received: 04/25/19 Percent Solids: 77.5
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VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2000	710	ug/kg	
79-20-9	Methyl Acetate	ND	5100	1400	ug/kg	
108-87-2	Methylcyclohexane	ND	2000	720	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1000	360	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5100	1600	ug/kg	
75-09-2	Methylene chloride	ND	5100	2600	ug/kg	
100-42-5	Styrene	ND	2000	590	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2000	400	ug/kg	
127-18-4	Tetrachloroethene	ND	2000	470	ug/kg	
108-88-3	Toluene	1800	1000	380	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5100	1000	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5100	1000	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2000	440	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2000	350	ug/kg	
79-01-6	Trichloroethene	ND	1000	780	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5100	700	ug/kg	
75-01-4	Vinyl chloride	ND	2000	480	ug/kg	
	m,p-Xylene	2880	1000	760	ug/kg	
95-47-6	o-Xylene	1380	1000	600	ug/kg	
1330-20-7	Xylene (total)	4260	1000	600	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		75-127%
17060-07-0	1,2-Dichloroethane-D4	90%		75-130%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	97%		79-127%

- (a) Diluted due to high concentration of non-target compound.
- (b) Associated CCV outside of control limits high, sample was ND.
- (c) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
4

SGS North America Inc.

Report of Analysis

Client Sample ID:	S-149(8-10)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-3	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	77.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	6P481575.D	2	05/02/19 20:23	AR	05/01/19 10:00	OP20081	E6P2579
Run #2	6P481621.D	20	05/03/19 17:19	AR	05/01/19 10:00	OP20081	E6P2581
Run #3	6P481617.D	200	05/03/19 15:42	AR	05/01/19 10:00	OP20081	E6P2581

Run #	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2	30.1 g	1.0 ml
Run #3	30.1 g	1.0 ml

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	170	42	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	430	53	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	430	73	ug/kg	
105-67-9	2,4-Dimethylphenol ^b	814	430	150	ug/kg	J
51-28-5	2,4-Dinitrophenol ^c	ND	430	320	ug/kg	JJ
534-52-1	4,6-Dinitro-o-cresol	ND	430	92	ug/kg	
95-48-7	2-Methylphenol	604	170	55	ug/kg	
	3&4-Methylphenol	1760	170	70	ug/kg	
88-75-5	2-Nitrophenol	ND	430	57	ug/kg	
100-02-7	4-Nitrophenol ^d	ND	860	230	ug/kg	
87-86-5	Pentachlorophenol	ND	340	81	ug/kg	
108-95-2	Phenol	795	170	45	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	430	64	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	430	51	ug/kg	
83-32-9	Acenaphthene	14400 ^e	860	300	ug/kg	D
208-96-8	Acenaphthylene	68500 ^e	860	440	ug/kg	
120-12-7	Anthracene	163000 ^f	8600	5300	ug/kg	
56-55-3	Benzo(a)anthracene	164000 ^f	8600	2400	ug/kg	
50-32-8	Benzo(a)pyrene	140000 ^f	8600	3900	ug/kg	
205-99-2	Benzo(b)fluoranthene	181000 ^f	8600	3800	ug/kg	
191-24-2	Benzo(g,h,i)perylene	79800 ^f	8600	4300	ug/kg	
207-08-9	Benzo(k)fluoranthene	55400 ^f	8600	4000	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	170	33	ug/kg	
85-68-7	Butyl benzyl phthalate ^d	ND	170	21	ug/kg	
91-58-7	2-Chloronaphthalene	ND	170	20	ug/kg	
106-47-8	4-Chloroaniline	ND	430	31	ug/kg	
86-74-8	Carbazole	83500 ^e	1700	120	ug/kg	D
218-01-9	Chrysene	152000 ^f	8600	2700	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	170	18	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	170	37	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID:	S-149(8-10)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-3	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	77.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	170	31	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	170	28	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	170	25	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	170	18	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	170	21	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	86	27	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	86	43	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	170	72	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	27900 ^e	860	380	ug/kg	D
132-64-9	Dibenzofuran	101000 ^f	17000	3500	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	170	14	ug/kg	
117-84-0	Di-n-octyl phthalate ^d	ND	170	21	ug/kg	
84-66-2	Diethyl phthalate	ND	170	18	ug/kg	
131-11-3	Dimethyl phthalate	ND	170	15	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate ^d	ND	170	20	ug/kg	
206-44-0	Fluoranthene	519000 ^f	8600	3800	ug/kg	D
86-73-7	Fluorene	168000 ^f	8600	3900	ug/kg	D
118-74-1	Hexachlorobenzene	ND	170	22	ug/kg	
87-68-3	Hexachlorobutadiene	ND	86	34	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^c	ND	860	34	ug/kg	UJ
67-72-1	Hexachloroethane	ND	430	42	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	68800 ^f	8600	4000	ug/kg	
78-59-1	Isophorone	ND	170	18	ug/kg	
91-57-6	2-Methylnaphthalene	37300 ^e	860	190	ug/kg	D
88-74-4	2-Nitroaniline	ND	430	20	ug/kg	
99-09-2	3-Nitroaniline	ND	430	21	ug/kg	
100-01-6	4-Nitroaniline	ND	430	22	ug/kg	
91-20-3	Naphthalene	228000 ^f	8600	2400	ug/kg	D
98-95-3	Nitrobenzene	ND	170	33	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	170	25	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	430	31	ug/kg	
85-01-8	Phenanthrene	623000 ^f	8600	2900	ug/kg	D
129-00-0	Pyrene	381000 ^f	8600	2700	ug/kg	D
120-82-1	1,2,4-Trichlorobenzene	ND	170	22	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	60%	63%	55%	23-115%
4165-62-2	Phenol-d5	62%	68%	59%	27-114%
118-79-6	2,4,6-Tribromophenol	80%	53%	0% ^g	19-152%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-149(8-10) Lab Sample ID: JC86986-3 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/25/19 Date Received: 04/25/19 Percent Solids: 77.5
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ABN TCL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
4165-60-0	Nitrobenzene-d5	65%	77%	60%	26-134%
321-60-8	2-Fluorobiphenyl	50%	67%	54%	39-124%
1718-51-0	Terphenyl-d14	54%	47%	69%	36-134%

- (a) Dilution required due to viscosity of the extract matrix.
- (b) Associated CCV outside of control limits high.
- (c) Associated CCV outside of control limits low.
- (d) Associated CCV outside of control limits high, sample was ND.
- (e) Result is from Run# 2
- (f) Result is from Run# 3
- (g) Outside control limits due to dilution.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID: S-149(8-10)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-3	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 77.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	6350	63	10	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Antimony	1.9 J	2.5	0.52	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Arsenic	13.8	2.5	0.35	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Barium	82.6	25	2.4	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Beryllium	0.91	0.25	0.10	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Cadmium	1.4	0.63	0.089	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Calcium	897 J	630	56	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Chromium	53.3	1.3	0.47	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Cobalt	5.3 J	6.3	0.35	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Copper	108	3.2	1.1	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Iron	12700	63	24	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Lead	154 J	2.5	0.52	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Magnesium	1500	630	17	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Manganese	60.6 J	1.9	0.52	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Mercury	1.8 J	0.084	0.037	mg/kg	2	04/30/19	04/30/19	EAL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	31.6	5.1	0.44	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Potassium	476 J	1300	40	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Selenium	2.0 J	2.5	0.82	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Silver	0.63	0.63	0.22	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Sodium	98 U	1300	98	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Thallium	0.73 U	1.3	0.73	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Vanadium	30.0	6.3	0.24	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³
Zinc	475	6.3	2.9	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ³

(1) Instrument QC Batch: MA46605

(2) Instrument QC Batch: MA46623

(3) Prep QC Batch: MP14617

(4) Prep QC Batch: MP14631

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.3
4

Report of Analysis

Client Sample ID: S-149(8-10)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-3	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 77.5
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	12.6 J	0.39	0.19	mg/kg	1	05/03/19 13:29	KI	SW846 9012B/LACHAT
Solids, Percent	77.5			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.3
4

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID:	S-149(18.5-20.5)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-4	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	63.5
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151782.D	1	05/05/19 17:47	MD	n/a	n/a	V3C6820
Run #2							

Run #	Initial Weight
Run #1	5.5 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	134	14	7.2	ug/kg	
71-43-2	Benzene	ND	0.72	0.54	ug/kg	
74-97-5	Bromochloromethane	ND	7.2	0.62	ug/kg	
75-27-4	Bromodichloromethane	ND	2.9	0.63	ug/kg	
75-25-2	Bromoform	ND	7.2	0.58	ug/kg	
74-83-9	Bromomethane	ND	7.2	1.4	ug/kg	
78-93-3	2-Butanone (MEK)	31.7	14	5.4	ug/kg	
75-15-0	Carbon disulfide	ND	2.9	1.3	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.9	0.79	ug/kg	
108-90-7	Chlorobenzene	ND	2.9	0.51	ug/kg	
75-00-3	Chloroethane	ND	7.2	0.98	ug/kg	
67-66-3	Chloroform	ND	2.9	0.53	ug/kg	
74-87-3	Chloromethane ^a	ND	7.2	2.8	ug/kg	UJ
110-82-7	Cyclohexane	ND	2.9	0.58	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.9	1.2	ug/kg	
124-48-1	Dibromochloromethane ^b	ND	2.9	0.48	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.4	0.47	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.4	0.44	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.4	0.51	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.4	0.49	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	7.2	0.91	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.4	0.55	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.4	0.67	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.4	0.94	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.4	1.4	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.4	0.95	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.9	0.58	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.9	0.50	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.9	0.47	ug/kg	
100-41-4	Ethylbenzene	ND	1.4	0.79	ug/kg	
76-13-1	Freon 113	ND	7.2	1.1	ug/kg	
591-78-6	2-Hexanone	ND	7.2	1.8	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-149(18.5-20.5)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-4	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	63.5
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.9	1.0	ug/kg	
79-20-9	Methyl Acetate	ND	7.2	2.0	ug/kg	
108-87-2	Methylcyclohexane	ND	2.9	1.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.4	0.50	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK ^c)	ND	7.2	2.2	ug/kg	
75-09-2	Methylene chloride	ND	7.2	3.6	ug/kg	
100-42-5	Styrene	ND	2.9	0.82	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.9	0.56	ug/kg	
127-18-4	Tetrachloroethene	ND	2.9	0.66	ug/kg	
108-88-3	Toluene	ND	1.4	0.54	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	7.2	1.4	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	7.2	1.4	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.9	0.61	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.9	0.49	ug/kg	
79-01-6	Trichloroethene	ND	1.4	1.1	ug/kg	
75-69-4	Trichlorofluoromethane	ND	7.2	0.97	ug/kg	
75-01-4	Vinyl chloride	ND	2.9	0.67	ug/kg	
	m,p-Xylene	ND	1.4	1.1	ug/kg	
95-47-6	o-Xylene	ND	1.4	0.83	ug/kg	
1330-20-7	Xylene (total)	ND	1.4	0.83	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		75-127%
17060-07-0	1,2-Dichloroethane-D4	114%		75-130%
2037-26-5	Toluene-D8	104%		80-120%
460-00-4	4-Bromofluorobenzene	112%		79-127%

- (a) Associated CCV outside of control limits low.
(b) Associated CCV and BS outside of control limits high, sample was ND.
(c) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	S-149(18.5-20.5)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-4	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	63.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P481562.D	1	05/02/19 14:50	AR	05/01/19 10:00	OP20081	E6P2579
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	100	26	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	260	32	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	260	44	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	260	92	ug/kg	
51-28-5	2,4-Dinitrophenol ^b	ND	260	190	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	260	55	ug/kg	
95-48-7	2-Methylphenol	ND	100	33	ug/kg	
	3&4-Methylphenol	ND	100	43	ug/kg	
88-75-5	2-Nitrophenol	ND	260	34	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	520	140	ug/kg	
87-86-5	Pentachlorophenol	ND	210	49	ug/kg	
108-95-2	Phenol	ND	100	27	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	260	39	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	260	31	ug/kg	
83-32-9	Acenaphthene	ND	52	18	ug/kg	
208-96-8	Acenaphthylene	ND	52	26	ug/kg	
120-12-7	Anthracene	ND	52	32	ug/kg	
56-55-3	Benzo(a)anthracene	ND	52	15	ug/kg	
50-32-8	Benzo(a)pyrene	ND	52	24	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	52	23	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	52	26	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	52	24	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	100	20	ug/kg	
85-68-7	Butyl benzyl phthalate ^a	ND	100	13	ug/kg	
91-58-7	2-Chloronaphthalene	ND	100	12	ug/kg	
106-47-8	4-Chloroaniline	ND	260	19	ug/kg	
86-74-8	Carbazole	ND	100	7.5	ug/kg	
218-01-9	Chrysene	ND	52	16	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	100	11	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	100	22	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	100	19	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	100	17	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-149(18.5-20.5)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-4	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	63.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-50-1	1,2-Dichlorobenzene	ND	100	15	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	100	11	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	100	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	52	16	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	52	26	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	100	43	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	52	23	ug/kg	
132-64-9	Dibenzofuran	ND	100	21	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	100	8.4	ug/kg	
117-84-0	Di-n-octyl phthalate ^a	ND	100	13	ug/kg	
84-66-2	Diethyl phthalate	ND	100	11	ug/kg	
131-11-3	Dimethyl phthalate	ND	100	9.2	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate ^a	ND	100	12	ug/kg	
206-44-0	Fluoranthene	23.6	52	23	ug/kg	J
86-73-7	Fluorene	ND	52	24	ug/kg	
118-74-1	Hexachlorobenzene	ND	100	13	ug/kg	
87-68-3	Hexachlorobutadiene	ND	52	21	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^b	ND	520	21	ug/kg	UJ
67-72-1	Hexachloroethane	ND	260	26	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	52	24	ug/kg	
78-59-1	Isophorone	ND	100	11	ug/kg	
91-57-6	2-Methylnaphthalene	ND	52	12	ug/kg	
88-74-4	2-Nitroaniline	ND	260	12	ug/kg	
99-09-2	3-Nitroaniline	ND	260	13	ug/kg	
100-01-6	4-Nitroaniline	ND	260	13	ug/kg	
91-20-3	Naphthalene	29.7	52	15	ug/kg	J
98-95-3	Nitrobenzene	ND	100	20	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	100	15	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	260	19	ug/kg	
85-01-8	Phenanthrene	21.8	52	17	ug/kg	J
129-00-0	Pyrene	20.2	52	17	ug/kg	J
120-82-1	1,2,4-Trichlorobenzene	ND	100	14	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	79%		23-115%
4165-62-2	Phenol-d5	79%		27-114%
118-79-6	2,4,6-Tribromophenol	76%		19-152%
4165-60-0	Nitrobenzene-d5	83%		26-134%
321-60-8	2-Fluorobiphenyl	80%		39-124%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-149(18.5-20.5)		Date Sampled: 04/25/19
Lab Sample ID: JC86986-4		Date Received: 04/25/19
Matrix: SO - Soil		Percent Solids: 63.5
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1718-51-0	Terphenyl-d14	81%		36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: S-149(18.5-20.5)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-4	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 63.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	19200	80	13	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.65 U	J 3.2	0.65	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic	4.3	3.2	0.45	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Barium	142	32	3.0	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.87	0.32	0.13	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.14 J	0.80	0.11	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	3050	J 800	70	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	39.3	1.6	0.59	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	10.6	8.0	0.45	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Copper	9.2	4.0	1.3	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Iron	18800	80	31	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Lead	12.3	J 3.2	0.65	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Magnesium	5120	800	22	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Manganese	310	J 2.4	0.65	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Mercury	0.048	J 0.044	0.019	mg/kg	1	04/30/19	04/30/19	EAL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	26.0	6.4	0.56	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	1780	1600	51	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	1.0 U	3.2	1.0	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Silver	0.52 J	0.80	0.27	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Sodium	332 J	1600	120	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Thallium	0.92 U	1.6	0.92	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Vanadium	39.7	8.0	0.30	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	63.5	8.0	3.7	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46605
- (2) Instrument QC Batch: MA46623
- (3) Instrument QC Batch: MA46628
- (4) Prep QC Batch: MP14617
- (5) Prep QC Batch: MP14631

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

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4

Report of Analysis

Client Sample ID: S-149(18.5-20.5)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-4	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 63.5
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.26 J	0.36	0.18	mg/kg	1	05/03/19 13:30	KI	SW846 9012B/LACHAT
Solids, Percent	63.5			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

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SGS North America Inc.

Report of Analysis

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Client Sample ID: S-146(14-16)		Date Sampled: 04/25/19
Lab Sample ID: JC86986-5		Date Received: 04/25/19
Matrix: SO - Soil		Percent Solids: 85.1
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	3C151824.D	1	05/06/19 18:26	PS	n/a	n/a	V3C6821

Run #1	Initial Weight
Run #2	7.0 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	25.0	8.4	4.2	ug/kg	
71-43-2	Benzene	ND	0.42	0.32	ug/kg	
74-97-5	Bromochloromethane	ND	4.2	0.36	ug/kg	
75-27-4	Bromodichloromethane	ND	1.7	0.37	ug/kg	
75-25-2	Bromoform	ND	4.2	0.34	ug/kg	
74-83-9	Bromomethane	ND	4.2	0.84	ug/kg	
78-93-3	2-Butanone (MEK)	ND	8.4	3.1	ug/kg	
75-15-0	Carbon disulfide	0.83	1.7	0.78	ug/kg	J
56-23-5	Carbon tetrachloride	ND	1.7	0.46	ug/kg	
108-90-7	Chlorobenzene	ND	1.7	0.30	ug/kg	
75-00-3	Chloroethane	ND	4.2	0.58	ug/kg	
67-66-3	Chloroform	ND	1.7	0.31	ug/kg	
74-87-3	Chloromethane ^a	ND	4.2	1.6	ug/kg	UJ
110-82-7	Cyclohexane	ND	1.7	0.34	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.7	0.70	ug/kg	
124-48-1	Dibromochloromethane	ND	1.7	0.28	ug/kg	
106-93-4	1,2-Dibromoethane	ND	0.84	0.27	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.84	0.26	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.84	0.30	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.84	0.29	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	4.2	0.53	ug/kg	
75-34-3	1,1-Dichloroethane	ND	0.84	0.32	ug/kg	
107-06-2	1,2-Dichloroethane	ND	0.84	0.39	ug/kg	
75-35-4	1,1-Dichloroethene	ND	0.84	0.55	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.84	0.80	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.84	0.56	ug/kg	
78-87-5	1,2-Dichloropropane	ND	1.7	0.34	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	1.7	0.30	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	1.7	0.27	ug/kg	
100-41-4	Ethylbenzene	ND	0.84	0.46	ug/kg	
76-13-1	Freon 113	ND	4.2	0.64	ug/kg	
591-78-6	2-Hexanone	ND	4.2	1.1	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-146(14-16)		Date Sampled: 04/25/19
Lab Sample ID: JC86986-5		Date Received: 04/25/19
Matrix: SO - Soil		Percent Solids: 85.1
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.7	0.59	ug/kg	
79-20-9	Methyl Acetate ^a	ND	4.2	1.2	ug/kg	
108-87-2	Methylcyclohexane	ND	1.7	0.59	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.84	0.30	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	4.2	1.3	ug/kg	
75-09-2	Methylene chloride	ND	4.2	2.1	ug/kg	
100-42-5	Styrene	ND	1.7	0.48	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.7	0.33	ug/kg	
127-18-4	Tetrachloroethene	ND	1.7	0.39	ug/kg	
108-88-3	Toluene	0.35	0.84	0.32	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	4.2	0.84	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	4.2	0.84	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	1.7	0.36	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	1.7	0.29	ug/kg	
79-01-6	Trichloroethene	ND	0.84	0.64	ug/kg	
75-69-4	Trichlorofluoromethane	ND	4.2	0.57	ug/kg	
75-01-4	Vinyl chloride	ND	1.7	0.39	ug/kg	
	m,p-Xylene	ND	0.84	0.63	ug/kg	
95-47-6	o-Xylene	ND	0.84	0.49	ug/kg	
1330-20-7	Xylene (total)	ND	0.84	0.49	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		75-127%
17060-07-0	1,2-Dichloroethane-D4	109%		75-130%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	106%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

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Client Sample ID:	S-146(14-16)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-5	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	85.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P481554.D	1	05/02/19 11:34	AR	05/01/19 10:00	OP20081	E6P2579
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.3 g	1.0 ml
Run #2		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	78	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	24	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	33	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	190	69	ug/kg	
51-28-5	2,4-Dinitrophenol ^b	ND	190	150	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	190	41	ug/kg	
95-48-7	2-Methylphenol	ND	78	25	ug/kg	
	3&4-Methylphenol	ND	78	32	ug/kg	
88-75-5	2-Nitrophenol	ND	190	26	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	390	100	ug/kg	
87-86-5	Pentachlorophenol	ND	160	36	ug/kg	
108-95-2	Phenol	ND	78	20	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	29	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	23	ug/kg	
83-32-9	Acenaphthene	ND	39	13	ug/kg	
208-96-8	Acenaphthylene	ND	39	20	ug/kg	
120-12-7	Anthracene	ND	39	24	ug/kg	
56-55-3	Benzo(a)anthracene	ND	39	11	ug/kg	
50-32-8	Benzo(a)pyrene	ND	39	18	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	39	17	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	39	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	39	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	78	15	ug/kg	
85-68-7	Butyl benzyl phthalate ^a	ND	78	9.5	ug/kg	
91-58-7	2-Chloronaphthalene	ND	78	9.2	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	ND	78	5.6	ug/kg	
218-01-9	Chrysene	ND	39	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	78	8.3	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	78	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	78	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	78	13	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-146(14-16)	
Lab Sample ID: JC86986-5	Date Sampled: 04/25/19
Matrix: SO - Soil	Date Received: 04/25/19
Method: SW846 8270D SW846 3546	Percent Solids: 85.1
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1718-51-0	Terphenyl-d14	83%		36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-146(14-16)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-5	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 85.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	9990	57	9.2	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Antimony	0.47 U	J 2.3	0.47	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic	2.2 J	2.3	0.32	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Barium	23.3	23	2.2	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Beryllium	0.34	0.23	0.091	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Cadmium	0.080 U	0.57	0.080	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	211 J	570	50	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Chromium	14.0	1.1	0.42	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	5.7	5.7	0.32	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Copper	7.3	2.9	0.96	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Iron	14800	57	22	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Lead	7.7	J 2.3	0.47	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Magnesium	2240	570	16	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Manganese	127	J 1.7	0.47	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Mercury	0.015 U	J 0.034	0.015	mg/kg	1	04/30/19	04/30/19	EAL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	9.3	4.6	0.40	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	1040 J	1100	36	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Selenium	0.74 U	2.3	0.74	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Silver	0.19 U	0.57	0.19	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Sodium	89 U	1100	89	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Thallium	0.66 U	1.1	0.66	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Vanadium	20.8	5.7	0.22	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	40.7	5.7	2.6	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46605
- (2) Instrument QC Batch: MA46623
- (3) Instrument QC Batch: MA46628
- (4) Prep QC Batch: MP14617
- (5) Prep QC Batch: MP14631

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

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Report of Analysis

Client Sample ID: S-146(14-16)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-5	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 85.1
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.14 J	0.27	0.14	mg/kg	1	05/03/19 13:32	KI	SW846 9012B/LACHAT
Solids, Percent	85.1			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

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Client Sample ID: S-146(17-19)		
Lab Sample ID: JC86986-6		Date Sampled: 04/25/19
Matrix: SO - Soil		Date Received: 04/25/19
Method: SW846 8260C		Percent Solids: 85.9
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1C164400.D	1	05/09/19 13:04	PS	n/a	n/a	V1C7215
Run #2							

Run #1	Initial Weight
Run #1	5.6 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	5.3	10	5.2	ug/kg	J
71-43-2	Benzene	ND	0.52	0.39	ug/kg	
74-97-5	Bromochloromethane	ND	5.2	0.45	ug/kg	
75-27-4	Bromodichloromethane	ND	2.1	0.46	ug/kg	
75-25-2	Bromoform	ND	5.2	0.42	ug/kg	
74-83-9	Bromomethane	ND	5.2	1.0	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	3.9	ug/kg	
75-15-0	Carbon disulfide	ND	2.1	0.97	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.1	0.57	ug/kg	
108-90-7	Chlorobenzene	ND	2.1	0.37	ug/kg	
75-00-3	Chloroethane	ND	5.2	0.71	ug/kg	
67-66-3	Chloroform	ND	2.1	0.39	ug/kg	
74-87-3	Chloromethane ^a	ND	5.2	2.0	ug/kg	UJ
110-82-7	Cyclohexane	ND	2.1	0.42	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.1	0.87	ug/kg	
124-48-1	Dibromochloromethane	ND	2.1	0.35	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	0.34	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.32	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.37	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.36	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	5.2	0.66	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	1.0	0.40	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.49	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	0.68	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.99	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.69	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.1	0.42	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.1	0.37	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.1	0.34	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.57	ug/kg	
76-13-1	Freon 113	ND	5.2	0.79	ug/kg	
591-78-6	2-Hexanone	ND	5.2	1.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-146(17-19)		Date Sampled: 04/25/19
Lab Sample ID: JC86986-6		Date Received: 04/25/19
Matrix: SO - Soil		Percent Solids: 85.9
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.1	0.72	ug/kg	
79-20-9	Methyl Acetate	ND	5.2	1.4	ug/kg	
108-87-2	Methylcyclohexane	ND	2.1	0.73	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.37	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.2	1.6	ug/kg	
75-09-2	Methylene chloride	5.7	5.2	2.6	ug/kg	
100-42-5	Styrene	ND	2.1	0.60	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.1	0.41	ug/kg	
127-18-4	Tetrachloroethene	ND	2.1	0.48	ug/kg	
108-88-3	Toluene	ND	1.0	0.39	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.2	1.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.2	1.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.1	0.44	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.1	0.36	ug/kg	
79-01-6	Trichloroethene	ND	1.0	0.79	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.2	0.71	ug/kg	
75-01-4	Vinyl chloride	ND	2.1	0.49	ug/kg	
	m,p-Xylene	ND	1.0	0.78	ug/kg	
95-47-6	o-Xylene	ND	1.0	0.61	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.61	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		75-127%
17060-07-0	1,2-Dichloroethane-D4	87%		75-130%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	92%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

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Client Sample ID:	S-146(17-19)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-6	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	85.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P129377.D	1	05/07/19 17:50	CC	05/06/19 17:35	OP20110	EP5856
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	78	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	24	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	33	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	190	69	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	190	42	ug/kg	
95-48-7	2-Methylphenol	ND	78	25	ug/kg	
	3&4-Methylphenol	ND	78	32	ug/kg	
88-75-5	2-Nitrophenol	ND	190	26	ug/kg	
100-02-7	4-Nitrophenol	ND	390	100	ug/kg	
87-86-5	Pentachlorophenol	ND	160	36	ug/kg	
108-95-2	Phenol	ND	78	20	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	29	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	23	ug/kg	
83-32-9	Acenaphthene	ND	39	13	ug/kg	
208-96-8	Acenaphthylene	ND	39	20	ug/kg	
120-12-7	Anthracene	ND	39	24	ug/kg	
56-55-3	Benzo(a)anthracene	ND	39	11	ug/kg	
50-32-8	Benzo(a)pyrene	ND	39	18	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	39	17	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	39	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	39	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	78	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	78	9.5	ug/kg	
91-58-7	2-Chloronaphthalene	ND	78	9.2	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	ND	78	5.6	ug/kg	
218-01-9	Chrysene	ND	39	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	78	8.3	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	78	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	78	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	78	13	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-146(17-19)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-6	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	85.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-50-1	1,2-Dichlorobenzene	ND	78	11	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	78	8.3	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	78	9.4	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	39	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	39	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	78	32	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	39	17	ug/kg	
132-64-9	Dibenzofuran	ND	78	16	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	78	6.3	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	78	9.7	ug/kg	
84-66-2	Diethyl phthalate	ND	78	8.3	ug/kg	
131-11-3	Dimethyl phthalate	ND	78	6.9	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	78	9.1	ug/kg	
206-44-0	Fluoranthene	ND	39	17	ug/kg	
86-73-7	Fluorene	ND	39	18	ug/kg	
118-74-1	Hexachlorobenzene	ND	78	9.8	ug/kg	
87-68-3	Hexachlorobutadiene	ND	39	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	390	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	39	18	ug/kg	
78-59-1	Isophorone	ND	78	8.3	ug/kg	
91-57-6	2-Methylnaphthalene	ND	39	8.8	ug/kg	
88-74-4	2-Nitroaniline	ND	190	9.2	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.7	ug/kg	
100-01-6	4-Nitroaniline	ND	190	10	ug/kg	
91-20-3	Naphthalene	ND	39	11	ug/kg	
98-95-3	Nitrobenzene	ND	78	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	78	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	ND	39	13	ug/kg	
129-00-0	Pyrene	ND	39	12	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	78	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	60%		23-115%
4165-62-2	Phenol-d5	60%		27-114%
118-79-6	2,4,6-Tribromophenol	56%		19-152%
4165-60-0	Nitrobenzene-d5	68%		26-134%
321-60-8	2-Fluorobiphenyl	71%		39-124%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-146(17-19)		Date Sampled: 04/25/19
Lab Sample ID: JC86986-6		Date Received: 04/25/19
Matrix: SO - Soil		Percent Solids: 85.9
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

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ABN TCL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1718-51-0	Terphenyl-d14	64%		36-134%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-146(17-19)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-6	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 85.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	1080	57	9.2	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Antimony	0.47 U	J 2.3	0.47	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Arsenic	1.6 J	2.3	0.32	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Barium	4.1 J	23	2.2	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Beryllium	0.16 J	0.23	0.091	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Cadmium	0.080 U	0.57	0.080	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Calcium	58.7 J	570	50	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Chromium	5.1	1.1	0.42	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Cobalt	0.87 J	5.7	0.32	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Copper	1.1 J	2.9	0.96	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Iron	2510	57	22	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Lead	1.0 J	2.3	0.47	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Magnesium	72.2 J	570	16	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Manganese	11.6	J 1.7	0.47	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Mercury	0.015 U	J 0.035	0.015	mg/kg	1	04/30/19	04/30/19	EAL	SW846 7471B ¹ SW846 7471B ⁴
Nickel	1.3 J	4.6	0.40	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Potassium	120 J	1100	36	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Selenium	0.74 U	2.3	0.74	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Silver	0.19 U	0.57	0.19	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Sodium	89 U	1100	89	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Thallium	0.66 U	1.1	0.66	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Vanadium	3.9 J	5.7	0.22	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³
Zinc	5.3 J	5.7	2.6	mg/kg	1	04/29/19	04/30/19	ND	SW846 6010D ² SW846 3050B ³

(1) Instrument QC Batch: MA46605

(2) Instrument QC Batch: MA46623

(3) Prep QC Batch: MP14617

(4) Prep QC Batch: MP14631

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

Client Sample ID: S-146(17-19)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-6	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 85.9
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.12 U J	0.24	0.12	mg/kg	1	05/03/19 13:33	KI	SW846 9012B/LACHAT
Solids, Percent	85.9			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

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Client Sample ID: S-147(12-14)		
Lab Sample ID: JC86986-7		Date Sampled: 04/25/19
Matrix: SO - Soil		Date Received: 04/25/19
Method: SW846 8260C		Percent Solids: 73.3
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151784.D	1	05/05/19 18:34	MD	n/a	n/a	V3C6820
Run #2							

Run #1	Initial Weight
Run #1	3.6 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	92.4	19	9.5	ug/kg	
71-43-2	Benzene	ND	0.95	0.71	ug/kg	
74-97-5	Bromochloromethane	ND	9.5	0.81	ug/kg	
75-27-4	Bromodichloromethane	ND	3.8	0.84	ug/kg	
75-25-2	Bromoform	ND	9.5	0.76	ug/kg	
74-83-9	Bromomethane	ND	9.5	1.9	ug/kg	
78-93-3	2-Butanone (MEK)	ND	19	7.1	ug/kg	
75-15-0	Carbon disulfide	5.3	3.8	1.8	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.8	1.0	ug/kg	
108-90-7	Chlorobenzene	ND	3.8	0.67	ug/kg	
75-00-3	Chloroethane	ND	9.5	1.3	ug/kg	
67-66-3	Chloroform	ND	3.8	0.70	ug/kg	
74-87-3	Chloromethane ^a	ND	9.5	3.7	ug/kg	UJ
110-82-7	Cyclohexane	ND	3.8	0.77	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.8	1.6	ug/kg	
124-48-1	Dibromochloromethane ^b	ND	3.8	0.64	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.9	0.62	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.9	0.58	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.9	0.68	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.9	0.65	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	9.5	1.2	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.9	0.73	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.9	0.89	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.9	1.2	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.9	1.8	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.9	1.3	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.8	0.77	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.8	0.67	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.8	0.62	ug/kg	
100-41-4	Ethylbenzene	ND	1.9	1.0	ug/kg	
76-13-1	Freon 113	ND	9.5	1.4	ug/kg	
591-78-6	2-Hexanone	ND	9.5	2.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-147(12-14)	
Lab Sample ID: JC86986-7	Date Sampled: 04/25/19
Matrix: SO - Soil	Date Received: 04/25/19
Method: SW846 8260C	Percent Solids: 73.3
Project: National Grid, Philly Coke, Philadelphia, PA	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.8	1.3	ug/kg	
79-20-9	Methyl Acetate	ND	9.5	2.6	ug/kg	
108-87-2	Methylcyclohexane	ND	3.8	1.3	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.9	0.67	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK ^c)	ND	9.5	3.0	ug/kg	
75-09-2	Methylene chloride	ND	9.5	4.7	ug/kg	
100-42-5	Styrene	ND	3.8	1.1	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.8	0.74	ug/kg	
127-18-4	Tetrachloroethene	ND	3.8	0.88	ug/kg	
108-88-3	Toluene	ND	1.9	0.71	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	9.5	1.9	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	9.5	1.9	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.8	0.81	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.8	0.65	ug/kg	
79-01-6	Trichloroethene	ND	1.9	1.4	ug/kg	
75-69-4	Trichlorofluoromethane	ND	9.5	1.3	ug/kg	
75-01-4	Vinyl chloride	ND	3.8	0.89	ug/kg	
	m,p-Xylene	ND	1.9	1.4	ug/kg	
95-47-6	o-Xylene	ND	1.9	1.1	ug/kg	
1330-20-7	Xylene (total)	ND	1.9	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		75-127%
17060-07-0	1,2-Dichloroethane-D4	113%		75-130%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	117%		79-127%

- (a) Associated CCV outside of control limits low.
(b) Associated CCV and BS outside of control limits high, sample was ND.
(c) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	S-147(12-14)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-7	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	73.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P481565.D	1	05/02/19 16:14	AR	05/01/19 10:00	OP20081	E6P2579
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	91	22	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	230	28	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	230	39	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	230	81	ug/kg	
51-28-5	2,4-Dinitrophenol ^b	ND	230	170	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	230	48	ug/kg	
95-48-7	2-Methylphenol	ND	91	29	ug/kg	
	3&4-Methylphenol	ND	91	37	ug/kg	
88-75-5	2-Nitrophenol	ND	230	30	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	450	120	ug/kg	
87-86-5	Pentachlorophenol	ND	180	43	ug/kg	
108-95-2	Phenol	ND	91	24	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	230	34	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	230	27	ug/kg	
83-32-9	Acenaphthene	127	45	16	ug/kg	
208-96-8	Acenaphthylene	ND	45	23	ug/kg	
120-12-7	Anthracene	284	45	28	ug/kg	
56-55-3	Benzo(a)anthracene	115	45	13	ug/kg	
50-32-8	Benzo(a)pyrene	67.7	45	21	ug/kg	
205-99-2	Benzo(b)fluoranthene	99.7	45	20	ug/kg	
191-24-2	Benzo(g,h,i)perylene	45.0	45	23	ug/kg	
207-08-9	Benzo(k)fluoranthene	33.6	45	21	ug/kg	J
101-55-3	4-Bromophenyl phenyl ether	ND	91	17	ug/kg	
85-68-7	Butyl benzyl phthalate ^a	ND	91	11	ug/kg	
91-58-7	2-Chloronaphthalene	ND	91	11	ug/kg	
106-47-8	4-Chloroaniline	ND	230	16	ug/kg	
86-74-8	Carbazole	644	91	6.6	ug/kg	
218-01-9	Chrysene	110	45	14	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	91	9.7	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	91	20	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	91	16	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	91	15	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-147(12-14)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-7	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	73.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-50-1	1,2-Dichlorobenzene	ND	91	13	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	91	9.7	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	91	11	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	45	14	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	45	23	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	91	38	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	45	20	ug/kg	
132-64-9	Dibenzofuran	224	91	18	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	91	7.4	ug/kg	
117-84-0	Di-n-octyl phthalate ^a	ND	91	11	ug/kg	
84-66-2	Diethyl phthalate	ND	91	9.7	ug/kg	
131-11-3	Dimethyl phthalate	ND	91	8.1	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate ^a	ND	91	11	ug/kg	
206-44-0	Fluoranthene	497	45	20	ug/kg	
86-73-7	Fluorene	356	45	21	ug/kg	
118-74-1	Hexachlorobenzene	ND	91	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	45	18	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^b	ND	450	18	ug/kg	UJ
67-72-1	Hexachloroethane	ND	230	22	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	31.5	45	21	ug/kg	J
78-59-1	Isophorone	ND	91	9.7	ug/kg	
91-57-6	2-Methylnaphthalene	1400	45	10	ug/kg	
88-74-4	2-Nitroaniline	ND	230	11	ug/kg	
99-09-2	3-Nitroaniline	ND	230	11	ug/kg	
100-01-6	4-Nitroaniline	ND	230	12	ug/kg	
91-20-3	Naphthalene	1780	45	13	ug/kg	
98-95-3	Nitrobenzene	ND	91	17	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	91	13	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	230	17	ug/kg	
85-01-8	Phenanthrene	400	45	15	ug/kg	
129-00-0	Pyrene	538	45	15	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	91	12	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	68%		23-115%
4165-62-2	Phenol-d5	68%		27-114%
118-79-6	2,4,6-Tribromophenol	74%		19-152%
4165-60-0	Nitrobenzene-d5	69%		26-134%
321-60-8	2-Fluorobiphenyl	66%		39-124%

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N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-147(12-14)	
Lab Sample ID: JC86986-7	Date Sampled: 04/25/19
Matrix: SO - Soil	Date Received: 04/25/19
Method: SW846 8270D SW846 3546	Percent Solids: 73.3
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1718-51-0	Terphenyl-d14	69%		36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-147(12-14)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-7	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 73.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	3240	68	11	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Antimony	0.88 J	2.7	0.55	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Arsenic	8.1	2.7	0.38	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Barium	88.0	27	2.6	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Beryllium	2.3	0.27	0.11	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Cadmium	1.4	0.68	0.095	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Calcium	939 J	680	60	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Chromium	8.0	1.4	0.50	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Cobalt	42.2	6.8	0.38	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Copper	80.5	3.4	1.1	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Iron	7690	68	26	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Lead	45.1 J	2.7	0.55	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Magnesium	179 J	680	18	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Manganese	28.2 J	2.0	0.55	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Mercury	0.078 J	0.042	0.019	mg/kg	1	04/30/19	04/30/19	EAL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	77.2	5.4	0.47	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Potassium	228 J	1400	43	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Selenium	5.5	2.7	0.88	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Silver	0.23 U	0.68	0.23	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Sodium	110 U	1400	110	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Thallium	0.78 U	1.4	0.78	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Vanadium	7.3	6.8	0.26	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³
Zinc	188	6.8	3.1	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ³

(1) Instrument QC Batch: MA46605

(2) Instrument QC Batch: MA46628

(3) Prep QC Batch: MP14617

(4) Prep QC Batch: MP14631

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.7
4

Report of Analysis

Client Sample ID: S-147(12-14)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-7	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 73.3
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.5 J	0.41	0.20	mg/kg	1	05/03/19 13:34	KI	SW846 9012B/LACHAT
Solids, Percent	73.3			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.7
4

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: S-147(18-20)		
Lab Sample ID: JC86986-8		Date Sampled: 04/25/19
Matrix: SO - Soil		Date Received: 04/25/19
Method: SW846 8260C		Percent Solids: 64.5
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	3C151785.D	1	05/05/19 18:57	MD	n/a	n/a	V3C6820

Run #1	Initial Weight
Run #2	4.7 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	240	16	8.2	ug/kg	
71-43-2	Benzene	ND	0.82	0.62	ug/kg	
74-97-5	Bromochloromethane	ND	8.2	0.71	ug/kg	
75-27-4	Bromodichloromethane	ND	3.3	0.73	ug/kg	
75-25-2	Bromoform	ND	8.2	0.66	ug/kg	
74-83-9	Bromomethane	ND	8.2	1.6	ug/kg	
78-93-3	2-Butanone (MEK)	56.1	16	6.2	ug/kg	
75-15-0	Carbon disulfide	ND	3.3	1.5	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.3	0.91	ug/kg	
108-90-7	Chlorobenzene	ND	3.3	0.58	ug/kg	
75-00-3	Chloroethane	ND	8.2	1.1	ug/kg	
67-66-3	Chloroform	ND	3.3	0.61	ug/kg	
74-87-3	Chloromethane ^a	ND	8.2	3.2	ug/kg	UJ
110-82-7	Cyclohexane	ND	3.3	0.67	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.3	1.4	ug/kg	
124-48-1	Dibromochloromethane ^b	ND	3.3	0.56	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.6	0.54	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.6	0.50	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.6	0.59	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.6	0.57	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	8.2	1.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.6	0.63	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.6	0.78	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.6	1.1	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.6	1.6	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.6	1.1	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.3	0.67	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.3	0.58	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.3	0.54	ug/kg	
100-41-4	Ethylbenzene	ND	1.6	0.91	ug/kg	
76-13-1	Freon 113	ND	8.2	1.3	ug/kg	
591-78-6	2-Hexanone	ND	8.2	2.1	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-147(18-20)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-8	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	64.5
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.3	1.1	ug/kg	
79-20-9	Methyl Acetate	ND	8.2	2.3	ug/kg	
108-87-2	Methylcyclohexane	ND	3.3	1.2	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.6	0.58	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK) ^c	ND	8.2	2.6	ug/kg	
75-09-2	Methylene chloride	ND	8.2	4.1	ug/kg	
100-42-5	Styrene	ND	3.3	0.95	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.3	0.64	ug/kg	
127-18-4	Tetrachloroethene	ND	3.3	0.76	ug/kg	
108-88-3	Toluene	ND	1.6	0.62	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	8.2	1.6	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	8.2	1.6	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.3	0.70	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.3	0.56	ug/kg	
79-01-6	Trichloroethene	ND	1.6	1.3	ug/kg	
75-69-4	Trichlorofluoromethane	ND	8.2	1.1	ug/kg	
75-01-4	Vinyl chloride	ND	3.3	0.77	ug/kg	
	m,p-Xylene	ND	1.6	1.2	ug/kg	
95-47-6	o-Xylene	ND	1.6	0.96	ug/kg	
1330-20-7	Xylene (total)	ND	1.6	0.96	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		75-127%
17060-07-0	1,2-Dichloroethane-D4	116%		75-130%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	106%		79-127%

- (a) Associated CCV outside of control limits low.
 (b) Associated CCV and BS outside of control limits high, sample was ND.
 (c) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	S-147(18-20)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-8	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	64.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P481561.D	1	05/02/19 14:25	AR	05/01/19 10:00	OP20081	E6P2579
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	100	25	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	250	31	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	250	44	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	250	91	ug/kg	
51-28-5	2,4-Dinitrophenol ^b	ND	250	190	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	250	55	ug/kg	
95-48-7	2-Methylphenol	ND	100	33	ug/kg	
	3&4-Methylphenol	ND	100	42	ug/kg	
88-75-5	2-Nitrophenol	ND	250	34	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	510	140	ug/kg	
87-86-5	Pentachlorophenol	ND	200	48	ug/kg	
108-95-2	Phenol	ND	100	27	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	250	38	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	250	30	ug/kg	
83-32-9	Acenaphthene	ND	51	18	ug/kg	
208-96-8	Acenaphthylene	ND	51	26	ug/kg	
120-12-7	Anthracene	45.7	51	31	ug/kg	J
56-55-3	Benzo(a)anthracene	42.7	51	14	ug/kg	J
50-32-8	Benzo(a)pyrene	27.5	51	23	ug/kg	J
205-99-2	Benzo(b)fluoranthene	33.2	51	23	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	ND	51	25	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	51	24	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	100	20	ug/kg	
85-68-7	Butyl benzyl phthalate ^a	ND	100	12	ug/kg	
91-58-7	2-Chloronaphthalene	ND	100	12	ug/kg	
106-47-8	4-Chloroaniline	ND	250	18	ug/kg	
86-74-8	Carbazole	15.5	100	7.4	ug/kg	J
218-01-9	Chrysene	36.6	51	16	ug/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	100	11	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	100	22	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	100	18	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	100	17	ug/kg	

ND = Not detected MDL = Method Detection Limit

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N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-147(18-20)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-8	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	64.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-50-1	1,2-Dichlorobenzene	ND	100	15	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	100	11	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	100	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	51	16	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	51	26	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	100	43	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	51	23	ug/kg	
132-64-9	Dibenzofuran	31.0	100	21	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	100	8.3	ug/kg	
117-84-0	Di-n-octyl phthalate ^a	ND	100	13	ug/kg	
84-66-2	Diethyl phthalate	ND	100	11	ug/kg	
131-11-3	Dimethyl phthalate	ND	100	9.1	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate ^a	ND	100	12	ug/kg	
206-44-0	Fluoranthene	95.1	51	23	ug/kg	
86-73-7	Fluorene	42.0	51	23	ug/kg	J
118-74-1	Hexachlorobenzene	ND	100	13	ug/kg	
87-68-3	Hexachlorobutadiene	ND	51	21	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^b	ND	510	20	ug/kg	UU
67-72-1	Hexachloroethane	ND	250	25	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	51	24	ug/kg	
78-59-1	Isophorone	ND	100	11	ug/kg	
91-57-6	2-Methylnaphthalene	19.9	51	12	ug/kg	J
88-74-4	2-Nitroaniline	ND	250	12	ug/kg	
99-09-2	3-Nitroaniline	ND	250	13	ug/kg	
100-01-6	4-Nitroaniline	ND	250	13	ug/kg	
91-20-3	Naphthalene	103	51	14	ug/kg	
98-95-3	Nitrobenzene	ND	100	20	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	100	15	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	250	19	ug/kg	
85-01-8	Phenanthrene	138	51	17	ug/kg	
129-00-0	Pyrene	73.4	51	16	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	100	13	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	74%		23-115%
4165-62-2	Phenol-d5	74%		27-114%
118-79-6	2,4,6-Tribromophenol	70%		19-152%
4165-60-0	Nitrobenzene-d5	80%		26-134%
321-60-8	2-Fluorobiphenyl	69%		39-124%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-147(18-20)		Date Sampled: 04/25/19
Lab Sample ID: JC86986-8		Date Received: 04/25/19
Matrix: SO - Soil		Percent Solids: 64.5
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

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ABN TCL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1718-51-0	Terphenyl-d14	81%		36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-147(18-20)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-8	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 64.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	23600	74	12	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.61 J	3.0	0.61	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic	5.3	3.0	0.41	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Barium	177	30	2.8	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	1.0	0.30	0.12	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.16 J	0.74	0.10	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	3420 J	740	65	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	45.3	1.5	0.55	mg/kg	1	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Cobalt	10.6	7.4	0.41	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Copper	11.6	3.7	1.2	mg/kg	1	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Iron	23500	74	28	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Lead	17.2 J	3.0	0.61	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Magnesium	5660	740	20	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Manganese	356 J	2.2	0.61	mg/kg	1	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Mercury	0.047 J	0.049	0.022	mg/kg	1	04/30/19	04/30/19	EAL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	28.4	5.9	0.52	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	2130	1500	47	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	0.96 U	3.0	0.96	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Silver	0.25 U	0.74	0.25	mg/kg	1	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Sodium	315 J	1500	110	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Thallium	0.86 U	1.5	0.86	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Vanadium	41.7	7.4	0.28	mg/kg	1	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Zinc	68.9	7.4	3.4	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46605
- (2) Instrument QC Batch: MA46628
- (3) Instrument QC Batch: MA46638
- (4) Prep QC Batch: MP14617
- (5) Prep QC Batch: MP14631

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

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Report of Analysis

Client Sample ID: S-147(18-20)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-8	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 64.5
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.24 J	0.47	0.23	mg/kg	1	05/03/19 13:38	KI	SW846 9012B/LACHAT
Solids, Percent	64.5			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: S-148(8-10)		Date Sampled: 04/25/19
Lab Sample ID: JC86986-9		Date Received: 04/25/19
Matrix: SO - Soil		Percent Solids: 78.8
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D264379.D	1	05/08/19 18:18	TDN	n/a	n/a	VD10654
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	3.7 g	10.0 ml	5.0 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^b	ND	37000	18000	ug/kg	
71-43-2	Benzene	4010	1800	1400	ug/kg	
74-97-5	Bromochloromethane	ND	18000	1600	ug/kg	
75-27-4	Bromodichloromethane	ND	7400	1600	ug/kg	
75-25-2	Bromoform	ND	18000	1500	ug/kg	
74-83-9	Bromomethane	ND	18000	3700	ug/kg	
78-93-3	2-Butanone (MEK)	ND	37000	14000	ug/kg	
75-15-0	Carbon disulfide	6430	7400	3400	ug/kg	J
56-23-5	Carbon tetrachloride	ND	7400	2000	ug/kg	
108-90-7	Chlorobenzene	ND	7400	1300	ug/kg	
75-00-3	Chloroethane	ND	18000	2500	ug/kg	
67-66-3	Chloroform	ND	7400	1400	ug/kg	
74-87-3	Chloromethane	ND	18000	7200	ug/kg	
110-82-7	Cyclohexane	ND	7400	1500	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	7400	3100	ug/kg	
124-48-1	Dibromochloromethane	ND	7400	1300	ug/kg	
106-93-4	1,2-Dibromoethane	ND	3700	1200	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	3700	1100	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	3700	1300	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	3700	1300	ug/kg	
75-71-8	Dichlorodifluoromethane ^c	ND	18000	2300	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	3700	1400	ug/kg	
107-06-2	1,2-Dichloroethane ^c	ND	3700	1700	ug/kg	UJ
75-35-4	1,1-Dichloroethene	ND	3700	2400	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	3700	3500	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	3700	2500	ug/kg	
78-87-5	1,2-Dichloropropane	ND	7400	1500	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	7400	1300	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	7400	1200	ug/kg	
100-41-4	Ethylbenzene	3520	3700	2000	ug/kg	J
76-13-1	Freon 113	ND	18000	2800	ug/kg	
591-78-6	2-Hexanone	ND	18000	4700	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-148(8-10)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-9	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	78.8
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	7400	2600	ug/kg	
79-20-9	Methyl Acetate	ND	18000	5100	ug/kg	
108-87-2	Methylcyclohexane	ND	7400	2600	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	3700	1300	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	18000	5800	ug/kg	
75-09-2	Methylene chloride	ND	18000	9200	ug/kg	
100-42-5	Styrene	ND	7400	2100	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	7400	1400	ug/kg	
127-18-4	Tetrachloroethene	ND	7400	1700	ug/kg	
108-88-3	Toluene	2310	3700	1400	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	18000	3700	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	18000	3700	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	7400	1600	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	7400	1300	ug/kg	
79-01-6	Trichloroethene	ND	3700	2800	ug/kg	
75-69-4	Trichlorofluoromethane	ND	18000	2500	ug/kg	
75-01-4	Vinyl chloride	ND	7400	1700	ug/kg	
	m,p-Xylene	9490	3700	2800	ug/kg	
95-47-6	o-Xylene	2980	3700	2200	ug/kg	J
1330-20-7	Xylene (total)	12500	3700	2200	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		75-127%
17060-07-0	1,2-Dichloroethane-D4	91%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	95%		79-127%

- (a) Diluted due to high concentration of non-target compound.
 (b) Associated CCV outside of control limits high, sample was ND.
 (c) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: S-148(8-10)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-9	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 78.8
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	6P481576.D	5	05/02/19 20:48	AR	05/01/19 10:00	OP20081	E6P2579
Run #2	6P481622.D	50	05/03/19 17:44	AR	05/01/19 10:00	OP20081	E6P2581
Run #3	6P481618.D	500	05/03/19 16:06	AR	05/01/19 10:00	OP20081	E6P2581

Run #	Initial Weight	Final Volume
Run #1	20.0 g	1.0 ml
Run #2	20.0 g	1.0 ml
Run #3	20.0 g	1.0 ml

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	630	160	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	1600	190	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	1600	270	ug/kg	
105-67-9	2,4-Dimethylphenol ^b	17800	1600	560	ug/kg	J
51-28-5	2,4-Dinitrophenol ^c	ND	1600	1200	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	1600	340	ug/kg	
95-48-7	2-Methylphenol	12000	630	200	ug/kg	
	3&4-Methylphenol	40400 ^d	6300	2600	ug/kg	D
88-75-5	2-Nitrophenol	ND	1600	210	ug/kg	
100-02-7	4-Nitrophenol ^e	ND	3200	850	ug/kg	
87-86-5	Pentachlorophenol	ND	1300	300	ug/kg	
108-95-2	Phenol	37300 ^d	6300	1700	ug/kg	D
95-95-4	2,4,5-Trichlorophenol	ND	1600	240	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	1600	190	ug/kg	
83-32-9	Acenaphthene	65700 ^d	3200	1100	ug/kg	D
208-96-8	Acenaphthylene	575000 ^f	32000	16000	ug/kg	
120-12-7	Anthracene	969000 ^f	32000	19000	ug/kg	
56-55-3	Benzo(a)anthracene	551000 ^f	32000	9000	ug/kg	
50-32-8	Benzo(a)pyrene	438000 ^f	32000	14000	ug/kg	
205-99-2	Benzo(b)fluoranthene	500000 ^f	32000	14000	ug/kg	
191-24-2	Benzo(g,h,i)perylene	245000 ^d	3200	1600	ug/kg	
207-08-9	Benzo(k)fluoranthene	212000 ^f	32000	15000	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	630	120	ug/kg	
85-68-7	Butyl benzyl phthalate ^e	ND	630	77	ug/kg	
91-58-7	2-Chloronaphthalene	ND	630	76	ug/kg	
106-47-8	4-Chloroaniline	ND	1600	110	ug/kg	
86-74-8	Carbazole	491000 ^f	63000	4600	ug/kg	D
218-01-9	Chrysene	502000 ^f	32000	10000	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	630	68	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	630	140	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.9
 4

Report of Analysis

Client Sample ID: S-148(8-10)		Date Sampled: 04/25/19
Lab Sample ID: JC86986-9		Date Received: 04/25/19
Matrix: SO - Soil		Percent Solids: 78.8
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
4165-60-0	Nitrobenzene-d5	120%	74%	0% g	26-134%
321-60-8	2-Fluorobiphenyl	50%	60%	0% g	39-124%
1718-51-0	Terphenyl-d14	54%	52%	0% g	36-134%

- (a) Elevated detection limit due to low volume of sample extracted. Dilution required due to the viscosity of the extract matrix.
- (b) Associated CCV outside of control limits high.
- (c) Associated CCV outside of control limits low.
- (d) Result is from Run# 2
- (e) Associated CCV outside of control limits high, sample was ND.
- (f) Result is from Run# 3
- (g) Outside control limits due to dilution.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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4

Report of Analysis

Client Sample ID: S-148(8-10)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-9	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 78.8
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	3200	61	9.8	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	1.0 U	J 4.9	1.0	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Arsenic	13.6	4.9	0.68	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Barium	102	24	2.3	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.35	0.24	0.098	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.71	0.61	0.085	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	5120	J 610	54	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	118	1.2	0.45	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	4.7 J	6.1	0.34	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Copper	104	6.1	2.0	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Iron	37400	120	47	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Lead	86.0	J 4.9	1.0	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Magnesium	899	610	17	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Manganese	191	J 3.7	1.0	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Mercury	0.26	J 0.041	0.018	mg/kg	1	04/30/19	04/30/19	EAL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	36.1	4.9	0.43	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	365 J	1200	39	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	2.8 J	4.9	1.6	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Silver	0.41 U	1.2	0.41	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Sodium	95 U	1200	95	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Thallium	1.4 U	2.4	1.4	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Vanadium	12.7	6.1	0.23	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	104	6.1	2.8	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46605
- (2) Instrument QC Batch: MA46628
- (3) Instrument QC Batch: MA46638
- (4) Prep QC Batch: MP14617
- (5) Prep QC Batch: MP14631

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-148(8-10)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-9	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 78.8
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	8.0 J	0.35	0.17	mg/kg	1	05/03/19 13:40	KI	SW846 9012B/LACHAT
Solids, Percent	78.8			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID: S-148(16-18)		
Lab Sample ID: JC86986-10		Date Sampled: 04/25/19
Matrix: SO - Soil		Date Received: 04/25/19
Method: SW846 8260C		Percent Solids: 59.8
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	3C151786.D	1	05/05/19 19:20	MD	n/a	n/a	V3C6820

Run #1	Initial Weight
Run #2	5.6 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	89.0	15	7.5	ug/kg	
71-43-2	Benzene	ND	0.75	0.56	ug/kg	
74-97-5	Bromochloromethane	ND	7.5	0.64	ug/kg	
75-27-4	Bromodichloromethane	ND	3.0	0.66	ug/kg	
75-25-2	Bromoform	ND	7.5	0.60	ug/kg	
74-83-9	Bromomethane	ND	7.5	1.5	ug/kg	
78-93-3	2-Butanone (MEK)	20.9	15	5.6	ug/kg	
75-15-0	Carbon disulfide	ND	3.0	1.4	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.0	0.82	ug/kg	
108-90-7	Chlorobenzene	ND	3.0	0.53	ug/kg	
75-00-3	Chloroethane	ND	7.5	1.0	ug/kg	
67-66-3	Chloroform	ND	3.0	0.56	ug/kg	
74-87-3	Chloromethane ^a	ND	7.5	2.9	ug/kg	UJ
110-82-7	Cyclohexane	ND	3.0	0.61	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.0	1.2	ug/kg	
124-48-1	Dibromochloromethane ^b	ND	3.0	0.50	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.5	0.49	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.5	0.46	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.5	0.54	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.5	0.51	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	7.5	0.95	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.5	0.57	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.5	0.70	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.5	0.98	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.5	1.4	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.5	1.0	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.0	0.61	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.0	0.53	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.0	0.49	ug/kg	
100-41-4	Ethylbenzene	ND	1.5	0.82	ug/kg	
76-13-1	Freon 113	ND	7.5	1.1	ug/kg	
591-78-6	2-Hexanone	ND	7.5	1.9	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-148(16-18)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-10	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	59.8
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.0	1.0	ug/kg	
79-20-9	Methyl Acetate	ND	7.5	2.1	ug/kg	
108-87-2	Methylcyclohexane	ND	3.0	1.1	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.5	0.53	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK c	ND	7.5	2.3	ug/kg	
75-09-2	Methylene chloride	ND	7.5	3.7	ug/kg	
100-42-5	Styrene	ND	3.0	0.86	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.0	0.58	ug/kg	
127-18-4	Tetrachloroethene	ND	3.0	0.69	ug/kg	
108-88-3	Toluene	ND	1.5	0.56	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	7.5	1.5	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	7.5	1.5	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.0	0.64	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.0	0.51	ug/kg	
79-01-6	Trichloroethene	ND	1.5	1.1	ug/kg	
75-69-4	Trichlorofluoromethane	ND	7.5	1.0	ug/kg	
75-01-4	Vinyl chloride	ND	3.0	0.70	ug/kg	
	m,p-Xylene	ND	1.5	1.1	ug/kg	
95-47-6	o-Xylene	ND	1.5	0.87	ug/kg	
1330-20-7	Xylene (total)	ND	1.5	0.87	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		75-127%
17060-07-0	1,2-Dichloroethane-D4	111%		75-130%
2037-26-5	Toluene-D8	106%		80-120%
460-00-4	4-Bromofluorobenzene	117%		79-127%

- (a) Associated CCV outside of control limits low.
(b) Associated CCV and BS outside of control limits high, sample was ND.
(c) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	S-148(16-18)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-10	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	59.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P481563A.D	1	05/02/19 15:25	AR	05/01/19 10:00	OP20081	E6P2579
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	31.1 g	1.0 ml
Run #2		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	110	27	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	270	33	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	270	46	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	270	96	ug/kg	
51-28-5	2,4-Dinitrophenol ^b	ND	270	200	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	270	58	ug/kg	
95-48-7	2-Methylphenol	ND	110	34	ug/kg	
	3&4-Methylphenol	ND	110	44	ug/kg	
88-75-5	2-Nitrophenol	ND	270	36	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	540	140	ug/kg	
87-86-5	Pentachlorophenol	ND	220	50	ug/kg	
108-95-2	Phenol	ND	110	28	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	270	40	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	270	32	ug/kg	
83-32-9	Acenaphthene	ND	54	19	ug/kg	
208-96-8	Acenaphthylene	ND	54	27	ug/kg	
120-12-7	Anthracene	ND	54	33	ug/kg	
56-55-3	Benzo(a)anthracene	17.8	54	15	ug/kg	J
50-32-8	Benzo(a)pyrene	ND	54	24	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	54	24	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	54	27	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	54	25	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	110	21	ug/kg	
85-68-7	Butyl benzyl phthalate ^a	ND	110	13	ug/kg	
91-58-7	2-Chloronaphthalene	ND	110	13	ug/kg	
106-47-8	4-Chloroaniline	ND	270	19	ug/kg	
86-74-8	Carbazole	ND	110	7.8	ug/kg	
218-01-9	Chrysene	ND	54	17	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	110	12	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	110	23	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	110	19	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	110	17	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-148(16-18)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-10	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	59.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-50-1	1,2-Dichlorobenzene	ND	110	16	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	110	11	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	110	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	54	17	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	54	27	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	110	45	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	54	24	ug/kg	
132-64-9	Dibenzofuran	ND	110	22	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	110	8.8	ug/kg	
117-84-0	Di-n-octyl phthalate ^a	ND	110	13	ug/kg	
84-66-2	Diethyl phthalate	ND	110	11	ug/kg	
131-11-3	Dimethyl phthalate	ND	110	9.6	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate ^a	ND	110	13	ug/kg	
206-44-0	Fluoranthene	38.0	54	24	ug/kg	J
86-73-7	Fluorene	ND	54	25	ug/kg	
118-74-1	Hexachlorobenzene	ND	110	14	ug/kg	
87-68-3	Hexachlorobutadiene	ND	54	22	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^b	ND	540	21	ug/kg	UU
67-72-1	Hexachloroethane	ND	270	27	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	54	25	ug/kg	
78-59-1	Isophorone	ND	110	12	ug/kg	
91-57-6	2-Methylnaphthalene	ND	54	12	ug/kg	
88-74-4	2-Nitroaniline	ND	270	13	ug/kg	
99-09-2	3-Nitroaniline	ND	270	13	ug/kg	
100-01-6	4-Nitroaniline	ND	270	14	ug/kg	
91-20-3	Naphthalene	75.4	54	15	ug/kg	
98-95-3	Nitrobenzene	ND	110	21	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	110	16	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	270	20	ug/kg	
85-01-8	Phenanthrene	42.7	54	18	ug/kg	J
129-00-0	Pyrene	29.8	54	17	ug/kg	J
120-82-1	1,2,4-Trichlorobenzene	ND	110	14	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	74%		23-115%
4165-62-2	Phenol-d5	74%		27-114%
118-79-6	2,4,6-Tribromophenol	72%		19-152%
4165-60-0	Nitrobenzene-d5	78%		26-134%
321-60-8	2-Fluorobiphenyl	76%		39-124%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-148(16-18)		Date Sampled: 04/25/19
Lab Sample ID: JC86986-10		Date Received: 04/25/19
Matrix: SO - Soil		Percent Solids: 59.8
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

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ABN TCL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1718-51-0	Terphenyl-d14	78%		36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-148(16-18)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-10	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 59.8
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	21100	84	13	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Antimony	0.69 U J	3.3	0.69	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Arsenic	5.4	3.3	0.47	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Barium	152	33	3.2	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Beryllium	1.1	0.33	0.13	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Cadmium	0.15 J	0.84	0.12	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Calcium	3160 J	840	74	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Chromium	46.9	1.7	0.62	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Cobalt	11.2	8.4	0.47	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Copper	14.7	4.2	1.4	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Iron	27600	84	32	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Lead	42.7 J	3.3	0.69	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Magnesium	5520	840	23	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Manganese	447 J	2.5	0.69	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Mercury	0.040 J	0.049	0.022	mg/kg	1	04/30/19	04/30/19	EAL	SW846 7471B ¹ SW846 7471B ⁴
Nickel	29.9	6.7	0.59	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Potassium	2370	1700	53	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Selenium	1.1 U	3.3	1.1	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Silver	0.28 U	0.84	0.28	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Sodium	257 J	1700	130	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Thallium	0.97 U	1.7	0.97	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Vanadium	41.3	8.4	0.32	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Zinc	82.2	8.4	3.8	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³

- (1) Instrument QC Batch: MA46605
- (2) Instrument QC Batch: MA46628
- (3) Prep QC Batch: MP14617
- (4) Prep QC Batch: MP14631

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-148(16-18)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-10	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 59.8
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.55 J	0.48	0.24	mg/kg	1	05/03/19 13:41	KI	SW846 9012B/LACHAT
Solids, Percent	59.8			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID:	S-151(0.5-2)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-11	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	89.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D264377.D	1	05/08/19 17:20	TDN	n/a	n/a	VD10654
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.1 g	10.0 ml	50.0 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^b	ND	2800	1400	ug/kg	
71-43-2	Benzene	ND	140	110	ug/kg	
74-97-5	Bromochloromethane	ND	1400	120	ug/kg	
75-27-4	Bromodichloromethane	ND	570	130	ug/kg	
75-25-2	Bromoform	ND	1400	110	ug/kg	
74-83-9	Bromomethane	ND	1400	280	ug/kg	
78-93-3	2-Butanone (MEK)	ND	2800	1100	ug/kg	
75-15-0	Carbon disulfide	ND	570	260	ug/kg	
56-23-5	Carbon tetrachloride	ND	570	160	ug/kg	
108-90-7	Chlorobenzene	ND	570	100	ug/kg	
75-00-3	Chloroethane	ND	1400	190	ug/kg	
67-66-3	Chloroform	ND	570	110	ug/kg	
74-87-3	Chloromethane	ND	1400	560	ug/kg	
110-82-7	Cyclohexane	ND	570	120	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	570	240	ug/kg	
124-48-1	Dibromochloromethane	ND	570	96	ug/kg	
106-93-4	1,2-Dibromoethane	ND	280	92	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	280	86	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	280	100	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	280	97	ug/kg	
75-71-8	Dichlorodifluoromethane ^c	ND	1400	180	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	280	110	ug/kg	
107-06-2	1,2-Dichloroethane ^c	ND	280	130	ug/kg	UJ
75-35-4	1,1-Dichloroethene	ND	280	190	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	280	270	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	280	190	ug/kg	
78-87-5	1,2-Dichloropropane	ND	570	120	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	570	100	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	570	93	ug/kg	
100-41-4	Ethylbenzene	ND	280	160	ug/kg	
76-13-1	Freon 113	ND	1400	220	ug/kg	
591-78-6	2-Hexanone	ND	1400	360	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-151(0.5-2)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-11	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	89.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	570	200	ug/kg	
79-20-9	Methyl Acetate	ND	1400	390	ug/kg	
108-87-2	Methylcyclohexane	ND	570	200	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	280	100	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	1400	440	ug/kg	
75-09-2	Methylene chloride	ND	1400	710	ug/kg	
100-42-5	Styrene	ND	570	160	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	570	110	ug/kg	
127-18-4	Tetrachloroethene	ND	570	130	ug/kg	
108-88-3	Toluene	ND	280	110	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	1400	280	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	1400	280	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	570	120	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	570	97	ug/kg	
79-01-6	Trichloroethene	ND	280	220	ug/kg	
75-69-4	Trichlorofluoromethane	ND	1400	190	ug/kg	
75-01-4	Vinyl chloride	ND	570	130	ug/kg	
	m,p-Xylene	ND	280	210	ug/kg	
95-47-6	o-Xylene	ND	280	170	ug/kg	
1330-20-7	Xylene (total)	ND	280	170	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		75-127%
17060-07-0	1,2-Dichloroethane-D4	90%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	95%		79-127%

- (a) Diluted due to high concentration of non-target compound.
(b) Associated CCV outside of control limits high, sample was ND.
(c) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	S-151(0.5-2)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-11	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	89.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P481574.D	2	05/02/19 19:59	AR	05/01/19 10:00	OP20081	E6P2579
Run #2	6P481620.D	20	05/03/19 16:55	AR	05/01/19 10:00	OP20081	E6P2581
Run #3	6P481616.D	200	05/03/19 15:18	AR	05/01/19 10:00	OP20081	E6P2581

Run #	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2	30.0 g	1.0 ml
Run #3	30.0 g	1.0 ml

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	150	37	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	370	46	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	370	63	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	370	130	ug/kg	
51-28-5	2,4-Dinitrophenol ^b	ND	370	280	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	370	80	ug/kg	
95-48-7	2-Methylphenol	ND	150	47	ug/kg	
	3&4-Methylphenol	119	150	61	ug/kg	J
88-75-5	2-Nitrophenol	ND	370	49	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	740	200	ug/kg	
87-86-5	Pentachlorophenol	ND	300	70	ug/kg	
108-95-2	Phenol	92.8	150	39	ug/kg	J
95-95-4	2,4,5-Trichlorophenol	ND	370	56	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	370	44	ug/kg	
83-32-9	Acenaphthene	5080	74	26	ug/kg	
208-96-8	Acenaphthylene	40300 ^c	740	380	ug/kg	D
120-12-7	Anthracene	78800 ^d	7400	4600	ug/kg	
56-55-3	Benzo(a)anthracene	93100 ^d	7400	2100	ug/kg	
50-32-8	Benzo(a)pyrene	86400 ^d	7400	3400	ug/kg	
205-99-2	Benzo(b)fluoranthene	101000 ^d	7400	3300	ug/kg	
191-24-2	Benzo(g,h,i)perylene	64700 ^c	740	370	ug/kg	
207-08-9	Benzo(k)fluoranthene	40300 ^d	7400	3500	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	150	29	ug/kg	
85-68-7	Butyl benzyl phthalate ^a	ND	150	18	ug/kg	
91-58-7	2-Chloronaphthalene	ND	150	18	ug/kg	
106-47-8	4-Chloroaniline	ND	370	27	ug/kg	
86-74-8	Carbazole	29400 ^c	1500	110	ug/kg	D
218-01-9	Chrysene	77000 ^d	7400	2300	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	150	16	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	150	32	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: S-151(0.5-2)	
Lab Sample ID: JC86986-11	Date Sampled: 04/25/19
Matrix: SO - Soil	Date Received: 04/25/19
Method: SW846 8270D SW846 3546	Percent Solids: 89.7
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
4165-60-0	Nitrobenzene-d5	73%	71%	59%	26-134%
321-60-8	2-Fluorobiphenyl	63%	69%	69%	39-124%
1718-51-0	Terphenyl-d14	58%	64%	80%	36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits low.
- (c) Result is from Run# 2
- (d) Result is from Run# 3

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-151(0.5-2)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-11	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 89.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	6750	55	8.9	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Antimony	0.87 J	2.2	0.45	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Arsenic	6.9	2.2	0.31	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Barium	84.3	22	2.1	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Beryllium	0.75	0.22	0.088	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Cadmium	0.31 J	0.55	0.077	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Calcium	17500 J	550	49	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Chromium	16.7	1.1	0.41	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Cobalt	3.3 J	5.5	0.31	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Copper	25.5	2.8	0.93	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Iron	11600	55	21	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Lead	102 J	2.2	0.45	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Magnesium	3890	550	15	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Manganese	350 J	1.7	0.45	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Mercury	0.12 J	0.031	0.014	mg/kg	1	04/30/19	04/30/19	EAL	SW846 7471B ¹ SW846 7471B ⁴
Nickel	9.4	4.4	0.39	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Potassium	853 J	1100	35	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Selenium	0.74 J	2.2	0.72	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Silver	0.19 U	0.55	0.19	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Sodium	273 J	1100	86	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Thallium	0.64 U	1.1	0.64	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Vanadium	13.7	5.5	0.21	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³
Zinc	49.0	5.5	2.5	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ² SW846 3050B ³

- (1) Instrument QC Batch: MA46605
- (2) Instrument QC Batch: MA46628
- (3) Prep QC Batch: MP14617
- (4) Prep QC Batch: MP14631

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-151(0.5-2)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-11	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 89.7
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.72 J	0.23	0.12	mg/kg	1	05/03/19 13:42 KI	SW846	9012B/LACHAT
Solids, Percent	89.7			%	1	05/01/19 16:00 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

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Client Sample ID: S-151(3-5)		Date Sampled: 04/25/19
Lab Sample ID: JC86986-12		Date Received: 04/25/19
Matrix: SO - Soil		Percent Solids: 78.2
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151787.D	1	05/05/19 19:43	MD	n/a	n/a	V3C6820
Run #2							

Run #1	Initial Weight
Run #1	5.0 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	13.9	13	6.4	ug/kg	
71-43-2	Benzene	ND	0.64	0.48	ug/kg	
74-97-5	Bromochloromethane	ND	6.4	0.55	ug/kg	
75-27-4	Bromodichloromethane	ND	2.6	0.57	ug/kg	
75-25-2	Bromoform	ND	6.4	0.52	ug/kg	
74-83-9	Bromomethane	ND	6.4	1.3	ug/kg	
78-93-3	2-Butanone (MEK)	ND	13	4.8	ug/kg	
75-15-0	Carbon disulfide	ND	2.6	1.2	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.6	0.70	ug/kg	
108-90-7	Chlorobenzene	ND	2.6	0.45	ug/kg	
75-00-3	Chloroethane	ND	6.4	0.88	ug/kg	
67-66-3	Chloroform	ND	2.6	0.48	ug/kg	
74-87-3	Chloromethane ^a	ND	6.4	2.5	ug/kg	UJ
110-82-7	Cyclohexane	ND	2.6	0.52	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.6	1.1	ug/kg	
124-48-1	Dibromochloromethane ^b	ND	2.6	0.43	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.3	0.42	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.3	0.39	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.3	0.46	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.3	0.44	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.4	0.81	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.3	0.49	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.3	0.60	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.3	0.84	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.3	1.2	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.3	0.85	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.6	0.52	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.6	0.45	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.6	0.42	ug/kg	
100-41-4	Ethylbenzene	ND	1.3	0.71	ug/kg	
76-13-1	Freon 113	ND	6.4	0.97	ug/kg	
591-78-6	2-Hexanone	ND	6.4	1.6	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	S-151(3-5)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-12	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	78.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P481564.D	1	05/02/19 15:50	AR	05/01/19 10:00	OP20081	E6P2579
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	85	21	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	210	26	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	210	36	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	210	76	ug/kg	
51-28-5	2,4-Dinitrophenol ^b	ND	210	160	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	210	46	ug/kg	
95-48-7	2-Methylphenol	ND	85	27	ug/kg	
	3&4-Methylphenol	ND	85	35	ug/kg	
88-75-5	2-Nitrophenol	ND	210	28	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	430	110	ug/kg	
87-86-5	Pentachlorophenol	ND	170	40	ug/kg	
108-95-2	Phenol	ND	85	22	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	210	32	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	210	25	ug/kg	
83-32-9	Acenaphthene	18.8	43	15	ug/kg	J
208-96-8	Acenaphthylene	ND	43	22	ug/kg	
120-12-7	Anthracene	52.6	43	26	ug/kg	
56-55-3	Benzo(a)anthracene	138	43	12	ug/kg	
50-32-8	Benzo(a)pyrene	134	43	19	ug/kg	
205-99-2	Benzo(b)fluoranthene	154	43	19	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	82.7	43	21	ug/kg	
207-08-9	Benzo(k)fluoranthene	54.1	43	20	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	85	16	ug/kg	
85-68-7	Butyl benzyl phthalate ^a	ND	85	10	ug/kg	
91-58-7	2-Chloronaphthalene	ND	85	10	ug/kg	
106-47-8	4-Chloroaniline	ND	210	15	ug/kg	
86-74-8	Carbazole	24.5	85	6.2	ug/kg	J
218-01-9	Chrysene	126	43	13	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	85	9.1	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	85	18	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	85	15	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	85	14	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-151(3-5)	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-12	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	78.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-50-1	1,2-Dichlorobenzene	ND	85	12	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	85	9.1	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	85	10	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	43	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	43	21	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	85	36	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	43	19	ug/kg	
132-64-9	Dibenzofuran	ND	85	17	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	85	6.9	ug/kg	
117-84-0	Di-n-octyl phthalate ^a	ND	85	11	ug/kg	
84-66-2	Diethyl phthalate	ND	85	9.1	ug/kg	
131-11-3	Dimethyl phthalate	ND	85	7.6	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate ^a	ND	85	10	ug/kg	
206-44-0	Fluoranthene	282	43	19	ug/kg	J
86-73-7	Fluorene	21.1	43	20	ug/kg	J
118-74-1	Hexachlorobenzene	ND	85	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	43	17	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^b	ND	430	17	ug/kg	UJ
67-72-1	Hexachloroethane	ND	210	21	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	68.7	43	20	ug/kg	
78-59-1	Isophorone	ND	85	9.1	ug/kg	
91-57-6	2-Methylnaphthalene	ND	43	9.6	ug/kg	
88-74-4	2-Nitroaniline	ND	210	10	ug/kg	
99-09-2	3-Nitroaniline	ND	210	11	ug/kg	
100-01-6	4-Nitroaniline	ND	210	11	ug/kg	
91-20-3	Naphthalene	12.2	43	12	ug/kg	J
98-95-3	Nitrobenzene	ND	85	16	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	85	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	210	16	ug/kg	
85-01-8	Phenanthrene	202	43	14	ug/kg	J
129-00-0	Pyrene	248	43	14	ug/kg	J
120-82-1	1,2,4-Trichlorobenzene	ND	85	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	83%		23-115%
4165-62-2	Phenol-d5	82%		27-114%
118-79-6	2,4,6-Tribromophenol	77%		19-152%
4165-60-0	Nitrobenzene-d5	86%		26-134%
321-60-8	2-Fluorobiphenyl	82%		39-124%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-151(3-5)		Date Sampled: 04/25/19
Lab Sample ID: JC86986-12		Date Received: 04/25/19
Matrix: SO - Soil		Percent Solids: 78.2
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

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ABN TCL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1718-51-0	Terphenyl-d14	84%		36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-151(3-5)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-12	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 78.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	16100	67	11	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.55 U J	2.7	0.55	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic	2.9	2.7	0.37	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Barium	151	27	2.5	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium ^a	0.84	0.53	0.21	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Cadmium	0.093 U	0.67	0.093	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	7430 J	670	59	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	33.2	1.3	0.49	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	12.2	6.7	0.37	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Copper	46.5	3.3	1.1	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Iron	26300	67	26	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Lead	103 J	2.7	0.55	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Magnesium	8400	670	18	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Manganese	382 J	2.0	0.55	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Mercury	0.31 J	0.036	0.016	mg/kg	1	04/30/19	04/30/19	EAL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	25.1	5.3	0.47	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	7750	1300	42	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	0.87 U	2.7	0.87	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Silver	0.23 U	0.67	0.23	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Sodium	173 J	1300	100	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Thallium ^a	1.5 U	2.7	1.5	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Vanadium	36.7	6.7	0.25	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	106	6.7	3.1	mg/kg	1	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46605
- (2) Instrument QC Batch: MA46628
- (3) Instrument QC Batch: MA46638
- (4) Prep QC Batch: MP14617
- (5) Prep QC Batch: MP14631

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-151(3-5)	Date Sampled: 04/25/19
Lab Sample ID: JC86986-12	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 78.2
Project: National Grid, Philly Coke, Philadelphia, PA	

4.12
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.15 U J	0.30	0.15	mg/kg	1	05/03/19 13:44	KI	SW846 9012B/LACHAT
Solids, Percent	78.2			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID:	SO-DUP-0425	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-13	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	82.9
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151788.D	1	05/05/19 20:07	MD	n/a	n/a	V3C6820
Run #2							

Run #1	Initial Weight
Run #1	5.9 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	27.8	10	5.1	ug/kg	
71-43-2	Benzene	ND	0.51	0.39	ug/kg	
74-97-5	Bromochloromethane	ND	5.1	0.44	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	0.45	ug/kg	
75-25-2	Bromoform	ND	5.1	0.41	ug/kg	
74-83-9	Bromomethane	ND	5.1	1.0	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	3.8	ug/kg	
75-15-0	Carbon disulfide	ND	2.0	0.95	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	0.56	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	0.36	ug/kg	
75-00-3	Chloroethane	ND	5.1	0.70	ug/kg	
67-66-3	Chloroform	ND	2.0	0.38	ug/kg	
74-87-3	Chloromethane ^a	ND	5.1	2.0	ug/kg	UJ
110-82-7	Cyclohexane	ND	2.0	0.42	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.85	ug/kg	
124-48-1	Dibromochloromethane ^b	ND	2.0	0.35	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	0.33	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.31	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.37	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.35	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.1	0.65	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	0.39	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.48	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	0.67	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.98	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.68	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.0	0.42	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	0.36	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	0.33	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.56	ug/kg	
76-13-1	Freon 113	ND	5.1	0.78	ug/kg	
591-78-6	2-Hexanone	ND	5.1	1.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SO-DUP-0425	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-13	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	82.9
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.0	0.71	ug/kg	
79-20-9	Methyl Acetate	ND	5.1	1.4	ug/kg	
108-87-2	Methylcyclohexane	ND	2.0	0.72	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.36	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK ^c)	ND	5.1	1.6	ug/kg	
75-09-2	Methylene chloride	ND	5.1	2.6	ug/kg	
100-42-5	Styrene	ND	2.0	0.59	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	0.40	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	0.47	ug/kg	
108-88-3	Toluene	ND	1.0	0.38	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.1	1.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.1	1.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	0.44	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	0.35	ug/kg	
79-01-6	Trichloroethene	ND	1.0	0.78	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.1	0.70	ug/kg	
75-01-4	Vinyl chloride	ND	2.0	0.48	ug/kg	
	m,p-Xylene	ND	1.0	0.76	ug/kg	
95-47-6	o-Xylene	ND	1.0	0.60	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.60	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		75-127%
17060-07-0	1,2-Dichloroethane-D4	109%		75-130%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	107%		79-127%

- (a) Associated CCV outside of control limits low.
 (b) Associated CCV and BS outside of control limits high, sample was ND.
 (c) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	SO-DUP-0425	Date Sampled:	04/25/19
Lab Sample ID:	JC86986-13	Date Received:	04/25/19
Matrix:	SO - Soil	Percent Solids:	82.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P481559.D	1	05/02/19 13:36	AR	05/01/19 10:00	OP20081	E6P2579
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

ABN TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	80	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	25	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	34	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	200	72	ug/kg	
51-28-5	2,4-Dinitrophenol ^b	ND	200	150	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	200	43	ug/kg	
95-48-7	2-Methylphenol	ND	80	26	ug/kg	
	3&4-Methylphenol	ND	80	33	ug/kg	
88-75-5	2-Nitrophenol	ND	200	27	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	400	110	ug/kg	
87-86-5	Pentachlorophenol	ND	160	38	ug/kg	
108-95-2	Phenol	ND	80	21	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	30	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	24	ug/kg	
83-32-9	Acenaphthene	ND	40	14	ug/kg	
208-96-8	Acenaphthylene	ND	40	20	ug/kg	
120-12-7	Anthracene	ND	40	25	ug/kg	
56-55-3	Benzo(a)anthracene	18.9	40	11	ug/kg	J
50-32-8	Benzo(a)pyrene	ND	40	18	ug/kg	
205-99-2	Benzo(b)fluoranthene	18.6	40	18	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	ND	40	20	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	40	19	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	80	16	ug/kg	
85-68-7	Butyl benzyl phthalate ^a	ND	80	9.8	ug/kg	
91-58-7	2-Chloronaphthalene	ND	80	9.6	ug/kg	
106-47-8	4-Chloroaniline	ND	200	14	ug/kg	
86-74-8	Carbazole	ND	80	5.8	ug/kg	
218-01-9	Chrysene	14.9	40	13	ug/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	80	8.6	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	80	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	80	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	80	13	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SO-DUP-0425		Date Sampled: 04/25/19
Lab Sample ID: JC86986-13		Date Received: 04/25/19
Matrix: SO - Soil		Percent Solids: 82.9
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1718-51-0	Terphenyl-d14	78%		36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SO-DUP-0425	Date Sampled: 04/25/19
Lab Sample ID: JC86986-13	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 82.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	18500	59	9.4	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Antimony ^a	0.96 U	J 4.7	0.96	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Arsenic ^a	2.4 J	4.7	0.66	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Barium	153	23	2.2	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium ^a	0.91	0.47	0.19	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Cadmium	0.12 J	0.59	0.082	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	1700	J 590	52	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	33.7	1.2	0.43	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt ^a	13.2	12	0.66	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Copper ^a	54.2	5.9	2.0	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Iron	30400	120	45	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Lead ^a	36.8	J 4.7	0.96	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Magnesium	9700	590	16	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Manganese ^a	469	J 3.5	0.96	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Mercury	0.054	J 0.037	0.016	mg/kg	1	04/30/19	04/30/19	EAL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	32.4	4.7	0.41	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	10300	1200	37	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Selenium ^a	1.5 U	4.7	1.5	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Silver ^a	0.40 U	1.2	0.40	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Sodium	190 J	1200	91	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Thallium ^a	1.4 U	2.3	1.4	mg/kg	2	04/29/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁴
Vanadium	42.9	5.9	0.22	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	124	5.9	2.7	mg/kg	1	04/29/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46605
- (2) Instrument QC Batch: MA46628
- (3) Instrument QC Batch: MA46638
- (4) Prep QC Batch: MP14617
- (5) Prep QC Batch: MP14631

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: SO-DUP-0425	Date Sampled: 04/25/19
Lab Sample ID: JC86986-13	Date Received: 04/25/19
Matrix: SO - Soil	Percent Solids: 82.9
Project: National Grid, Philly Coke, Philadelphia, PA	

4.13
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.20 J	0.28	0.14	mg/kg	1	05/03/19 13:45	KI	SW846 9012B/LACHAT
Solids, Percent	82.9			%	1	05/01/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

National Grid

Philly Coke

DATA REVIEW

Philadelphia, Pennsylvania

Volatile Organic Compound (VOC), Semivolatile Organic Compounds (SVOC), Pesticides, PCBs, Metals,
and Miscellaneous Analyses

SDG # JC87093

Analyses Reported By:
SGS Laboratories
Dayton, New Jersey

Report #33347R
Review Level: Tier II
Project: 30004026 (B0036790.0001) 00006

DATA REVIEW REPORT

SUMMARY

This data review report summarizes the review of Sample Delivery Group (SDG) # JC87093 for samples collected in association with the National Grid Philly Coke site in Philadelphia, Pennsylvania. The review was conducted as a Tier II evaluation and included review of laboratory analytical data package completeness. Field documentation was not included in this review. Included with this assessment are the post-validation annotated sample result sheets, and chain of custody (COC). Analyses were performed on the following samples

SDG Number	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PEST/PCB	Metals	MISC
JC86986	S-155 (10-12) (04-26-2019)	JC87093-1	Soil	4/26/2019						X
	S-155 (13-15) (04-26-2019)	JC87093-2	Soil	4/26/2019		X	X		X	X
	S-154 (9-11) (04-26-2019)	JC87093-3	Soil	4/26/2019		X	X		X	X
	S-154 (12-14) (04-26-2019)	JC87093-4	Soil	4/26/2019		X	X		X	X
	SO-DUP-0426-1 (04-26-2019)	JC87093-5	Soil	4/26/2019	S-154 (12-14) (04-26-2019)	X	X		X	X
	S-158 (11-13) (04-26-2019)	JC87093-6	Soil	4/26/2019		X	X		X	X
	S-158 (18-20) (04-26-2019)	JC87093-7	Soil	4/26/2019		X	X		X	X
	S-159 (11-13) (04-26-2019)	JC87093-8	Soil	4/26/2019		X	X		X	X
	S-159 (18-20) (04-26-2019)	JC87093-9	Soil	4/26/2019		X	X		X	X
	S-153 (7-9) (04-26-2019)	JC87093-10	Soil	4/26/2019		X	X		X	X
	S-153 (13.5-15) (04-26-2019)	JC87093-11	Soil	4/26/2019		X	X		X	X
	SO-DUP2-0426 (04-26-2019)	JC87093-12	Soil	4/26/2019	S-153 (13.5-15) (04-26-2019)	X	X		X	X

Notes:

1. PEST/PCB = Pesticides and polychlorinated biphenyls
2. SVOC = Semivolatile Organic Compounds
3. VOC = Volatile Organic Compound
4. MISC = Miscellaneous (total cyanide)

DATA REVIEW REPORT

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW REPORT

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260C and 8270D. Data were reviewed in accordance with the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540/R-2017-002, January 2017 and the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, EPA540/R-99/008, October 1999 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

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that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

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VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times/Preservation

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis (preserved) 7 days from collection to analysis (non-preserved)	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis	Cool to <6 °C.

Note:

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
SO-DUP2-0426	1,2-Dichloroethane-d4	AC
	4-Bromofluorobenzene	> UL
	Dibromofluoromethane	AC
	Toluene-d8	AC

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Notes:

UL Upper control limit

AC Acceptable

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
	Detect	J
< LL but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
S-158 (18-20) (04-26-2019)	Chlorobenzene	<LL but >10%	--
	1,2-Dibromoethane	<LL but >10%	--
	1,2-Dichlorobenzene	<LL but >10%	--
	1,3-Dichlorobenzene	<LL but >10%	--
	1,4-Dichlorobenzene	<LL but >10%	--
	1,2-Dichloropropane	<LL but >10%	--
	Styrene	<LL but >10%	--

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

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Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Parent sample concentration > four times the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS/LCSD analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery	LCSD Recovery
S-155 (13-15) (04-26-2019)	Dibromochloromethane	>UL	--
S-159 (18-20) (04-26-2019)			
S-153 (13.5-15) (04-26-2019)			

Note:

AC = Acceptable

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

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Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
S-154 (12-14) (04-26-2019)/ SO-DUP-0426-1 (04-26-2019)	2-Butanone (MEK)	25.7	11.6 J	AC
	Acetone	208	71.6	NC
	Benzene	2.5	4.2	AC
	Ethylbenzene	1.2 J	2.3 U	AC
	Isopropylbenzene	1.8 J	4.6 U	AC
	o-Xylene	1.4 J	2.3 U	AC
	Toluene	1.3 J	0.87 J	AC
	Total Xylenes	1.4 J	2.3 U	AC
S-153 (13.5-15) (04-26-2019)/ SO-DUP2-0426 (04-26-2019)	Acetone	75.5	72.5	AC
	2-Butanone (MEK)	14.1 J	16.2 J	AC
	Toluene	0.63 J	3.3 J	AC

Notes:

AC Acceptable
NC Not compliant

Acetone associated with sample locations S-154 (12-14) (04-26-2019) and SO-DUP-0426-1 (04-26-2019) exhibited a field duplicate RPD greater than the control limit. The associated sample results from these sample locations for the analytes outside criteria were qualified as estimated.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

The laboratory narrative indicates internal standard deviations. These deviations are normally not evaluated in a tier II data review. Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

Sample locations associated with internal standards exhibiting responses outside of the control limits are presented in the following table.

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Sample Locations	Internal Standard	Response
S-158 (18-20) (04-26-2019)	1,4-Dichlorobenzene-d4	< LL but > 25%

The criteria used to evaluate the internal standard responses are presented in the following table. In the case of an internal standard deviation, the compounds quantitated under the deviant internal standard are qualified as documented in the table below.

Control limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No action
	Detect	J
< the lower control limit (LL) but > 25%	Non-detect	UJ
	Detect	J
< 25%	Non-detect	R
	Detect	J

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Trip blanks	X				X
Laboratory Control Sample (LCS)		X	X		
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)		X	X		
Matrix Spike Duplicate(MSD)		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X	X		
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

- %RSD Relative standard deviation
- %R Percent recovery
- RPD Relative percent difference
- %D Percent difference

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SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD analysis exhibited recoveries and RPD within control limits.

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5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

The LCS/LCSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
S-154 (12-14) (04-26-2019)/ SO-DUP-0426-1 (04-26-2019)	1,1-Biphenyl	115	143	AC
	2-Methylnaphthalene	572	638	10.9 %
	3-Methylphenol, 4-Methylphenol	425	681	AC
	Acenaphthene	1890	1620	15.3 %
	Acenaphthylene	308	331	7.1 %
	Acetophenone	21 J	16.8 J	AC
	Anthracene	1080	867	21.8 %
	Benz(a)anthracene	762	741	2.7 %
	Benzo(a)pyrene	916	799	13.6 %
	Benzo(b)fluoranthene	896	807	10.4 %
	Benzo(g,h,i)perylene	551	468	16.2 %
	Benzo(k)fluoranthene	326	257	23.6 %
	Carbazole	204	115 J	AC
	Chrysene	892	868	2.7 %
	Dibenz(a,h)anthracene	146	119	AC
	Dibenzofuran	584	505	14.5 %
	Fluoranthene	1880	1810	3.7 %
	Fluorene	1400	1040	29.5 %
	Indeno(1,2,3-cd)pyrene	499	432	14.3 %
Naphthalene	1610	1850	13.8 %	
Phenanthrene	4560	3300	32.0 %	

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Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
S-153 (13.5-15) (04-26-2019)/ SO-DUP2-0426 (04-26-2019)	Pyrene	2080	2140	2.8 %
	3&4-Methylphenol	297	181	AC
	Acenaphthene	641	945	38.3%
	Acenaphthylene	194	251	AC
	Acetophenone	11.4 J	240 U	AC
	Anthracene	296	672	77.7%
	Benz(a)anthracene	490	994	67.9%
	Benzo(a)pyrene	657	1060	46.9%
	Benzo(b)fluoranthene	638	1020	46.1%
	Benzo(g,h,i)perylene	438	599	31.1%
	Benzo(k)fluoranthene	259	417	46.7%
	1,1'-Biphenyl	93.5 J	92.4 J	AC
	Carbazole	78.1 J	71.1 J	AC
	Chrysene	564	1070	61.9%
	Dibenzo(a,h)anthracene	112	160	35.3%
	Dibenzofuran	143	147	AC
	Fluoranthene	751	1770	80.8%
	Fluorene	320	598	60.6%
	Indeno(1,2,3-cd)pyrene	413	600	36.9%
	2-Methylnaphthalene	406	473	15.2%
Naphthalene	1220	1290	5.6%	
Phenanthrene	925	2300	85.3%	
Pyrene	851	2070	83.5%	

Notes:

AC Acceptable
 NC Not compliant

Several compounds associated with sample locations S-153 (13.5-15) (04-26-2019) and SO-DUP2-0426 (04-26-2019) exhibited a field duplicate RPD greater than the control limit. The associated sample results from these sample locations for the analytes outside criteria were qualified as estimated.

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7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. Several samples were diluted to bring target compounds within linear range of the instrument. Sample results that were reported from a secondary dilution were qualified with a "D", indicating the result is diluted.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

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INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6010D, 7471A, and 9012B. Data were reviewed in accordance with the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA 540/R-2017-001, January 2017; and the USEPA CLP National Functional Guidelines for Inorganic Data Review, EPA 540-R-01-008, July 2002 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

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METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6010D	Water	180 days from collection to analysis	Preserved to a pH of less than 2.
	Soil	180 days from collection to analysis	Cool to <6 °C.
SW-846 7471A	Soil	28 days from collection to analysis	Cool to <6 °C.
SW-846 7470A	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL and/or were non-detect. No qualification of the sample results was required.

3. Matrix Spike (MS)/Matrix Spike Duplicate(MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analyte present in the table below.

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Sample Location	Analyte	MS Recovery	MSD Recovery
S-158 (18-20) (04-26-2019)	Aluminum	126.0%	230.8%
	Antimony	63.6%	56.2%
	Iron	65.3%	138.0%

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications for all metals are applied to all sample results associated with this SDG.

Control limit	Sample Result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery <30%	Non-detect	R
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD analysis exhibited RPDs within the control limits.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
S-154 (12-14) (04-26-2019)/ SO-DUP-0426-1 (04-26-2019)	Aluminum	22800	18500	20.8 %
	Antimony	1.2 J	3.7 U	AC
	Arsenic	140	33.9	122.0 %

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Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
	Barium	276	159	53.7 %
	Beryllium	1.7	1.3	26.6 %
	Cadmium	3.9	1.4	AC
	Calcium	5000	3900	24.7 %
	Chromium	449	156	96.8 %
	Cobalt	26.8	17.9	39.8 %
	Copper	220	98.6	76.2 %
	Iron	42200	32900	24.7 %
	Lead	561	187	100.0 %
	Magnesium	5040	5090	0.9 %
	Manganese	1210	1020	17.0 %
	Nickel	47.2	33.7	33.3 %
	Potassium	2260	2120	6.3 %
	Selenium	2.3 J	1.2 J	AC
	Silver	2.4	0.93 U	AC
	Sodium	335 J	267 J	AC
	Vanadium	44.1	38	14.8 %
	Zinc	1690	540	103.1 %
	Mercury	2.1	2.4	13.3%
	S-153 (13.5-15) (04-26-2019)/ SO-DUP2-0426 (04-26-2019)	Aluminum	8140	13800
Arsenic		13.0	27.6	71.9%
Barium		89.1	148	49.7%
Beryllium		0.53	1.0	AC
Cadmium		0.48 J	1.6	AC
Calcium		2280	2630	14.3%
Chromium		64.0	135	71.4%
Cobalt		8.3	13.0	44.1%
Copper		40.7	87.1	72.6%
Iron		15800	22000	32.8%
Lead		107	189	55.4%
Magnesium		2590	3500	29.9%

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Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
	Manganese	354	462	26.5%
	Mercury	1.1	0.50	75.0%
	Nickel	15.9	25.7	AC
	Potassium	1040 J	1530	AC
	Selenium	13.1 U	1.2 J	AC
	Silver	0.78 U	0.44 J	AC
	Sodium	135 J	199 J	AC
	Vanadium	15.1	28.4	AC
	Zinc	215	491	78.2%

Notes:

AC Acceptable
 NC Not compliant

Several analytes associated with samples locations S-154 (12-14) (04-26-2019) and SO-DUP-0426-1 (04-26-2019), S-153 (13.5-15) (04-26-2019), and SO-DUP2-0426 (04-26-2019) exhibited a field duplicate RPD greater than the control limit. The associated sample results from all sample locations for the listed analytes were qualified as estimated. The parent and duplicate samples were only qualified for the analytes outside of the control limits in their specific field duplicate evaluation.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR METAL

METALS; SW846 6010D/7471A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field Blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate (MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X	X		
Total vs. Dissolved	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Cyanide by SW-846 9012	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of greater than 12.
	Soil		Cool to <6 °C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS analysis was not performed on a sample within this SDG.

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

The laboratory duplicate analysis exhibited RPD within control limits.

DATA REVIEW REPORT

4. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
S-154 (12-14) (04-26-2019)/ SO-DUP-0426-1 (04-26-2019)	Cyanide	3.2	1.5	NC
S-153 (13.5-15) (04-26-2019)/ SO-DUP2-0426 (04-26-2019)	Cyanide	4.9	5.2	5.9%

Notes:

AC Acceptable

Cyanide associated with samples locations S-154 (12-14) (04-26-2019) and SO-DUP-0426-1 (04-26-2019) exhibited a field duplicate RPD greater than the control limit. The associated sample results from all sample locations except S-153 (13.5-15) (04-26-2019) and SO-DUP2-0426 (04-26-2019) for the listed analytes were qualified as estimated.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: EPA 9012	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X	X		
Dilution Factor		X		X	
Moisture Content					X

Notes:

%R - percent recovery

RPD - relative percent difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: July 21, 2019

PEER REVIEW: Dennis Capria

DATE: July 23, 2019

CHAIN OF CUSTODY SAMPLE ANALYSIS DATA SHEETS





SLL

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com/ehsusa

FED-EX Tracking #	Batch Order Control #
SGS Quote #	SGS Job #
	KR-042-719-63
	JC 87093

Client / Reporting Information		Project Information										Requested Analysis										Matrix Codes				
Company Name Arcoadis		Project Name Philadelphia Celee																				DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LO - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rins Blank TB - Trip Blank				
Address 10 W. Fayette St #300		Street 4501 Richmond St																								
City Stamden NY		City Stamden NJ																								
State NY		State NJ																								
Zip 11580		Zip 08080																								
Project Contact Carlybeth Lamar, Health & Safety		Project # 80036796																								
Phone # 715-335-9594		Client Purchase Order # 80036796 CCA																								
Signature G. Bostrom / B. Gross		Project Manager John Bostrom																								
Field ID / Point of Collection		MEQNDV Var #		Date		Time		Sampled by		Grab (C) / Composite (C)		Matrix		# of bottles		Number of preserved bottles										LAB USE ONLY
1 S-155 (10-12)				4/26/19		9:15		615		9		50		5		H2O, H2O2, H2O4, H2O5, H2O6, H2O7, H2O8, H2O9, H2O10, H2O11, H2O12, H2O13, H2O14, H2O15, H2O16, H2O17, H2O18, H2O19, H2O20, H2O21, H2O22, H2O23, H2O24, H2O25, H2O26, H2O27, H2O28, H2O29, H2O30, H2O31, H2O32, H2O33, H2O34, H2O35, H2O36, H2O37, H2O38, H2O39, H2O40, H2O41, H2O42, H2O43, H2O44, H2O45, H2O46, H2O47, H2O48, H2O49, H2O50, H2O51, H2O52, H2O53, H2O54, H2O55, H2O56, H2O57, H2O58, H2O59, H2O60, H2O61, H2O62, H2O63, H2O64, H2O65, H2O66, H2O67, H2O68, H2O69, H2O70, H2O71, H2O72, H2O73, H2O74, H2O75, H2O76, H2O77, H2O78, H2O79, H2O80, H2O81, H2O82, H2O83, H2O84, H2O85, H2O86, H2O87, H2O88, H2O89, H2O90, H2O91, H2O92, H2O93, H2O94, H2O95, H2O96, H2O97, H2O98, H2O99, H2O100										D48
2 S-155 (13-15)						9:30																				629 TL
3 S-154 (9-11)						10:10																				1426
4 S-154 (12-14)						10:35																				40127
5 Dup 50 - Dup 4461																										
6 S-159 (11-13)						12:15																				
7 S-158 (19-20)						14:00																				
8 S-159 (19-20) MS						14:00																				
9 S-159 (19-20) MS						14:00																				
10 S-153 (7-9)						16:25		EG																		
Turn Around Time (Business Days)		Approved By (SGS PM) / Date:										Deliverable										Comments / Special Instructions				
<input checked="" type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days <input type="checkbox"/> 2 Business Days <input type="checkbox"/> 1 Business Day <input type="checkbox"/> Other		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input checked="" type="checkbox"/> Full Tier I (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ DKOP										<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDO Format										<input type="checkbox"/> DOO-QSMS				
All data available via Lablink		* Approval needed for 1-3 Business Day TAT										Commercial "A" = Results only, Commercial "B" = Results + QC Summary Commercial "C" = Results + QC Summary + Partial Raw data										http://www.sgs.com/en/terms-and-conditions				
Relinquished By: [Signature]		Date / Time: 4/26/19 16:37		Received By: [Signature]		Date / Time: 4/26/19 16:37		Relinquished By: [Signature]		Date / Time: 4/26/19 16:37		Received By: [Signature]		Date / Time: 4/26/19 16:37		Custody Seal # <input type="checkbox"/> Intact <input type="checkbox"/> Preserved where applicable <input type="checkbox"/> On Ice <input type="checkbox"/> Open Temp. °C 16.0										

5.1
5





CHAIN OF CUSTODY

SGS North America Inc. - Dayton
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FED-EX Tracking #
Bottle Order Control #
SGS Quote #
SGS Job # JC87093

Client / Reporting Information, Project Information, Requested Analysis, Matrix Codes, Turn Around Time, Deliverable, Comments / Special Instructions, Sample Custody

5.1
5



SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: S-155 (10-12)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-1	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 63.8
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D264334.D	1	05/07/19 19:56	TDN	n/a	n/a	VD10652
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.4 g	10.0 ml	10.0 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^b	ND	17000	8700	ug/kg	
71-43-2	Benzene	247000	870	650	ug/kg	
74-97-5	Bromochloromethane	ND	8700	750	ug/kg	
75-27-4	Bromodichloromethane	ND	3500	770	ug/kg	
75-25-2	Bromoform	ND	8700	700	ug/kg	
74-83-9	Bromomethane	ND	8700	1700	ug/kg	
78-93-3	2-Butanone (MEK)	ND	17000	6500	ug/kg	
75-15-0	Carbon disulfide	ND	3500	1600	ug/kg	
56-23-5	Carbon tetrachloride	ND	3500	950	ug/kg	
108-90-7	Chlorobenzene	40700	3500	610	ug/kg	
75-00-3	Chloroethane	ND	8700	1200	ug/kg	
67-66-3	Chloroform	ND	3500	650	ug/kg	
74-87-3	Chloromethane	ND	8700	3400	ug/kg	
110-82-7	Cyclohexane	ND	3500	700	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3500	1500	ug/kg	
124-48-1	Dibromochloromethane	ND	3500	590	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1700	560	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1700	530	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1700	620	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1700	600	ug/kg	
75-71-8	Dichlorodifluoromethane ^c	ND	8700	1100	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	1700	670	ug/kg	
107-06-2	1,2-Dichloroethane ^c	ND	1700	820	ug/kg	UJ
75-35-4	1,1-Dichloroethene	ND	1700	1100	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1700	1700	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1700	1200	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3500	710	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3500	610	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3500	570	ug/kg	
100-41-4	Ethylbenzene	76000	1700	960	ug/kg	
76-13-1	Freon 113	ND	8700	1300	ug/kg	
591-78-6	2-Hexanone	ND	8700	2200	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID:	S-155 (10-12)	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-1	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	63.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	P129433.D	5	05/09/19 19:49	AR	05/06/19 17:35	OP20110	EP5858
Run #2	6P481792.D	50	05/10/19 12:50	AR	05/06/19 17:35	OP20110	E6P2588
Run #3	6P481790.D	500	05/10/19 12:01	AR	05/06/19 17:35	OP20110	E6P2588

Run #	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2	30.4 g	1.0 ml
Run #3	30.4 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	520	130	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	1300	160	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	1300	220	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	1300	460	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	1300	970	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	1300	280	ug/kg	
95-48-7	2-Methylphenol	ND	520	160	ug/kg	
	3&4-Methylphenol	382	520	210	ug/kg	J
88-75-5	2-Nitrophenol	ND	1300	170	ug/kg	
100-02-7	4-Nitrophenol	ND	2600	690	ug/kg	
87-86-5	Pentachlorophenol	ND	1000	240	ug/kg	
108-95-2	Phenol	ND	520	130	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	1300	170	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	1300	190	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	1300	150	ug/kg	
83-32-9	Acenaphthene	190000 ^b	2600	890	ug/kg	D
208-96-8	Acenaphthylene	24500	260	130	ug/kg	
98-86-2	Acetophenone	ND	1300	55	ug/kg	
120-12-7	Anthracene	178000 ^b	2600	1600	ug/kg	D
1912-24-9	Atrazine	ND	520	110	ug/kg	
56-55-3	Benzo(a)anthracene	117000 ^b	2600	730	ug/kg	D
50-32-8	Benzo(a)pyrene	101000 ^b	2600	1200	ug/kg	D
205-99-2	Benzo(b)fluoranthene	106000 ^b	2600	1100	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	48900 ^b	2600	1300	ug/kg	D
207-08-9	Benzo(k)fluoranthene	19300	260	120	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	520	100	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	520	63	ug/kg	
92-52-4	1,1'-Biphenyl	23200	520	35	ug/kg	
100-52-7	Benzaldehyde	ND	1300	64	ug/kg	
91-58-7	2-Chloronaphthalene	ND	520	61	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-155 (10-12)	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-1	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	63.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	1300	93	ug/kg	
86-74-8	Carbazole	63000 ^b	5200	370	ug/kg	D
105-60-2	Caprolactam	ND	520	100	ug/kg	
218-01-9	Chrysene	100000 ^b	2600	810	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	520	55	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	520	110	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	520	93	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	520	84	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	260	80	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	260	130	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	520	220	ug/kg	
123-91-1	1,4-Dioxane ^c	ND	260	170	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	18100	260	110	ug/kg	
132-64-9	Dibenzofuran	113000 ^b	5200	1000	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	520	42	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	520	64	ug/kg	
84-66-2	Diethyl phthalate	ND	520	55	ug/kg	
131-11-3	Dimethyl phthalate	ND	520	46	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	520	60	ug/kg	
206-44-0	Fluoranthene	337000 ^d	26000	11000	ug/kg	D
86-73-7	Fluorene	186000 ^b	2600	1200	ug/kg	D
118-74-1	Hexachlorobenzene	ND	520	65	ug/kg	
87-68-3	Hexachlorobutadiene	ND	260	100	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	2600	100	ug/kg	
67-72-1	Hexachloroethane	ND	1300	130	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	43000 ^b	2600	1200	ug/kg	D
78-59-1	Isophorone	ND	520	55	ug/kg	
91-57-6	2-Methylnaphthalene	29900 ^b	2600	580	ug/kg	D
88-74-4	2-Nitroaniline	ND	1300	61	ug/kg	
99-09-2	3-Nitroaniline	ND	1300	64	ug/kg	
100-01-6	4-Nitroaniline	ND	1300	67	ug/kg	
91-20-3	Naphthalene	139000 ^b	2600	730	ug/kg	D
98-95-3	Nitrobenzene ^c	ND	520	100	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	520	75	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	1300	94	ug/kg	
85-01-8	Phenanthrene	519000 ^d	26000	8700	ug/kg	D
129-00-0	Pyrene	232000 ^b	2600	820	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	1300	65	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-155 (10-12)	
Lab Sample ID: JC87093-1	Date Sampled: 04/26/19
Matrix: SO - Soil	Date Received: 04/26/19
Method: SW846 8270D SW846 3546	Percent Solids: 63.8
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	71%	59%	0% ^e	23-115%
4165-62-2	Phenol-d5	75%	56%	0% ^e	27-114%
118-79-6	2,4,6-Tribromophenol	76%	60%	0% ^e	19-152%
4165-60-0	Nitrobenzene-d5	79%	77%	0% ^e	26-134%
321-60-8	2-Fluorobiphenyl	88%	80%	77%	39-124%
1718-51-0	Terphenyl-d14	77%	82%	0% ^e	36-134%

- (a) Dilution required due to viscosity of the extract matrix.
- (b) Result is from Run# 2
- (c) Associated CCV outside of control limits high, sample was ND.
- (d) Result is from Run# 3
- (e) Outside control limits due to dilution.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID: S-155 (10-12)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-1	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 63.8
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	11600 J	78	13	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Antimony	0.64 U J	3.1	0.64	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Arsenic ^a	34.5 J	6.3	0.88	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Barium	128 J	31	3.0	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Beryllium	0.82	0.31	0.13	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Cadmium	1.8	0.78	0.11	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Calcium	4070	780	69	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Chromium	143 J	1.6	0.58	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Cobalt	11.5	7.8	0.44	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Copper ^a	82.8 J	7.8	2.6	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Iron	38700 J	160	60	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Lead ^a	175 J	6.3	1.3	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Magnesium	3590	780	21	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Manganese ^a	698	4.7	1.3	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Mercury	1.8 J	0.24	0.10	mg/kg	5	04/30/19	04/30/19	LL SW846 7471B ¹	SW846 7471B ⁴
Nickel	24.5	6.3	0.55	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Potassium	1440 J	1600	50	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Selenium ^a	2.0 U	6.3	2.0	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Silver ^a	0.91 J	1.6	0.53	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Sodium	153 J	1600	120	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Thallium ^a	1.8 U	3.1	1.8	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Vanadium	23.6	7.8	0.30	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Zinc	529 J	7.8	3.6	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46615
- (2) Instrument QC Batch: MA46638
- (3) Instrument QC Batch: MA46646
- (4) Prep QC Batch: MP14638
- (5) Prep QC Batch: MP14721

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.1
4

Report of Analysis

Client Sample ID: S-155 (10-12)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-1	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 63.8
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	7.2 J	0.41	0.20	mg/kg	1	05/06/19 14:54	KI	SW846 9012B/LACHAT
Solids, Percent	63.8			%	1	05/03/19 17:00	RC	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.1
4

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: S-155 (13-15)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-2	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 54.4
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	3C151778.D	1	05/05/19 16:12	MD	n/a	n/a	V3C6820

Run #1	Initial Weight
Run #2	4.8 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	376	19	9.6	ug/kg	
71-43-2	Benzene	2.9	0.96	0.72	ug/kg	
74-97-5	Bromochloromethane	ND	9.6	0.82	ug/kg	
75-27-4	Bromodichloromethane	ND	3.8	0.85	ug/kg	
75-25-2	Bromoform	ND	9.6	0.77	ug/kg	
74-83-9	Bromomethane	ND	9.6	1.9	ug/kg	
78-93-3	2-Butanone (MEK)	57.7	19	7.2	ug/kg	
75-15-0	Carbon disulfide	ND	3.8	1.8	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.8	1.1	ug/kg	
108-90-7	Chlorobenzene	ND	3.8	0.68	ug/kg	
75-00-3	Chloroethane	ND	9.6	1.3	ug/kg	
67-66-3	Chloroform	ND	3.8	0.71	ug/kg	
74-87-3	Chloromethane ^a	ND	9.6	3.8	ug/kg	UJ
110-82-7	Cyclohexane	ND	3.8	0.78	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.8	1.6	ug/kg	
124-48-1	Dibromochloromethane ^b	ND	3.8	0.65	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.9	0.62	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.9	0.58	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.9	0.69	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.9	0.66	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	9.6	1.2	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.9	0.74	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.9	0.90	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.9	1.3	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.9	1.8	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.9	1.3	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.8	0.78	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.8	0.67	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.8	0.63	ug/kg	
100-41-4	Ethylbenzene	ND	1.9	1.1	ug/kg	
76-13-1	Freon 113	ND	9.6	1.5	ug/kg	
591-78-6	2-Hexanone	ND	9.6	2.4	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-155 (13-15)	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-2	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	54.4
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	2.6	3.8	1.3	ug/kg	J
79-20-9	Methyl Acetate	ND	9.6	2.7	ug/kg	
108-87-2	Methylcyclohexane	4.6	3.8	1.4	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.9	0.67	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK ^c)	ND	9.6	3.0	ug/kg	
75-09-2	Methylene chloride	ND	9.6	4.8	ug/kg	
100-42-5	Styrene	ND	3.8	1.1	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.8	0.75	ug/kg	
127-18-4	Tetrachloroethene	ND	3.8	0.88	ug/kg	
108-88-3	Toluene	1.4	1.9	0.72	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	9.6	1.9	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	9.6	1.9	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.8	0.82	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.8	0.65	ug/kg	
79-01-6	Trichloroethene	ND	1.9	1.5	ug/kg	
75-69-4	Trichlorofluoromethane	ND	9.6	1.3	ug/kg	
75-01-4	Vinyl chloride	ND	3.8	0.90	ug/kg	
	m,p-Xylene	2.8	1.9	1.4	ug/kg	
95-47-6	o-Xylene	3.5	1.9	1.1	ug/kg	
1330-20-7	Xylene (total)	6.3	1.9	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		75-127%
17060-07-0	1,2-Dichloroethane-D4	110%		75-130%
2037-26-5	Toluene-D8	108%		80-120%
460-00-4	4-Bromofluorobenzene	127%		79-127%

- (a) Associated CCV outside of control limits low.
 (b) Associated CCV and BS outside of control limits high, sample was ND.
 (c) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	S-155 (13-15)	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-2	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	54.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	P129381.D	1	05/07/19 19:39	CC	05/06/19 17:35	OP20110	EP5856

Run #1	Initial Weight	Final Volume
Run #2	30.9 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	120	29	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	300	36	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	300	51	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	300	110	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	300	220	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	300	64	ug/kg	
95-48-7	2-Methylphenol	ND	120	38	ug/kg	
	3&4-Methylphenol	315	120	49	ug/kg	
88-75-5	2-Nitrophenol	ND	300	39	ug/kg	
100-02-7	4-Nitrophenol	ND	590	160	ug/kg	
87-86-5	Pentachlorophenol	ND	240	56	ug/kg	
108-95-2	Phenol	ND	120	31	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	300	39	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	300	45	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	300	35	ug/kg	
83-32-9	Acenaphthene	809	59	21	ug/kg	
208-96-8	Acenaphthylene	252	59	30	ug/kg	
98-86-2	Acetophenone	22.5	300	13	ug/kg	J
120-12-7	Anthracene	359	59	36	ug/kg	
1912-24-9	Atrazine	ND	120	25	ug/kg	
56-55-3	Benzo(a)anthracene	284	59	17	ug/kg	
50-32-8	Benzo(a)pyrene	549	59	27	ug/kg	
205-99-2	Benzo(b)fluoranthene	460	59	26	ug/kg	
191-24-2	Benzo(g,h,i)perylene	434	59	30	ug/kg	
207-08-9	Benzo(k)fluoranthene	170	59	28	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	120	23	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	120	15	ug/kg	
92-52-4	1,1'-Biphenyl	109	120	8.2	ug/kg	J
100-52-7	Benzaldehyde	ND	300	15	ug/kg	
91-58-7	2-Chloronaphthalene	ND	120	14	ug/kg	
106-47-8	4-Chloroaniline	ND	300	21	ug/kg	
86-74-8	Carbazole	81.4	120	8.6	ug/kg	J

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-155 (13-15)	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-2	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	54.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	120	23	ug/kg	
218-01-9	Chrysene	374	59	19	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	120	13	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	120	26	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	120	21	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	120	19	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	59	18	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	59	30	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	120	50	ug/kg	
123-91-1	1,4-Dioxane ^a	ND	59	39	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	98.2	59	26	ug/kg	
132-64-9	Dibenzofuran	248	120	24	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	120	9.7	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	120	15	ug/kg	
84-66-2	Diethyl phthalate	ND	120	13	ug/kg	
131-11-3	Dimethyl phthalate	ND	120	11	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	120	14	ug/kg	
206-44-0	Fluoranthene	537	59	27	ug/kg	
86-73-7	Fluorene	478	59	27	ug/kg	
118-74-1	Hexachlorobenzene	ND	120	15	ug/kg	
87-68-3	Hexachlorobutadiene	ND	59	24	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	590	24	ug/kg	
67-72-1	Hexachloroethane	ND	300	29	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	383	59	28	ug/kg	
78-59-1	Isophorone	ND	120	13	ug/kg	
91-57-6	2-Methylnaphthalene	510	59	13	ug/kg	
88-74-4	2-Nitroaniline	ND	300	14	ug/kg	
99-09-2	3-Nitroaniline	ND	300	15	ug/kg	
100-01-6	4-Nitroaniline	ND	300	15	ug/kg	
91-20-3	Naphthalene	1570	59	17	ug/kg	
98-95-3	Nitrobenzene	ND	120	23	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	120	17	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	300	22	ug/kg	
85-01-8	Phenanthrene	1190	59	20	ug/kg	
129-00-0	Pyrene	632	59	19	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	300	15	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	61%		23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-155 (13-15)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-2	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 54.4
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	60%		27-114%
118-79-6	2,4,6-Tribromophenol	66%		19-152%
4165-60-0	Nitrobenzene-d5	67%		26-134%
321-60-8	2-Fluorobiphenyl	80%		39-124%
1718-51-0	Terphenyl-d14	72%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: S-155 (13-15) Lab Sample ID: JC87093-2 Matrix: SO - Soil Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/26/19 Date Received: 04/26/19 Percent Solids: 54.4
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Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	22300 J	95	15	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Antimony	1.4 J	3.8	0.78	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Arsenic ^a	78.4 J	7.6	1.1	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Barium	266 J	38	3.6	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Beryllium	1.6	0.38	0.15	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Cadmium	3.0	0.95	0.13	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Calcium	4570	950	84	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Chromium	264 J	1.9	0.70	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Cobalt	29.1	9.5	0.53	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Copper ^a	194 J	9.5	3.2	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Iron	50800 J	190	73	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Lead ^a	380 J	7.6	1.6	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Magnesium	5010	950	26	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Manganese	1170	5.7	1.6	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Mercury	2.4 J	0.26	0.12	mg/kg	5	04/30/19	04/30/19	LL SW846 7471B ¹	SW846 7471B ⁴
Nickel	47.1	7.6	0.66	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Potassium	2290	1900	60	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Selenium ^a	2.5 U	7.6	2.5	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Silver ^a	2.2	1.9	0.64	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Sodium	356 J	1900	150	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Thallium ^a	2.2 U	3.8	2.2	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Vanadium	42.6	9.5	0.36	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Zinc	1010 J	9.5	4.4	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46615
- (2) Instrument QC Batch: MA46638
- (3) Instrument QC Batch: MA46646
- (4) Prep QC Batch: MP14638
- (5) Prep QC Batch: MP14721

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.2
4

Report of Analysis

Client Sample ID: S-155 (13-15)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-2	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 54.4
Project: National Grid, Philly Coke, Philadelphia, PA	

4.2
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.5	J	0.44	mg/kg	1	05/06/19 14:56	KI	SW846 9012B/LACHAT
Solids, Percent	54.4			%	1	05/03/19 17:00	RC	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: S-154 (9-11)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-3	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 78.6
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D264411.D	1	05/09/19 10:20	TDN	n/a	n/a	VD10656
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.3 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^b	ND	1600	810	ug/kg	
71-43-2	Benzene	11400	81	61	ug/kg	
74-97-5	Bromochloromethane	ND	810	69	ug/kg	
75-27-4	Bromodichloromethane	ND	320	72	ug/kg	
75-25-2	Bromoform	ND	810	65	ug/kg	
74-83-9	Bromomethane	ND	810	160	ug/kg	
78-93-3	2-Butanone (MEK)	ND	1600	600	ug/kg	
75-15-0	Carbon disulfide	206	320	150	ug/kg	J
56-23-5	Carbon tetrachloride	ND	320	89	ug/kg	
108-90-7	Chlorobenzene	163	320	57	ug/kg	J
75-00-3	Chloroethane	ND	810	110	ug/kg	
67-66-3	Chloroform	ND	320	60	ug/kg	
74-87-3	Chloromethane	ND	810	320	ug/kg	
110-82-7	Cyclohexane	ND	320	66	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	320	140	ug/kg	
124-48-1	Dibromochloromethane	ND	320	55	ug/kg	
106-93-4	1,2-Dibromoethane	ND	160	53	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	160	49	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	160	58	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	160	56	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	810	100	ug/kg	
75-34-3	1,1-Dichloroethane	ND	160	62	ug/kg	
107-06-2	1,2-Dichloroethane	ND	160	76	ug/kg	
75-35-4	1,1-Dichloroethene	ND	160	110	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	160	150	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	160	110	ug/kg	
78-87-5	1,2-Dichloropropane	ND	320	66	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	320	57	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	320	53	ug/kg	
100-41-4	Ethylbenzene	94.9	160	89	ug/kg	J
76-13-1	Freon 113	ND	810	120	ug/kg	
591-78-6	2-Hexanone	ND	810	210	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-154 (9-11)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-3	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 78.6
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	320	110	ug/kg	
79-20-9	Methyl Acetate	431	810	220	ug/kg	J
108-87-2	Methylcyclohexane	ND	320	110	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	160	57	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	810	250	ug/kg	
75-09-2	Methylene chloride	ND	810	400	ug/kg	
100-42-5	Styrene	ND	320	93	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	320	63	ug/kg	
127-18-4	Tetrachloroethene	ND	320	75	ug/kg	
108-88-3	Toluene	594	160	61	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	810	160	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	810	160	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	320	69	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	320	55	ug/kg	
79-01-6	Trichloroethene	ND	160	120	ug/kg	
75-69-4	Trichlorofluoromethane	ND	810	110	ug/kg	
75-01-4	Vinyl chloride	ND	320	76	ug/kg	
	m,p-Xylene	ND	160	120	ug/kg	
95-47-6	o-Xylene	ND	160	94	ug/kg	
1330-20-7	Xylene (total)	ND	160	94	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		75-127%
17060-07-0	1,2-Dichloroethane-D4	95%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	98%		79-127%

- (a) Diluted due to high concentration of target compound.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

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Client Sample ID:	S-154 (9-11)	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-3	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	78.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P129415.D	1	05/08/19 20:08	AR	05/06/19 17:35	OP20110	EP5857
Run #2	P129428.D	5	05/09/19 13:27	AR	05/06/19 17:35	OP20110	EP5858

Run #	Initial Weight	Final Volume
Run #1	31.7 g	1.0 ml
Run #2	31.7 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	80	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	25	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	34	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	71	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	200	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	200	43	ug/kg	
95-48-7	2-Methylphenol	ND	80	26	ug/kg	
	3&4-Methylphenol	36.0	80	33	ug/kg	J
88-75-5	2-Nitrophenol	ND	200	27	ug/kg	
100-02-7	4-Nitrophenol	ND	400	110	ug/kg	
87-86-5	Pentachlorophenol	ND	160	38	ug/kg	
108-95-2	Phenol	ND	80	21	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	27	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	30	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	24	ug/kg	
83-32-9	Acenaphthene	9540 ^a	200	69	ug/kg	D
208-96-8	Acenaphthylene	504	40	20	ug/kg	
98-86-2	Acetophenone	ND	200	8.6	ug/kg	
120-12-7	Anthracene	1610	40	25	ug/kg	
1912-24-9	Atrazine	ND	80	17	ug/kg	
56-55-3	Benzo(a)anthracene	318	40	11	ug/kg	
50-32-8	Benzo(a)pyrene	249	40	18	ug/kg	
205-99-2	Benzo(b)fluoranthene	330	40	18	ug/kg	
191-24-2	Benzo(g,h,i)perylene	160	40	20	ug/kg	
207-08-9	Benzo(k)fluoranthene	105	40	19	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	80	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	80	9.8	ug/kg	
92-52-4	1,1'-Biphenyl	222	80	5.5	ug/kg	
100-52-7	Benzaldehyde	ND	200	10	ug/kg	
91-58-7	2-Chloronaphthalene	ND	80	9.6	ug/kg	
106-47-8	4-Chloroaniline	ND	200	14	ug/kg	
86-74-8	Carbazole	2540	80	5.8	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-154 (9-11)	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-3	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	78.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^b	ND	80	16	ug/kg	
218-01-9	Chrysene	362	40	13	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	80	8.6	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	80	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	80	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	80	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	40	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	40	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	80	33	ug/kg	
123-91-1	1,4-Dioxane ^b	ND	40	27	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	43.8	40	18	ug/kg	
132-64-9	Dibenzofuran	3620	80	16	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	80	6.5	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	80	10	ug/kg	
84-66-2	Diethyl phthalate	ND	80	8.5	ug/kg	
131-11-3	Dimethyl phthalate	ND	80	7.1	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	80	9.4	ug/kg	
206-44-0	Fluoranthene	1910	40	18	ug/kg	
86-73-7	Fluorene	8690 ^a	200	92	ug/kg	D
118-74-1	Hexachlorobenzene	ND	80	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	40	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	400	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	20	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	158	40	19	ug/kg	
78-59-1	Isophorone	ND	80	8.6	ug/kg	
91-57-6	2-Methylnaphthalene	319	40	9.1	ug/kg	
88-74-4	2-Nitroaniline	ND	200	9.5	ug/kg	
99-09-2	3-Nitroaniline	ND	200	10	ug/kg	
100-01-6	4-Nitroaniline	ND	200	10	ug/kg	
91-20-3	Naphthalene	3230	40	11	ug/kg	
98-95-3	Nitrobenzene	ND	80	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	80	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	15	ug/kg	
85-01-8	Phenanthrene	2900	40	13	ug/kg	
129-00-0	Pyrene	1380	40	13	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	70%	67%	23-115%

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-154 (9-11)	
Lab Sample ID: JC87093-3	Date Sampled: 04/26/19
Matrix: SO - Soil	Date Received: 04/26/19
Method: SW846 8270D SW846 3546	Percent Solids: 78.6
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	70%	73%	27-114%
118-79-6	2,4,6-Tribromophenol	74%	63%	19-152%
4165-60-0	Nitrobenzene-d5	71%	74%	26-134%
321-60-8	2-Fluorobiphenyl	87%	84%	39-124%
1718-51-0	Terphenyl-d14	74%	75%	36-134%

(a) Result is from Run# 2

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-154 (9-11)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-3	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 78.6
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	4510 J	67	11	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Antimony	0.55 U	J 2.7	0.55	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Arsenic	5.2 J	2.7	0.37	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Barium	58.2 J	27	2.5	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Beryllium	0.43	0.27	0.11	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Cadmium	0.19 J	0.67	0.094	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Calcium	3160	670	59	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Chromium ^a	28.2 J	1.3	0.50	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Cobalt	5.4 J	6.7	0.37	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Copper ^a	36.1 J	3.3	1.1	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Iron	17000 J	67	26	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Lead	55.8 J	2.7	0.55	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Magnesium	1350	670	18	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Manganese ^a	407	2.0	0.55	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Mercury	0.29 J	0.033	0.014	mg/kg	1	04/30/19	04/30/19	LL SW846 7471B ¹	SW846 7471B ⁴
Nickel	19.6	5.4	0.47	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Potassium	501 J	1300	43	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Selenium	0.87 U	2.7	0.87	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Silver ^a	0.23 U	0.67	0.23	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Sodium	123 J	1300	100	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Thallium	0.78 U	1.3	0.78	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Vanadium ^a	14.6	6.7	0.25	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Zinc	100 J	6.7	3.1	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46615
- (2) Instrument QC Batch: MA46638
- (3) Instrument QC Batch: MA46646
- (4) Prep QC Batch: MP14638
- (5) Prep QC Batch: MP14721

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-154 (9-11)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-3	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 78.6
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	5.5	0.26	0.13	mg/kg	1	05/06/19 15:00	KI	SW846 9012B/LACHAT
Solids, Percent	78.6			%	1	05/03/19 17:00	RC	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: S-154 (12-14)	
Lab Sample ID: JC87093-4	Date Sampled: 04/26/19
Matrix: SO - Soil	Date Received: 04/26/19
Method: SW846 8260C	Percent Solids: 57.8
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	1C164349.D	1	05/07/19 19:23	PS	n/a	n/a	V1C7213

Run #1	Initial Weight
Run #2	4.0 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	208	22	11	ug/kg	J
71-43-2	Benzene	2.5	1.1	0.82	ug/kg	
74-97-5	Bromochloromethane	ND	11	0.93	ug/kg	
75-27-4	Bromodichloromethane	ND	4.3	0.96	ug/kg	
75-25-2	Bromoform	ND	11	0.87	ug/kg	
74-83-9	Bromomethane	ND	11	2.2	ug/kg	
78-93-3	2-Butanone (MEK)	25.7	22	8.1	ug/kg	
75-15-0	Carbon disulfide	ND	4.3	2.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	4.3	1.2	ug/kg	
108-90-7	Chlorobenzene	ND	4.3	0.77	ug/kg	
75-00-3	Chloroethane	ND	11	1.5	ug/kg	
67-66-3	Chloroform	ND	4.3	0.80	ug/kg	
74-87-3	Chloromethane	ND	11	4.2	ug/kg	
110-82-7	Cyclohexane	ND	4.3	0.88	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	4.3	1.8	ug/kg	
124-48-1	Dibromochloromethane	ND	4.3	0.73	ug/kg	
106-93-4	1,2-Dibromoethane	ND	2.2	0.70	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	2.2	0.66	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	2.2	0.78	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	2.2	0.74	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	11	1.4	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	2.2	0.83	ug/kg	
107-06-2	1,2-Dichloroethane ^a	ND	2.2	1.0	ug/kg	UJ
75-35-4	1,1-Dichloroethene	ND	2.2	1.4	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	2.2	2.1	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	2.2	1.4	ug/kg	
78-87-5	1,2-Dichloropropane	ND	4.3	0.88	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	4.3	0.76	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	4.3	0.71	ug/kg	
100-41-4	Ethylbenzene	1.2	2.2	1.2	ug/kg	J
76-13-1	Freon 113	ND	11	1.6	ug/kg	
591-78-6	2-Hexanone	ND	11	2.7	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-154 (12-14)		Date Sampled: 04/26/19
Lab Sample ID: JC87093-4		Date Received: 04/26/19
Matrix: SO - Soil		Percent Solids: 57.8
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	1.8	4.3	1.5	ug/kg	J
79-20-9	Methyl Acetate	ND	11	3.0	ug/kg	
108-87-2	Methylcyclohexane	ND	4.3	1.5	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	2.2	0.76	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	11	3.4	ug/kg	
75-09-2	Methylene chloride	ND	11	5.4	ug/kg	
100-42-5	Styrene	ND	4.3	1.2	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	4.3	0.84	ug/kg	
127-18-4	Tetrachloroethene	ND	4.3	1.0	ug/kg	
108-88-3	Toluene	1.3	2.2	0.81	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	11	2.2	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	11	2.2	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	4.3	0.92	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	4.3	0.74	ug/kg	
79-01-6	Trichloroethene	ND	2.2	1.6	ug/kg	
75-69-4	Trichlorofluoromethane	ND	11	1.5	ug/kg	
75-01-4	Vinyl chloride	ND	4.3	1.0	ug/kg	
	m,p-Xylene	ND	2.2	1.6	ug/kg	
95-47-6	o-Xylene	1.4	2.2	1.3	ug/kg	J
1330-20-7	Xylene (total)	1.4	2.2	1.3	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		75-127%
17060-07-0	1,2-Dichloroethane-D4	94%		75-130%
2037-26-5	Toluene-D8	103%		80-120%
460-00-4	4-Bromofluorobenzene	102%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	S-154 (12-14)	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-4	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	57.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P129416.D	1	05/08/19 20:35	AR	05/06/19 17:35	OP20110	EP5857
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	110	28	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	290	35	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	290	49	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	290	100	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	290	220	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	290	62	ug/kg	
95-48-7	2-Methylphenol	ND	110	37	ug/kg	
	3&4-Methylphenol	425	110	47	ug/kg	
88-75-5	2-Nitrophenol	ND	290	38	ug/kg	
100-02-7	4-Nitrophenol	ND	570	150	ug/kg	
87-86-5	Pentachlorophenol	ND	230	54	ug/kg	
108-95-2	Phenol	ND	110	30	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	290	38	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	290	43	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	290	34	ug/kg	
83-32-9	Acenaphthene	1890	57	20	ug/kg	
208-96-8	Acenaphthylene	308	57	29	ug/kg	
98-86-2	Acetophenone	21.0	290	12	ug/kg	J
120-12-7	Anthracene	1080	57	35	ug/kg	
1912-24-9	Atrazine	ND	110	25	ug/kg	
56-55-3	Benzo(a)anthracene	762	57	16	ug/kg	
50-32-8	Benzo(a)pyrene	916	57	26	ug/kg	
205-99-2	Benzo(b)fluoranthene	896	57	25	ug/kg	
191-24-2	Benzo(g,h,i)perylene	551	57	29	ug/kg	
207-08-9	Benzo(k)fluoranthene	326	57	27	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	110	22	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	110	14	ug/kg	
92-52-4	1,1'-Biphenyl	115	110	7.9	ug/kg	
100-52-7	Benzaldehyde	ND	290	14	ug/kg	
91-58-7	2-Chloronaphthalene	ND	110	14	ug/kg	
106-47-8	4-Chloroaniline	ND	290	21	ug/kg	
86-74-8	Carbazole	204	110	8.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-154 (12-14)	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-4	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	57.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	110	23	ug/kg	
218-01-9	Chrysene	892	57	18	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	110	12	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	110	25	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	110	21	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	110	19	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	57	18	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	57	29	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	110	48	ug/kg	
123-91-1	1,4-Dioxane ^a	ND	57	38	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	146	57	25	ug/kg	
132-64-9	Dibenzofuran	584	110	23	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	110	9.4	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	110	14	ug/kg	
84-66-2	Diethyl phthalate	ND	110	12	ug/kg	
131-11-3	Dimethyl phthalate	ND	110	10	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	110	13	ug/kg	
206-44-0	Fluoranthene	1880	57	26	ug/kg	
86-73-7	Fluorene	1400	57	26	ug/kg	
118-74-1	Hexachlorobenzene	ND	110	15	ug/kg	
87-68-3	Hexachlorobutadiene	ND	57	23	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	570	23	ug/kg	
67-72-1	Hexachloroethane	ND	290	28	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	499	57	27	ug/kg	
78-59-1	Isophorone	ND	110	12	ug/kg	
91-57-6	2-Methylnaphthalene	572	57	13	ug/kg	
88-74-4	2-Nitroaniline	ND	290	14	ug/kg	
99-09-2	3-Nitroaniline	ND	290	14	ug/kg	
100-01-6	4-Nitroaniline	ND	290	15	ug/kg	
91-20-3	Naphthalene	1610	57	16	ug/kg	
98-95-3	Nitrobenzene	ND	110	22	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	110	17	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	290	21	ug/kg	
85-01-8	Phenanthrene	4560	57	19	ug/kg	
129-00-0	Pyrene	2080	57	18	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	290	15	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	65%		23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-154 (12-14)	
Lab Sample ID: JC87093-4	Date Sampled: 04/26/19
Matrix: SO - Soil	Date Received: 04/26/19
Method: SW846 8270D SW846 3546	Percent Solids: 57.8
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	63%		27-114%
118-79-6	2,4,6-Tribromophenol	67%		19-152%
4165-60-0	Nitrobenzene-d5	67%		26-134%
321-60-8	2-Fluorobiphenyl	79%		39-124%
1718-51-0	Terphenyl-d14	77%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: S-154 (12-14)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-4	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 57.8
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	22800 J	87	14	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Antimony	1.2 J	3.5	0.71	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Arsenic ^a	140 J	6.9	0.97	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Barium	276 J	35	3.3	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Beryllium	1.7	0.35	0.14	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Cadmium	3.9	0.87	0.12	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Calcium	5000	870	76	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Chromium	449 J	1.7	0.64	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Cobalt	26.8	8.7	0.48	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Copper ^a	220 J	8.7	2.9	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Iron	42200 J	170	66	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Lead ^a	561 J	6.9	1.4	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Magnesium	5040	870	24	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Manganese	1210	5.2	1.4	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Mercury	2.1	0.23	0.10	mg/kg	5	04/30/19	04/30/19	LL SW846 7471B ¹	SW846 7471B ⁴
Nickel	47.2	6.9	0.61	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Potassium	2260	1700	55	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Selenium ^a	2.3 J	6.9	2.2	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Silver ^a	2.4	1.7	0.59	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Sodium	335 J	1700	130	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Thallium ^a	2.0 U	3.5	2.0	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Vanadium	44.1	8.7	0.33	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁵
Zinc ^a	1690 J	17	8.0	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46615
- (2) Instrument QC Batch: MA46638
- (3) Instrument QC Batch: MA46646
- (4) Prep QC Batch: MP14638
- (5) Prep QC Batch: MP14721

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

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Report of Analysis

Client Sample ID: S-154 (12-14) Lab Sample ID: JC87093-4 Matrix: SO - Soil Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/26/19 Date Received: 04/26/19 Percent Solids: 57.8
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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	3.2	0.37	0.19	mg/kg	1	05/06/19 15:01	KI	SW846 9012B/LACHAT
Solids, Percent	57.8			%	1	05/03/19 17:00	RC	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.4
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SGS North America Inc.

Report of Analysis

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Client Sample ID:	SO-DUP-0426-1	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-5	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	54.8
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151826.D	1	05/06/19 19:12	PS	n/a	n/a	V3C6821
Run #2							

Run #	Initial Weight
Run #1	4.0 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	71.6	23	11	ug/kg	J
71-43-2	Benzene	4.2	1.1	0.86	ug/kg	
74-97-5	Bromochloromethane	ND	11	0.98	ug/kg	
75-27-4	Bromodichloromethane	ND	4.6	1.0	ug/kg	
75-25-2	Bromoform	ND	11	0.92	ug/kg	
74-83-9	Bromomethane	ND	11	2.3	ug/kg	
78-93-3	2-Butanone (MEK)	11.6	23	8.5	ug/kg	J
75-15-0	Carbon disulfide	ND	4.6	2.1	ug/kg	
56-23-5	Carbon tetrachloride	ND	4.6	1.3	ug/kg	
108-90-7	Chlorobenzene	ND	4.6	0.81	ug/kg	
75-00-3	Chloroethane	ND	11	1.6	ug/kg	
67-66-3	Chloroform	ND	4.6	0.85	ug/kg	
74-87-3	Chloromethane ^a	ND	11	4.5	ug/kg	UJ
110-82-7	Cyclohexane	ND	4.6	0.93	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	4.6	1.9	ug/kg	
124-48-1	Dibromochloromethane	ND	4.6	0.77	ug/kg	
106-93-4	1,2-Dibromoethane	ND	2.3	0.74	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	2.3	0.70	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	2.3	0.82	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	2.3	0.78	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	11	1.4	ug/kg	
75-34-3	1,1-Dichloroethane	ND	2.3	0.88	ug/kg	
107-06-2	1,2-Dichloroethane	ND	2.3	1.1	ug/kg	
75-35-4	1,1-Dichloroethene	ND	2.3	1.5	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	2.3	2.2	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	2.3	1.5	ug/kg	
78-87-5	1,2-Dichloropropane	ND	4.6	0.93	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	4.6	0.80	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	4.6	0.75	ug/kg	
100-41-4	Ethylbenzene	ND	2.3	1.3	ug/kg	
76-13-1	Freon 113	ND	11	1.7	ug/kg	
591-78-6	2-Hexanone	ND	11	2.9	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SO-DUP-0426-1		Date Sampled: 04/26/19
Lab Sample ID: JC87093-5		Date Received: 04/26/19
Matrix: SO - Soil		Percent Solids: 54.8
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	4.6	1.6	ug/kg	
79-20-9	Methyl Acetate ^a	ND	11	3.2	ug/kg	
108-87-2	Methylcyclohexane	ND	4.6	1.6	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	2.3	0.80	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	11	3.6	ug/kg	
75-09-2	Methylene chloride	ND	11	5.7	ug/kg	
100-42-5	Styrene	ND	4.6	1.3	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	4.6	0.89	ug/kg	
127-18-4	Tetrachloroethene	ND	4.6	1.1	ug/kg	
108-88-3	Toluene	0.87	2.3	0.86	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	11	2.3	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	11	2.3	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	4.6	0.97	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	4.6	0.78	ug/kg	
79-01-6	Trichloroethene	ND	2.3	1.7	ug/kg	
75-69-4	Trichlorofluoromethane	ND	11	1.6	ug/kg	
75-01-4	Vinyl chloride	ND	4.6	1.1	ug/kg	
	m,p-Xylene	ND	2.3	1.7	ug/kg	
95-47-6	o-Xylene	ND	2.3	1.3	ug/kg	
1330-20-7	Xylene (total)	ND	2.3	1.3	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		75-127%
17060-07-0	1,2-Dichloroethane-D4	111%		75-130%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	111%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

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Client Sample ID:	SO-DUP-0426-1	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-5	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	54.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P129431.D	1	05/09/19 18:55	AR	05/06/19 17:35	OP20110	EP5858
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	120	30	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	300	37	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	300	51	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	300	110	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	300	230	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	300	64	ug/kg	
95-48-7	2-Methylphenol	ND	120	38	ug/kg	
	3&4-Methylphenol	681	120	49	ug/kg	
88-75-5	2-Nitrophenol	ND	300	40	ug/kg	
100-02-7	4-Nitrophenol	ND	600	160	ug/kg	
87-86-5	Pentachlorophenol	ND	240	56	ug/kg	
108-95-2	Phenol	ND	120	31	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	300	40	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	300	45	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	300	36	ug/kg	
83-32-9	Acenaphthene	1620	60	21	ug/kg	
208-96-8	Acenaphthylene	331	60	30	ug/kg	
98-86-2	Acetophenone	16.8	300	13	ug/kg	J
120-12-7	Anthracene	867	60	37	ug/kg	
1912-24-9	Atrazine	ND	120	26	ug/kg	
56-55-3	Benzo(a)anthracene	741	60	17	ug/kg	
50-32-8	Benzo(a)pyrene	799	60	27	ug/kg	
205-99-2	Benzo(b)fluoranthene	807	60	27	ug/kg	
191-24-2	Benzo(g,h,i)perylene	468	60	30	ug/kg	
207-08-9	Benzo(k)fluoranthene	257	60	28	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	120	23	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	120	15	ug/kg	
92-52-4	1,1'-Biphenyl	143	120	8.2	ug/kg	
100-52-7	Benzaldehyde	ND	300	15	ug/kg	
91-58-7	2-Chloronaphthalene	ND	120	14	ug/kg	
106-47-8	4-Chloroaniline	ND	300	22	ug/kg	
86-74-8	Carbazole	115	120	8.7	ug/kg	J

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SO-DUP-0426-1	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-5	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	54.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	120	24	ug/kg	
218-01-9	Chrysene	868	60	19	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	120	13	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	120	26	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	120	22	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	120	19	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	60	19	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	60	30	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	120	50	ug/kg	
123-91-1	1,4-Dioxane ^a	ND	60	40	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	119	60	27	ug/kg	
132-64-9	Dibenzofuran	505	120	24	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	120	9.8	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	120	15	ug/kg	
84-66-2	Diethyl phthalate	ND	120	13	ug/kg	
131-11-3	Dimethyl phthalate	ND	120	11	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	120	14	ug/kg	
206-44-0	Fluoranthene	1810	60	27	ug/kg	
86-73-7	Fluorene	1040	60	28	ug/kg	
118-74-1	Hexachlorobenzene	ND	120	15	ug/kg	
87-68-3	Hexachlorobutadiene	ND	60	24	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	600	24	ug/kg	
67-72-1	Hexachloroethane	ND	300	30	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	432	60	28	ug/kg	
78-59-1	Isophorone	ND	120	13	ug/kg	
91-57-6	2-Methylnaphthalene	638	60	14	ug/kg	
88-74-4	2-Nitroaniline	ND	300	14	ug/kg	
99-09-2	3-Nitroaniline	ND	300	15	ug/kg	
100-01-6	4-Nitroaniline	ND	300	16	ug/kg	
91-20-3	Naphthalene	1850	60	17	ug/kg	
98-95-3	Nitrobenzene ^a	ND	120	23	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	120	17	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	300	22	ug/kg	
85-01-8	Phenanthrene	3300	60	20	ug/kg	
129-00-0	Pyrene	2140	60	19	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	300	15	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	67%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SO-DUP-0426-1	
Lab Sample ID: JC87093-5	Date Sampled: 04/26/19
Matrix: SO - Soil	Date Received: 04/26/19
Method: SW846 8270D SW846 3546	Percent Solids: 54.8
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	68%		27-114%
118-79-6	2,4,6-Tribromophenol	68%		19-152%
4165-60-0	Nitrobenzene-d5	70%		26-134%
321-60-8	2-Fluorobiphenyl	85%		39-124%
1718-51-0	Terphenyl-d14	77%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.5
4

Report of Analysis

Client Sample ID: SO-DUP-0426-1	Date Sampled: 04/26/19
Lab Sample ID: JC87093-5	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 54.8
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	18500 J	93	15	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Antimony	0.76 U J	3.7	0.76	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Arsenic	33.9 J	3.7	0.52	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Barium	159 J	37	3.5	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Beryllium	1.3	0.37	0.15	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Cadmium	1.4	0.93	0.13	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Calcium	3900	930	82	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Chromium	156 J	1.9	0.69	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Cobalt	17.9	9.3	0.52	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Copper	98.6 J	4.7	1.6	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Iron	32900 J	93	36	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Lead	187 J	3.7	0.76	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Magnesium	5090	930	25	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Manganese	1020	2.8	0.76	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Mercury	2.4	0.26	0.11	mg/kg	5	04/30/19	04/30/19	LL SW846 7471B ¹	SW846 7471B ³
Nickel	33.7	7.4	0.65	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Potassium	2120	1900	59	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Selenium	1.2 J	3.7	1.2	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Silver	0.32 U	0.93	0.32	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Sodium	267 J	1900	140	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Thallium	1.1 U	1.9	1.1	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Vanadium	38.0	9.3	0.35	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Zinc	540 J	9.3	4.3	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴

(1) Instrument QC Batch: MA46615

(2) Instrument QC Batch: MA46638

(3) Prep QC Batch: MP14638

(4) Prep QC Batch: MP14721

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.5
4

Report of Analysis

Client Sample ID: SO-DUP-0426-1	Date Sampled: 04/26/19
Lab Sample ID: JC87093-5	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 54.8
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.5 J	0.44	0.22	mg/kg	1	05/06/19 15:02	KI	SW846 9012B/LACHAT
Solids, Percent	54.8			%	1	05/03/19 17:00	RC	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: S-158 (11-13)		
Lab Sample ID: JC87093-6		Date Sampled: 04/26/19
Matrix: SO - Soil		Date Received: 04/26/19
Method: SW846 8260C		Percent Solids: 77.9
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D264376.D	1	05/08/19 16:51	TDN	n/a	n/a	VD10654
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.9 g	10.0 ml	20.0 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^b	ND	7300	3600	ug/kg	
71-43-2	Benzene	ND	360	270	ug/kg	
74-97-5	Bromochloromethane	ND	3600	310	ug/kg	
75-27-4	Bromodichloromethane	ND	1500	320	ug/kg	
75-25-2	Bromoform	ND	3600	290	ug/kg	
74-83-9	Bromomethane	ND	3600	720	ug/kg	
78-93-3	2-Butanone (MEK)	ND	7300	2700	ug/kg	
75-15-0	Carbon disulfide	11200	1500	670	ug/kg	
56-23-5	Carbon tetrachloride	ND	1500	400	ug/kg	
108-90-7	Chlorobenzene	ND	1500	260	ug/kg	
75-00-3	Chloroethane	ND	3600	500	ug/kg	
67-66-3	Chloroform	ND	1500	270	ug/kg	
74-87-3	Chloromethane	ND	3600	1400	ug/kg	
110-82-7	Cyclohexane	ND	1500	290	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1500	610	ug/kg	
124-48-1	Dibromochloromethane	ND	1500	250	ug/kg	
106-93-4	1,2-Dibromoethane	ND	730	240	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	730	220	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	730	260	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	730	250	ug/kg	
75-71-8	Dichlorodifluoromethane ^c	ND	3600	460	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	730	280	ug/kg	
107-06-2	1,2-Dichloroethane ^c	ND	730	340	ug/kg	UJ
75-35-4	1,1-Dichloroethene	ND	730	480	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	730	690	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	730	480	ug/kg	
78-87-5	1,2-Dichloropropane	ND	1500	300	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	1500	260	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	1500	240	ug/kg	
100-41-4	Ethylbenzene	537	730	400	ug/kg	J
76-13-1	Freon 113	ND	3600	550	ug/kg	
591-78-6	2-Hexanone	ND	3600	920	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-158 (11-13)	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-6	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	77.9
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1500	510	ug/kg	
79-20-9	Methyl Acetate	1050	3600	1000	ug/kg	J
108-87-2	Methylcyclohexane	ND	1500	510	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	730	260	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	3600	1100	ug/kg	
75-09-2	Methylene chloride	ND	3600	1800	ug/kg	
100-42-5	Styrene	ND	1500	420	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1500	280	ug/kg	
127-18-4	Tetrachloroethene	ND	1500	340	ug/kg	
108-88-3	Toluene	ND	730	270	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	3600	730	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	3600	730	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	1500	310	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	1500	250	ug/kg	
79-01-6	Trichloroethene	ND	730	550	ug/kg	
75-69-4	Trichlorofluoromethane	ND	3600	490	ug/kg	
75-01-4	Vinyl chloride	ND	1500	340	ug/kg	
	m,p-Xylene	ND	730	540	ug/kg	
95-47-6	o-Xylene	ND	730	420	ug/kg	
1330-20-7	Xylene (total)	ND	730	420	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		75-127%
17060-07-0	1,2-Dichloroethane-D4	90%		75-130%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	97%		79-127%

- (a) Diluted due to high concentration of non-target compound.
 (b) Associated CCV outside of control limits high, sample was ND.
 (c) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: S-158 (11-13)	
Lab Sample ID: JC87093-6	Date Sampled: 04/26/19
Matrix: SO - Soil	Date Received: 04/26/19
Method: SW846 8270D SW846 3546	Percent Solids: 77.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	P129432.D	2	05/09/19 19:22	AR	05/06/19 17:35	OP20110	EP5858
Run #2	6P481794.D	10	05/10/19 13:38	AR	05/06/19 17:35	OP20110	E6P2588
Run #3	6P481791.D	100	05/10/19 12:25	AR	05/06/19 17:35	OP20110	E6P2588

Run #	Initial Weight	Final Volume
Run #1	30.3 g	1.0 ml
Run #2	30.3 g	1.0 ml
Run #3	30.3 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	170	42	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	420	52	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	420	72	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	420	150	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	420	320	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	420	91	ug/kg	
95-48-7	2-Methylphenol	ND	170	54	ug/kg	
	3&4-Methylphenol	ND	170	70	ug/kg	
88-75-5	2-Nitrophenol	ND	420	56	ug/kg	
100-02-7	4-Nitrophenol	ND	850	230	ug/kg	
87-86-5	Pentachlorophenol	ND	340	80	ug/kg	
108-95-2	Phenol	ND	170	44	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	420	56	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	420	63	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	420	51	ug/kg	
83-32-9	Acenaphthene	9550 ^b	420	150	ug/kg	D
208-96-8	Acenaphthylene	44400 ^c	4200	2200	ug/kg	D
98-86-2	Acetophenone	927	420	18	ug/kg	
120-12-7	Anthracene	11700 ^b	420	260	ug/kg	D
1912-24-9	Atrazine	ND	170	36	ug/kg	
56-55-3	Benzo(a)anthracene	10700 ^b	420	120	ug/kg	D
50-32-8	Benzo(a)pyrene	8040	85	39	ug/kg	
205-99-2	Benzo(b)fluoranthene	11200 ^b	420	190	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	5250	85	42	ug/kg	
207-08-9	Benzo(k)fluoranthene	3590 ^b	420	200	ug/kg	D
101-55-3	4-Bromophenyl phenyl ether	ND	170	33	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	170	21	ug/kg	
92-52-4	1,1'-Biphenyl	16400 ^b	850	58	ug/kg	D
100-52-7	Benzaldehyde	ND	420	21	ug/kg	
91-58-7	2-Chloronaphthalene	ND	170	20	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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4

Report of Analysis

Client Sample ID:	S-158 (11-13)	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-6	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	77.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	420	31	ug/kg	
86-74-8	Carbazole	2830	170	12	ug/kg	
105-60-2	Caprolactam	ND	170	33	ug/kg	
218-01-9	Chrysene	9020 ^b	420	130	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	170	18	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	170	37	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	170	30	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	170	27	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	85	26	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	85	43	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	170	71	ug/kg	
123-91-1	1,4-Dioxane ^d	ND	85	56	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	1140	85	37	ug/kg	
132-64-9	Dibenzofuran	51500 ^c	8500	1700	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	170	14	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	170	21	ug/kg	
84-66-2	Diethyl phthalate	ND	170	18	ug/kg	
131-11-3	Dimethyl phthalate	ND	170	15	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	170	20	ug/kg	
206-44-0	Fluoranthene	36400 ^b	420	190	ug/kg	D
86-73-7	Fluorene	51100 ^c	4200	1900	ug/kg	D
118-74-1	Hexachlorobenzene	ND	170	21	ug/kg	
87-68-3	Hexachlorobutadiene	ND	85	34	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	850	34	ug/kg	
67-72-1	Hexachloroethane	ND	420	42	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	5740	85	40	ug/kg	
78-59-1	Isophorone	ND	170	18	ug/kg	
91-57-6	2-Methylnaphthalene	46100 ^c	4200	960	ug/kg	D
88-74-4	2-Nitroaniline	ND	420	20	ug/kg	
99-09-2	3-Nitroaniline	ND	420	21	ug/kg	
100-01-6	4-Nitroaniline	ND	420	22	ug/kg	
91-20-3	Naphthalene	423000 ^c	4200	1200	ug/kg	D
98-95-3	Nitrobenzene ^d	ND	170	33	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	170	24	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	420	31	ug/kg	
85-01-8	Phenanthrene	67800 ^c	4200	1400	ug/kg	D
129-00-0	Pyrene	24500 ^b	420	140	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	420	22	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-158 (11-13)		Date Sampled: 04/26/19
Lab Sample ID: JC87093-6		Date Received: 04/26/19
Matrix: SO - Soil		Percent Solids: 77.9
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	85%	80%	82%	23-115%
4165-62-2	Phenol-d5	77%	88%	57%	27-114%
118-79-6	2,4,6-Tribromophenol	71%	62%	64%	19-152%
4165-60-0	Nitrobenzene-d5	105%	85%	94%	26-134%
321-60-8	2-Fluorobiphenyl	81%	77%	87%	39-124%
1718-51-0	Terphenyl-d14	71%	76%	83%	36-134%

- (a) Dilution required due to viscosity of the extract matrix.
- (b) Result is from Run# 2
- (c) Result is from Run# 3
- (d) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.6
4

Report of Analysis

Client Sample ID: S-158 (11-13)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-6	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 77.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	3230 J	64	10	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Antimony	0.52 U J	2.5	0.52	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Arsenic	18.2 J	2.5	0.36	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Barium	104 J	25	2.4	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.29	0.25	0.10	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.28 J	0.64	0.089	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Calcium	10900	640	56	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Chromium	72.7 J	1.3	0.47	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Cobalt	3.9 J	6.4	0.36	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Copper	127 J	3.2	1.1	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Iron	21600 J	64	24	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Lead	101 J	2.5	0.52	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Magnesium	1420	640	17	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Manganese	262	1.9	0.52	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Mercury	2.8 J	0.17	0.074	mg/kg	5	04/30/19	04/30/19	LL SW846 7471B ¹	SW846 7471B ³
Nickel	17.2	5.1	0.44	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Potassium	649 J	1300	40	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Selenium	0.83 U	2.5	0.83	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Silver	0.22 U	0.64	0.22	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Sodium	155 J	1300	99	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Thallium	0.74 U	1.3	0.74	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Vanadium	12.4	6.4	0.24	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Zinc	128 J	6.4	2.9	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46615
- (2) Instrument QC Batch: MA46638
- (3) Prep QC Batch: MP14638
- (4) Prep QC Batch: MP14721

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.6
4

Report of Analysis

Client Sample ID: S-158 (11-13)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-6	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 77.9
Project: National Grid, Philly Coke, Philadelphia, PA	

4.6
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	29.4 J	0.80	0.40	mg/kg	3	05/08/19 15:36	KI	SW846 9012B/LACHAT
Solids, Percent	77.9			%	1	05/03/19 17:00	RC	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: S-158 (18-20)	
Lab Sample ID: JC87093-7	Date Sampled: 04/26/19
Matrix: SO - Soil	Date Received: 04/26/19
Method: SW846 8260C	Percent Solids: 58.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151809.D	1	05/06/19 12:39	PS	n/a	n/a	V3C6821
Run #2 ^a	I226025.D	1	05/07/19 12:14	TDN	n/a	n/a	VI9105

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.2 g		
Run #2	5.3 g	10.0 ml	100 ul

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	224	16	8.2	ug/kg	
71-43-2	Benzene	ND	0.82	0.62	ug/kg	
74-97-5	Bromochloromethane	ND	8.2	0.70	ug/kg	
75-27-4	Bromodichloromethane	ND	3.3	0.72	ug/kg	
75-25-2	Bromoform	ND	8.2	0.66	ug/kg	
74-83-9	Bromomethane	ND	8.2	1.6	ug/kg	
78-93-3	2-Butanone (MEK)	51.9	16	6.1	ug/kg	
75-15-0	Carbon disulfide	ND	3.3	1.5	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.3	0.90	ug/kg	
108-90-7	Chlorobenzene	ND	3.3	0.58	ug/kg	UJ
75-00-3	Chloroethane	ND	8.2	1.1	ug/kg	
67-66-3	Chloroform	ND	3.3	0.61	ug/kg	
74-87-3	Chloromethane ^b	ND	8.2	3.2	ug/kg	UJ
110-82-7	Cyclohexane	ND	3.3	0.66	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.3	1.4	ug/kg	UJ
124-48-1	Dibromochloromethane	ND	3.3	0.55	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.6	0.53	ug/kg	UJ
95-50-1	1,2-Dichlorobenzene	ND	1.6	0.50	ug/kg	UJ
541-73-1	1,3-Dichlorobenzene	ND	1.6	0.59	ug/kg	UJ
106-46-7	1,4-Dichlorobenzene	ND	1.6	0.56	ug/kg	UJ
75-71-8	Dichlorodifluoromethane	ND	8.2	1.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.6	0.63	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.6	0.77	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.6	1.1	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.6	1.6	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.6	1.1	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.3	0.66	ug/kg	UJ
10061-01-5	cis-1,3-Dichloropropene	ND	3.3	0.57	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.3	0.53	ug/kg	
100-41-4	Ethylbenzene	ND	1.6	0.90	ug/kg	
76-13-1	Freon 113	ND	8.2	1.2	ug/kg	
591-78-6	2-Hexanone	ND	8.2	2.1	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-158 (18-20)	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-7	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	58.9
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.3	1.1	ug/kg	
79-20-9	Methyl Acetate ^b	ND	8.2	2.3	ug/kg	UJ
108-87-2	Methylcyclohexane	ND	3.3	1.2	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.6	0.57	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	8.2	2.5	ug/kg	
75-09-2	Methylene chloride	ND	8.2	4.1	ug/kg	
100-42-5	Styrene	ND	3.3	0.94	ug/kg	UJ
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.3	0.64	ug/kg	
127-18-4	Tetrachloroethene	ND	3.3	0.75	ug/kg	
108-88-3	Toluene	ND	1.6	0.61	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	8.2	1.6	ug/kg	UJ
120-82-1	1,2,4-Trichlorobenzene	ND	8.2	1.6	ug/kg	UJ
71-55-6	1,1,1-Trichloroethane	ND	3.3	0.70	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.3	0.56	ug/kg	
79-01-6	Trichloroethene	ND	1.6	1.2	ug/kg	
75-69-4	Trichlorofluoromethane	ND	8.2	1.1	ug/kg	
75-01-4	Vinyl chloride	ND	3.3	0.77	ug/kg	
	m,p-Xylene	ND	1.6	1.2	ug/kg	
95-47-6	o-Xylene	ND	1.6	0.95	ug/kg	
1330-20-7	Xylene (total)	ND	1.6	0.95	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%	104%	75-127%
17060-07-0	1,2-Dichloroethane-D4	113%	116%	75-130%
2037-26-5	Toluene-D8	112%	100%	80-120%
460-00-4	4-Bromofluorobenzene	127%	105%	79-127%

- (a) Confirmation run for internal standard areas.
(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	S-158 (18-20)	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-7	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	58.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	P129376.D	1	05/07/19 17:23	CC	05/06/19 17:35	OP20110	EP5856

Run #1	Initial Weight	Final Volume
Run #2	30.3 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	110	28	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	280	34	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	280	48	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	280	100	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	280	210	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	280	60	ug/kg	
95-48-7	2-Methylphenol	ND	110	36	ug/kg	
	3&4-Methylphenol	ND	110	46	ug/kg	
88-75-5	2-Nitrophenol	ND	280	37	ug/kg	
100-02-7	4-Nitrophenol	ND	560	150	ug/kg	
87-86-5	Pentachlorophenol	ND	220	53	ug/kg	
108-95-2	Phenol	ND	110	29	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	280	37	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	280	42	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	280	33	ug/kg	
83-32-9	Acenaphthene	23.1	56	19	ug/kg	J
208-96-8	Acenaphthylene	ND	56	28	ug/kg	
98-86-2	Acetophenone	ND	280	12	ug/kg	
120-12-7	Anthracene	ND	56	34	ug/kg	
1912-24-9	Atrazine	ND	110	24	ug/kg	
56-55-3	Benzo(a)anthracene	35.1	56	16	ug/kg	J
50-32-8	Benzo(a)pyrene	32.2	56	25	ug/kg	J
205-99-2	Benzo(b)fluoranthene	33.2	56	25	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	ND	56	28	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	56	26	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	110	22	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	110	14	ug/kg	
92-52-4	1,1'-Biphenyl	10.3	110	7.7	ug/kg	J
100-52-7	Benzaldehyde	ND	280	14	ug/kg	
91-58-7	2-Chloronaphthalene	ND	110	13	ug/kg	
106-47-8	4-Chloroaniline	ND	280	20	ug/kg	
86-74-8	Carbazole	8.5	110	8.1	ug/kg	J

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-158 (18-20)	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-7	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	58.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	110	22	ug/kg	
218-01-9	Chrysene	45.5	56	18	ug/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	110	12	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	110	24	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	110	20	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	110	18	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	56	17	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	56	28	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	110	47	ug/kg	
123-91-1	1,4-Dioxane ^a	ND	56	37	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	56	25	ug/kg	
132-64-9	Dibenzofuran	ND	110	23	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	110	9.1	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	110	14	ug/kg	
84-66-2	Diethyl phthalate	ND	110	12	ug/kg	
131-11-3	Dimethyl phthalate	ND	110	10	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	110	13	ug/kg	
206-44-0	Fluoranthene	57.7	56	25	ug/kg	
86-73-7	Fluorene	31.5	56	26	ug/kg	J
118-74-1	Hexachlorobenzene	ND	110	14	ug/kg	
87-68-3	Hexachlorobutadiene	ND	56	23	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	560	22	ug/kg	
67-72-1	Hexachloroethane	ND	280	28	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	56	26	ug/kg	
78-59-1	Isophorone	ND	110	12	ug/kg	
91-57-6	2-Methylnaphthalene	30.0	56	13	ug/kg	J
88-74-4	2-Nitroaniline	ND	280	13	ug/kg	
99-09-2	3-Nitroaniline	ND	280	14	ug/kg	
100-01-6	4-Nitroaniline	ND	280	15	ug/kg	
91-20-3	Naphthalene	156	56	16	ug/kg	
98-95-3	Nitrobenzene	ND	110	22	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	110	16	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	280	21	ug/kg	
85-01-8	Phenanthrene	62.5	56	19	ug/kg	
129-00-0	Pyrene	65.4	56	18	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	280	14	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	67%		23-115%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.7
4

Report of Analysis

Client Sample ID: S-158 (18-20)	
Lab Sample ID: JC87093-7	Date Sampled: 04/26/19
Matrix: SO - Soil	Date Received: 04/26/19
Method: SW846 8270D SW846 3546	Percent Solids: 58.9
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	67%		27-114%
118-79-6	2,4,6-Tribromophenol	69%		19-152%
4165-60-0	Nitrobenzene-d5	74%		26-134%
321-60-8	2-Fluorobiphenyl	83%		39-124%
1718-51-0	Terphenyl-d14	77%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.7
4

Report of Analysis

Client Sample ID: S-158 (18-20)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-7	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 58.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	12500 J	82	13	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Antimony	0.68 U J	3.3	0.68	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Arsenic	4.1 J	3.3	0.46	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Barium	116 J	33	3.1	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.69	0.33	0.13	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.12 U	0.82	0.12	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Calcium	3380	820	73	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Chromium	27.1 J	1.6	0.61	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Cobalt	5.6 J	8.2	0.46	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Copper	11.9 J	4.1	1.4	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Iron	14400 J	82	32	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Lead	21.4 J	3.3	0.68	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Magnesium	3120	820	23	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Manganese	333	2.5	0.68	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Mercury	0.060 J	0.052	0.023	mg/kg	1	04/30/19	04/30/19	LL SW846 7471B ¹	SW846 7471B ³
Nickel	16.0	6.6	0.58	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Potassium	1280 J	1600	52	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Selenium	1.1 U	3.3	1.1	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Silver	0.28 U	0.82	0.28	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Sodium	240 J	1600	130	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Thallium	0.96 U	1.6	0.96	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Vanadium	25.9	8.2	0.31	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴
Zinc	56.1 J	8.2	3.8	mg/kg	1	05/01/19	05/02/19	MET SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46615
- (2) Instrument QC Batch: MA46638
- (3) Prep QC Batch: MP14638
- (4) Prep QC Batch: MP14721

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.7
4

Report of Analysis

Client Sample ID: S-158 (18-20)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-7	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 58.9
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.34 J	0.41	0.20	mg/kg	1	05/06/19 15:05	KI	SW846 9012B/LACHAT
Solids, Percent	58.9			%	1	05/03/19 17:00	RC	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.7
4

SGS North America Inc.

Report of Analysis

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Client Sample ID: S-159 (11-13)		
Lab Sample ID: JC87093-8		Date Sampled: 04/26/19
Matrix: SO - Soil		Date Received: 04/26/19
Method: SW846 8260C		Percent Solids: 80.9
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D264375.D	1	05/08/19 16:23	TDN	n/a	n/a	VD10654
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	3.2 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^b	ND	2000	1000	ug/kg	
71-43-2	Benzene	1130	100	77	ug/kg	
74-97-5	Bromochloromethane	ND	1000	88	ug/kg	
75-27-4	Bromodichloromethane	ND	410	91	ug/kg	
75-25-2	Bromoform	ND	1000	83	ug/kg	
74-83-9	Bromomethane	ND	1000	200	ug/kg	
78-93-3	2-Butanone (MEK)	ND	2000	770	ug/kg	
75-15-0	Carbon disulfide	539	410	190	ug/kg	
56-23-5	Carbon tetrachloride	ND	410	110	ug/kg	
108-90-7	Chlorobenzene	ND	410	73	ug/kg	
75-00-3	Chloroethane	ND	1000	140	ug/kg	
67-66-3	Chloroform	ND	410	76	ug/kg	
74-87-3	Chloromethane	ND	1000	400	ug/kg	
110-82-7	Cyclohexane	ND	410	83	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	410	170	ug/kg	
124-48-1	Dibromochloromethane	ND	410	69	ug/kg	
106-93-4	1,2-Dibromoethane	ND	200	67	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	200	63	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	200	74	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	200	71	ug/kg	
75-71-8	Dichlorodifluoromethane ^c	ND	1000	130	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	200	79	ug/kg	
107-06-2	1,2-Dichloroethane ^c	ND	200	96	ug/kg	UJ
75-35-4	1,1-Dichloroethene	ND	200	130	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	200	200	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	200	140	ug/kg	
78-87-5	1,2-Dichloropropane	ND	410	83	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	410	72	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	410	67	ug/kg	
100-41-4	Ethylbenzene	184	200	110	ug/kg	J
76-13-1	Freon 113	ND	1000	160	ug/kg	
591-78-6	2-Hexanone	ND	1000	260	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-159 (11-13)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-8	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 80.9
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	410	140	ug/kg	
79-20-9	Methyl Acetate	ND	1000	280	ug/kg	
108-87-2	Methylcyclohexane	ND	410	140	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	200	72	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	1000	320	ug/kg	
75-09-2	Methylene chloride	ND	1000	510	ug/kg	
100-42-5	Styrene	ND	410	120	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	410	80	ug/kg	
127-18-4	Tetrachloroethene	ND	410	95	ug/kg	
108-88-3	Toluene	1520	200	77	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	1000	200	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	1000	200	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	410	87	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	410	70	ug/kg	
79-01-6	Trichloroethene	ND	200	160	ug/kg	
75-69-4	Trichlorofluoromethane	ND	1000	140	ug/kg	
75-01-4	Vinyl chloride	ND	410	96	ug/kg	
	m,p-Xylene	1020	200	150	ug/kg	
95-47-6	o-Xylene	282	200	120	ug/kg	
1330-20-7	Xylene (total)	1300	200	120	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		75-127%
17060-07-0	1,2-Dichloroethane-D4	88%		75-130%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	93%		79-127%

- (a) Diluted due to high concentration of non-target compound.
 (b) Associated CCV outside of control limits high, sample was ND.
 (c) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: S-159 (11-13)		
Lab Sample ID: JC87093-8		Date Sampled: 04/26/19
Matrix: SO - Soil		Date Received: 04/26/19
Method: SW846 8270D SW846 3546		Percent Solids: 80.9
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P129380.D	1	05/07/19 19:12	CC	05/06/19 17:35	OP20110	EP5856
Run #2	P129412.D	5	05/08/19 18:47	AR	05/06/19 17:35	OP20110	EP5857
Run #3	P129426.D	25	05/09/19 12:32	AR	05/06/19 17:35	OP20110	EP5858

Run #	Initial Weight	Final Volume
Run #1	31.6 g	1.0 ml
Run #2	31.6 g	1.0 ml
Run #3	31.6 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	78	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	24	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	33	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	70	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	200	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	200	42	ug/kg	
95-48-7	2-Methylphenol	ND	78	25	ug/kg	
	3&4-Methylphenol	ND	78	32	ug/kg	
88-75-5	2-Nitrophenol	ND	200	26	ug/kg	
100-02-7	4-Nitrophenol	ND	390	100	ug/kg	
87-86-5	Pentachlorophenol	ND	160	37	ug/kg	
108-95-2	Phenol	ND	78	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	26	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	29	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	23	ug/kg	
83-32-9	Acenaphthene	360 ^a	200	67	ug/kg	D
208-96-8	Acenaphthylene	ND	39	20	ug/kg	
98-86-2	Acetophenone	66.4	200	8.4	ug/kg	J
120-12-7	Anthracene	ND	39	24	ug/kg	
1912-24-9	Atrazine	ND	78	17	ug/kg	
56-55-3	Benzo(a)anthracene	170	39	11	ug/kg	
50-32-8	Benzo(a)pyrene	124	39	18	ug/kg	
205-99-2	Benzo(b)fluoranthene	163	39	17	ug/kg	
191-24-2	Benzo(g,h,i)perylene	86.3	39	20	ug/kg	
207-08-9	Benzo(k)fluoranthene	60.2	39	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	78	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	78	9.5	ug/kg	
92-52-4	1,1'-Biphenyl	959 ^a	390	27	ug/kg	D
100-52-7	Benzaldehyde	ND	200	9.7	ug/kg	
91-58-7	2-Chloronaphthalene	ND	78	9.3	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	S-159 (11-13)	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-8	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	80.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	200	14	ug/kg	
86-74-8	Carbazole	ND	78	5.7	ug/kg	
105-60-2	Caprolactam ^b	ND	78	15	ug/kg	
218-01-9	Chrysene	213	39	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	78	8.4	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	78	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	78	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	78	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	39	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	39	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	78	33	ug/kg	
123-91-1	1,4-Dioxane ^b	ND	39	26	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	25.8	39	17	ug/kg	J
132-64-9	Dibenzofuran	560 ^a	390	80	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	78	6.4	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	78	9.7	ug/kg	
84-66-2	Diethyl phthalate	ND	78	8.3	ug/kg	
131-11-3	Dimethyl phthalate	ND	78	7.0	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	78	9.2	ug/kg	
206-44-0	Fluoranthene	278	39	17	ug/kg	
86-73-7	Fluorene	615 ^a	200	90	ug/kg	D
118-74-1	Hexachlorobenzene	ND	78	9.9	ug/kg	
87-68-3	Hexachlorobutadiene	ND	39	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	390	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	76.4	39	18	ug/kg	
78-59-1	Isophorone	ND	78	8.4	ug/kg	
91-57-6	2-Methylnaphthalene	2550	39	8.8	ug/kg	
88-74-4	2-Nitroaniline	ND	200	9.2	ug/kg	
99-09-2	3-Nitroaniline	ND	200	9.8	ug/kg	
100-01-6	4-Nitroaniline	ND	200	10	ug/kg	
91-20-3	Naphthalene	29300 ^c	980	280	ug/kg	D
98-95-3	Nitrobenzene	ND	78	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	78	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	14	ug/kg	
85-01-8	Phenanthrene	613	39	13	ug/kg	
129-00-0	Pyrene	816	39	13	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	9.9	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-159 (11-13)	
Lab Sample ID: JC87093-8	Date Sampled: 04/26/19
Matrix: SO - Soil	Date Received: 04/26/19
Method: SW846 8270D SW846 3546	Percent Solids: 80.9
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	66%	61%	64%	23-115%
4165-62-2	Phenol-d5	72%	64%	70%	27-114%
118-79-6	2,4,6-Tribromophenol	90%	72%	69%	19-152%
4165-60-0	Nitrobenzene-d5	89%	79%	83%	26-134%
321-60-8	2-Fluorobiphenyl	104%	83%	91%	39-124%
1718-51-0	Terphenyl-d14	76%	68%	76%	36-134%

- (a) Result is from Run# 2
- (b) Associated CCV outside of control limits high, sample was ND.
- (c) Result is from Run# 3

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-159 (11-13)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-8	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 80.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	8420 J	63	10	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Antimony	0.54 J	2.5	0.52	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Arsenic ^a	12.0 J	5.0	0.71	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Barium	27.0 J	25	2.4	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Beryllium	1.8	0.25	0.10	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Cadmium	0.95	0.63	0.088	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Calcium	2600	630	56	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Chromium	20.4 J	1.3	0.47	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Cobalt	8.7	6.3	0.35	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Copper ^a	293 J	6.3	2.1	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Iron	36800	J 130	48	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Lead ^a	79.8 J	5.0	1.0	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Magnesium	448 J	630	17	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Manganese ^a	402	3.8	1.0	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Mercury	0.061 J	0.035	0.015	mg/kg	1	04/30/19	04/30/19	LL SW846 7471B ¹	SW846 7471B ⁴
Nickel	18.6	5.0	0.44	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Potassium	559 J	1300	40	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Selenium ^a	4.3 J	5.0	1.6	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Silver ^a	0.43 U	1.3	0.43	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Sodium	98 U	1300	98	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Thallium ^a	1.5 U	2.5	1.5	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Vanadium	13.2	6.3	0.24	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Zinc	117 J	6.3	2.9	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46615
- (2) Instrument QC Batch: MA46638
- (3) Instrument QC Batch: MA46646
- (4) Prep QC Batch: MP14638
- (5) Prep QC Batch: MP14721

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-159 (11-13)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-8	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 80.9
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.70	J	0.35	mg/kg	1	05/06/19 15:07	KI	SW846 9012B/LACHAT
Solids, Percent	80.9			%	1	05/03/19 17:00	RC	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: S-159 (18-20)		
Lab Sample ID: JC87093-9		Date Sampled: 04/26/19
Matrix: SO - Soil		Date Received: 04/26/19
Method: SW846 8260C		Percent Solids: 71.1
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151790.D	1	05/05/19 20:53	MD	n/a	n/a	V3C6820
Run #2							

Run #	Initial Weight
Run #1	5.4 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	107	13	6.5	ug/kg	
71-43-2	Benzene	ND	0.65	0.49	ug/kg	
74-97-5	Bromochloromethane	ND	6.5	0.56	ug/kg	
75-27-4	Bromodichloromethane	ND	2.6	0.58	ug/kg	
75-25-2	Bromoform	ND	6.5	0.52	ug/kg	
74-83-9	Bromomethane	ND	6.5	1.3	ug/kg	
78-93-3	2-Butanone (MEK)	22.3	13	4.9	ug/kg	
75-15-0	Carbon disulfide	ND	2.6	1.2	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.6	0.72	ug/kg	
108-90-7	Chlorobenzene	ND	2.6	0.46	ug/kg	
75-00-3	Chloroethane	ND	6.5	0.89	ug/kg	
67-66-3	Chloroform	ND	2.6	0.48	ug/kg	
74-87-3	Chloromethane ^a	ND	6.5	2.6	ug/kg	UJ
110-82-7	Cyclohexane	ND	2.6	0.53	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.6	1.1	ug/kg	
124-48-1	Dibromochloromethane ^b	ND	2.6	0.44	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.3	0.42	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.3	0.40	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.3	0.47	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.3	0.45	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.5	0.83	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.3	0.50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.3	0.61	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.3	0.85	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.3	1.2	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.3	0.87	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.6	0.53	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.6	0.46	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.6	0.43	ug/kg	
100-41-4	Ethylbenzene	ND	1.3	0.72	ug/kg	
76-13-1	Freon 113	ND	6.5	0.99	ug/kg	
591-78-6	2-Hexanone	ND	6.5	1.7	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-159 (18-20)	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-9	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	71.1
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.6	0.91	ug/kg	
79-20-9	Methyl Acetate	ND	6.5	1.8	ug/kg	
108-87-2	Methylcyclohexane	ND	2.6	0.92	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.3	0.46	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK) ^c	ND	6.5	2.0	ug/kg	
75-09-2	Methylene chloride	ND	6.5	3.3	ug/kg	
100-42-5	Styrene	ND	2.6	0.75	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.6	0.51	ug/kg	
127-18-4	Tetrachloroethene	ND	2.6	0.60	ug/kg	
108-88-3	Toluene	ND	1.3	0.49	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.5	1.3	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.5	1.3	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.6	0.55	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.6	0.45	ug/kg	
79-01-6	Trichloroethene	ND	1.3	0.99	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.5	0.89	ug/kg	
75-01-4	Vinyl chloride	ND	2.6	0.61	ug/kg	
	m,p-Xylene	ND	1.3	0.97	ug/kg	
95-47-6	o-Xylene	ND	1.3	0.76	ug/kg	
1330-20-7	Xylene (total)	ND	1.3	0.76	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		75-127%
17060-07-0	1,2-Dichloroethane-D4	111%		75-130%
2037-26-5	Toluene-D8	105%		80-120%
460-00-4	4-Bromofluorobenzene	119%		79-127%

- (a) Associated CCV outside of control limits low.
 (b) Associated CCV and BS outside of control limits high, sample was ND.
 (c) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID: S-159 (18-20)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-9	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 71.1
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	P129378.D	1	05/07/19 18:17	CC	05/06/19 17:35	OP20110	EP5856

Run #1	Initial Weight	Final Volume
Run #2	30.0 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	94	23	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	230	29	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	230	40	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	230	83	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	230	180	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	230	50	ug/kg	
95-48-7	2-Methylphenol	ND	94	30	ug/kg	
	3&4-Methylphenol	ND	94	39	ug/kg	
88-75-5	2-Nitrophenol	ND	230	31	ug/kg	
100-02-7	4-Nitrophenol	ND	470	130	ug/kg	
87-86-5	Pentachlorophenol	ND	190	44	ug/kg	
108-95-2	Phenol	ND	94	24	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	230	31	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	230	35	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	230	28	ug/kg	
83-32-9	Acenaphthene	ND	47	16	ug/kg	
208-96-8	Acenaphthylene	ND	47	24	ug/kg	
98-86-2	Acetophenone	ND	230	10	ug/kg	
120-12-7	Anthracene	ND	47	29	ug/kg	
1912-24-9	Atrazine	ND	94	20	ug/kg	
56-55-3	Benzo(a)anthracene	ND	47	13	ug/kg	
50-32-8	Benzo(a)pyrene	ND	47	21	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	47	21	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	47	23	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	47	22	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	94	18	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	94	11	ug/kg	
92-52-4	1,1'-Biphenyl	ND	94	6.4	ug/kg	
100-52-7	Benzaldehyde	ND	230	12	ug/kg	
91-58-7	2-Chloronaphthalene	ND	94	11	ug/kg	
106-47-8	4-Chloroaniline	ND	230	17	ug/kg	
86-74-8	Carbazole	ND	94	6.8	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-159 (18-20)	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-9	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	71.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	94	19	ug/kg	
218-01-9	Chrysene	ND	47	15	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	94	10	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	94	20	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	94	17	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	94	15	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	47	15	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	47	24	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	94	39	ug/kg	
123-91-1	1,4-Dioxane ^a	ND	47	31	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	47	21	ug/kg	
132-64-9	Dibenzofuran	ND	94	19	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	94	7.6	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	94	12	ug/kg	
84-66-2	Diethyl phthalate	ND	94	10	ug/kg	
131-11-3	Dimethyl phthalate	ND	94	8.3	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	94	11	ug/kg	
206-44-0	Fluoranthene	ND	47	21	ug/kg	
86-73-7	Fluorene	ND	47	22	ug/kg	
118-74-1	Hexachlorobenzene	ND	94	12	ug/kg	
87-68-3	Hexachlorobutadiene	ND	47	19	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	470	19	ug/kg	
67-72-1	Hexachloroethane	ND	230	23	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	47	22	ug/kg	
78-59-1	Isophorone	ND	94	10	ug/kg	
91-57-6	2-Methylnaphthalene	ND	47	11	ug/kg	
88-74-4	2-Nitroaniline	ND	230	11	ug/kg	
99-09-2	3-Nitroaniline	ND	230	12	ug/kg	
100-01-6	4-Nitroaniline	ND	230	12	ug/kg	
91-20-3	Naphthalene	ND	47	13	ug/kg	
98-95-3	Nitrobenzene	ND	94	18	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	94	14	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	230	17	ug/kg	
85-01-8	Phenanthrene	ND	47	16	ug/kg	
129-00-0	Pyrene	ND	47	15	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	230	12	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	73%		23-115%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-159 (18-20)	
Lab Sample ID: JC87093-9	Date Sampled: 04/26/19
Matrix: SO - Soil	Date Received: 04/26/19
Method: SW846 8270D SW846 3546	Percent Solids: 71.1
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	73%		27-114%
118-79-6	2,4,6-Tribromophenol	76%		19-152%
4165-60-0	Nitrobenzene-d5	80%		26-134%
321-60-8	2-Fluorobiphenyl	86%		39-124%
1718-51-0	Terphenyl-d14	79%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: S-159 (18-20)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-9	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 71.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	22400 J	69	11	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Antimony	0.57 U J	2.8	0.57	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Arsenic	4.3 J	2.8	0.39	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Barium	172 J	28	2.6	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Beryllium	1.1	0.28	0.11	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.11 J	0.69	0.097	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Calcium	2770	690	61	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Chromium	44.6 J	1.4	0.51	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Cobalt	9.5	6.9	0.39	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Copper	7.4 J	3.4	1.2	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Iron	22700 J	69	26	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Lead	15.5 J	2.8	0.57	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Magnesium	5160	690	19	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Manganese	309	2.1	0.57	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Mercury	0.087 J	0.036	0.016	mg/kg	1	04/30/19	04/30/19	LL SW846 7471B ¹	SW846 7471B ³
Nickel	25.4	5.5	0.48	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Potassium	1840	1400	44	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Selenium	0.90 U	2.8	0.90	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Silver	0.23 U	0.69	0.23	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Sodium	255 J	1400	110	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Thallium	0.80 U	1.4	0.80	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Vanadium	43.2	6.9	0.26	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Zinc	61.2 J	6.9	3.2	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46615
- (2) Instrument QC Batch: MA46638
- (3) Prep QC Batch: MP14638
- (4) Prep QC Batch: MP14721

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-159 (18-20)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-9	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 71.1
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.21 J	0.35	0.18	mg/kg	1	05/06/19 15:08	KI	SW846 9012B/LACHAT
Solids, Percent	71.1			%	1	05/03/19 17:00	RC	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

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Client Sample ID: S-153 (7-9)		
Lab Sample ID: JC87093-10		Date Sampled: 04/26/19
Matrix: SO - Soil		Date Received: 04/26/19
Method: SW846 8260C		Percent Solids: 59.5
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	3C151827.D	1	05/06/19 19:35	PS	n/a	n/a	V3C6821

Run #1	Initial Weight
Run #2	3.8 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	141	22	11	ug/kg	
71-43-2	Benzene	8.7	1.1	0.83	ug/kg	
74-97-5	Bromochloromethane	ND	11	0.95	ug/kg	
75-27-4	Bromodichloromethane	ND	4.4	0.98	ug/kg	
75-25-2	Bromoform	ND	11	0.89	ug/kg	
74-83-9	Bromomethane	ND	11	2.2	ug/kg	
78-93-3	2-Butanone (MEK)	13.9	22	8.3	ug/kg	J
75-15-0	Carbon disulfide	10.5	4.4	2.1	ug/kg	
56-23-5	Carbon tetrachloride	ND	4.4	1.2	ug/kg	
108-90-7	Chlorobenzene	ND	4.4	0.78	ug/kg	
75-00-3	Chloroethane	ND	11	1.5	ug/kg	
67-66-3	Chloroform	ND	4.4	0.82	ug/kg	
74-87-3	Chloromethane ^a	ND	11	4.3	ug/kg	UJ
110-82-7	Cyclohexane	ND	4.4	0.90	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	4.4	1.8	ug/kg	
124-48-1	Dibromochloromethane	ND	4.4	0.75	ug/kg	
106-93-4	1,2-Dibromoethane	ND	2.2	0.72	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	2.2	0.67	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	2.2	0.79	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	2.2	0.76	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	11	1.4	ug/kg	
75-34-3	1,1-Dichloroethane	ND	2.2	0.85	ug/kg	
107-06-2	1,2-Dichloroethane	ND	2.2	1.0	ug/kg	
75-35-4	1,1-Dichloroethene	ND	2.2	1.5	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	2.2	2.1	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	2.2	1.5	ug/kg	
78-87-5	1,2-Dichloropropane	ND	4.4	0.90	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	4.4	0.78	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	4.4	0.72	ug/kg	
100-41-4	Ethylbenzene	1.8	2.2	1.2	ug/kg	J
76-13-1	Freon 113	ND	11	1.7	ug/kg	
591-78-6	2-Hexanone	ND	11	2.8	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-153 (7-9)		Date Sampled: 04/26/19
Lab Sample ID: JC87093-10		Date Received: 04/26/19
Matrix: SO - Soil		Percent Solids: 59.5
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	4.4	1.5	ug/kg	
79-20-9	Methyl Acetate ^a	ND	11	3.1	ug/kg	UJ
108-87-2	Methylcyclohexane	ND	4.4	1.6	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	2.2	0.78	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	11	3.4	ug/kg	
75-09-2	Methylene chloride	ND	11	5.5	ug/kg	
100-42-5	Styrene	ND	4.4	1.3	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	4.4	0.86	ug/kg	
127-18-4	Tetrachloroethene	ND	4.4	1.0	ug/kg	
108-88-3	Toluene	2.2	2.2	0.83	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	11	2.2	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	11	2.2	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	4.4	0.94	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	4.4	0.76	ug/kg	
79-01-6	Trichloroethene	ND	2.2	1.7	ug/kg	
75-69-4	Trichlorofluoromethane	ND	11	1.5	ug/kg	
75-01-4	Vinyl chloride	ND	4.4	1.0	ug/kg	
	m,p-Xylene	2.3	2.2	1.6	ug/kg	
95-47-6	o-Xylene	2.8	2.2	1.3	ug/kg	
1330-20-7	Xylene (total)	5.1	2.2	1.3	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		75-127%
17060-07-0	1,2-Dichloroethane-D4	106%		75-130%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	125%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

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Client Sample ID: S-153 (7-9)		
Lab Sample ID: JC87093-10		Date Sampled: 04/26/19
Matrix: SO - Soil		Date Received: 04/26/19
Method: SW846 8270D SW846 3546		Percent Solids: 59.5
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P129379.D	1	05/07/19 18:44	CC	05/06/19 17:35	OP20110	EP5856
Run #2	P129411.D	5	05/08/19 17:20	AR	05/06/19 17:35	OP20110	EP5857

Run #	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2	30.7 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	110	27	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	270	34	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	270	47	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	270	97	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	270	210	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	270	59	ug/kg	
95-48-7	2-Methylphenol	93.6	110	35	ug/kg	J
	3&4-Methylphenol	141	110	45	ug/kg	
88-75-5	2-Nitrophenol	ND	270	36	ug/kg	
100-02-7	4-Nitrophenol	ND	550	150	ug/kg	
87-86-5	Pentachlorophenol	ND	220	51	ug/kg	
108-95-2	Phenol	257	110	29	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	270	36	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	270	41	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	270	33	ug/kg	
83-32-9	Acenaphthene	2850	55	19	ug/kg	
208-96-8	Acenaphthylene	703	55	28	ug/kg	
98-86-2	Acetophenone	37.6	270	12	ug/kg	J
120-12-7	Anthracene	ND	55	34	ug/kg	
1912-24-9	Atrazine	ND	110	23	ug/kg	
56-55-3	Benzo(a)anthracene	138	55	15	ug/kg	
50-32-8	Benzo(a)pyrene	107	55	25	ug/kg	
205-99-2	Benzo(b)fluoranthene	134	55	24	ug/kg	
191-24-2	Benzo(g,h,i)perylene	74.3	55	27	ug/kg	
207-08-9	Benzo(k)fluoranthene	55.5	55	26	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	110	21	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	110	13	ug/kg	
92-52-4	1,1'-Biphenyl	282	110	7.5	ug/kg	
100-52-7	Benzaldehyde	ND	270	14	ug/kg	
91-58-7	2-Chloronaphthalene	ND	110	13	ug/kg	
106-47-8	4-Chloroaniline	ND	270	20	ug/kg	
86-74-8	Carbazole	1200	110	7.9	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-153 (7-9)		Date Sampled: 04/26/19
Lab Sample ID: JC87093-10		Date Received: 04/26/19
Matrix: SO - Soil		Percent Solids: 59.5
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

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ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	110	22	ug/kg	
218-01-9	Chrysene	151	55	17	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	110	12	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	110	24	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	110	20	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	110	18	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	55	17	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	55	27	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	110	46	ug/kg	
123-91-1	1,4-Dioxane ^a	ND	55	36	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	55	24	ug/kg	
132-64-9	Dibenzofuran	821	110	22	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	110	8.9	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	110	14	ug/kg	
84-66-2	Diethyl phthalate	ND	110	12	ug/kg	
131-11-3	Dimethyl phthalate	ND	110	9.7	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	110	13	ug/kg	
206-44-0	Fluoranthene	434	55	24	ug/kg	
86-73-7	Fluorene	2970	55	25	ug/kg	
118-74-1	Hexachlorobenzene	ND	110	14	ug/kg	
87-68-3	Hexachlorobutadiene	ND	55	22	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	550	22	ug/kg	
67-72-1	Hexachloroethane	ND	270	27	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	73.3	55	26	ug/kg	
78-59-1	Isophorone	ND	110	12	ug/kg	
91-57-6	2-Methylnaphthalene	638	55	12	ug/kg	
88-74-4	2-Nitroaniline	ND	270	13	ug/kg	
99-09-2	3-Nitroaniline	ND	270	14	ug/kg	
100-01-6	4-Nitroaniline	ND	270	14	ug/kg	
91-20-3	Naphthalene	8280 ^b	270	77	ug/kg	D
98-95-3	Nitrobenzene	ND	110	21	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	110	16	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	270	20	ug/kg	
85-01-8	Phenanthrene	326	55	18	ug/kg	
129-00-0	Pyrene	495	55	18	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	270	14	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	64%	60%	23-115%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-153 (7-9) Lab Sample ID: JC87093-10 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/26/19 Date Received: 04/26/19 Percent Solids: 59.5
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	65%	63%	27-114%
118-79-6	2,4,6-Tribromophenol	74%	71%	19-152%
4165-60-0	Nitrobenzene-d5	69%	69%	26-134%
321-60-8	2-Fluorobiphenyl	83%	82%	39-124%
1718-51-0	Terphenyl-d14	76%	71%	36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.10
4

Report of Analysis

Client Sample ID: S-153 (7-9)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-10	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 59.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	27800 J	87	14	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Antimony	0.71 U J	3.5	0.71	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Arsenic ^a	8.2 J	6.9	0.97	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Barium	236 J	35	3.3	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Beryllium	4.4	0.35	0.14	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Cadmium	0.12 U	0.87	0.12	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Calcium	15400	870	77	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Chromium	75.4 J	1.7	0.64	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Cobalt	39.5	8.7	0.49	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Copper ^a	28.1 J	8.7	2.9	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Iron	41600 J	170	67	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Lead ^a	21.2 J	6.9	1.4	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Magnesium	7630	870	24	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Manganese ^a	523	5.2	1.4	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Mercury	0.23 J	0.050	0.022	mg/kg	1	04/30/19	04/30/19	LL SW846 7471B ¹	SW846 7471B ⁴
Nickel	205	6.9	0.61	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Potassium	1780	1700	55	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Selenium ^a	2.3 U	6.9	2.3	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Silver ^a	0.59 U	1.7	0.59	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Sodium	130 U	1700	130	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Thallium ^a	2.0 U	3.5	2.0	mg/kg	2	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵
Vanadium	22.0	8.7	0.33	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Zinc	323 J	8.7	4.0	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46615
- (2) Instrument QC Batch: MA46638
- (3) Instrument QC Batch: MA46646
- (4) Prep QC Batch: MP14638
- (5) Prep QC Batch: MP14721

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-153 (7-9)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-10	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 59.5
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	2.2 J	0.39	0.19	mg/kg	1	05/06/19 15:09	KI	SW846 9012B/LACHAT
Solids, Percent	59.5			%	1	05/03/19 17:00	RC	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

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Client Sample ID: S-153 (13.5-15)	
Lab Sample ID: JC87093-11	Date Sampled: 04/26/19
Matrix: SO - Soil	Date Received: 04/26/19
Method: SW846 8260C	Percent Solids: 63.4
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	3C151792.D	1	05/05/19 21:39	MD	n/a	n/a	V3C6820

Run #1	Initial Weight
Run #2	5.0 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	75.5	16	7.9	ug/kg	
71-43-2	Benzene	ND	0.79	0.59	ug/kg	
74-97-5	Bromochloromethane	ND	7.9	0.68	ug/kg	
75-27-4	Bromodichloromethane	ND	3.2	0.70	ug/kg	
75-25-2	Bromoform	ND	7.9	0.64	ug/kg	
74-83-9	Bromomethane	ND	7.9	1.6	ug/kg	
78-93-3	2-Butanone (MEK)	14.1	16	5.9	ug/kg	J
75-15-0	Carbon disulfide	ND	3.2	1.5	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.2	0.87	ug/kg	
108-90-7	Chlorobenzene	ND	3.2	0.56	ug/kg	
75-00-3	Chloroethane	ND	7.9	1.1	ug/kg	
67-66-3	Chloroform	ND	3.2	0.59	ug/kg	
74-87-3	Chloromethane ^a	ND	7.9	3.1	ug/kg	UJ
110-82-7	Cyclohexane	ND	3.2	0.64	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.2	1.3	ug/kg	
124-48-1	Dibromochloromethane ^b	ND	3.2	0.53	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.6	0.51	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.6	0.48	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.6	0.57	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.6	0.54	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	7.9	1.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.6	0.61	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.6	0.74	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.6	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.6	1.5	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.6	1.1	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.2	0.64	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.2	0.56	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.2	0.52	ug/kg	
100-41-4	Ethylbenzene	ND	1.6	0.87	ug/kg	
76-13-1	Freon 113	ND	7.9	1.2	ug/kg	
591-78-6	2-Hexanone	ND	7.9	2.0	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-153 (13.5-15)		Date Sampled: 04/26/19
Lab Sample ID: JC87093-11		Date Received: 04/26/19
Matrix: SO - Soil		Percent Solids: 63.4
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.2	1.1	ug/kg	
79-20-9	Methyl Acetate	ND	7.9	2.2	ug/kg	
108-87-2	Methylcyclohexane	ND	3.2	1.1	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.6	0.56	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK ^c)	ND	7.9	2.5	ug/kg	
75-09-2	Methylene chloride	ND	7.9	3.9	ug/kg	
100-42-5	Styrene	ND	3.2	0.91	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.2	0.62	ug/kg	
127-18-4	Tetrachloroethene	ND	3.2	0.73	ug/kg	
108-88-3	Toluene	0.63	1.6	0.59	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	7.9	1.6	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	7.9	1.6	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.2	0.67	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.2	0.54	ug/kg	
79-01-6	Trichloroethene	ND	1.6	1.2	ug/kg	
75-69-4	Trichlorofluoromethane	ND	7.9	1.1	ug/kg	
75-01-4	Vinyl chloride	ND	3.2	0.74	ug/kg	
	m,p-Xylene	ND	1.6	1.2	ug/kg	
95-47-6	o-Xylene	ND	1.6	0.92	ug/kg	
1330-20-7	Xylene (total)	ND	1.6	0.92	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	108%		75-127%
17060-07-0	1,2-Dichloroethane-D4	113%		75-130%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	111%		79-127%

- (a) Associated CCV outside of control limits low.
- (b) Associated CCV and BS outside of control limits high, sample was ND.
- (c) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

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Client Sample ID: S-153 (13.5-15)		
Lab Sample ID: JC87093-11		Date Sampled: 04/26/19
Matrix: SO - Soil		Date Received: 04/26/19
Method: SW846 8270D SW846 3546		Percent Solids: 63.4
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P129382.D	1	05/07/19 20:06	CC	05/06/19 17:35	OP20110	EP5856
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	100	25	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	260	31	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	260	44	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	260	91	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	260	190	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	260	55	ug/kg	
95-48-7	2-Methylphenol	ND	100	33	ug/kg	
	3&4-Methylphenol	297	100	42	ug/kg	
88-75-5	2-Nitrophenol	ND	260	34	ug/kg	
100-02-7	4-Nitrophenol	ND	510	140	ug/kg	
87-86-5	Pentachlorophenol	ND	210	48	ug/kg	
108-95-2	Phenol	ND	100	27	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	260	34	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	260	38	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	260	31	ug/kg	
83-32-9	Acenaphthene	641	51	18	ug/kg	
208-96-8	Acenaphthylene	194	51	26	ug/kg	
98-86-2	Acetophenone	11.4	260	11	ug/kg	J
120-12-7	Anthracene	296	51	31	ug/kg	J
1912-24-9	Atrazine	ND	100	22	ug/kg	
56-55-3	Benzo(a)anthracene	490	51	15	ug/kg	J
50-32-8	Benzo(a)pyrene	657	51	23	ug/kg	
205-99-2	Benzo(b)fluoranthene	638	51	23	ug/kg	
191-24-2	Benzo(g,h,i)perylene	438	51	26	ug/kg	
207-08-9	Benzo(k)fluoranthene	259	51	24	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	100	20	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	100	13	ug/kg	
92-52-4	1,1'-Biphenyl	93.5	100	7.0	ug/kg	J
100-52-7	Benzaldehyde	ND	260	13	ug/kg	
91-58-7	2-Chloronaphthalene	ND	100	12	ug/kg	
106-47-8	4-Chloroaniline	ND	260	18	ug/kg	
86-74-8	Carbazole	78.1	100	7.4	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-153 (13.5-15)	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-11	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	63.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	100	20	ug/kg	
218-01-9	Chrysene	564	51	16	ug/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	100	11	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	100	22	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	100	18	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	100	17	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	51	16	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	51	26	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	100	43	ug/kg	
123-91-1	1,4-Dioxane ^a	ND	51	34	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	112	51	23	ug/kg	
132-64-9	Dibenzofuran	143	100	21	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	100	8.4	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	100	13	ug/kg	
84-66-2	Diethyl phthalate	ND	100	11	ug/kg	
131-11-3	Dimethyl phthalate	ND	100	9.1	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	100	12	ug/kg	
206-44-0	Fluoranthene	751	51	23	ug/kg	J
86-73-7	Fluorene	320	51	24	ug/kg	J
118-74-1	Hexachlorobenzene	ND	100	13	ug/kg	
87-68-3	Hexachlorobutadiene	ND	51	21	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	510	20	ug/kg	
67-72-1	Hexachloroethane	ND	260	25	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	413	51	24	ug/kg	
78-59-1	Isophorone	ND	100	11	ug/kg	
91-57-6	2-Methylnaphthalene	406	51	12	ug/kg	
88-74-4	2-Nitroaniline	ND	260	12	ug/kg	
99-09-2	3-Nitroaniline	ND	260	13	ug/kg	
100-01-6	4-Nitroaniline	ND	260	13	ug/kg	
91-20-3	Naphthalene	1220	51	14	ug/kg	
98-95-3	Nitrobenzene	ND	100	20	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	100	15	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	260	19	ug/kg	
85-01-8	Phenanthrene	925	51	17	ug/kg	J
129-00-0	Pyrene	851	51	16	ug/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	260	13	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	65%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-153 (13.5-15)	
Lab Sample ID: JC87093-11	Date Sampled: 04/26/19
Matrix: SO - Soil	Date Received: 04/26/19
Method: SW846 8270D SW846 3546	Percent Solids: 63.4
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	67%		27-114%
118-79-6	2,4,6-Tribromophenol	74%		19-152%
4165-60-0	Nitrobenzene-d5	70%		26-134%
321-60-8	2-Fluorobiphenyl	84%		39-124%
1718-51-0	Terphenyl-d14	81%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.11
 4

Report of Analysis

Client Sample ID: S-153 (13.5-15)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-11	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 63.4
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	8140 J	78	13	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Antimony	0.64 U J	3.1	0.64	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Arsenic	13.0 J	3.1	0.44	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Barium	89.1	31	3.0	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Beryllium	0.53	0.31	0.12	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Cadmium	0.48 J	0.78	0.11	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Calcium	2280	780	69	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Chromium	64.0 J	1.6	0.58	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Cobalt	8.3	7.8	0.44	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Copper	40.7 J	3.9	1.3	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Iron	15800 J	78	30	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Lead	107 J	3.1	0.64	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Magnesium	2590	780	21	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Manganese	354	2.3	0.64	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Mercury	1.1 J	0.086	0.038	mg/kg	2	04/30/19	04/30/19	LL SW846 7471B ¹	SW846 7471B ⁴
Nickel	15.9	6.2	0.55	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Potassium	1040 J	1600	50	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Selenium	1.0 U	3.1	1.0	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Silver	0.27 U	0.78	0.27	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Sodium	135 J	1600	120	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Thallium	0.91 U	1.6	0.91	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Vanadium	15.1	7.8	0.30	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁵
Zinc ^a	215 J	7.8	3.6	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ³	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46615
- (2) Instrument QC Batch: MA46638
- (3) Instrument QC Batch: MA46646
- (4) Prep QC Batch: MP14638
- (5) Prep QC Batch: MP14721

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-153 (13.5-15)	Date Sampled: 04/26/19
Lab Sample ID: JC87093-11	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 63.4
Project: National Grid, Philly Coke, Philadelphia, PA	

4.11
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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	4.9	0.35	0.18	mg/kg	1	05/06/19 15:12	KI	SW846 9012B/LACHAT
Solids, Percent	63.4			%	1	05/03/19 17:00	RC	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID:	SO-DUP2-0426	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-12	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	69.0
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151828.D	1	05/06/19 19:59	PS	n/a	n/a	V3C6821
Run #2 ^a	3C151793.D	1	05/05/19 22:02	MD	n/a	n/a	V3C6820

Run #	Initial Weight
Run #1	4.1 g
Run #2	4.7 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	72.5	18	8.8	ug/kg	J
71-43-2	Benzene	ND	0.88	0.67	ug/kg	
74-97-5	Bromochloromethane	ND	8.8	0.76	ug/kg	
75-27-4	Bromodichloromethane	ND	3.5	0.78	ug/kg	
75-25-2	Bromoform	ND	8.8	0.71	ug/kg	
74-83-9	Bromomethane	ND	8.8	1.8	ug/kg	
78-93-3	2-Butanone (MEK)	16.2	18	6.6	ug/kg	J
75-15-0	Carbon disulfide	ND	3.5	1.6	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.5	0.97	ug/kg	
108-90-7	Chlorobenzene	ND	3.5	0.63	ug/kg	
75-00-3	Chloroethane	ND	8.8	1.2	ug/kg	
67-66-3	Chloroform	ND	3.5	0.66	ug/kg	
74-87-3	Chloromethane ^b	ND	8.8	3.5	ug/kg	
110-82-7	Cyclohexane	ND	3.5	0.72	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.5	1.5	ug/kg	
124-48-1	Dibromochloromethane	ND	3.5	0.60	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.8	0.57	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.8	0.54	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.8	0.63	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.8	0.61	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	8.8	1.1	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.8	0.68	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.8	0.83	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.8	1.2	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.8	1.7	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.8	1.2	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.5	0.72	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.5	0.62	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.5	0.58	ug/kg	
100-41-4	Ethylbenzene	ND	1.8	0.98	ug/kg	
76-13-1	Freon 113	ND	8.8	1.3	ug/kg	
591-78-6	2-Hexanone	ND	8.8	2.2	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SO-DUP2-0426	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-12	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	69.0
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	1.6	3.5	1.2	ug/kg	J
79-20-9	Methyl Acetate ^b	ND	8.8	2.5	ug/kg	
108-87-2	Methylcyclohexane	1.5	3.5	1.2	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.8	0.62	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	8.8	2.8	ug/kg	
75-09-2	Methylene chloride	ND	8.8	4.4	ug/kg	
100-42-5	Styrene	ND	3.5	1.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.5	0.69	ug/kg	
127-18-4	Tetrachloroethene	ND	3.5	0.82	ug/kg	
108-88-3	Toluene	3.3	1.8	0.66	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	8.8	1.8	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	8.8	1.8	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.5	0.75	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.5	0.60	ug/kg	
79-01-6	Trichloroethene	ND	1.8	1.3	ug/kg	
75-69-4	Trichlorofluoromethane	ND	8.8	1.2	ug/kg	
75-01-4	Vinyl chloride	ND	3.5	0.83	ug/kg	
	m,p-Xylene	ND	1.8	1.3	ug/kg	
95-47-6	o-Xylene	ND	1.8	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.8	1.0	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%	125%	75-127%
17060-07-0	1,2-Dichloroethane-D4	101%	107%	75-130%
2037-26-5	Toluene-D8	108%	118%	80-120%
460-00-4	4-Bromofluorobenzene	132% ^c	171% ^d	79-127%

(a) Confirmation run.

(b) Associated CCV outside of control limits low.

(c) Outside control limits due to matrix interference. Confirmed by reanalysis.

(d) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	SO-DUP2-0426	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-12	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	69.0
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P129383.D	1	05/07/19 20:33	CC	05/06/19 17:35	OP20110	EP5856
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	94	23	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	240	29	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	240	40	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	240	84	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	240	180	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	240	51	ug/kg	
95-48-7	2-Methylphenol	ND	94	30	ug/kg	
	3&4-Methylphenol	181	94	39	ug/kg	
88-75-5	2-Nitrophenol	ND	240	31	ug/kg	
100-02-7	4-Nitrophenol	ND	470	130	ug/kg	
87-86-5	Pentachlorophenol	ND	190	44	ug/kg	
108-95-2	Phenol	ND	94	25	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	240	31	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	240	35	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	240	28	ug/kg	
83-32-9	Acenaphthene	945	47	16	ug/kg	
208-96-8	Acenaphthylene	251	47	24	ug/kg	
98-86-2	Acetophenone	ND	240	10	ug/kg	
120-12-7	Anthracene	672	47	29	ug/kg	J
1912-24-9	Atrazine	ND	94	20	ug/kg	
56-55-3	Benzo(a)anthracene	994	47	13	ug/kg	J
50-32-8	Benzo(a)pyrene	1060	47	21	ug/kg	
205-99-2	Benzo(b)fluoranthene	1020	47	21	ug/kg	
191-24-2	Benzo(g,h,i)perylene	599	47	24	ug/kg	
207-08-9	Benzo(k)fluoranthene	417	47	22	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	94	18	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	94	12	ug/kg	
92-52-4	1,1'-Biphenyl	92.4	94	6.5	ug/kg	J
100-52-7	Benzaldehyde	ND	240	12	ug/kg	
91-58-7	2-Chloronaphthalene	ND	94	11	ug/kg	
106-47-8	4-Chloroaniline	ND	240	17	ug/kg	
86-74-8	Carbazole	71.1	94	6.8	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SO-DUP2-0426	Date Sampled:	04/26/19
Lab Sample ID:	JC87093-12	Date Received:	04/26/19
Matrix:	SO - Soil	Percent Solids:	69.0
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	94	19	ug/kg	
218-01-9	Chrysene	1070	47	15	ug/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	94	10	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	94	20	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	94	17	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	94	15	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	47	15	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	47	24	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	94	39	ug/kg	
123-91-1	1,4-Dioxane ^a	ND	47	31	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	160	47	21	ug/kg	
132-64-9	Dibenzofuran	147	94	19	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	94	7.7	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	94	12	ug/kg	
84-66-2	Diethyl phthalate	ND	94	10	ug/kg	
131-11-3	Dimethyl phthalate	ND	94	8.4	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	94	11	ug/kg	
206-44-0	Fluoranthene	1770	47	21	ug/kg	J
86-73-7	Fluorene	598	47	22	ug/kg	J
118-74-1	Hexachlorobenzene	ND	94	12	ug/kg	
87-68-3	Hexachlorobutadiene	ND	47	19	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	470	19	ug/kg	
67-72-1	Hexachloroethane	ND	240	23	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	600	47	22	ug/kg	
78-59-1	Isophorone	ND	94	10	ug/kg	
91-57-6	2-Methylnaphthalene	473	47	11	ug/kg	
88-74-4	2-Nitroaniline	ND	240	11	ug/kg	
99-09-2	3-Nitroaniline	ND	240	12	ug/kg	
100-01-6	4-Nitroaniline	ND	240	12	ug/kg	
91-20-3	Naphthalene	1290	47	13	ug/kg	
98-95-3	Nitrobenzene	ND	94	18	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	94	14	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	240	17	ug/kg	
85-01-8	Phenanthrene	2300	47	16	ug/kg	J
129-00-0	Pyrene	2070	47	15	ug/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	240	12	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	62%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SO-DUP2-0426	
Lab Sample ID: JC87093-12	Date Sampled: 04/26/19
Matrix: SO - Soil	Date Received: 04/26/19
Method: SW846 8270D SW846 3546	Percent Solids: 69.0
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	62%		27-114%
118-79-6	2,4,6-Tribromophenol	61%		19-152%
4165-60-0	Nitrobenzene-d5	68%		26-134%
321-60-8	2-Fluorobiphenyl	77%		39-124%
1718-51-0	Terphenyl-d14	69%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SO-DUP2-0426	Date Sampled: 04/26/19
Lab Sample ID: JC87093-12	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 69.0
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	13800 J	73	12	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Antimony	0.60 U J	2.9	0.60	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Arsenic	27.6 J	2.9	0.41	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Barium	148	29	2.8	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Beryllium	1.0	0.29	0.12	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Cadmium	1.6	0.73	0.10	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Calcium	2630	730	65	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Chromium	135 J	1.5	0.54	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Cobalt	13.0	7.3	0.41	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Copper	87.1 J	3.7	1.2	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Iron	22000 J	73	28	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Lead	189 J	2.9	0.60	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Magnesium	3500	730	20	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Manganese	462	2.2	0.60	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Mercury	0.50 J	0.041	0.018	mg/kg	1	04/30/19	04/30/19	LL SW846 7471B ¹	SW846 7471B ³
Nickel	25.7	5.9	0.51	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Potassium	1530	1500	47	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Selenium	1.2 J	2.9	0.95	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Silver	0.44 J	0.73	0.25	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Sodium	199 J	1500	110	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Thallium	0.85 U	1.5	0.85	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Vanadium	28.4	7.3	0.28	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴
Zinc	491 J	7.3	3.4	mg/kg	1	05/01/19	05/03/19	MET SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46615
- (2) Instrument QC Batch: MA46638
- (3) Prep QC Batch: MP14638
- (4) Prep QC Batch: MP14721

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: SO-DUP2-0426	Date Sampled: 04/26/19
Lab Sample ID: JC87093-12	Date Received: 04/26/19
Matrix: SO - Soil	Percent Solids: 69.0
Project: National Grid, Philly Coke, Philadelphia, PA	

4.12
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	5.2	0.25	0.12	mg/kg	1	05/07/19 17:58	KI	SW846 9012B/LACHAT
Solids, Percent	69			%	1	05/03/19 17:00	RC	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

National Grid

Philly Coke

DATA REVIEW

Philadelphia, Pennsylvania

Volatile Organic Compound (VOC), Semivolatile Organic Compounds (SVOC), Pesticides, PCBs, Metals,
and Miscellaneous Analyses

SDG # JC87535

Analyses Reported By:
SGS Laboratories
Dayton, New Jersey

Report #33348R
Review Level: Tier II
Project: 30004026 (B0036790.0001) 00006

DATA REVIEW REPORT

SUMMARY

This data review report summarizes the review of Sample Delivery Group (SDG) # JC87535 for samples collected in association with the National Grid Philly Coke site in Philadelphia, Pennsylvania. The review was conducted as a Tier II evaluation and included review of laboratory analytical data package completeness. Field documentation was not included in this review. Included with this assessment are the post-validation annotated sample result sheets, and chain of custody (COC). Analyses were performed on the following samples

SDG Number	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PEST/PCB	Metals	MISC
JC87535	S-157(7-9) (05-03-2019)	JC87535-1	Soil	5/3/2019		X	X		X	X
	S-157(23-25) (05-03-2019)	JC87535-2	Soil	5/3/2019		X	X		X	X
	S-156(3-5) (05-03-2019)	JC87535-3	Soil	5/3/2019		X	X		X	X
	S-156(7.5-9.5) (05-03-2019)	JC87535-4	Soil	5/3/2019		X	X		X	X
	S-156(14-16) (05-03-2019)	JC87535-5	Soil	5/3/2019		X	X		X	X
	SO-DUP-0503 (05-03-2019)	JC87535-6	Soil	5/3/2019	S-156(14-16) (05-03-2019)	X	X		X	X
	S-161(5-7) (05-03-2019)	JC87535-7	Soil	5/3/2019		X	X		X	X
	S-161(10-12) (05-03-2019)	JC87535-8	Soil	5/3/2019		X	X		X	X
	S-162(5-7) (05-03-2019)	JC87535-9	Soil	5/3/2019		X	X		X	X
	S-162(15-17) (05-03-2019)	JC87535-10	Soil	5/3/2019		X	X		X	X
	S-160(10-12) (05-03-2019)	JC87535-11	Soil	5/3/2019		X	X		X	X
	S-160(13-15) (05-03-2019)	JC87535-12	Soil	5/3/2019		X	X		X	X

Notes:

1. PEST/PCB = Pesticides and polychlorinated biphenyls
2. SVOC = Semivolatile Organic Compounds
3. VOC = Volatile Organic Compound
4. MISC = Miscellaneous (total cyanide)
5. Samples PCWC-1 (05-03-2019), PCWC-2 (05-03-2019), and PCWC-3 (05-03-2019) are on the chain of custody and were analyzed for TCLP/waste characterization. These samples did not require validation and therefore are not included in this validation report.

DATA REVIEW REPORT

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW REPORT

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260C, 8270D, 8081A, and 8082A. Data were reviewed in accordance with the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540/R-2017-002, January 2017 and the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, EPA540/R-99/008, October 1999 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

DATA REVIEW REPORT

that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times/Preservation

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis (preserved) 7 days from collection to analysis (non-preserved)	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis	Cool to <6 °C.

Note:

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

DATA REVIEW REPORT

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
S-156(14-16) (05-03-2019)/ SO-DUP-0503 (05-03-2019)	Acetone	114	229	67.1%
	2-Butanone	28.7	38.7	AC
	Methylene chloride	1.8 J	9.9 U	AC
	Methyl Acetate	7.9 u	6.2 J	AC

Notes:

AC Acceptable

Acetone associated with sample locations S-156(14-16) (05-03-2019) and SO-DUP-0503 (05-03-2019) exhibited a field duplicate RPD greater than the control limit. The associated sample results from these sample locations for the listed analyte were qualified as estimated.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Trip blanks	X				X
Laboratory Control Sample (LCS)		X	X		
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)		X		X	
Matrix Spike Duplicate(MSD)		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X	X		
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

- %RSD Relative standard deviation
- %R Percent recovery
- RPD Relative percent difference
- %D Percent difference

DATA REVIEW REPORT

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
S-160(10-12)	Phenol-d6	AC
	2-Fluorophenol	AC
	2,4,6-Tribromophenol	AC
	Nitrobenzene-d5	>UL
	2-Fluorobiphenyl	AC
	Terphenyl-d14	AC

Notes:

DATA REVIEW REPORT

AC Acceptable

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
	Detect	J
< LL but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

The LCS/LCSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
S-156(14-16) (05-03-2019)/ SO-DUP-0503 (05-03-2019)	Benzo(a)anthracene	26.3 J	15.3 J	AC
	Benzo(a)pyrene	22.5 J	49 U	AC

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Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
	Benzo(b)fluoranthene	29.6 J	49 U	AC
	1,1'-Biphenyl	7.7 J	98 U	AC
	Benzaldehyde	20.8 J	250 U	AC
	Carbazole	8.3 J	98 U	AC
	Chrysene	25.2 J	49 U	AC
	Fluoranthene	59.7	28.6 J	AC
	Fluorene	21.9 J	49 U	AC
	2-Methylnaphthalene	14.4 J	15.5 J	AC
	Naphthalene	77.8	115	AC
	Phenanthrene	65.2	43.2 J	AC
	Pyrene	43.4 J	22.0 J	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

Several samples were diluted to bring target compounds within linear range of the instrument. Sample results that were reported from a secondary dilution were qualified with a "D", indicating the result is diluted.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

DATA REVIEW REPORT

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6010D, 7471A, and 9012B. Data were reviewed in accordance with the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA 540/R-2017-001, January 2017; and the USEPA CLP National Functional Guidelines for Inorganic Data Review, EPA 540-R-01-008, July 2002 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

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METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6010D	Water	180 days from collection to analysis	Preserved to a pH of less than 2.
	Soil	180 days from collection to analysis	Cool to <6 °C.
SW-846 7471A	Soil	28 days from collection to analysis	Cool to <6 °C.
SW-846 7470A	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL and/or were non-detect. No qualification of the sample results was required.

3. Matrix Spike (MS)/Matrix Spike Duplicate(MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analyte present in the table below.

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Sample Location	Analyte	MS Recovery	MSD Recovery
S-161(10-12) (05-03-2019)	Aluminum	184.1%	180.5%
	Antimony	67.6%	69.8%

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications for all metals are applied to all sample results associated with this SDG.

Control limit	Sample Result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery <30%	Non-detect	R
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD analysis exhibited RPDs within the control limits.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PSSTP-07R (0.5-2) (04-18-2019)/ SO-DUP-0418 (04-18-2019)	Aluminum	21800	24700	12.5%
	Arsenic	7.4	4.5	AC
	Barium	183	162	12.2%
	Beryllium	1.1	1.2	AC

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Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
	Cadmium	0.28 J	0.13 J	AC
	Calcium	2800	2730	2.5%
	Chromium	42.7	47.5	10.6%
	Cobalt	10.9	12.1	AC
	Copper	22.1	10.1	74.5%
	Iron	25700	25400	1.2%
	Lead	80.3	14.8	137.7%
	Magnesium	5160	5840	12.4%
	Manganese	402	325	21.2%
	Mercury	0.11	0.043 U	AC
	Nickel	26.3	29.6	11.8%
	Potassium	1870	2170	14.9%
	Silver	0.52 J	0.49 J	AC
	Sodium	228 J	248 J	AC
	Vanadium	41.9	48.1	13.8%
	Zinc	132	72.1	58.7%

Notes:

AC Acceptable

The analytes lead and zinc associated with sample locations PSSTP-07R (0.5-2) (04-18-2019) and SO-DUP-0418 (04-18-2019) exhibited a field duplicate RPD greater than the control limit. The associated sample results from all sample locations for the listed analytes were qualified as estimated.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR METAL

METALS; SW846 6010D/7471A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field Blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate (MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X	X		
Total vs. Dissolved	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Cyanide by SW-846 9012	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of greater than 12.
	Soil		Cool to <6 °C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analyte present in the table below.

Sample Location	Analyte	MS Recovery
S-161(10-12) (05-03-2019)	Cyanide	64.2%

DATA REVIEW REPORT

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications for all metals except mercury are applied to all sample results associated with this SDG.

Control limit	Sample Result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery <30%	Non-detect	R
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

The laboratory duplicate analysis exhibited RPD within control limits.

4. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PSSTP-07R (0.5-2) (04-18-2019)/ SO-DUP-0418 (04-18-2019)	Cyanide	0.30 U	0.33 U	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

DATA REVIEW REPORT

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: EPA 9012	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Dilution Factor		X		X	
Moisture Content					X

Notes:

%R - percent recovery

RPD - relative percent difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: July 22, 2019

PEER REVIEW: Dennis Capria

DATE: July 23, 2019

CHAIN OF CUSTODY SAMPLE ANALYSIS DATA SHEETS





SCL
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CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com/ehusa

FED-EX Tracking #
SGS Code #
Bottle Order Control # KR-042219-41
SGS Job # JC87535

Client / Reporting Information		Project Information		Requested Analysis											Matrix Codes																																																																																																																																																																																																																																																																		
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Y8260TCL20
CN
AB8270TCL20
MTAL
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CORIL
TCLP

D63
D5772
1425
4907
465

Turn Around Time (Business Days)		Deliverable				Comments / Special Instructions	
<input checked="" type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days* <input type="checkbox"/> 2 Business Days* <input type="checkbox"/> 1 Business Day* <input type="checkbox"/> Other <small>All data available via Labtek</small>		Approved By (SGS PM) / Date: _____ / _____		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input checked="" type="checkbox"/> Full Tier I (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ DRQP		<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format	
<small>* Approval needed for 1-3 Business Day TAT</small>				<small>Commercial "A" = Results only, Commercial "B" = Results + QC Summary Commercial "C" = Results + QC Summary + Partial Raw data</small>			
<small>Sample Custody must be documented below each time samples change possession, including courier delivery.</small>							
Relinquished by: [Signature]	Date / Time: 5/31/19 10:15	Received by: [Signature]	Date / Time: 5/31/19 1:00	Relinquished by: [Signature]	Date / Time: 5/31/19 1:00	Received by: [Signature]	Date / Time: 5/31/19 1:00
Relinquished by: [Signature]	Date / Time: 5/31/19 1:00	Received by: [Signature]	Date / Time: 5/31/19 1:00	Relinquished by: [Signature]	Date / Time: 5/31/19 1:00	Received by: [Signature]	Date / Time: 5/31/19 1:00
Relinquished by: [Signature]	Date / Time: 5/31/19 1:00	Received by: [Signature]	Date / Time: 5/31/19 1:00	Relinquished by: [Signature]	Date / Time: 5/31/19 1:00	Received by: [Signature]	Date / Time: 5/31/19 1:00
Custody Seal #		<input type="checkbox"/> Intact <input type="checkbox"/> Not intact		Preserved where applicable <input type="checkbox"/> Present <input type="checkbox"/> Absent		On for 0.1596 Therm. ID:	

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5





CHAIN OF CUSTODY

SGS North America Inc. - Dayton
 2235 Route 130, Dayton, NJ 08810
 TEL: 732-329-0280 FAX: 732-329-3499/3480
 www.sgs.com/ehsausa

Client / Reporting Information		Project Information		Requested Analysis		Matrix Codes	
Company Name: Accadis - US Street Address: 110 W Fayette St #300 City: Gracuse NY State: NY Zip: 13202 Project Contact: Grey Hair Lawrence Halperin Phone #: 315-325-9495 Samplers Name(s): Alvin Green 603-306-2820		Project Name: Ph. Philadelphia Cdr Street: USA Richmond St City: Philadelphia PA State: PA Billing Information (if different from Report to): Company Name: SGM Street Address: _____ City: _____ State: _____ Zip: _____ Project #: B036740.C001 Client Purchase Order #: B036740.C001 Project Manager: John Busser Attention: _____		FED-EX Tracking # _____ Bottle Order Control # JC 87535 Requested Analysis: V8266TCL 20 CN AB8270TCL 20 MTAL F8082 PCB11 CORR TCLP		Matrix Codes: DW - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquids AIR - Air SOL - Other Solids WP - Wipe FB - Faint Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank	
Turn Around Time (Business Days): <input checked="" type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days <input type="checkbox"/> 2 Business Days <input type="checkbox"/> 1 Business Day <input type="checkbox"/> Other _____		Approved By (SGS PM) / Date: _____		Deliverable: <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input checked="" type="checkbox"/> Full Tier 1 (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ DKQP		<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format	
Comments / Special Instructions: Commercial "A" = Results only; Commercial "B" = Results + QC Summary Commercial "C" = Results + QC Summary + Partial Raw data http://www.sgs.com/en/terms-and-conditions		Sample Custody must be documented below each time samples change possession, including courier delivery.					
Relinquished by: 1 Date / Time: 5/31/19 16:14		Received By: 1 Date / Time: 5/31/19 16:14		Relinquished by: 2 Date / Time: 5/31/19 17:20		Received By: 2 Date / Time: _____	
Relinquished by: 3 Date / Time: _____		Received By: 3 Date / Time: _____		Relinquished by: 4 Date / Time: _____		Received By: 4 Date / Time: _____	
Relinquished by: 5 Date / Time: _____		Received By: 5 Date / Time: _____		Custody Seal # _____ <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact		Preserved where applicable: <input type="checkbox"/> Absent <input type="checkbox"/> Therm. ID: _____ On Ice: <input type="checkbox"/> 0.9°C Cooler Temp. °C	

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SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: S-157(7-9)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-1	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 76.9
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y185120.D	1	05/11/19 13:43	PS	n/a	n/a	VY8033
Run #2							

Run #	Initial Weight
Run #1	5.0 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	62.7	13	5.2	ug/kg	
71-43-2	Benzene	0.99	0.65	0.59	ug/kg	
74-97-5	Bromochloromethane	ND	6.5	0.73	ug/kg	
75-27-4	Bromodichloromethane	ND	2.6	0.58	ug/kg	
75-25-2	Bromoform	ND	6.5	0.75	ug/kg	
74-83-9	Bromomethane	ND	6.5	1.3	ug/kg	
78-93-3	2-Butanone (MEK)	10.3	13	4.9	ug/kg	J
75-15-0	Carbon disulfide	1.7	2.6	1.2	ug/kg	J
56-23-5	Carbon tetrachloride	ND	2.6	0.80	ug/kg	
108-90-7	Chlorobenzene	ND	2.6	0.60	ug/kg	
75-00-3	Chloroethane	ND	6.5	0.77	ug/kg	
67-66-3	Chloroform	ND	2.6	0.64	ug/kg	
74-87-3	Chloromethane ^a	ND	6.5	2.5	ug/kg	UJ
110-82-7	Cyclohexane	ND	2.6	0.85	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.6	1.1	ug/kg	
124-48-1	Dibromochloromethane	ND	2.6	0.73	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.3	0.55	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.3	0.71	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.3	0.64	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.3	0.64	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	6.5	0.95	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	1.3	0.64	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.3	0.61	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.3	0.85	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.3	1.1	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.3	0.79	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.6	0.62	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.6	0.62	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.6	0.59	ug/kg	
100-41-4	Ethylbenzene	ND	1.3	0.72	ug/kg	
76-13-1	Freon 113	ND	6.5	1.3	ug/kg	
591-78-6	2-Hexanone	ND	6.5	2.8	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-157(7-9)	
Lab Sample ID: JC87535-1	Date Sampled: 05/03/19
Matrix: SO - Soil	Date Received: 05/03/19
Method: SW846 8260C	Percent Solids: 76.9
Project: National Grid, Philly Coke, Philadelphia, PA	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	2.1	2.6	0.91	ug/kg	J
79-20-9	Methyl Acetate	ND	6.5	1.8	ug/kg	
108-87-2	Methylcyclohexane	ND	2.6	1.1	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.3	0.61	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.5	3.0	ug/kg	
75-09-2	Methylene chloride	ND	6.5	1.3	ug/kg	
100-42-5	Styrene	ND	2.6	0.75	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.6	0.78	ug/kg	
127-18-4	Tetrachloroethene	ND	2.6	0.75	ug/kg	
108-88-3	Toluene	ND	1.3	0.68	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.5	2.5	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.5	2.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.6	0.63	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.6	0.72	ug/kg	
79-01-6	Trichloroethene	ND	1.3	0.99	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.5	0.89	ug/kg	
75-01-4	Vinyl chloride ^a	ND	2.6	0.63	ug/kg	UJ
	m,p-Xylene	ND	1.3	1.2	ug/kg	
95-47-6	o-Xylene	1.6	1.3	0.76	ug/kg	
1330-20-7	Xylene (total)	1.6	1.3	0.76	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		75-127%
17060-07-0	1,2-Dichloroethane-D4	93%		75-130%
2037-26-5	Toluene-D8	103%		80-120%
460-00-4	4-Bromofluorobenzene	117%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

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Client Sample ID:	S-157(7-9)	Date Sampled:	05/03/19
Lab Sample ID:	JC87535-1	Date Received:	05/03/19
Matrix:	SO - Soil	Percent Solids:	76.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	M154434.D	1	05/16/19 18:57	CC	05/11/19 03:55	OP20268	EM6595

Run #1	Initial Weight	Final Volume
Run #2	32.4 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	80	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	25	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	34	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	71	ug/kg	
51-28-5	2,4-Dinitrophenol ^a	ND	200	150	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	200	43	ug/kg	
95-48-7	2-Methylphenol	ND	80	26	ug/kg	
	3&4-Methylphenol	ND	80	33	ug/kg	
88-75-5	2-Nitrophenol	ND	200	27	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	400	110	ug/kg	UJ
87-86-5	Pentachlorophenol	ND	160	38	ug/kg	
108-95-2	Phenol	ND	80	21	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	27	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	30	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	24	ug/kg	
83-32-9	Acenaphthene	112	40	14	ug/kg	
208-96-8	Acenaphthylene	ND	40	20	ug/kg	
98-86-2	Acetophenone	ND	200	8.6	ug/kg	
120-12-7	Anthracene	69.2	40	25	ug/kg	
1912-24-9	Atrazine	ND	80	17	ug/kg	
56-55-3	Benzo(a)anthracene	54.1	40	11	ug/kg	
50-32-8	Benzo(a)pyrene	51.1	40	18	ug/kg	
205-99-2	Benzo(b)fluoranthene	67.8	40	18	ug/kg	
191-24-2	Benzo(g,h,i)perylene	37.4	40	20	ug/kg	J
207-08-9	Benzo(k)fluoranthene	25.2	40	19	ug/kg	J
101-55-3	4-Bromophenyl phenyl ether	ND	80	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	80	9.8	ug/kg	
92-52-4	1,1'-Biphenyl	9.8	80	5.5	ug/kg	J
100-52-7	Benzaldehyde	22.9	200	10	ug/kg	J
91-58-7	2-Chloronaphthalene	ND	80	9.6	ug/kg	
106-47-8	4-Chloroaniline	ND	200	14	ug/kg	
86-74-8	Carbazole	ND	80	5.8	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-157(7-9)	Date Sampled:	05/03/19
Lab Sample ID:	JC87535-1	Date Received:	05/03/19
Matrix:	SO - Soil	Percent Solids:	76.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	80	16	ug/kg	
218-01-9	Chrysene	65.8	40	13	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	80	8.6	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	80	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	80	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	80	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	40	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	40	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	80	33	ug/kg	
123-91-1	1,4-Dioxane ^a	ND	40	27	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	ND	40	18	ug/kg	
132-64-9	Dibenzofuran	23.9	80	16	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	80	6.5	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	80	10	ug/kg	
84-66-2	Diethyl phthalate	ND	80	8.5	ug/kg	
131-11-3	Dimethyl phthalate	ND	80	7.1	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	80	9.4	ug/kg	
206-44-0	Fluoranthene	138	40	18	ug/kg	
86-73-7	Fluorene	30.2	40	18	ug/kg	J
118-74-1	Hexachlorobenzene	ND	80	10	ug/kg	
87-68-3	Hexachlorobutadiene ^a	ND	40	16	ug/kg	UJ
77-47-4	Hexachlorocyclopentadiene	ND	400	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	20	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	52.7	40	19	ug/kg	
78-59-1	Isophorone	ND	80	8.6	ug/kg	
91-57-6	2-Methylnaphthalene	25.7	40	9.1	ug/kg	J
88-74-4	2-Nitroaniline	ND	200	9.5	ug/kg	
99-09-2	3-Nitroaniline	ND	200	10	ug/kg	
100-01-6	4-Nitroaniline	ND	200	10	ug/kg	
91-20-3	Naphthalene	41.9	40	11	ug/kg	
98-95-3	Nitrobenzene	ND	80	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	80	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	15	ug/kg	
85-01-8	Phenanthrene	94.6	40	13	ug/kg	
129-00-0	Pyrene	111	40	13	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	57%		23-115%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: S-157(7-9)	
Lab Sample ID: JC87535-1	Date Sampled: 05/03/19
Matrix: SO - Soil	Date Received: 05/03/19
Method: SW846 8270D SW846 3546	Percent Solids: 76.9
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	61%		27-114%
118-79-6	2,4,6-Tribromophenol	94%		19-152%
4165-60-0	Nitrobenzene-d5	68%		26-134%
321-60-8	2-Fluorobiphenyl	75%		39-124%
1718-51-0	Terphenyl-d14	70%		36-134%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
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Report of Analysis

Client Sample ID: S-157(7-9)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-1	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 76.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	10900 J	66	11	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Antimony ^a	2.1 J	5.3	1.1	mg/kg	2	05/08/19	05/09/19	ND SW846 6010D ³	SW846 3050B ⁵
Arsenic	12.6	2.6	0.37	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Barium	52.3	26	2.5	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Beryllium	0.62	0.26	0.11	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Cadmium ^a	0.79 J	1.3	0.18	mg/kg	2	05/08/19	05/09/19	ND SW846 6010D ³	SW846 3050B ⁵
Calcium	2790	660	58	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Chromium	20.0	1.3	0.49	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Cobalt	9.9	6.6	0.37	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Copper ^a	243	9.9	3.3	mg/kg	3	05/08/19	05/10/19	ND SW846 6010D ³	SW846 3050B ⁵
Iron	54800	200	76	mg/kg	3	05/08/19	05/10/19	ND SW846 6010D ³	SW846 3050B ⁵
Lead ^a	43.8 J	5.3	1.1	mg/kg	2	05/08/19	05/09/19	ND SW846 6010D ³	SW846 3050B ⁵
Magnesium	792	660	18	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Manganese ^a	379	5.9	1.6	mg/kg	3	05/08/19	05/10/19	ND SW846 6010D ³	SW846 3050B ⁵
Mercury	0.065	0.042	0.019	mg/kg	1	05/07/19	05/07/19	LL SW846 7471B ¹	SW846 7471B ⁴
Nickel	22.3	5.3	0.46	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Potassium	826 J	1300	42	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Selenium ^a	2.6 U	7.9	2.6	mg/kg	3	05/08/19	05/10/19	ND SW846 6010D ³	SW846 3050B ⁵
Silver ^a	0.67 U	2.0	0.67	mg/kg	3	05/08/19	05/10/19	ND SW846 6010D ³	SW846 3050B ⁵
Sodium	100 U	1300	100	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Thallium ^a	2.3 U	3.9	2.3	mg/kg	3	05/08/19	05/10/19	ND SW846 6010D ³	SW846 3050B ⁵
Vanadium	25.9	6.6	0.25	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Zinc	451 J	6.6	3.0	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46664
- (2) Instrument QC Batch: MA46680
- (3) Instrument QC Batch: MA46687
- (4) Prep QC Batch: MP14859
- (5) Prep QC Batch: MP14865

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

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Report of Analysis

Client Sample ID: S-157(7-9)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-1	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 76.9
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.70 J	0.30	0.15	mg/kg	1	05/10/19 18:06 KI	SW846	9012B/LACHAT
Solids, Percent	76.9			%	1	05/13/19 15:15 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

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SGS North America Inc.

Report of Analysis

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Client Sample ID: S-157(23-25)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-2	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 90.4
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	1C164514.D	1	05/13/19 20:14	PS	n/a	n/a	V1C7218

Run #1	Initial Weight
Run #2	5.2 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	18.7	11	4.3	ug/kg	
71-43-2	Benzene	ND	0.53	0.48	ug/kg	
74-97-5	Bromochloromethane	ND	5.3	0.60	ug/kg	
75-27-4	Bromodichloromethane	ND	2.1	0.47	ug/kg	
75-25-2	Bromoform	ND	5.3	0.61	ug/kg	
74-83-9	Bromomethane	ND	5.3	1.1	ug/kg	
78-93-3	2-Butanone (MEK)	ND	11	4.0	ug/kg	
75-15-0	Carbon disulfide	ND	2.1	0.99	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.1	0.66	ug/kg	
108-90-7	Chlorobenzene	ND	2.1	0.49	ug/kg	
75-00-3	Chloroethane	ND	5.3	0.63	ug/kg	
67-66-3	Chloroform	ND	2.1	0.52	ug/kg	
74-87-3	Chloromethane	ND	5.3	2.1	ug/kg	
110-82-7	Cyclohexane	ND	2.1	0.70	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.1	0.89	ug/kg	
124-48-1	Dibromochloromethane	ND	2.1	0.60	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.1	0.45	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.1	0.58	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.1	0.53	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.1	0.53	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.3	0.77	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.1	0.53	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.1	0.50	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.1	0.70	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.1	0.89	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.1	0.65	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.1	0.50	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.1	0.51	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.1	0.49	ug/kg	
100-41-4	Ethylbenzene	ND	1.1	0.59	ug/kg	
76-13-1	Freon 113	ND	5.3	1.1	ug/kg	
591-78-6	2-Hexanone	ND	5.3	2.3	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-157(23-25)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-2	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 90.4
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.1	0.74	ug/kg	
79-20-9	Methyl Acetate	ND	5.3	1.5	ug/kg	
108-87-2	Methylcyclohexane	ND	2.1	0.93	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.1	0.50	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.3	2.4	ug/kg	
75-09-2	Methylene chloride	ND	5.3	1.1	ug/kg	
100-42-5	Styrene	ND	2.1	0.61	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.1	0.64	ug/kg	
127-18-4	Tetrachloroethene	ND	2.1	0.62	ug/kg	
108-88-3	Toluene	ND	1.1	0.56	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.3	2.1	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.3	1.6	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.1	0.51	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.1	0.59	ug/kg	
79-01-6	Trichloroethene	ND	1.1	0.81	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.3	0.73	ug/kg	
75-01-4	Vinyl chloride	ND	2.1	0.51	ug/kg	
	m,p-Xylene	ND	1.1	0.95	ug/kg	
95-47-6	o-Xylene	ND	1.1	0.62	ug/kg	
1330-20-7	Xylene (total)	ND	1.1	0.62	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		75-127%
17060-07-0	1,2-Dichloroethane-D4	88%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	92%		79-127%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

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Client Sample ID:	S-157(23-25)	Date Sampled:	05/03/19
Lab Sample ID:	JC87535-2	Date Received:	05/03/19
Matrix:	SO - Soil	Percent Solids:	90.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	M154430.D	1	05/16/19 17:03	CC	05/11/19 03:55	OP20268	EM6595

Run #1	Initial Weight	Final Volume
Run #2	30.5 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	73	18	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	180	22	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	180	31	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	180	65	ug/kg	
51-28-5	2,4-Dinitrophenol ^a	ND	180	140	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	180	39	ug/kg	
95-48-7	2-Methylphenol	ND	73	23	ug/kg	
	3&4-Methylphenol	ND	73	30	ug/kg	
88-75-5	2-Nitrophenol	ND	180	24	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	360	97	ug/kg	UJ
87-86-5	Pentachlorophenol	ND	150	34	ug/kg	
108-95-2	Phenol	ND	73	19	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	180	24	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	180	27	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	180	22	ug/kg	
83-32-9	Acenaphthene	ND	36	13	ug/kg	
208-96-8	Acenaphthylene	ND	36	18	ug/kg	
98-86-2	Acetophenone	ND	180	7.8	ug/kg	
120-12-7	Anthracene	ND	36	22	ug/kg	
1912-24-9	Atrazine	ND	73	16	ug/kg	
56-55-3	Benzo(a)anthracene	ND	36	10	ug/kg	
50-32-8	Benzo(a)pyrene	ND	36	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	36	16	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	36	18	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	36	17	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	73	14	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	73	8.8	ug/kg	
92-52-4	1,1'-Biphenyl	ND	73	5.0	ug/kg	
100-52-7	Benzaldehyde	ND	180	9.0	ug/kg	
91-58-7	2-Chloronaphthalene	ND	73	8.6	ug/kg	
106-47-8	4-Chloroaniline	ND	180	13	ug/kg	
86-74-8	Carbazole	ND	73	5.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-157(23-25)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-2	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 90.4
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	73	14	ug/kg	
218-01-9	Chrysene	ND	36	11	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	73	7.8	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	73	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	73	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	73	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	36	11	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	36	18	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	73	30	ug/kg	
123-91-1	1,4-Dioxane ^a	ND	36	24	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	ND	36	16	ug/kg	
132-64-9	Dibenzofuran	ND	73	15	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	73	5.9	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	73	9.0	ug/kg	
84-66-2	Diethyl phthalate	ND	73	7.7	ug/kg	
131-11-3	Dimethyl phthalate	ND	73	6.5	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	73	8.5	ug/kg	
206-44-0	Fluoranthene	ND	36	16	ug/kg	
86-73-7	Fluorene	ND	36	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	73	9.2	ug/kg	
87-68-3	Hexachlorobutadiene ^a	ND	36	15	ug/kg	UJ
77-47-4	Hexachlorocyclopentadiene	ND	360	14	ug/kg	
67-72-1	Hexachloroethane	ND	180	18	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	36	17	ug/kg	
78-59-1	Isophorone	ND	73	7.8	ug/kg	
91-57-6	2-Methylnaphthalene	ND	36	8.2	ug/kg	
88-74-4	2-Nitroaniline	ND	180	8.6	ug/kg	
99-09-2	3-Nitroaniline	ND	180	9.1	ug/kg	
100-01-6	4-Nitroaniline	ND	180	9.4	ug/kg	
91-20-3	Naphthalene	ND	36	10	ug/kg	
98-95-3	Nitrobenzene	ND	73	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	73	10	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	180	13	ug/kg	
85-01-8	Phenanthrene	ND	36	12	ug/kg	
129-00-0	Pyrene	ND	36	12	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	180	9.2	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	63%		23-115%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: S-157(23-25)	
Lab Sample ID: JC87535-2	Date Sampled: 05/03/19
Matrix: SO - Soil	Date Received: 05/03/19
Method: SW846 8270D SW846 3546	Percent Solids: 90.4
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	66%		27-114%
118-79-6	2,4,6-Tribromophenol	86%		19-152%
4165-60-0	Nitrobenzene-d5	74%		26-134%
321-60-8	2-Fluorobiphenyl	77%		39-124%
1718-51-0	Terphenyl-d14	74%		36-134%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: S-157(23-25)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-2	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 90.4
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	8590 J	54	8.7	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	0.44 U	J 2.2	0.44	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	3.8	2.2	0.30	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	32.3	22	2.1	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.51	0.22	0.087	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	0.076 U	0.54	0.076	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	248 J	540	48	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	25.7	1.1	0.40	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	7.6	5.4	0.30	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	9.4	2.7	0.91	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	13400	54	21	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	6.0 J	2.2	0.44	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	2070	540	15	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	111	1.6	0.44	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	0.014 U	0.032	0.014	mg/kg	1	05/07/19	05/07/19	LL	SW846 7471B ¹ SW846 7471B ³
Nickel	15.7	4.3	0.38	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	897 J	1100	34	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	0.70 U	2.2	0.70	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	0.37 J	0.54	0.18	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	84 U	1100	84	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	0.63 U	1.1	0.63	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	19.0	5.4	0.21	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	35.9 J	5.4	2.5	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ² SW846 3050B ⁴

(1) Instrument QC Batch: MA46664

(2) Instrument QC Batch: MA46680

(3) Prep QC Batch: MP14859

(4) Prep QC Batch: MP14865

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.2
4

Report of Analysis

Client Sample ID: S-157(23-25)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-2	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 90.4
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.13 U J	0.27	0.13	mg/kg	1	05/10/19 18:07 KI	SW846	9012B/LACHAT
Solids, Percent	90.4			%	1	05/13/19 15:15 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.2
4

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID:	S-156(3-5)	Date Sampled:	05/03/19
Lab Sample ID:	JC87535-3	Date Received:	05/03/19
Matrix:	SO - Soil	Percent Solids:	81.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	2C167684.D	1	05/16/19 12:10	TDN	n/a	n/a	V2C7521
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	2.3 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^b	ND	2800	1100	ug/kg	
71-43-2	Benzene	368	140	130	ug/kg	
74-97-5	Bromochloromethane	ND	1400	160	ug/kg	
75-27-4	Bromodichloromethane	ND	550	120	ug/kg	
75-25-2	Bromoform ^b	ND	1400	160	ug/kg	
74-83-9	Bromomethane	ND	1400	280	ug/kg	
78-93-3	2-Butanone (MEK)	ND	2800	1000	ug/kg	
75-15-0	Carbon disulfide	ND	550	260	ug/kg	
56-23-5	Carbon tetrachloride	ND	550	170	ug/kg	
108-90-7	Chlorobenzene	ND	550	130	ug/kg	
75-00-3	Chloroethane	ND	1400	160	ug/kg	
67-66-3	Chloroform	ND	550	140	ug/kg	
74-87-3	Chloromethane ^c	ND	1400	540	ug/kg	UJ
110-82-7	Cyclohexane	ND	550	180	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	550	230	ug/kg	
124-48-1	Dibromochloromethane	ND	550	160	ug/kg	
106-93-4	1,2-Dibromoethane	ND	280	120	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	280	150	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	280	140	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	280	140	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	1400	200	ug/kg	
75-34-3	1,1-Dichloroethane	ND	280	140	ug/kg	
107-06-2	1,2-Dichloroethane	ND	280	130	ug/kg	
75-35-4	1,1-Dichloroethene	ND	280	180	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	280	230	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	280	170	ug/kg	
78-87-5	1,2-Dichloropropane	ND	550	130	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	550	130	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	550	130	ug/kg	
100-41-4	Ethylbenzene	ND	280	150	ug/kg	
76-13-1	Freon 113	ND	1400	280	ug/kg	
591-78-6	2-Hexanone	ND	1400	590	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-156(3-5)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-3	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 81.7
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	550	190	ug/kg	
79-20-9	Methyl Acetate	ND	1400	390	ug/kg	
108-87-2	Methylcyclohexane	ND	550	240	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	280	130	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	1400	630	ug/kg	
75-09-2	Methylene chloride	ND	1400	280	ug/kg	
100-42-5	Styrene	ND	550	160	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	550	170	ug/kg	
127-18-4	Tetrachloroethene	ND	550	160	ug/kg	
108-88-3	Toluene	424	280	150	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	1400	540	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	1400	420	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	550	130	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	550	150	ug/kg	
79-01-6	Trichloroethene	ND	280	210	ug/kg	
75-69-4	Trichlorofluoromethane	ND	1400	190	ug/kg	
75-01-4	Vinyl chloride	ND	550	130	ug/kg	
	m,p-Xylene	568	280	250	ug/kg	
95-47-6	o-Xylene	ND	280	160	ug/kg	
1330-20-7	Xylene (total)	568	280	160	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		75-127%
17060-07-0	1,2-Dichloroethane-D4	97%		75-130%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	100%		79-127%

- (a) Diluted due to high concentration of non-target compound.
- (b) Associated CCV outside of control limits high, sample was ND.
- (c) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
4

SGS North America Inc.

Report of Analysis

Client Sample ID: S-156(3-5)		Date Sampled: 05/03/19
Lab Sample ID: JC87535-3		Date Received: 05/03/19
Matrix: SO - Soil		Percent Solids: 81.7
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	M154437.D	5	05/16/19 20:23	CC	05/11/19 03:55	OP20268	EM6595
Run #2	M154464.D	50	05/17/19 21:12	CC	05/11/19 03:55	OP20268	EM6596
Run #3	M154465.D	500	05/17/19 21:41	CC	05/11/19 03:55	OP20268	EM6596

Run #	Initial Weight	Final Volume
Run #1	30.9 g	1.0 ml
Run #2	30.9 g	1.0 ml
Run #3	30.9 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	400	98	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	990	120	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	990	170	ug/kg	
105-67-9	2,4-Dimethylphenol	5920	990	350	ug/kg	
51-28-5	2,4-Dinitrophenol ^b	ND	990	740	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	990	210	ug/kg	
95-48-7	2-Methylphenol	2680	400	130	ug/kg	
	3&4-Methylphenol	7150	400	160	ug/kg	
88-75-5	2-Nitrophenol	ND	990	130	ug/kg	
100-02-7	4-Nitrophenol ^b	ND	2000	530	ug/kg	UJ
87-86-5	Pentachlorophenol	ND	790	190	ug/kg	
108-95-2	Phenol	2720	400	100	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	990	130	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	990	150	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	990	120	ug/kg	
83-32-9	Acenaphthene	35200 ^c	2000	680	ug/kg	D
208-96-8	Acenaphthylene	125000 ^c	2000	1000	ug/kg	D
98-86-2	Acetophenone	1900	990	43	ug/kg	
120-12-7	Anthracene	373000 ^d	20000	12000	ug/kg	D
1912-24-9	Atrazine	ND	400	85	ug/kg	
56-55-3	Benzo(a)anthracene	302000 ^d	20000	5600	ug/kg	D
50-32-8	Benzo(a)pyrene	219000 ^d	20000	9000	ug/kg	D
205-99-2	Benzo(b)fluoranthene	267000 ^d	20000	8800	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	97300 ^c	2000	990	ug/kg	D
207-08-9	Benzo(k)fluoranthene	108000 ^d	20000	9200	ug/kg	D
101-55-3	4-Bromophenyl phenyl ether	ND	400	76	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	400	48	ug/kg	
92-52-4	1,1'-Biphenyl	72100 ^c	4000	270	ug/kg	D
100-52-7	Benzaldehyde	ND	990	49	ug/kg	
91-58-7	2-Chloronaphthalene	ND	400	47	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
 4

Report of Analysis

Client Sample ID:	S-156(3-5)	Date Sampled:	05/03/19
Lab Sample ID:	JC87535-3	Date Received:	05/03/19
Matrix:	SO - Soil	Percent Solids:	81.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	990	71	ug/kg	
86-74-8	Carbazole	167000 ^c	4000	290	ug/kg	D
105-60-2	Caprolactam	ND	400	78	ug/kg	
218-01-9	Chrysene	270000 ^d	20000	6200	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	400	42	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	400	85	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	400	71	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	400	64	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	200	61	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	200	99	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	400	170	ug/kg	
123-91-1	1,4-Dioxane ^b	ND	200	130	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	28300 ^c	2000	880	ug/kg	D
132-64-9	Dibenzofuran	364000 ^d	40000	8100	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	400	32	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	400	49	ug/kg	
84-66-2	Diethyl phthalate	ND	400	42	ug/kg	
131-11-3	Dimethyl phthalate	ND	400	35	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	400	46	ug/kg	
206-44-0	Fluoranthene	908000 ^d	20000	8800	ug/kg	D
86-73-7	Fluorene	563000 ^d	20000	9100	ug/kg	D
118-74-1	Hexachlorobenzene	ND	400	50	ug/kg	
87-68-3	Hexachlorobutadiene ^b	ND	200	80	ug/kg	UJ
77-47-4	Hexachlorocyclopentadiene	ND	2000	79	ug/kg	
67-72-1	Hexachloroethane	ND	990	98	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	110000 ^c	2000	930	ug/kg	D
78-59-1	Isophorone	ND	400	42	ug/kg	
91-57-6	2-Methylnaphthalene	312000 ^d	20000	4500	ug/kg	D
88-74-4	2-Nitroaniline	ND	990	47	ug/kg	
99-09-2	3-Nitroaniline	ND	990	50	ug/kg	
100-01-6	4-Nitroaniline	ND	990	51	ug/kg	
91-20-3	Naphthalene	1830000 ^d	20000	5600	ug/kg	D
98-95-3	Nitrobenzene	ND	400	76	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	400	57	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	990	72	ug/kg	
85-01-8	Phenanthrene	1840000 ^d	20000	6700	ug/kg	D
129-00-0	Pyrene	611000 ^d	20000	6300	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	990	50	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-156(3-5)		Date Sampled: 05/03/19
Lab Sample ID: JC87535-3		Date Received: 05/03/19
Matrix: SO - Soil		Percent Solids: 81.7
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	65%	60%	0% ^e	23-115%
4165-62-2	Phenol-d5	67%	57%	0% ^e	27-114%
118-79-6	2,4,6-Tribromophenol	113%	93%	0% ^e	19-152%
4165-60-0	Nitrobenzene-d5	96%	58%	0% ^e	26-134%
321-60-8	2-Fluorobiphenyl	63%	69%	0% ^e	39-124%
1718-51-0	Terphenyl-d14	51%	56%	0% ^e	36-134%

- (a) Dilution required due to matrix interference.
- (b) Associated CCV outside of control limits low.
- (c) Result is from Run# 2
- (d) Result is from Run# 3
- (e) Outside control limits due to dilution.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID: S-156(3-5)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-3	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 81.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	3280 J	59	9.6	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ²	SW846 3050B ⁵
Antimony	2.6 J	2.4	0.49	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ²	SW846 3050B ⁵
Arsenic	10.2	2.4	0.33	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ²	SW846 3050B ⁵
Barium	90.6	24	2.3	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ²	SW846 3050B ⁵
Beryllium	0.34	0.24	0.095	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ²	SW846 3050B ⁵
Cadmium	0.53 J	0.59	0.083	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ²	SW846 3050B ⁵
Calcium	5300	590	52	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ²	SW846 3050B ⁵
Chromium	99.4	1.2	0.44	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ²	SW846 3050B ⁵
Cobalt	7.3	5.9	0.33	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ²	SW846 3050B ⁵
Copper ^a	175	5.9	2.0	mg/kg	2	05/08/19	05/09/19	ND	SW846 6010D ³	SW846 3050B ⁵
Iron ^a	26900	120	46	mg/kg	2	05/08/19	05/09/19	ND	SW846 6010D ³	SW846 3050B ⁵
Lead ^a	204 J	4.8	0.97	mg/kg	2	05/08/19	05/09/19	ND	SW846 6010D ³	SW846 3050B ⁵
Magnesium	575 J	590	16	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ²	SW846 3050B ⁵
Manganese ^a	84.4	3.6	0.97	mg/kg	2	05/08/19	05/09/19	ND	SW846 6010D ³	SW846 3050B ⁵
Mercury	3.1	0.20	0.088	mg/kg	5	05/07/19	05/07/19	LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	46.8	4.8	0.42	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ²	SW846 3050B ⁵
Potassium	242 J	1200	38	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ²	SW846 3050B ⁵
Selenium ^a	2.0 J	4.8	1.5	mg/kg	2	05/08/19	05/09/19	ND	SW846 6010D ³	SW846 3050B ⁵
Silver ^a	0.51 J	1.2	0.40	mg/kg	2	05/08/19	05/09/19	ND	SW846 6010D ³	SW846 3050B ⁵
Sodium	92 U	1200	92	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ²	SW846 3050B ⁵
Thallium ^a	1.4 U	2.4	1.4	mg/kg	2	05/08/19	05/09/19	ND	SW846 6010D ³	SW846 3050B ⁵
Vanadium	17.5	5.9	0.23	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ²	SW846 3050B ⁵
Zinc	185 J	5.9	2.7	mg/kg	1	05/08/19	05/08/19	ND	SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46664
- (2) Instrument QC Batch: MA46680
- (3) Instrument QC Batch: MA46687
- (4) Prep QC Batch: MP14859
- (5) Prep QC Batch: MP14865

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-156(3-5)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-3	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 81.7
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	16.0 J	0.28	0.14	mg/kg	1	05/10/19 18:08	KI	SW846 9012B/LACHAT
Solids, Percent	81.7			%	1	05/13/19 15:15	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: S-156(7.5-9.5)		
Lab Sample ID: JC87535-4		Date Sampled: 05/03/19
Matrix: SO - Soil		Date Received: 05/03/19
Method: SW846 8260C		Percent Solids: 74.3
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y185126.D	1	05/11/19 16:34	PS	n/a	n/a	VY8033
Run #2							

Run #1	Initial Weight
Run #1	5.4 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	58.7	12	5.0	ug/kg	
71-43-2	Benzene	1.0	0.62	0.57	ug/kg	
74-97-5	Bromochloromethane	ND	6.2	0.70	ug/kg	
75-27-4	Bromodichloromethane	ND	2.5	0.55	ug/kg	
75-25-2	Bromoform	ND	6.2	0.72	ug/kg	
74-83-9	Bromomethane	ND	6.2	1.2	ug/kg	
78-93-3	2-Butanone (MEK)	8.2	12	4.7	ug/kg	J
75-15-0	Carbon disulfide	ND	2.5	1.2	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.5	0.77	ug/kg	
108-90-7	Chlorobenzene	ND	2.5	0.57	ug/kg	
75-00-3	Chloroethane	ND	6.2	0.74	ug/kg	
67-66-3	Chloroform	ND	2.5	0.61	ug/kg	
74-87-3	Chloromethane ^a	ND	6.2	2.4	ug/kg	UJ
110-82-7	Cyclohexane	ND	2.5	0.82	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.5	1.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.5	0.70	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.2	0.52	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.2	0.68	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.2	0.62	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.2	0.62	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	6.2	0.91	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	1.2	0.62	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.2	0.59	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.2	0.82	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.2	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.2	0.76	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.5	0.59	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.5	0.59	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.5	0.57	ug/kg	
100-41-4	Ethylbenzene	ND	1.2	0.69	ug/kg	
76-13-1	Freon 113	ND	6.2	1.3	ug/kg	
591-78-6	2-Hexanone	ND	6.2	2.6	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-156(7.5-9.5)	Date Sampled:	05/03/19
Lab Sample ID:	JC87535-4	Date Received:	05/03/19
Matrix:	SO - Soil	Percent Solids:	74.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.5	0.87	ug/kg	
79-20-9	Methyl Acetate	ND	6.2	1.7	ug/kg	
108-87-2	Methylcyclohexane	ND	2.5	1.1	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.2	0.58	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.2	2.8	ug/kg	
75-09-2	Methylene chloride	ND	6.2	1.2	ug/kg	
100-42-5	Styrene	ND	2.5	0.72	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.5	0.75	ug/kg	
127-18-4	Tetrachloroethene	ND	2.5	0.72	ug/kg	
108-88-3	Toluene	ND	1.2	0.65	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.2	2.4	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.2	1.9	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.5	0.60	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.5	0.69	ug/kg	
79-01-6	Trichloroethene	ND	1.2	0.95	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.2	0.85	ug/kg	
75-01-4	Vinyl chloride ^a	ND	2.5	0.60	ug/kg	UJ
	m,p-Xylene	ND	1.2	1.1	ug/kg	
95-47-6	o-Xylene	ND	1.2	0.73	ug/kg	
1330-20-7	Xylene (total)	ND	1.2	0.73	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		75-127%
17060-07-0	1,2-Dichloroethane-D4	87%		75-130%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	100%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	S-156(7.5-9.5)	Date Sampled:	05/03/19
Lab Sample ID:	JC87535-4	Date Received:	05/03/19
Matrix:	SO - Soil	Percent Solids:	74.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M154435.D	1	05/16/19 19:26	CC	05/11/19 03:55	OP20268	EM6595
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.8 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	87	22	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	220	27	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	220	37	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	220	78	ug/kg	
51-28-5	2,4-Dinitrophenol ^a	ND	220	160	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	220	47	ug/kg	
95-48-7	2-Methylphenol	ND	87	28	ug/kg	
	3&4-Methylphenol	ND	87	36	ug/kg	
88-75-5	2-Nitrophenol	ND	220	29	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	440	120	ug/kg	UJ
87-86-5	Pentachlorophenol	ND	170	41	ug/kg	
108-95-2	Phenol	ND	87	23	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	220	29	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	220	33	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	220	26	ug/kg	
83-32-9	Acenaphthene	374	44	15	ug/kg	
208-96-8	Acenaphthylene	155	44	22	ug/kg	
98-86-2	Acetophenone	ND	220	9.4	ug/kg	
120-12-7	Anthracene	403	44	27	ug/kg	
1912-24-9	Atrazine	ND	87	19	ug/kg	
56-55-3	Benzo(a)anthracene	957	44	12	ug/kg	
50-32-8	Benzo(a)pyrene	837	44	20	ug/kg	
205-99-2	Benzo(b)fluoranthene	940	44	19	ug/kg	
191-24-2	Benzo(g,h,i)perylene	418	44	22	ug/kg	
207-08-9	Benzo(k)fluoranthene	386	44	20	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	87	17	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	87	11	ug/kg	
92-52-4	1,1'-Biphenyl	32.2	87	6.0	ug/kg	J
100-52-7	Benzaldehyde	ND	220	11	ug/kg	
91-58-7	2-Chloronaphthalene	ND	87	10	ug/kg	
106-47-8	4-Chloroaniline	ND	220	16	ug/kg	
86-74-8	Carbazole	50.9	87	6.3	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-156(7.5-9.5)		Date Sampled: 05/03/19
Lab Sample ID: JC87535-4		Date Received: 05/03/19
Matrix: SO - Soil		Percent Solids: 74.3
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	87	17	ug/kg	
218-01-9	Chrysene	860	44	14	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	87	9.4	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	87	19	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	87	16	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	87	14	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	44	14	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	44	22	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	87	36	ug/kg	
123-91-1	1,4-Dioxane ^a	ND	44	29	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	119	44	19	ug/kg	
132-64-9	Dibenzofuran	55.5	87	18	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	87	7.1	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	87	11	ug/kg	
84-66-2	Diethyl phthalate	ND	87	9.3	ug/kg	
131-11-3	Dimethyl phthalate	ND	87	7.8	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	87	10	ug/kg	
206-44-0	Fluoranthene	1970	44	19	ug/kg	
86-73-7	Fluorene	130	44	20	ug/kg	
118-74-1	Hexachlorobenzene	ND	87	11	ug/kg	
87-68-3	Hexachlorobutadiene ^a	ND	44	18	ug/kg	UJ
77-47-4	Hexachlorocyclopentadiene	ND	440	17	ug/kg	
67-72-1	Hexachloroethane	ND	220	22	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	489	44	20	ug/kg	
78-59-1	Isophorone	ND	87	9.4	ug/kg	
91-57-6	2-Methylnaphthalene	93.5	44	9.9	ug/kg	
88-74-4	2-Nitroaniline	ND	220	10	ug/kg	
99-09-2	3-Nitroaniline	ND	220	11	ug/kg	
100-01-6	4-Nitroaniline	ND	220	11	ug/kg	
91-20-3	Naphthalene	1070	44	12	ug/kg	
98-95-3	Nitrobenzene	ND	87	17	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	87	13	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	220	16	ug/kg	
85-01-8	Phenanthrene	872	44	15	ug/kg	
129-00-0	Pyrene	1390	44	14	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	220	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	67%		23-115%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.4
 4

Report of Analysis

Client Sample ID: S-156(7.5-9.5)	
Lab Sample ID: JC87535-4	Date Sampled: 05/03/19
Matrix: SO - Soil	Date Received: 05/03/19
Method: SW846 8270D SW846 3546	Percent Solids: 74.3
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	72%		27-114%
118-79-6	2,4,6-Tribromophenol	100%		19-152%
4165-60-0	Nitrobenzene-d5	82%		26-134%
321-60-8	2-Fluorobiphenyl	82%		39-124%
1718-51-0	Terphenyl-d14	69%		36-134%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-156(7.5-9.5)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-4	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 74.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	8660 J	68	11	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Antimony ^a	2.2 J	5.4	1.1	mg/kg	2	05/08/19	05/09/19	ND SW846 6010D ³	SW846 3050B ⁵
Arsenic	15.9	2.7	0.38	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Barium	93.0	27	2.6	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Beryllium	1.4	0.27	0.11	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Cadmium	0.11 J	0.68	0.095	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Calcium	2170	680	60	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Chromium	25.1	1.4	0.50	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Cobalt	8.3	6.8	0.38	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Copper ^a	97.6	6.8	2.3	mg/kg	2	05/08/19	05/09/19	ND SW846 6010D ³	SW846 3050B ⁵
Iron ^a	50400	140	52	mg/kg	2	05/08/19	05/09/19	ND SW846 6010D ³	SW846 3050B ⁵
Lead ^a	150 J	5.4	1.1	mg/kg	2	05/08/19	05/09/19	ND SW846 6010D ³	SW846 3050B ⁵
Magnesium	1660	680	19	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Manganese ^a	265	4.1	1.1	mg/kg	2	05/08/19	05/09/19	ND SW846 6010D ³	SW846 3050B ⁵
Mercury	0.83	0.041	0.018	mg/kg	1	05/07/19	05/07/19	LL SW846 7471B ¹	SW846 7471B ⁴
Nickel	17.8	5.4	0.48	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Potassium	895 J	1400	43	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Selenium ^a	4.1 J	5.4	1.8	mg/kg	2	05/08/19	05/09/19	ND SW846 6010D ³	SW846 3050B ⁵
Silver ^a	0.60 J	1.4	0.46	mg/kg	2	05/08/19	05/09/19	ND SW846 6010D ³	SW846 3050B ⁵
Sodium	126 J	1400	110	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Thallium ^a	1.6 U	2.7	1.6	mg/kg	2	05/08/19	05/09/19	ND SW846 6010D ³	SW846 3050B ⁵
Vanadium	72.7	6.8	0.26	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Zinc	124 J	6.8	3.1	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46664
- (2) Instrument QC Batch: MA46680
- (3) Instrument QC Batch: MA46687
- (4) Prep QC Batch: MP14859
- (5) Prep QC Batch: MP14865

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.4
4

Report of Analysis

Client Sample ID: S-156(7.5-9.5)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-4	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 74.3
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.16 U J	0.31	0.16	mg/kg	1	05/10/19 18:10 KI	SW846	9012B/LACHAT
Solids, Percent	74.3			%	1	05/13/19 15:15 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.4
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SGS North America Inc.

Report of Analysis

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Client Sample ID: S-156(14-16)		Date Sampled: 05/03/19
Lab Sample ID: JC87535-5		Date Received: 05/03/19
Matrix: SO - Soil		Percent Solids: 70.4
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	1C164513.D	1	05/13/19 19:48	PS	n/a	n/a	V1C7218

Run #1	Initial Weight
Run #2	4.5 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	114	16	6.3	ug/kg	J
71-43-2	Benzene	ND	0.79	0.72	ug/kg	
74-97-5	Bromochloromethane	ND	7.9	0.88	ug/kg	
75-27-4	Bromodichloromethane	ND	3.2	0.70	ug/kg	
75-25-2	Bromoform	ND	7.9	0.91	ug/kg	
74-83-9	Bromomethane	ND	7.9	1.6	ug/kg	
78-93-3	2-Butanone (MEK)	28.7	16	5.9	ug/kg	
75-15-0	Carbon disulfide	ND	3.2	1.5	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.2	0.98	ug/kg	
108-90-7	Chlorobenzene	ND	3.2	0.72	ug/kg	
75-00-3	Chloroethane	ND	7.9	0.93	ug/kg	
67-66-3	Chloroform	ND	3.2	0.77	ug/kg	
74-87-3	Chloromethane	ND	7.9	3.1	ug/kg	
110-82-7	Cyclohexane	ND	3.2	1.0	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.2	1.3	ug/kg	
124-48-1	Dibromochloromethane	ND	3.2	0.88	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.6	0.66	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.6	0.86	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.6	0.78	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.6	0.78	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	7.9	1.1	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.6	0.78	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.6	0.74	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.6	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.6	1.3	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.6	0.96	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.2	0.75	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.2	0.75	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.2	0.72	ug/kg	
100-41-4	Ethylbenzene	ND	1.6	0.87	ug/kg	
76-13-1	Freon 113	ND	7.9	1.6	ug/kg	
591-78-6	2-Hexanone	ND	7.9	3.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-156(14-16)	Date Sampled:	05/03/19
Lab Sample ID:	JC87535-5	Date Received:	05/03/19
Matrix:	SO - Soil	Percent Solids:	70.4
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.2	1.1	ug/kg	
79-20-9	Methyl Acetate	ND	7.9	2.2	ug/kg	
108-87-2	Methylcyclohexane	ND	3.2	1.4	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.6	0.74	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	7.9	3.6	ug/kg	
75-09-2	Methylene chloride	1.8	7.9	1.6	ug/kg	J
100-42-5	Styrene	ND	3.2	0.91	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.2	0.95	ug/kg	
127-18-4	Tetrachloroethene	ND	3.2	0.92	ug/kg	
108-88-3	Toluene	ND	1.6	0.83	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	7.9	3.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	7.9	2.4	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.2	0.76	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.2	0.87	ug/kg	
79-01-6	Trichloroethene	ND	1.6	1.2	ug/kg	
75-69-4	Trichlorofluoromethane	ND	7.9	1.1	ug/kg	
75-01-4	Vinyl chloride	ND	3.2	0.76	ug/kg	
	m,p-Xylene	ND	1.6	1.4	ug/kg	
95-47-6	o-Xylene	ND	1.6	0.92	ug/kg	
1330-20-7	Xylene (total)	ND	1.6	0.92	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	110%		75-127%
17060-07-0	1,2-Dichloroethane-D4	94%		75-130%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	94%		79-127%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	S-156(14-16)	Date Sampled:	05/03/19
Lab Sample ID:	JC87535-5	Date Received:	05/03/19
Matrix:	SO - Soil	Percent Solids:	70.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P59694.D	1	05/16/19 16:51	CC	05/12/19 14:30	OP20269	E5P2816
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	93	23	ug/kg	
59-50-7	4-Chloro-3-methyl phenol ^a	ND	230	29	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	230	40	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	230	83	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	230	180	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	230	50	ug/kg	
95-48-7	2-Methylphenol	ND	93	30	ug/kg	
	3&4-Methylphenol	ND	93	38	ug/kg	
88-75-5	2-Nitrophenol	ND	230	31	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	470	120	ug/kg	
87-86-5	Pentachlorophenol	ND	190	44	ug/kg	
108-95-2	Phenol	ND	93	24	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	230	31	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	230	35	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	230	28	ug/kg	
83-32-9	Acenaphthene	ND	47	16	ug/kg	
208-96-8	Acenaphthylene	ND	47	24	ug/kg	
98-86-2	Acetophenone	ND	230	10	ug/kg	
120-12-7	Anthracene	ND	47	29	ug/kg	
1912-24-9	Atrazine	ND	93	20	ug/kg	
56-55-3	Benzo(a)anthracene	26.3	47	13	ug/kg	J
50-32-8	Benzo(a)pyrene	22.5	47	21	ug/kg	J
205-99-2	Benzo(b)fluoranthene	29.6	47	21	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	ND	47	23	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	47	22	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	93	18	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	93	11	ug/kg	
92-52-4	1,1'-Biphenyl	7.7	93	6.4	ug/kg	J
100-52-7	Benzaldehyde	20.8	230	12	ug/kg	J
91-58-7	2-Chloronaphthalene	ND	93	11	ug/kg	
106-47-8	4-Chloroaniline	ND	230	17	ug/kg	
86-74-8	Carbazole	8.3	93	6.8	ug/kg	J

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-156(14-16)	Date Sampled:	05/03/19
Lab Sample ID:	JC87535-5	Date Received:	05/03/19
Matrix:	SO - Soil	Percent Solids:	70.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	93	18	ug/kg	
218-01-9	Chrysene	25.2	47	15	ug/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	93	10	ug/kg	
111-44-4	bis(2-Chloroethyl)ether ^a	ND	93	20	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane) ^a	ND	93	17	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	93	15	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	47	14	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	47	23	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	93	39	ug/kg	
123-91-1	1,4-Dioxane	ND	47	31	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	47	21	ug/kg	
132-64-9	Dibenzofuran	ND	93	19	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	93	7.6	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	93	12	ug/kg	
84-66-2	Diethyl phthalate	ND	93	10	ug/kg	
131-11-3	Dimethyl phthalate	ND	93	8.3	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	93	11	ug/kg	
206-44-0	Fluoranthene	59.7	47	21	ug/kg	
86-73-7	Fluorene	21.9	47	21	ug/kg	J
118-74-1	Hexachlorobenzene	ND	93	12	ug/kg	
87-68-3	Hexachlorobutadiene	ND	47	19	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	470	19	ug/kg	
67-72-1	Hexachloroethane	ND	230	23	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	47	22	ug/kg	
78-59-1	Isophorone ^a	ND	93	10	ug/kg	
91-57-6	2-Methylnaphthalene	14.4	47	11	ug/kg	J
88-74-4	2-Nitroaniline	ND	230	11	ug/kg	
99-09-2	3-Nitroaniline	ND	230	12	ug/kg	
100-01-6	4-Nitroaniline	ND	230	12	ug/kg	
91-20-3	Naphthalene	77.8	47	13	ug/kg	
98-95-3	Nitrobenzene ^a	ND	93	18	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine ^a	ND	93	14	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	230	17	ug/kg	
85-01-8	Phenanthrene	65.2	47	16	ug/kg	
129-00-0	Pyrene	43.4	47	15	ug/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	230	12	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	71%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-156(14-16)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-5	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 70.4
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	78%		27-114%
118-79-6	2,4,6-Tribromophenol	73%		19-152%
4165-60-0	Nitrobenzene-d5	95%		26-134%
321-60-8	2-Fluorobiphenyl	81%		39-124%
1718-51-0	Terphenyl-d14	77%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.5
4

Report of Analysis

Client Sample ID: S-156(14-16)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-5	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 70.4
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	21800 J	72	12	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Antimony	0.59 U J	2.9	0.59	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Arsenic	7.4	2.9	0.41	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Barium	183	29	2.8	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Beryllium	1.1	0.29	0.12	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.28 J	0.72	0.10	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Calcium	2800	720	64	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Chromium	42.7	1.4	0.54	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Cobalt	10.9	7.2	0.41	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Copper	22.1	3.6	1.2	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Iron	25700	72	28	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Lead	80.3 J	2.9	0.59	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Magnesium	5160	720	20	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Manganese	402	2.2	0.59	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Mercury	0.11	0.045	0.020	mg/kg	1	05/07/19	05/07/19	LL SW846 7471B ¹	SW846 7471B ³
Nickel	26.3	5.8	0.51	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Potassium	1870	1400	46	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Selenium	0.94 U	2.9	0.94	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Silver	0.52 J	0.72	0.25	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Sodium	228 J	1400	110	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Thallium	0.84 U	1.4	0.84	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Vanadium	41.9	7.2	0.28	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Zinc	132 J	7.2	3.3	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46664
- (2) Instrument QC Batch: MA46680
- (3) Prep QC Batch: MP14859
- (4) Prep QC Batch: MP14865

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-156(14-16)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-5	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 70.4
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.15 U J	0.30	0.15	mg/kg	1	05/10/19 18:19	KI	SW846 9012B/LACHAT
Solids, Percent	70.4			%	1	05/13/19 15:15	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID:	SO-DUP-0503	Date Sampled:	05/03/19
Lab Sample ID:	JC87535-6	Date Received:	05/03/19
Matrix:	SO - Soil	Percent Solids:	66.4
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y185123.D	1	05/11/19 15:08	PS	n/a	n/a	VY8033
Run #2							

Run #1	Initial Weight
Run #1	3.8 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	229	20	7.9	ug/kg	J
71-43-2	Benzene	ND	0.99	0.90	ug/kg	
74-97-5	Bromochloromethane	ND	9.9	1.1	ug/kg	
75-27-4	Bromodichloromethane	ND	4.0	0.88	ug/kg	
75-25-2	Bromoform	ND	9.9	1.1	ug/kg	
74-83-9	Bromomethane	ND	9.9	2.0	ug/kg	
78-93-3	2-Butanone (MEK)	38.7	20	7.4	ug/kg	
75-15-0	Carbon disulfide	ND	4.0	1.8	ug/kg	
56-23-5	Carbon tetrachloride	ND	4.0	1.2	ug/kg	
108-90-7	Chlorobenzene	ND	4.0	0.91	ug/kg	
75-00-3	Chloroethane	ND	9.9	1.2	ug/kg	
67-66-3	Chloroform	ND	4.0	0.97	ug/kg	
74-87-3	Chloromethane ^a	ND	9.9	3.9	ug/kg	UJ
110-82-7	Cyclohexane	ND	4.0	1.3	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	4.0	1.7	ug/kg	
124-48-1	Dibromochloromethane	ND	4.0	1.1	ug/kg	
106-93-4	1,2-Dibromoethane	ND	2.0	0.83	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	2.0	1.1	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	2.0	0.98	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	2.0	0.98	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	9.9	1.4	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	2.0	0.98	ug/kg	
107-06-2	1,2-Dichloroethane	ND	2.0	0.93	ug/kg	
75-35-4	1,1-Dichloroethene	ND	2.0	1.3	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	2.0	1.7	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	2.0	1.2	ug/kg	
78-87-5	1,2-Dichloropropane	ND	4.0	0.94	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	4.0	0.94	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	4.0	0.91	ug/kg	
100-41-4	Ethylbenzene	ND	2.0	1.1	ug/kg	
76-13-1	Freon 113	ND	9.9	2.0	ug/kg	
591-78-6	2-Hexanone	ND	9.9	4.2	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SO-DUP-0503		Date Sampled: 05/03/19
Lab Sample ID: JC87535-6		Date Received: 05/03/19
Matrix: SO - Soil		Percent Solids: 66.4
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	4.0	1.4	ug/kg	
79-20-9	Methyl Acetate	6.2	9.9	2.8	ug/kg	J
108-87-2	Methylcyclohexane	ND	4.0	1.7	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	2.0	0.93	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	9.9	4.5	ug/kg	
75-09-2	Methylene chloride	ND	9.9	2.0	ug/kg	
100-42-5	Styrene	ND	4.0	1.1	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	4.0	1.2	ug/kg	
127-18-4	Tetrachloroethene	ND	4.0	1.1	ug/kg	
108-88-3	Toluene	ND	2.0	1.0	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	9.9	3.8	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	9.9	3.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	4.0	0.96	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	4.0	1.1	ug/kg	
79-01-6	Trichloroethene	ND	2.0	1.5	ug/kg	
75-69-4	Trichlorofluoromethane	ND	9.9	1.4	ug/kg	
75-01-4	Vinyl chloride ^a	ND	4.0	0.95	ug/kg	UU
	m,p-Xylene	ND	2.0	1.8	ug/kg	
95-47-6	o-Xylene	ND	2.0	1.2	ug/kg	
1330-20-7	Xylene (total)	ND	2.0	1.2	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		75-127%
17060-07-0	1,2-Dichloroethane-D4	91%		75-130%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	96%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.6
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SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	SO-DUP-0503	Date Sampled:	05/03/19
Lab Sample ID:	JC87535-6	Date Received:	05/03/19
Matrix:	SO - Soil	Percent Solids:	66.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P59690.D	1	05/16/19 15:21	CC	05/12/19 14:30	OP20269	E5P2816
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	98	24	ug/kg	
59-50-7	4-Chloro-3-methyl phenol ^a	ND	250	30	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	250	42	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	250	88	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	250	190	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	250	53	ug/kg	
95-48-7	2-Methylphenol	ND	98	31	ug/kg	
	3&4-Methylphenol	ND	98	40	ug/kg	
88-75-5	2-Nitrophenol	ND	250	33	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	490	130	ug/kg	
87-86-5	Pentachlorophenol	ND	200	46	ug/kg	
108-95-2	Phenol	ND	98	26	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	250	33	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	250	37	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	250	29	ug/kg	
83-32-9	Acenaphthene	ND	49	17	ug/kg	
208-96-8	Acenaphthylene	ND	49	25	ug/kg	
98-86-2	Acetophenone	ND	250	11	ug/kg	
120-12-7	Anthracene	ND	49	30	ug/kg	
1912-24-9	Atrazine	ND	98	21	ug/kg	
56-55-3	Benzo(a)anthracene	15.3	49	14	ug/kg	J
50-32-8	Benzo(a)pyrene	ND	49	22	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	49	22	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	49	25	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	49	23	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	98	19	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	98	12	ug/kg	
92-52-4	1,1'-Biphenyl	ND	98	6.7	ug/kg	
100-52-7	Benzaldehyde	ND	250	12	ug/kg	
91-58-7	2-Chloronaphthalene	ND	98	12	ug/kg	
106-47-8	4-Chloroaniline	ND	250	18	ug/kg	
86-74-8	Carbazole	ND	98	7.1	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SO-DUP-0503	Date Sampled:	05/03/19
Lab Sample ID:	JC87535-6	Date Received:	05/03/19
Matrix:	SO - Soil	Percent Solids:	66.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	98	19	ug/kg	
218-01-9	Chrysene	ND	49	16	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	98	11	ug/kg	
111-44-4	bis(2-Chloroethyl)ether ^a	ND	98	21	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane) ^a	ND	98	18	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	98	16	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	49	15	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	49	25	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	98	41	ug/kg	
123-91-1	1,4-Dioxane	ND	49	33	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	49	22	ug/kg	
132-64-9	Dibenzofuran	ND	98	20	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	98	8.0	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	98	12	ug/kg	
84-66-2	Diethyl phthalate	ND	98	10	ug/kg	
131-11-3	Dimethyl phthalate	ND	98	8.8	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	98	12	ug/kg	
206-44-0	Fluoranthene	28.6	49	22	ug/kg	J
86-73-7	Fluorene	ND	49	23	ug/kg	
118-74-1	Hexachlorobenzene	ND	98	12	ug/kg	
87-68-3	Hexachlorobutadiene	ND	49	20	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	490	20	ug/kg	
67-72-1	Hexachloroethane	ND	250	24	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	49	23	ug/kg	
78-59-1	Isophorone ^a	ND	98	11	ug/kg	
91-57-6	2-Methylnaphthalene	15.5	49	11	ug/kg	J
88-74-4	2-Nitroaniline	ND	250	12	ug/kg	
99-09-2	3-Nitroaniline	ND	250	12	ug/kg	
100-01-6	4-Nitroaniline	ND	250	13	ug/kg	
91-20-3	Naphthalene	115	49	14	ug/kg	
98-95-3	Nitrobenzene ^a	ND	98	19	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine ^a	ND	98	14	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	250	18	ug/kg	
85-01-8	Phenanthrene	43.2	49	17	ug/kg	J
129-00-0	Pyrene	22.0	49	16	ug/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	250	13	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	77%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SO-DUP-0503	
Lab Sample ID: JC87535-6	Date Sampled: 05/03/19
Matrix: SO - Soil	Date Received: 05/03/19
Method: SW846 8270D SW846 3546	Percent Solids: 66.4
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	85%		27-114%
118-79-6	2,4,6-Tribromophenol	76%		19-152%
4165-60-0	Nitrobenzene-d5	105%		26-134%
321-60-8	2-Fluorobiphenyl	87%		39-124%
1718-51-0	Terphenyl-d14	80%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SO-DUP-0503	Date Sampled: 05/03/19
Lab Sample ID: JC87535-6	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 66.4
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	24700 J	74	12	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Antimony	0.61 U	J 3.0	0.61	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Arsenic	4.5	3.0	0.41	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Barium	162	30	2.8	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Beryllium	1.2	0.30	0.12	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.13 J	0.74	0.10	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Calcium	2730	740	65	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Chromium	47.5	1.5	0.55	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Cobalt	12.1	7.4	0.41	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Copper	10.1	3.7	1.2	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Iron	25400	74	28	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Lead	14.8 J	3.0	0.61	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Magnesium	5840	740	20	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Manganese	325	2.2	0.61	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Mercury	0.019 U	0.043	0.019	mg/kg	1	05/07/19	05/07/19	LL SW846 7471B ¹	SW846 7471B ³
Nickel	29.6	5.9	0.52	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Potassium	2170	1500	47	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Selenium	0.96 U	3.0	0.96	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Silver	0.49 J	0.74	0.25	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Sodium	248 J	1500	110	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Thallium	0.86 U	1.5	0.86	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Vanadium	48.1	7.4	0.28	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Zinc	72.1 J	7.4	3.4	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴

(1) Instrument QC Batch: MA46664

(2) Instrument QC Batch: MA46680

(3) Prep QC Batch: MP14859

(4) Prep QC Batch: MP14865

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: SO-DUP-0503	Date Sampled: 05/03/19
Lab Sample ID: JC87535-6	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 66.4
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.17 U J	0.33	0.17	mg/kg	1	05/10/19 18:12 KI	SW846	9012B/LACHAT
Solids, Percent	66.4			%	1	05/13/19 15:15 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: S-161(5-7)		Date Sampled: 05/03/19
Lab Sample ID: JC87535-7		Date Received: 05/03/19
Matrix: SO - Soil		Percent Solids: 90.2
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	2C167664.D	1	05/15/19 18:16	TDN	n/a	n/a	V2C7520
Run #2							

Run	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.7 g	10.0 ml	1.0 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	100000	41000	ug/kg	
71-43-2	Benzene	103000	5100	4700	ug/kg	
74-97-5	Bromochloromethane	ND	51000	5800	ug/kg	
75-27-4	Bromodichloromethane	ND	21000	4500	ug/kg	
75-25-2	Bromoform	ND	51000	5900	ug/kg	
74-83-9	Bromomethane ^b	ND	51000	10000	ug/kg	UJ
78-93-3	2-Butanone (MEK)	ND	100000	38000	ug/kg	
75-15-0	Carbon disulfide	ND	21000	9500	ug/kg	
56-23-5	Carbon tetrachloride	ND	21000	6300	ug/kg	
108-90-7	Chlorobenzene	ND	21000	4700	ug/kg	
75-00-3	Chloroethane	ND	51000	6100	ug/kg	
67-66-3	Chloroform	ND	21000	5000	ug/kg	
74-87-3	Chloromethane ^b	ND	51000	20000	ug/kg	UJ
110-82-7	Cyclohexane	ND	21000	6700	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	21000	8600	ug/kg	
124-48-1	Dibromochloromethane	ND	21000	5800	ug/kg	
106-93-4	1,2-Dibromoethane	ND	10000	4300	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	10000	5600	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	10000	5100	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	10000	5100	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	51000	7500	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	10000	5100	ug/kg	
107-06-2	1,2-Dichloroethane	ND	10000	4800	ug/kg	
75-35-4	1,1-Dichloroethene	ND	10000	6700	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	10000	8600	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	10000	6300	ug/kg	
78-87-5	1,2-Dichloropropane	ND	21000	4900	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	21000	4900	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	21000	4700	ug/kg	
100-41-4	Ethylbenzene	6520	10000	5700	ug/kg	J
76-13-1	Freon 113	ND	51000	10000	ug/kg	
591-78-6	2-Hexanone	ND	51000	22000	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-161(5-7)	
Lab Sample ID: JC87535-7	Date Sampled: 05/03/19
Matrix: SO - Soil	Date Received: 05/03/19
Method: SW846 8260C	Percent Solids: 90.2
Project: National Grid, Philly Coke, Philadelphia, PA	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	21000	7200	ug/kg	
79-20-9	Methyl Acetate	ND	51000	14000	ug/kg	
108-87-2	Methylcyclohexane	ND	21000	9000	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	10000	4800	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	51000	23000	ug/kg	
75-09-2	Methylene chloride	ND	51000	10000	ug/kg	
100-42-5	Styrene	11000	21000	5900	ug/kg	J
79-34-5	1,1,2,2-Tetrachloroethane	ND	21000	6200	ug/kg	
127-18-4	Tetrachloroethene	ND	21000	6000	ug/kg	
108-88-3	Toluene	40800	10000	5400	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	51000	20000	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	51000	16000	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	21000	5000	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	21000	5700	ug/kg	
79-01-6	Trichloroethene	ND	10000	7800	ug/kg	
75-69-4	Trichlorofluoromethane	ND	51000	7000	ug/kg	
75-01-4	Vinyl chloride	ND	21000	4900	ug/kg	
	m,p-Xylene	59900	10000	9200	ug/kg	
95-47-6	o-Xylene	19800	10000	6000	ug/kg	
1330-20-7	Xylene (total)	79700	10000	6000	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		75-127%
17060-07-0	1,2-Dichloroethane-D4	99%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	100%		79-127%

(a) Diluted due to high concentration of non-target compound.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: S-161(5-7)		Date Sampled: 05/03/19
Lab Sample ID: JC87535-7		Date Received: 05/03/19
Matrix: SO - Soil		Percent Solids: 90.2
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	5P59885.D	5	05/21/19 12:07	CS	05/12/19 14:30	OP20269	E5P2823
Run #2	5P59749.D	50	05/17/19 19:00	CC	05/12/19 14:30	OP20269	E5P2818
Run #3	5P59747.D	500	05/17/19 18:15	CC	05/12/19 14:30	OP20269	E5P2818

Run #	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2	30.6 g	1.0 ml
Run #3	30.6 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	360	89	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	910	110	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	910	150	ug/kg	
105-67-9	2,4-Dimethylphenol ^b	4430	910	320	ug/kg	J
51-28-5	2,4-Dinitrophenol	ND	910	680	ug/kg	
534-52-1	4,6-Dinitro-o-cresol ^c	ND	910	190	ug/kg	UJ
95-48-7	2-Methylphenol	1480	360	120	ug/kg	
	3&4-Methylphenol	1330	360	150	ug/kg	
88-75-5	2-Nitrophenol ^c	ND	910	120	ug/kg	UJ
100-02-7	4-Nitrophenol	ND	1800	480	ug/kg	
87-86-5	Pentachlorophenol	ND	720	170	ug/kg	
108-95-2	Phenol	455	360	95	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	910	120	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	910	140	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	910	110	ug/kg	
83-32-9	Acenaphthene	48200 ^d	1800	620	ug/kg	D
208-96-8	Acenaphthylene	286000 ^e	18000	9200	ug/kg	D
98-86-2	Acetophenone	ND	910	39	ug/kg	
120-12-7	Anthracene	178000 ^d	1800	1100	ug/kg	D
1912-24-9	Atrazine	ND	360	78	ug/kg	
56-55-3	Benzo(a)anthracene	168000 ^d	1800	510	ug/kg	D
50-32-8	Benzo(a)pyrene	148000 ^d	1800	820	ug/kg	
205-99-2	Benzo(b)fluoranthene	171000 ^d	1800	800	ug/kg	
191-24-2	Benzo(g,h,i)perylene	83600 ^d	1800	910	ug/kg	
207-08-9	Benzo(k)fluoranthene	59900 ^d	1800	850	ug/kg	↓
101-55-3	4-Bromophenyl phenyl ether	ND	360	70	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	360	44	ug/kg	
92-52-4	1,1'-Biphenyl	51900 ^d	3600	250	ug/kg	D
100-52-7	Benzaldehyde	ND	910	45	ug/kg	
91-58-7	2-Chloronaphthalene ^c	ND	360	43	ug/kg	UJ

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.7
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Report of Analysis

Client Sample ID:	S-161(5-7)	Date Sampled:	05/03/19
Lab Sample ID:	JC87535-7	Date Received:	05/03/19
Matrix:	SO - Soil	Percent Solids:	90.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	910	65	ug/kg	
86-74-8	Carbazole	111000 ^d	3600	260	ug/kg	D
105-60-2	Caprolactam	ND	360	72	ug/kg	
218-01-9	Chrysene	133000 ^d	1800	570	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	360	39	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	360	78	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane) ^f	ND	360	65	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	360	59	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	180	56	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	180	91	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	360	150	ug/kg	
123-91-1	1,4-Dioxane	ND	180	120	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	24700 ^d	1800	800	ug/kg	D
132-64-9	Dibenzofuran	218000 ^e	36000	7400	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	360	30	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	360	45	ug/kg	
84-66-2	Diethyl phthalate	ND	360	39	ug/kg	
131-11-3	Dimethyl phthalate	ND	360	32	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	360	42	ug/kg	
206-44-0	Fluoranthene	544000 ^e	18000	8100	ug/kg	D
86-73-7	Fluorene	334000 ^e	18000	8300	ug/kg	D
118-74-1	Hexachlorobenzene	ND	360	46	ug/kg	
87-68-3	Hexachlorobutadiene	ND	180	73	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^c	ND	1800	72	ug/kg	UJ
67-72-1	Hexachloroethane	ND	910	90	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene ^b	87900 ^d	1800	850	ug/kg	DJ
78-59-1	Isophorone	ND	360	39	ug/kg	
91-57-6	2-Methylnaphthalene	155000 ^d	1800	410	ug/kg	D
88-74-4	2-Nitroaniline	ND	910	43	ug/kg	
99-09-2	3-Nitroaniline	ND	910	45	ug/kg	
100-01-6	4-Nitroaniline	ND	910	47	ug/kg	
91-20-3	Naphthalene	854000 ^e	18000	5100	ug/kg	D
98-95-3	Nitrobenzene	ND	360	70	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	360	52	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	910	66	ug/kg	
85-01-8	Phenanthrene	860000 ^e	18000	6100	ug/kg	D
129-00-0	Pyrene	348000 ^e	18000	5800	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	910	46	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-161(5-7) Lab Sample ID: JC87535-7 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 05/03/19 Date Received: 05/03/19 Percent Solids: 90.2
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	73%	66%	0% ^g	23-115%
4165-62-2	Phenol-d5	85%	66%	0% ^g	27-114%
118-79-6	2,4,6-Tribromophenol	90%	68%	0% ^g	19-152%
4165-60-0	Nitrobenzene-d5	132%	120%	0% ^g	26-134%
321-60-8	2-Fluorobiphenyl	83%	108%	0% ^g	39-124%
1718-51-0	Terphenyl-d14	72%	99%	0% ^g	36-134%

- (a) Dilution required due to matrix interference.
- (b) Associated CCV outside of control limits high.
- (c) Associated CCV outside of control limits low.
- (d) Result is from Run# 2
- (e) Result is from Run# 3
- (f) Associated CCV outside of control limits high, sample was ND.
- (g) Outside control limits due to dilution.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: S-161(5-7)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-7	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 90.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	9750 J	55	8.8	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Antimony	0.45 U	J 2.2	0.45	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Arsenic	5.8	2.2	0.31	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Barium	37.3	22	2.1	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.56	0.22	0.088	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.11 J	0.55	0.077	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Calcium	917	550	48	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Chromium	21.3	1.1	0.41	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Cobalt	7.0	5.5	0.31	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Copper	26.6	2.7	0.92	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Iron	20200	55	21	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Lead	38.0 J	2.2	0.45	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Magnesium	2170	550	15	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Manganese	138	1.6	0.45	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Mercury	0.032 J	0.035	0.016	mg/kg	1	05/07/19	05/07/19	LL SW846 7471B ¹	SW846 7471B ³
Nickel	16.4	4.4	0.38	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Potassium	1180	1100	35	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Selenium	0.71 U	2.2	0.71	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Silver	0.32 J	0.55	0.19	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Sodium	95.1 J	1100	85	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Thallium	0.64 U	1.1	0.64	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Vanadium	16.0	5.5	0.21	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Zinc	77.4 J	5.5	2.5	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46664
- (2) Instrument QC Batch: MA46680
- (3) Prep QC Batch: MP14859
- (4) Prep QC Batch: MP14865

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

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Report of Analysis

Client Sample ID: S-161(5-7)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-7	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 90.2
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	5.1 J	0.24	0.12	mg/kg	1	05/10/19 18:14	KI	SW846 9012B/LACHAT
Solids, Percent	90.2			%	1	05/09/19 08:36	RC	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

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SGS North America Inc.

Report of Analysis

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Client Sample ID: S-161(10-12)		Date Sampled: 05/03/19
Lab Sample ID: JC87535-8		Date Received: 05/03/19
Matrix: SO - Soil		Percent Solids: 78.6
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y185119.D	1	05/11/19 13:14	PS	n/a	n/a	VY8033
Run #2							

Run #1	Initial Weight
Run #1	5.4 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	57.0	12	4.7	ug/kg	
71-43-2	Benzene	10.2	0.59	0.54	ug/kg	
74-97-5	Bromochloromethane	ND	5.9	0.66	ug/kg	
75-27-4	Bromodichloromethane	ND	2.4	0.52	ug/kg	
75-25-2	Bromoform	ND	5.9	0.68	ug/kg	
74-83-9	Bromomethane	ND	5.9	1.2	ug/kg	
78-93-3	2-Butanone (MEK)	ND	12	4.4	ug/kg	
75-15-0	Carbon disulfide	2.3	2.4	1.1	ug/kg	J
56-23-5	Carbon tetrachloride	ND	2.4	0.73	ug/kg	
108-90-7	Chlorobenzene	ND	2.4	0.54	ug/kg	
75-00-3	Chloroethane	ND	5.9	0.70	ug/kg	
67-66-3	Chloroform	ND	2.4	0.58	ug/kg	
74-87-3	Chloromethane ^a	ND	5.9	2.3	ug/kg	UJ
110-82-7	Cyclohexane	ND	2.4	0.77	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.4	0.98	ug/kg	
124-48-1	Dibromochloromethane	ND	2.4	0.66	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.2	0.50	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.2	0.64	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.2	0.58	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.2	0.58	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	5.9	0.86	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	1.2	0.58	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.2	0.55	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.2	0.77	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.2	0.99	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.2	0.72	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.4	0.56	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.4	0.56	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.4	0.54	ug/kg	
100-41-4	Ethylbenzene	ND	1.2	0.65	ug/kg	
76-13-1	Freon 113	ND	5.9	1.2	ug/kg	
591-78-6	2-Hexanone	ND	5.9	2.5	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-161(10-12)		Date Sampled: 05/03/19
Lab Sample ID: JC87535-8		Date Received: 05/03/19
Matrix: SO - Soil		Percent Solids: 78.6
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.4	0.82	ug/kg	
79-20-9	Methyl Acetate	ND	5.9	1.6	ug/kg	
108-87-2	Methylcyclohexane	ND	2.4	1.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.2	0.55	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.9	2.7	ug/kg	
75-09-2	Methylene chloride	ND	5.9	1.2	ug/kg	
100-42-5	Styrene	ND	2.4	0.68	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.4	0.71	ug/kg	
127-18-4	Tetrachloroethene	ND	2.4	0.68	ug/kg	
108-88-3	Toluene	0.68	1.2	0.62	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	5.9	2.3	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.9	1.8	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.4	0.57	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.4	0.65	ug/kg	
79-01-6	Trichloroethene	ND	1.2	0.90	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.9	0.81	ug/kg	
75-01-4	Vinyl chloride ^a	ND	2.4	0.57	ug/kg	UJ
	m,p-Xylene	ND	1.2	1.1	ug/kg	
95-47-6	o-Xylene	ND	1.2	0.69	ug/kg	
1330-20-7	Xylene (total)	ND	1.2	0.69	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		75-127%
17060-07-0	1,2-Dichloroethane-D4	96%		75-130%
2037-26-5	Toluene-D8	97%		80-120%
460-00-4	4-Bromofluorobenzene	97%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

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Client Sample ID:	S-161(10-12)	Date Sampled:	05/03/19
Lab Sample ID:	JC87535-8	Date Received:	05/03/19
Matrix:	SO - Soil	Percent Solids:	78.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2M112002.D	1	05/18/19 11:00	CS	05/12/19 14:30	OP20269	E2M4980
Run #2	2M112031.D	5	05/19/19 06:01	CS	05/12/19 14:30	OP20269	E2M4981

Run #	Initial Weight	Final Volume
Run #1	30.3 g	1.0 ml
Run #2	30.3 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	84	21	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	210	26	ug/kg	
120-83-2	2,4-Dichlorophenol ^a	ND	210	36	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	210	75	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	210	160	ug/kg	
534-52-1	4,6-Dinitro-o-cresol ^a	ND	210	45	ug/kg	
95-48-7	2-Methylphenol	ND	84	27	ug/kg	
	3&4-Methylphenol	ND	84	35	ug/kg	
88-75-5	2-Nitrophenol ^a	ND	210	28	ug/kg	
100-02-7	4-Nitrophenol	ND	420	110	ug/kg	
87-86-5	Pentachlorophenol	ND	170	39	ug/kg	
108-95-2	Phenol	ND	84	22	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol ^a	ND	210	28	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	210	31	ug/kg	
88-06-2	2,4,6-Trichlorophenol ^a	ND	210	25	ug/kg	
83-32-9	Acenaphthene	1650	42	14	ug/kg	
208-96-8	Acenaphthylene	117	42	21	ug/kg	
98-86-2	Acetophenone	ND	210	9.0	ug/kg	
120-12-7	Anthracene	2970	42	26	ug/kg	
1912-24-9	Atrazine	ND	84	18	ug/kg	
56-55-3	Benzo(a)anthracene	981	42	12	ug/kg	
50-32-8	Benzo(a)pyrene	645	42	19	ug/kg	
205-99-2	Benzo(b)fluoranthene	801	42	19	ug/kg	
191-24-2	Benzo(g,h,i)perylene	271	42	21	ug/kg	
207-08-9	Benzo(k)fluoranthene	273	42	20	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	84	16	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	84	10	ug/kg	
92-52-4	1,1'-Biphenyl	47.4	84	5.8	ug/kg	J
100-52-7	Benzaldehyde	ND	210	10	ug/kg	
91-58-7	2-Chloronaphthalene	ND	84	10	ug/kg	
106-47-8	4-Chloroaniline	ND	210	15	ug/kg	
86-74-8	Carbazole	761	84	6.1	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-161(10-12)		Date Sampled: 05/03/19
Lab Sample ID: JC87535-8		Date Received: 05/03/19
Matrix: SO - Soil		Percent Solids: 78.6
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	84	17	ug/kg	
218-01-9	Chrysene	1220	42	13	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	84	9.0	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	84	18	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	84	15	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	84	14	ug/kg	
121-14-2	2,4-Dinitrotoluene ^a	ND	42	13	ug/kg	
606-20-2	2,6-Dinitrotoluene ^a	ND	42	21	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	84	35	ug/kg	
123-91-1	1,4-Dioxane	ND	42	28	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	90.4	42	19	ug/kg	
132-64-9	Dibenzofuran	536	84	17	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	84	6.8	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	84	10	ug/kg	
84-66-2	Diethyl phthalate	ND	84	8.9	ug/kg	
131-11-3	Dimethyl phthalate	ND	84	7.5	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	84	9.8	ug/kg	
206-44-0	Fluoranthene	2880	42	19	ug/kg	
86-73-7	Fluorene	1560	42	19	ug/kg	
118-74-1	Hexachlorobenzene	ND	84	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	42	17	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^a	ND	420	17	ug/kg	
67-72-1	Hexachloroethane	ND	210	21	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	288	42	20	ug/kg	
78-59-1	Isophorone	ND	84	9.0	ug/kg	
91-57-6	2-Methylnaphthalene	265	42	9.5	ug/kg	
88-74-4	2-Nitroaniline ^a	ND	210	9.9	ug/kg	
99-09-2	3-Nitroaniline ^a	ND	210	10	ug/kg	
100-01-6	4-Nitroaniline	ND	210	11	ug/kg	
91-20-3	Naphthalene	587	42	12	ug/kg	
98-95-3	Nitrobenzene	ND	84	16	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	84	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	210	15	ug/kg	
85-01-8	Phenanthrene	5480 ^b	210	71	ug/kg	D
129-00-0	Pyrene	2430	42	13	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	210	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	73%	70%	23-115%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.8
 4

Report of Analysis

Client Sample ID: S-161(10-12)	
Lab Sample ID: JC87535-8	Date Sampled: 05/03/19
Matrix: SO - Soil	Date Received: 05/03/19
Method: SW846 8270D SW846 3546	Percent Solids: 78.6
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	73%	71%	27-114%
118-79-6	2,4,6-Tribromophenol	82%	66%	19-152%
4165-60-0	Nitrobenzene-d5	88%	80%	26-134%
321-60-8	2-Fluorobiphenyl	78%	79%	39-124%
1718-51-0	Terphenyl-d14	78%	75%	36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-161(10-12) Lab Sample ID: JC87535-8 Matrix: SO - Soil Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 05/03/19 Date Received: 05/03/19 Percent Solids: 78.6
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Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	6860 J	65	10	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Antimony	0.53 U	J 2.6	0.53	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Arsenic	11.8	2.6	0.36	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Barium	63.0	26	2.5	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Beryllium	0.42	0.26	0.10	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Cadmium	0.40 J	0.65	0.091	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Calcium	1680	650	57	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Chromium	40.7	1.3	0.48	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Cobalt	7.5	6.5	0.36	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Copper	31.3	3.2	1.1	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Iron	15600	65	25	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Lead	69.3 J	2.6	0.53	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Magnesium	2360	650	18	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Manganese	379	1.9	0.53	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Mercury	0.37	0.037	0.016	mg/kg	1	05/13/19	05/13/19	LL	SW846 7471B ² SW846 7471B ⁴
Nickel	14.0	5.2	0.45	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Potassium	931 J	1300	41	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Selenium	0.84 U	2.6	0.84	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Silver	0.22 U	0.65	0.22	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Sodium	100 U	1300	100	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Thallium	0.75 U	1.3	0.75	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Vanadium	13.6	6.5	0.25	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³
Zinc	156 J	6.5	3.0	mg/kg	1	05/10/19	05/10/19	ND	SW846 6010D ¹ SW846 3050B ³

(1) Instrument QC Batch: MA46695

(2) Instrument QC Batch: MA46698

(3) Prep QC Batch: MP14918

(4) Prep QC Batch: MP14998

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.8
4

Report of Analysis

Client Sample ID: S-161(10-12)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-8	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 78.6
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.23 J	0.28	0.14	mg/kg	1	05/10/19 17:56 KI	SW846	9012B/LACHAT
Solids, Percent	78.6			%	1	05/13/19 11:07 RC	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: S-162(5-7)		Date Sampled: 05/03/19
Lab Sample ID: JC87535-9		Date Received: 05/03/19
Matrix: SO - Soil		Percent Solids: 79.1
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y185125.D	1	05/11/19 16:05	PS	n/a	n/a	VY8033
Run #2							

Run #1	Initial Weight
Run #1	5.7 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	16.7	11	4.4	ug/kg	
71-43-2	Benzene	6.2	0.55	0.50	ug/kg	
74-97-5	Bromochloromethane	ND	5.5	0.62	ug/kg	
75-27-4	Bromodichloromethane	ND	2.2	0.49	ug/kg	
75-25-2	Bromoform	ND	5.5	0.64	ug/kg	
74-83-9	Bromomethane	ND	5.5	1.1	ug/kg	
78-93-3	2-Butanone (MEK)	ND	11	4.1	ug/kg	
75-15-0	Carbon disulfide	1.3	2.2	1.0	ug/kg	J
56-23-5	Carbon tetrachloride	ND	2.2	0.69	ug/kg	
108-90-7	Chlorobenzene	ND	2.2	0.51	ug/kg	
75-00-3	Chloroethane	ND	5.5	0.66	ug/kg	
67-66-3	Chloroform	ND	2.2	0.54	ug/kg	
74-87-3	Chloromethane ^a	ND	5.5	2.2	ug/kg	UJ
110-82-7	Cyclohexane	ND	2.2	0.73	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.2	0.93	ug/kg	
124-48-1	Dibromochloromethane	ND	2.2	0.62	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.1	0.47	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.1	0.61	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.1	0.55	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.1	0.55	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	5.5	0.81	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	1.1	0.55	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.1	0.52	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.1	0.73	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.1	0.93	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.1	0.68	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.2	0.52	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.2	0.53	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.2	0.51	ug/kg	
100-41-4	Ethylbenzene	0.83	1.1	0.61	ug/kg	J
76-13-1	Freon 113	ND	5.5	1.1	ug/kg	
591-78-6	2-Hexanone	ND	5.5	2.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-162(5-7)		Date Sampled: 05/03/19
Lab Sample ID: JC87535-9		Date Received: 05/03/19
Matrix: SO - Soil		Percent Solids: 79.1
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.2	0.77	ug/kg	
79-20-9	Methyl Acetate	ND	5.5	1.5	ug/kg	
108-87-2	Methylcyclohexane	ND	2.2	0.97	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.1	0.52	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.5	2.5	ug/kg	
75-09-2	Methylene chloride	ND	5.5	1.1	ug/kg	
100-42-5	Styrene	ND	2.2	0.64	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.2	0.66	ug/kg	
127-18-4	Tetrachloroethene	ND	2.2	0.64	ug/kg	
108-88-3	Toluene	1.7	1.1	0.58	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.5	2.1	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.5	1.7	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.2	0.54	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.2	0.61	ug/kg	
79-01-6	Trichloroethene	ND	1.1	0.85	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.5	0.76	ug/kg	
75-01-4	Vinyl chloride ^a	ND	2.2	0.53	ug/kg	UJ
	m,p-Xylene	2.3	1.1	0.99	ug/kg	
95-47-6	o-Xylene	2.3	1.1	0.65	ug/kg	
1330-20-7	Xylene (total)	4.6	1.1	0.65	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		75-127%
17060-07-0	1,2-Dichloroethane-D4	89%		75-130%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	95%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

Client Sample ID: S-162(5-7)	
Lab Sample ID: JC87535-9	Date Sampled: 05/03/19
Matrix: SO - Soil	Date Received: 05/03/19
Method: SW846 8270D SW846 3546	Percent Solids: 79.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P59691.D	1	05/16/19 15:43	CC	05/12/19 14:30	OP20269	E5P2816
Run #2	5P59745.D	10	05/17/19 17:29	CC	05/12/19 14:30	OP20269	E5P2818
Run #3	2M112045.D	20	05/19/19 16:07	CB	05/12/19 14:30	OP20269	E2M4982

Run #	Initial Weight	Final Volume
Run #1	32.8 g	1.0 ml
Run #2	32.8 g	1.0 ml
Run #3	32.8 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	77	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol ^a	ND	190	24	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	33	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	190	69	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	190	41	ug/kg	
95-48-7	2-Methylphenol	ND	77	25	ug/kg	
	3&4-Methylphenol	ND	77	32	ug/kg	
88-75-5	2-Nitrophenol	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	390	100	ug/kg	
87-86-5	Pentachlorophenol	ND	150	36	ug/kg	
108-95-2	Phenol	ND	77	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	26	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	29	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	23	ug/kg	
83-32-9	Acenaphthene	1440	39	13	ug/kg	
208-96-8	Acenaphthylene	ND	39	20	ug/kg	
98-86-2	Acetophenone	ND	190	8.3	ug/kg	
120-12-7	Anthracene	3190	39	24	ug/kg	
1912-24-9	Atrazine	ND	77	16	ug/kg	
56-55-3	Benzo(a)anthracene	716	39	11	ug/kg	
50-32-8	Benzo(a)pyrene	446	39	18	ug/kg	
205-99-2	Benzo(b)fluoranthene	601	39	17	ug/kg	
191-24-2	Benzo(g,h,i)perylene	177	39	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	246	39	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	77	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	77	9.4	ug/kg	
92-52-4	1,1'-Biphenyl	4090 ^b	770	53	ug/kg	D
100-52-7	Benzaldehyde	ND	190	9.6	ug/kg	
91-58-7	2-Chloronaphthalene	ND	77	9.2	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.9
4

Report of Analysis

Client Sample ID:	S-162(5-7)	Date Sampled:	05/03/19
Lab Sample ID:	JC87535-9	Date Received:	05/03/19
Matrix:	SO - Soil	Percent Solids:	79.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	ND	77	5.6	ug/kg	
105-60-2	Caprolactam ^a	ND	77	15	ug/kg	
218-01-9	Chrysene	560	39	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	77	8.2	ug/kg	
111-44-4	bis(2-Chloroethyl)ether ^a	ND	77	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane) ^a	ND	77	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	77	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	39	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	39	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	77	32	ug/kg	
123-91-1	1,4-Dioxane	ND	39	25	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	50.2	39	17	ug/kg	
132-64-9	Dibenzofuran	1850	77	16	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	77	6.3	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	77	9.6	ug/kg	
84-66-2	Diethyl phthalate	ND	77	8.2	ug/kg	
131-11-3	Dimethyl phthalate	ND	77	6.9	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	51.3	77	9.0	ug/kg	J
206-44-0	Fluoranthene	3250 ^b	390	170	ug/kg	D
86-73-7	Fluorene	2300	39	18	ug/kg	
118-74-1	Hexachlorobenzene	ND	77	9.8	ug/kg	
87-68-3	Hexachlorobutadiene	ND ^b	390	150	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	390	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	210	39	18	ug/kg	
78-59-1	Isophorone ^a	ND	77	8.2	ug/kg	
91-57-6	2-Methylnaphthalene	65200 ^c	770	170	ug/kg	D
88-74-4	2-Nitroaniline	ND	190	9.1	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.6	ug/kg	
100-01-6	4-Nitroaniline	ND	190	10	ug/kg	
91-20-3	Naphthalene	13500 ^b	390	110	ug/kg	D
98-95-3	Nitrobenzene ^a	ND	77	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine ^a	ND	77	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	11400 ^b	390	130	ug/kg	D
129-00-0	Pyrene	2320	39	12	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.8	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-162(5-7)		Date Sampled: 05/03/19
Lab Sample ID: JC87535-9		Date Received: 05/03/19
Matrix: SO - Soil		Percent Solids: 79.1
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	87%	68%	71%	23-115%
4165-62-2	Phenol-d5	83%	72%	72%	27-114%
118-79-6	2,4,6-Tribromophenol	142%	73%	65%	19-152%
4165-60-0	Nitrobenzene-d5	110%	104%	127%	26-134%
321-60-8	2-Fluorobiphenyl	74%	81%	104%	39-124%
1718-51-0	Terphenyl-d14	82%	70%	82%	36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Result is from Run# 2

(c) Result is from Run# 3

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-162(5-7)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-9	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 79.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	12400 J	63	10	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Antimony	2.1 J	2.5	0.52	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Arsenic	7.2	2.5	0.35	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Barium	106	25	2.4	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Beryllium	0.63	0.25	0.10	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Cadmium	0.64	0.63	0.088	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Calcium	52000	1900	170	mg/kg	3	05/08/19	05/09/19	ND SW846 6010D ³	SW846 3050B ⁵
Chromium	26.2	1.3	0.47	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Cobalt	6.9	6.3	0.35	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Copper	57.5	3.2	1.1	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Iron	17800	63	24	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Lead	296 J	2.5	0.52	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Magnesium	17300	630	17	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Manganese	330	1.9	0.52	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Mercury	0.36	0.039	0.017	mg/kg	1	05/07/19	05/07/19	LL SW846 7471B ¹	SW846 7471B ⁴
Nickel	17.0	5.1	0.44	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Potassium	2250	1300	40	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Selenium	0.82 U	2.5	0.82	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Silver	0.49 J	0.63	0.21	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Sodium	247 J	1300	98	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Thallium	0.73 U	1.3	0.73	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Vanadium	28.8	6.3	0.24	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Zinc	491 J	6.3	2.9	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46664
- (2) Instrument QC Batch: MA46680
- (3) Instrument QC Batch: MA46687
- (4) Prep QC Batch: MP14859
- (5) Prep QC Batch: MP14865

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-162(5-7)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-9	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 79.1
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.0 J	0.28	0.14	mg/kg	1	05/10/19 17:57	KI	SW846 9012B/LACHAT
Solids, Percent	79.1			%	1	05/13/19 15:15	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

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Report of Analysis

Page 1 of 2

Client Sample ID: S-162(15-17)		Date Sampled: 05/03/19
Lab Sample ID: JC87535-10		Date Received: 05/03/19
Matrix: SO - Soil		Percent Solids: 54.8
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	Y185124.D	1	05/11/19 15:37	PS	n/a	n/a	VY8033

Run #1	Initial Weight
Run #2	4.9 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	71.3	19	7.5	ug/kg	
71-43-2	Benzene	17.4	0.93	0.85	ug/kg	
74-97-5	Bromochloromethane	ND	9.3	1.0	ug/kg	
75-27-4	Bromodichloromethane	ND	3.7	0.82	ug/kg	
75-25-2	Bromoform	ND	9.3	1.1	ug/kg	
74-83-9	Bromomethane	ND	9.3	1.9	ug/kg	
78-93-3	2-Butanone (MEK)	17.3	19	7.0	ug/kg	J
75-15-0	Carbon disulfide	ND	3.7	1.7	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.7	1.2	ug/kg	
108-90-7	Chlorobenzene	ND	3.7	0.85	ug/kg	
75-00-3	Chloroethane	ND	9.3	1.1	ug/kg	
67-66-3	Chloroform	ND	3.7	0.91	ug/kg	
74-87-3	Chloromethane ^a	ND	9.3	3.6	ug/kg	UJ
110-82-7	Cyclohexane	ND	3.7	1.2	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.7	1.6	ug/kg	
124-48-1	Dibromochloromethane	ND	3.7	1.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.9	0.78	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.9	1.0	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.9	0.92	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.9	0.92	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	9.3	1.4	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	1.9	0.92	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.9	0.88	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.9	1.2	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.9	1.6	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.9	1.1	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.7	0.88	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.7	0.88	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.7	0.85	ug/kg	
100-41-4	Ethylbenzene	ND	1.9	1.0	ug/kg	
76-13-1	Freon 113	ND	9.3	1.9	ug/kg	
591-78-6	2-Hexanone	ND	9.3	3.9	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-162(15-17)		Date Sampled: 05/03/19
Lab Sample ID: JC87535-10		Date Received: 05/03/19
Matrix: SO - Soil		Percent Solids: 54.8
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.7	1.3	ug/kg	
79-20-9	Methyl Acetate	ND	9.3	2.6	ug/kg	
108-87-2	Methylcyclohexane	ND	3.7	1.6	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.9	0.87	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	9.3	4.2	ug/kg	
75-09-2	Methylene chloride	ND	9.3	1.9	ug/kg	
100-42-5	Styrene	ND	3.7	1.1	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.7	1.1	ug/kg	
127-18-4	Tetrachloroethene	ND	3.7	1.1	ug/kg	
108-88-3	Toluene	1.7	1.9	0.98	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	9.3	3.6	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	9.3	2.8	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.7	0.90	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.7	1.0	ug/kg	
79-01-6	Trichloroethene	ND	1.9	1.4	ug/kg	
75-69-4	Trichlorofluoromethane	ND	9.3	1.3	ug/kg	
75-01-4	Vinyl chloride ^a	ND	3.7	0.90	ug/kg	UU
	m,p-Xylene	ND	1.9	1.7	ug/kg	
95-47-6	o-Xylene	ND	1.9	1.1	ug/kg	
1330-20-7	Xylene (total)	ND	1.9	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		75-127%
17060-07-0	1,2-Dichloroethane-D4	91%		75-130%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	96%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

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Client Sample ID: S-162(15-17)		Date Sampled: 05/03/19
Lab Sample ID: JC87535-10		Date Received: 05/03/19
Matrix: SO - Soil		Percent Solids: 54.8
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P59692.D	1	05/16/19 16:06	CC	05/12/19 14:30	OP20269	E5P2816
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	120	30	ug/kg	
59-50-7	4-Chloro-3-methyl phenol ^a	ND	300	37	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	300	52	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	300	110	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	300	230	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	300	65	ug/kg	
95-48-7	2-Methylphenol	ND	120	39	ug/kg	
	3&4-Methylphenol	57.1	120	50	ug/kg	J
88-75-5	2-Nitrophenol	ND	300	40	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	600	160	ug/kg	
87-86-5	Pentachlorophenol	ND	240	57	ug/kg	
108-95-2	Phenol	ND	120	32	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	300	40	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	300	45	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	300	36	ug/kg	
83-32-9	Acenaphthene	957	60	21	ug/kg	
208-96-8	Acenaphthylene	233	60	31	ug/kg	
98-86-2	Acetophenone	ND	300	13	ug/kg	
120-12-7	Anthracene	919	60	37	ug/kg	
1912-24-9	Atrazine	ND	120	26	ug/kg	
56-55-3	Benzo(a)anthracene	500	60	17	ug/kg	
50-32-8	Benzo(a)pyrene	458	60	27	ug/kg	
205-99-2	Benzo(b)fluoranthene	509	60	27	ug/kg	
191-24-2	Benzo(g,h,i)perylene	253	60	30	ug/kg	
207-08-9	Benzo(k)fluoranthene	215	60	28	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	120	23	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	120	15	ug/kg	
92-52-4	1,1'-Biphenyl	84.2	120	8.3	ug/kg	J
100-52-7	Benzaldehyde	ND	300	15	ug/kg	
91-58-7	2-Chloronaphthalene	ND	120	14	ug/kg	
106-47-8	4-Chloroaniline	ND	300	22	ug/kg	
86-74-8	Carbazole	463	120	8.8	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-162(15-17)	Date Sampled:	05/03/19
Lab Sample ID:	JC87535-10	Date Received:	05/03/19
Matrix:	SO - Soil	Percent Solids:	54.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	120	24	ug/kg	
218-01-9	Chrysene	494	60	19	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	120	13	ug/kg	
111-44-4	bis(2-Chloroethyl)ether ^a	ND	120	26	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane) ^a	ND	120	22	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	120	20	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	60	19	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	60	30	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	120	50	ug/kg	
123-91-1	1,4-Dioxane	ND	60	40	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	66.6	60	27	ug/kg	
132-64-9	Dibenzofuran	423	120	25	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	120	9.8	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	120	15	ug/kg	
84-66-2	Diethyl phthalate	ND	120	13	ug/kg	
131-11-3	Dimethyl phthalate	ND	120	11	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	120	14	ug/kg	
206-44-0	Fluoranthene	1380	60	27	ug/kg	
86-73-7	Fluorene	914	60	28	ug/kg	
118-74-1	Hexachlorobenzene	ND	120	15	ug/kg	
87-68-3	Hexachlorobutadiene	ND	60	24	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	600	24	ug/kg	
67-72-1	Hexachloroethane	ND	300	30	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	258	60	28	ug/kg	
78-59-1	Isophorone ^a	ND	120	13	ug/kg	
91-57-6	2-Methylnaphthalene	311	60	14	ug/kg	
88-74-4	2-Nitroaniline	ND	300	14	ug/kg	
99-09-2	3-Nitroaniline	ND	300	15	ug/kg	
100-01-6	4-Nitroaniline	ND	300	16	ug/kg	
91-20-3	Naphthalene	1260	60	17	ug/kg	
98-95-3	Nitrobenzene ^a	ND	120	23	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine ^a	ND	120	17	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	300	22	ug/kg	
85-01-8	Phenanthrene	2450	60	20	ug/kg	
129-00-0	Pyrene	1010	60	19	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	300	15	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	78%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-162(15-17)	
Lab Sample ID: JC87535-10	Date Sampled: 05/03/19
Matrix: SO - Soil	Date Received: 05/03/19
Method: SW846 8270D SW846 3546	Percent Solids: 54.8
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	84%		27-114%
118-79-6	2,4,6-Tribromophenol	76%		19-152%
4165-60-0	Nitrobenzene-d5	92%		26-134%
321-60-8	2-Fluorobiphenyl	81%		39-124%
1718-51-0	Terphenyl-d14	71%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-162(15-17)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-10	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 54.8
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	19900 J	94	15	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Antimony	1.8 J	3.8	0.77	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Arsenic	41.7	3.8	0.53	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Barium	208	38	3.6	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Beryllium	1.3	0.38	0.15	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Cadmium	2.3	0.94	0.13	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Calcium	20300	940	83	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Chromium	191	1.9	0.70	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Cobalt	17.5	9.4	0.53	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Copper	135	4.7	1.6	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Iron	33000	94	36	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Lead	277 J	3.8	0.77	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Magnesium	5190	940	26	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Manganese	1010	2.8	0.77	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Mercury	1.9	0.11	0.047	mg/kg	2	05/07/19	05/07/19	LL SW846 7471B ¹	SW846 7471B ³
Nickel	34.8	7.5	0.66	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Potassium	2200	1900	60	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Selenium	1.4 J	3.8	1.2	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Silver	1.8	0.94	0.32	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Sodium	450 J	1900	150	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Thallium	1.1 U	1.9	1.1	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Vanadium	38.1	9.4	0.36	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Zinc	690 J	9.4	4.3	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46664
- (2) Instrument QC Batch: MA46680
- (3) Prep QC Batch: MP14859
- (4) Prep QC Batch: MP14865

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-162(15-17)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-10	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 54.8
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.21 U J	0.42	0.21	mg/kg	1	05/10/19 17:59	KI	SW846 9012B/LACHAT
Solids, Percent	54.8			%	1	05/13/19 15:15	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: S-160(10-12)		Date Sampled: 05/03/19
Lab Sample ID: JC87535-11		Date Received: 05/03/19
Matrix: SO - Soil		Percent Solids: 77.3
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	2C167663.D	1	05/15/19 17:48	TDN	n/a	n/a	V2C7520
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.2 g	10.0 ml	1.0 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	140000	56000	ug/kg	
71-43-2	Benzene	46600	7000	6300	ug/kg	
74-97-5	Bromochloromethane	ND	70000	7800	ug/kg	
75-27-4	Bromodichloromethane	ND	28000	6200	ug/kg	
75-25-2	Bromoform	ND	70000	8000	ug/kg	
74-83-9	Bromomethane ^b	ND	70000	14000	ug/kg	UJ
78-93-3	2-Butanone (MEK)	ND	140000	52000	ug/kg	
75-15-0	Carbon disulfide	ND	28000	13000	ug/kg	
56-23-5	Carbon tetrachloride	ND	28000	8600	ug/kg	
108-90-7	Chlorobenzene	ND	28000	6400	ug/kg	
75-00-3	Chloroethane	ND	70000	8200	ug/kg	
67-66-3	Chloroform	ND	28000	6800	ug/kg	
74-87-3	Chloromethane ^b	ND	70000	27000	ug/kg	UJ
110-82-7	Cyclohexane	ND	28000	9100	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	28000	12000	ug/kg	
124-48-1	Dibromochloromethane	ND	28000	7800	ug/kg	
106-93-4	1,2-Dibromoethane	ND	14000	5900	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	14000	7600	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	14000	6900	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	14000	6900	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	70000	10000	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	14000	6900	ug/kg	
107-06-2	1,2-Dichloroethane	ND	14000	6500	ug/kg	
75-35-4	1,1-Dichloroethene	ND	14000	9100	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	14000	12000	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	14000	8500	ug/kg	
78-87-5	1,2-Dichloropropane	ND	28000	6600	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	28000	6600	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	28000	6400	ug/kg	
100-41-4	Ethylbenzene	19100	14000	7700	ug/kg	
76-13-1	Freon 113	ND	70000	14000	ug/kg	
591-78-6	2-Hexanone	ND	70000	29000	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-160(10-12)		Date Sampled: 05/03/19
Lab Sample ID: JC87535-11		Date Received: 05/03/19
Matrix: SO - Soil		Percent Solids: 77.3
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	28000	9700	ug/kg	
79-20-9	Methyl Acetate	ND	70000	19000	ug/kg	
108-87-2	Methylcyclohexane	ND	28000	12000	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	14000	6500	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	70000	32000	ug/kg	
75-09-2	Methylene chloride	ND	70000	14000	ug/kg	
100-42-5	Styrene	15500	28000	8000	ug/kg	J
79-34-5	1,1,2,2-Tetrachloroethane	ND	28000	8300	ug/kg	
127-18-4	Tetrachloroethene	ND	28000	8100	ug/kg	
108-88-3	Toluene	47800	14000	7300	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	70000	27000	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	70000	21000	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	28000	6700	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	28000	7700	ug/kg	
79-01-6	Trichloroethene	ND	14000	11000	ug/kg	
75-69-4	Trichlorofluoromethane	ND	70000	9500	ug/kg	
75-01-4	Vinyl chloride	ND	28000	6700	ug/kg	
	m,p-Xylene	81300	14000	12000	ug/kg	
95-47-6	o-Xylene	27200	14000	8100	ug/kg	
1330-20-7	Xylene (total)	109000	14000	8100	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		75-127%
17060-07-0	1,2-Dichloroethane-D4	100%		75-130%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	102%		79-127%

(a) Diluted due to high concentration of non-target compound.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

Client Sample ID: S-160(10-12)	
Lab Sample ID: JC87535-11	Date Sampled: 05/03/19
Matrix: SO - Soil	Date Received: 05/03/19
Method: SW846 8270D SW846 3546	Percent Solids: 77.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	5P59704.D	2	05/16/19 20:37	CC	05/12/19 14:30	OP20269	E5P2816
Run #2	2M112048.D	20	05/19/19 17:27	CB	05/12/19 14:30	OP20269	E2M4982
Run #3	2M112049.D	200	05/19/19 18:47	CB	05/12/19 14:30	OP20269	E2M4982

Run #	Initial Weight	Final Volume
Run #1	15.5 g	5.0 ml
Run #2	15.5 g	5.0 ml
Run #3	15.5 g	5.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	1700	410	ug/kg	
59-50-7	4-Chloro-3-methyl phenol ^b	ND	4200	510	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	4200	710	ug/kg	
105-67-9	2,4-Dimethylphenol	152000 ^c	42000	15000	ug/kg	D
51-28-5	2,4-Dinitrophenol	ND	4200	3100	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	4200	890	ug/kg	
95-48-7	2-Methylphenol	73600	1700	530	ug/kg	
	3&4-Methylphenol ^d	221000 ^c	17000	6900	ug/kg	D
88-75-5	2-Nitrophenol	ND	4200	550	ug/kg	
100-02-7	4-Nitrophenol ^b	ND	8300	2200	ug/kg	
87-86-5	Pentachlorophenol	ND	3300	780	ug/kg	
108-95-2	Phenol	75900	1700	440	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	4200	550	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	4200	630	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	4200	500	ug/kg	
83-32-9	Acenaphthene	344000 ^c	8300	2900	ug/kg	D
208-96-8	Acenaphthylene	1800000 ^e	83000	42000	ug/kg	D
98-86-2	Acetophenone	ND	4200	180	ug/kg	
120-12-7	Anthracene	1950000 ^e	83000	51000	ug/kg	D
1912-24-9	Atrazine	ND	1700	360	ug/kg	
56-55-3	Benzo(a)anthracene	1100000 ^e	83000	24000	ug/kg	D
50-32-8	Benzo(a)pyrene	762000 ^c	8300	3800	ug/kg	
205-99-2	Benzo(b)fluoranthene	1050000 ^e	83000	37000	ug/kg	
191-24-2	Benzo(g,h,i)perylene	429000 ^c	8300	4200	ug/kg	
207-08-9	Benzo(k)fluoranthene	396000 ^e	83000	39000	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	1700	320	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	1700	200	ug/kg	
92-52-4	1,1'-Biphenyl	300000 ^c	17000	1100	ug/kg	D
100-52-7	Benzaldehyde	ND	4200	210	ug/kg	
91-58-7	2-Chloronaphthalene	ND	1700	200	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	S-160(10-12)	Date Sampled:	05/03/19
Lab Sample ID:	JC87535-11	Date Received:	05/03/19
Matrix:	SO - Soil	Percent Solids:	77.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	4200	300	ug/kg	
86-74-8	Carbazole	828000 ^c	17000	1200	ug/kg	D
105-60-2	Caprolactam ^b	ND	1700	330	ug/kg	
218-01-9	Chrysene	784000 ^c	8300	2600	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	1700	180	ug/kg	
111-44-4	bis(2-Chloroethyl)ether ^b	ND	1700	360	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane) ^b	ND	1700	300	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	1700	270	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	830	260	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	830	420	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	1700	700	ug/kg	
123-91-1	1,4-Dioxane	ND	830	550	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	39000	830	370	ug/kg	
132-64-9	Dibenzofuran	1420000 ^e	170000	34000	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	1700	140	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	1700	210	ug/kg	
84-66-2	Diethyl phthalate	ND	1700	180	ug/kg	
131-11-3	Dimethyl phthalate	ND	1700	150	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	1700	200	ug/kg	
206-44-0	Fluoranthene	3400000 ^e	83000	37000	ug/kg	D
86-73-7	Fluorene	2130000 ^e	83000	38000	ug/kg	D
118-74-1	Hexachlorobenzene	ND	1700	210	ug/kg	
87-68-3	Hexachlorobutadiene	ND	830	340	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	8300	330	ug/kg	
67-72-1	Hexachloroethane	ND	4200	410	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	481000 ^c	8300	3900	ug/kg	D
78-59-1	Isophorone ^b	ND	1700	180	ug/kg	
91-57-6	2-Methylnaphthalene	1490000 ^e	83000	19000	ug/kg	D
88-74-4	2-Nitroaniline	ND	4200	200	ug/kg	
99-09-2	3-Nitroaniline	ND	4200	210	ug/kg	
100-01-6	4-Nitroaniline	ND	4200	220	ug/kg	
91-20-3	Naphthalene	6610000 ^e	83000	24000	ug/kg	D
98-95-3	Nitrobenzene ^b	ND	1700	320	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine ^b	ND	1700	240	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	4200	310	ug/kg	
85-01-8	Phenanthrene	4840000 ^e	83000	28000	ug/kg	D
129-00-0	Pyrene	1920000 ^e	83000	27000	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	4200	210	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-160(10-12)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-11	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 77.3
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	83%	81%	0% ^f	23-115%
4165-62-2	Phenol-d5	93%	80%	0% ^f	27-114%
118-79-6	2,4,6-Tribromophenol	119%	56%	0% ^f	19-152%
4165-60-0	Nitrobenzene-d5	172% ^g	97%	0% ^f	26-134%
321-60-8	2-Fluorobiphenyl	87%	94%	97%	39-124%
1718-51-0	Terphenyl-d14	83%	105%	102%	36-134%

- (a) Dilution required due to viscosity of the extract matrix.
- (b) Associated CCV outside of control limits high, sample was ND.
- (c) Result is from Run# 2
- (d) Associated CCV outside of control limits high.
- (e) Result is from Run# 3
- (f) Outside control limits due to dilution.
- (g) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: S-160(10-12)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-11	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 77.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	6170 J	67	11	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Antimony	0.55 U	2.7	0.55	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Arsenic	12.7	2.7	0.37	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Barium	48.4	27	2.5	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Beryllium	0.40	0.27	0.11	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Cadmium	1.1	0.67	0.093	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Calcium	2290	670	59	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Chromium	32.9	1.3	0.49	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Cobalt	4.4 J	6.7	0.37	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Copper	31.5	3.3	1.1	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Iron	12000	67	26	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Lead	108 J	2.7	0.55	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Magnesium	1520	670	18	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Manganese	238	2.0	0.55	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Mercury	0.39	0.037	0.016	mg/kg	1	05/07/19	05/07/19	LL SW846 7471B ¹	SW846 7471B ⁴
Nickel	10.0	5.3	0.47	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Potassium	823 J	1300	42	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Selenium	3.1	2.7	0.87	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Silver	0.55 J	0.67	0.23	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Sodium	109 J	1300	100	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Thallium ^a	2.0	1.3	0.77	mg/kg	1	05/08/19	05/09/19	ND SW846 6010D ³	SW846 3050B ⁵
Vanadium	12.0	6.7	0.25	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵
Zinc	164 J	6.7	3.1	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46664
- (2) Instrument QC Batch: MA46680
- (3) Instrument QC Batch: MA46687
- (4) Prep QC Batch: MP14859
- (5) Prep QC Batch: MP14865

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-160(10-12)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-11	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 77.3
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	6.6 J	0.28	0.14	mg/kg	1	05/10/19 18:03	KI	SW846 9012B/LACHAT
Solids, Percent	77.3			%	1	05/13/19 15:15	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: S-160(13-15)		Date Sampled: 05/03/19
Lab Sample ID: JC87535-12		Date Received: 05/03/19
Matrix: SO - Soil		Percent Solids: 56.0
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y185127.D	1	05/11/19 17:02	PS	n/a	n/a	VY8033
Run #2							

Run #1	Initial Weight
Run #1	4.8 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	68.3	19	7.5	ug/kg	
71-43-2	Benzene	ND	0.93	0.85	ug/kg	
74-97-5	Bromochloromethane	ND	9.3	1.0	ug/kg	
75-27-4	Bromodichloromethane	ND	3.7	0.82	ug/kg	
75-25-2	Bromoform	ND	9.3	1.1	ug/kg	
74-83-9	Bromomethane	ND	9.3	1.9	ug/kg	
78-93-3	2-Butanone (MEK)	16.2	19	7.0	ug/kg	J
75-15-0	Carbon disulfide	ND	3.7	1.7	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.7	1.1	ug/kg	
108-90-7	Chlorobenzene	ND	3.7	0.85	ug/kg	
75-00-3	Chloroethane	ND	9.3	1.1	ug/kg	
67-66-3	Chloroform	ND	3.7	0.91	ug/kg	
74-87-3	Chloromethane ^a	ND	9.3	3.6	ug/kg	UJ
110-82-7	Cyclohexane	ND	3.7	1.2	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.7	1.6	ug/kg	
124-48-1	Dibromochloromethane	ND	3.7	1.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.9	0.78	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.9	1.0	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.9	0.92	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.9	0.92	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	9.3	1.4	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	1.9	0.92	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.9	0.87	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.9	1.2	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.9	1.6	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.9	1.1	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.7	0.88	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.7	0.88	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.7	0.85	ug/kg	
100-41-4	Ethylbenzene	ND	1.9	1.0	ug/kg	
76-13-1	Freon 113	ND	9.3	1.9	ug/kg	
591-78-6	2-Hexanone	ND	9.3	3.9	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-160(13-15)		Date Sampled: 05/03/19
Lab Sample ID: JC87535-12		Date Received: 05/03/19
Matrix: SO - Soil		Percent Solids: 56.0
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.7	1.3	ug/kg	
79-20-9	Methyl Acetate	ND	9.3	2.6	ug/kg	
108-87-2	Methylcyclohexane	ND	3.7	1.6	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.9	0.87	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	9.3	4.2	ug/kg	
75-09-2	Methylene chloride	ND	9.3	1.8	ug/kg	
100-42-5	Styrene	ND	3.7	1.1	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.7	1.1	ug/kg	
127-18-4	Tetrachloroethene	ND	3.7	1.1	ug/kg	
108-88-3	Toluene	ND	1.9	0.98	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	9.3	3.6	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	9.3	2.8	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.7	0.90	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.7	1.0	ug/kg	
79-01-6	Trichloroethene	ND	1.9	1.4	ug/kg	
75-69-4	Trichlorofluoromethane	ND	9.3	1.3	ug/kg	
75-01-4	Vinyl chloride ^a	ND	3.7	0.89	ug/kg	UJ
	m,p-Xylene	ND	1.9	1.7	ug/kg	
95-47-6	o-Xylene	ND	1.9	1.1	ug/kg	
1330-20-7	Xylene (total)	ND	1.9	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		75-127%
17060-07-0	1,2-Dichloroethane-D4	91%		75-130%
2037-26-5	Toluene-D8	97%		80-120%
460-00-4	4-Bromofluorobenzene	99%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.12
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SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	S-160(13-15)	Date Sampled:	05/03/19
Lab Sample ID:	JC87535-12	Date Received:	05/03/19
Matrix:	SO - Soil	Percent Solids:	56.0
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	5P59693.D	1	05/16/19 16:29	CC	05/12/19 14:30	OP20269	E5P2816

Run #1	Initial Weight	Final Volume
Run #2	30.6 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	120	29	ug/kg	
59-50-7	4-Chloro-3-methyl phenol ^a	ND	290	36	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	290	50	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	290	100	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	290	220	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	290	62	ug/kg	
95-48-7	2-Methylphenol	ND	120	37	ug/kg	
	3&4-Methylphenol	ND	120	48	ug/kg	
88-75-5	2-Nitrophenol	ND	290	39	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	580	160	ug/kg	
87-86-5	Pentachlorophenol	ND	230	55	ug/kg	
108-95-2	Phenol	ND	120	30	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	290	39	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	290	44	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	290	35	ug/kg	
83-32-9	Acenaphthene	53.9	58	20	ug/kg	J
208-96-8	Acenaphthylene	63.4	58	30	ug/kg	
98-86-2	Acetophenone	ND	290	13	ug/kg	
120-12-7	Anthracene	84.4	58	36	ug/kg	
1912-24-9	Atrazine	ND	120	25	ug/kg	
56-55-3	Benzo(a)anthracene	145	58	17	ug/kg	
50-32-8	Benzo(a)pyrene	174	58	27	ug/kg	
205-99-2	Benzo(b)fluoranthene	181	58	26	ug/kg	
191-24-2	Benzo(g,h,i)perylene	103	58	29	ug/kg	
207-08-9	Benzo(k)fluoranthene	72.4	58	27	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	120	23	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	120	14	ug/kg	
92-52-4	1,1'-Biphenyl	15.0	120	8.0	ug/kg	J
100-52-7	Benzaldehyde	ND	290	14	ug/kg	
91-58-7	2-Chloronaphthalene	ND	120	14	ug/kg	
106-47-8	4-Chloroaniline	ND	290	21	ug/kg	
86-74-8	Carbazole	26.5	120	8.5	ug/kg	J

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-160(13-15)	Date Sampled:	05/03/19
Lab Sample ID:	JC87535-12	Date Received:	05/03/19
Matrix:	SO - Soil	Percent Solids:	56.0
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	120	23	ug/kg	
218-01-9	Chrysene	152	58	18	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	120	12	ug/kg	
111-44-4	bis(2-Chloroethyl)ether ^a	ND	120	25	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane) ^a	ND	120	21	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	120	19	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	58	18	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	58	29	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	120	49	ug/kg	
123-91-1	1,4-Dioxane	ND	58	39	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	31.5	58	26	ug/kg	J
132-64-9	Dibenzofuran	25.6	120	24	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	120	9.5	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	120	15	ug/kg	
84-66-2	Diethyl phthalate	ND	120	12	ug/kg	
131-11-3	Dimethyl phthalate	ND	120	10	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	120	14	ug/kg	
206-44-0	Fluoranthene	281	58	26	ug/kg	
86-73-7	Fluorene	60.0	58	27	ug/kg	
118-74-1	Hexachlorobenzene	ND	120	15	ug/kg	
87-68-3	Hexachlorobutadiene	ND	58	23	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	580	23	ug/kg	
67-72-1	Hexachloroethane	ND	290	29	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	102	58	27	ug/kg	
78-59-1	Isophorone ^a	ND	120	12	ug/kg	
91-57-6	2-Methylnaphthalene	55.0	58	13	ug/kg	J
88-74-4	2-Nitroaniline	ND	290	14	ug/kg	
99-09-2	3-Nitroaniline	ND	290	15	ug/kg	
100-01-6	4-Nitroaniline	ND	290	15	ug/kg	
91-20-3	Naphthalene	199	58	16	ug/kg	
98-95-3	Nitrobenzene ^a	ND	120	23	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine ^a	ND	120	17	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	290	21	ug/kg	
85-01-8	Phenanthrene	209	58	20	ug/kg	
129-00-0	Pyrene	282	58	19	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	290	15	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	78%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-160(13-15)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-12	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 56.0
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	81%		27-114%
118-79-6	2,4,6-Tribromophenol	81%		19-152%
4165-60-0	Nitrobenzene-d5	93%		26-134%
321-60-8	2-Fluorobiphenyl	80%		39-124%
1718-51-0	Terphenyl-d14	74%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-160(13-15)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-12	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 56.0
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	21900 J	92	15	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Antimony	1.2 J	3.7	0.75	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Arsenic	32.8	3.7	0.52	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Barium	145	37	3.5	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Beryllium	1.3	0.37	0.15	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Cadmium	1.4	0.92	0.13	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Calcium	4280	920	81	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Chromium	128	1.8	0.68	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Cobalt	17.3	9.2	0.52	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Copper	81.2	4.6	1.5	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Iron	35200	92	35	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Lead	151 J	3.7	0.75	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Magnesium	6010	920	25	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Manganese	1230	2.8	0.75	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Mercury	0.86	0.053	0.023	mg/kg	1	05/07/19	05/07/19	LL SW846 7471B ¹	SW846 7471B ³
Nickel	35.9	7.4	0.64	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Potassium	2660	1800	59	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Selenium	1.2 U	3.7	1.2	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Silver	1.2	0.92	0.31	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Sodium	346 J	1800	140	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Thallium	1.1 U	1.8	1.1	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Vanadium	46.4	9.2	0.35	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴
Zinc	458 J	9.2	4.2	mg/kg	1	05/08/19	05/08/19	ND SW846 6010D ²	SW846 3050B ⁴

(1) Instrument QC Batch: MA46664

(2) Instrument QC Batch: MA46680

(3) Prep QC Batch: MP14859

(4) Prep QC Batch: MP14865

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-160(13-15)	Date Sampled: 05/03/19
Lab Sample ID: JC87535-12	Date Received: 05/03/19
Matrix: SO - Soil	Percent Solids: 56.0
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.8 J	0.41	0.21	mg/kg	1	05/10/19 18:04	KI	SW846 9012B/LACHAT
Solids, Percent	56			%	1	05/13/19 15:15	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

National Grid

Philly Coke

DATA REVIEW

Philadelphia, Pennsylvania

Volatile Organic Compound (VOC), Semivolatile Organic Compounds (SVOC), Metals, and Miscellaneous Analyses

SDG # JC95411

Analyses Reported By:
SGS Laboratories
Dayton, New Jersey

Report #34668R
Review Level: Tier II
Project: 30004026 (B0036790.0001) 00006

DATA REVIEW REPORT

SUMMARY

This data review report summarizes the review of Sample Delivery Group (SDG) # JC95411 for samples collected in association with the National Grid Philly Coke site in Philadelphia, Pennsylvania. The review was conducted as a Tier II evaluation and included review of laboratory analytical data package completeness. Field documentation was not included in this review. Included with this assessment are the post-validation annotated sample result sheets, and chain of custody (COC). Analyses were performed on the following samples

SDG Number	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PEST/PCB	Metals	MISC
JC95411	S-164(4-6)	JC95411-1	Soil	9/19/2019		X	X		X	X
	S-173(5-7)	JC95411-2	Soil	9/19/2019		X	X		X	X
	S-172(5-7)	JC95411-3	Soil	9/19/2019		X	X		X	X
	S-171(5-7)	JC95411-4	Soil	9/19/2019		X	X		X	X
	S-168(6-8)	JC95411-5	Soil	9/19/2019		X	X		X	X
	S-163(0.5-2)	JC95411-6	Soil	9/19/2019		X	X		X	X
	S-163(2-4)	JC95411-7	Soil	9/19/2019		X	X		X	X
	S-167(7-9)	JC95411-8	Soil	9/19/2019		X	X		X	X
	PCTP-07R(10-12)	JC95411-9	Soil	9/19/2019		X	X		X	X
	TRIP BLANK	JC95411-10	Water	9/19/2019		X				

Notes:

1. PEST/PCB = Pesticides and polychlorinated biphenyls
2. SVOC = Semivolatile Organic Compounds
3. VOC = Volatile Organic Compound
4. MISC = Miscellaneous (total cyanide)

DATA REVIEW REPORT

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW REPORT

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260C and 8270D. Data were reviewed in accordance with the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540/R-2017-002, January 2017 and the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, EPA540/R-99/008, October 1999 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

DATA REVIEW REPORT

that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times/Preservation

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis (preserved) 7 days from collection to analysis (non-preserved)	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis (Samples stored in deionized water must be frozen or analyzed within 48 hours)	Cool to <6 °C.

Note:

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

DATA REVIEW REPORT

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS/LCSD analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery	LCSD Recovery
TRIP BLANK	Bromoform	>UL	--
	Dibromochloromethane	>UL	--
	trans-1,3-Dichloropropene	>UL	--

Note:

AC = Acceptable

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

DATA REVIEW REPORT

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Trip blanks		X		X	
Laboratory Control Sample (LCS)		X	X		
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)		X		X	
Matrix Spike Duplicate(MSD)		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

- %RSD Relative standard deviation
- %R Percent recovery
- RPD Relative percent difference
- %D Percent difference

DATA REVIEW REPORT

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD analysis was not performed on a sample within this SDG.

DATA REVIEW REPORT

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

The LCS/LCSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

Several samples were diluted to bring target compounds within linear range of the instrument. Sample results that were reported from a secondary dilution were qualified with a "D", indicating the result is diluted.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

DATA REVIEW REPORT

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6010D, 7471A, and 9012B. Data were reviewed in accordance with the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA 540/R-2017-001, January 2017; and the USEPA CLP National Functional Guidelines for Inorganic Data Review, EPA 540-R-01-008, July 2002 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6010D	Water	180 days from collection to analysis	Preserved to a pH of less than 2.
	Soil	180 days from collection to analysis	Cool to <6 °C.
SW-846 7471A	Soil	28 days from collection to analysis	Cool to <6 °C.
SW-846 7470A	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL and/or were non-detect. No qualification of the sample results was required.

3. Matrix Spike (MS)/Matrix Spike Duplicate(MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS/MSD analysis was not performed on a sample within this SDG.

DATA REVIEW REPORT

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD analysis was not performed on a sample within this SDG.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR METAL

METALS; SW846 6010D/7471A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field Blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate (MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)	X				X
Total vs. Dissolved	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Cyanide by SW-846 9012	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of greater than 12.
	Soil		Cool to <6 °C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS analysis was not performed on a sample within this SDG.

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

The laboratory duplicate analysis was not performed on a sample within this SDG.

DATA REVIEW REPORT

4. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis is not required for this analysis.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: EPA 9012	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)	X			X	
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%R - percent recovery

RPD - relative percent difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: November 6, 2019

PEER REVIEW: Dennis Capria

DATE: November 11, 2019

CHAIN OF CUSTODY SAMPLE ANALYSIS DATA SHEETS





SLC
STB

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08210
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com/ehusa

Client / Reporting Information		Project Information										Requested Analysis										Matrix Codes													
Company Name: ARCADIS		Project Name: PHILLY COKE - NATIONAL GRID										TEL VOC TOL SVOC TAL INORGANICS										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LO - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank													
Street Address: 1 LINCOLN CENTER		Street: RIEHOND ST																																	
City, State, Zip: SYRACUSE NY 13202		City, State, Zip: PHILA PA																																	
Project Contact: CAREY HEALEY Phone #: 315-671-9338		Project #: 315-671-9338																																	
Sample(s) Name(s): CHRIS CORTLANDO		Client Purchase Order #:										City, State, Zip:										Attention:													
SOS Sample #		Field ID / Point of Collection		MECH/VDI Viol #		Collection Date		Time		Sampled by		Grab (G) / Composite (C)		Matrix		# of bottles		HCl		HNO3		H2SO4		H2O2		NONE		DI Water		MICH		EMCODE		LAB USE ONLY	
1		S-164 (4-6)				7/17/19		1110		CO		SC				5																CB			
2		S-173 (5-7)						1015								5														P50					
3		S-172 (5-7)						0945								5														14R3					
4		S-171 (5-7)						0900								5														4010.6					
5		S-168 (6-8)						0800								5														V1043					
6		S-163 (0.5-2)						1230								5																			
7		S-163 (2-4)						1240								5																			
8		S-167 (7-9)				9/16/19		0745								5																			
9		PCTP-07R (10-12)						0845								5																			
10		TRIP BLANK										H2O				2		2																	
Turn Around Time (Business Days)		Approved by (SGS PM) / Date:										Deliverable										Comments / Special Instructions													
<input checked="" type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days <input type="checkbox"/> 2 Business Days <input type="checkbox"/> 1 Business Day <input type="checkbox"/> Other		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input checked="" type="checkbox"/> Full Tier I (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ DKQP										<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format										<input type="checkbox"/> DOD-QSMS INITIAL ASSESSMENT 4A LABEL VERIFICATION													
All data available via LabLink		Approval needed for 1-3 Business Day TAT										Commercial "A" = Results only; Commercial "B" = Results + QC Summary; Commercial "C" = Results + QC Summary + Partial Raw data										http://www.sgs.com/en/terms-and-conditions													
Relinquished by:		Date / Time:		Received By:		Date / Time:		Relinquished By:		Date / Time:		Received By:		Date / Time:		Received By:		Date / Time:		Received By:		Date / Time:		Received By:		Date / Time:		Received By:		Date / Time:		Received By:			
1		9/24/19		1109		1		2		2		3		3		4		4		4		4		4		4		4		4					
3																																			
5																																			
Custody Seal #		Intact		Not intact		Preserved where applicable		Absent		Therm ID		On Ice		Cooler Temp. °C		3.9																			

EHS-A-QAC-0023-02-FORM-Dayton - Standard COC.docx

JC95411: Chain of Custody

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5.1
5

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Report of Analysis

Page 1 of 2

Client Sample ID: S-164(4-6)	Date Sampled: 09/19/19
Lab Sample ID: JC95411-1	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 83.5
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	2C170453.D	1	10/01/19 13:25	ED	n/a	n/a	V2C7665
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.0 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	1100	440	ug/kg	
71-43-2	Benzene	ND	55	50	ug/kg	
74-97-5	Bromochloromethane	ND	550	61	ug/kg	
75-27-4	Bromodichloromethane	ND	220	49	ug/kg	
75-25-2	Bromoform	ND	550	63	ug/kg	
74-83-9	Bromomethane	ND	550	110	ug/kg	
78-93-3	2-Butanone (MEK) ^b	ND	1100	410	ug/kg	
75-15-0	Carbon disulfide	ND	220	100	ug/kg	
56-23-5	Carbon tetrachloride	ND	220	68	ug/kg	
108-90-7	Chlorobenzene	ND	220	50	ug/kg	
75-00-3	Chloroethane	ND	550	65	ug/kg	
67-66-3	Chloroform	ND	220	54	ug/kg	
74-87-3	Chloromethane	ND	550	210	ug/kg	
110-82-7	Cyclohexane	ND	220	72	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	220	92	ug/kg	
124-48-1	Dibromochloromethane	ND	220	61	ug/kg	
106-93-4	1,2-Dibromoethane	ND	110	46	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	110	60	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	110	54	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	110	54	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	550	80	ug/kg	
75-34-3	1,1-Dichloroethane	ND	110	54	ug/kg	
107-06-2	1,2-Dichloroethane	ND	110	52	ug/kg	
75-35-4	1,1-Dichloroethene	ND	110	72	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	110	92	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	110	67	ug/kg	
78-87-5	1,2-Dichloropropane	ND	220	52	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	220	52	ug/kg	
10061-02-6	trans-1,3-Dichloropropene ^b	ND	220	50	ug/kg	
100-41-4	Ethylbenzene	74.8	110	61	ug/kg	J
76-13-1	Freon 113	ND	550	110	ug/kg	
591-78-6	2-Hexanone	ND	550	230	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-164(4-6)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-1	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	83.5
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	220	76	ug/kg	
79-20-9	Methyl Acetate	211	550	150	ug/kg	J
108-87-2	Methylcyclohexane	ND	220	96	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	110	51	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	550	250	ug/kg	
75-09-2	Methylene chloride	ND	550	110	ug/kg	
100-42-5	Styrene	ND	220	63	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	220	66	ug/kg	
127-18-4	Tetrachloroethene	ND	220	64	ug/kg	
108-88-3	Toluene	74.6	110	58	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	550	210	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	550	170	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	220	53	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	220	61	ug/kg	
79-01-6	Trichloroethene	ND	110	84	ug/kg	
75-69-4	Trichlorofluoromethane	ND	550	75	ug/kg	
75-01-4	Vinyl chloride	ND	220	53	ug/kg	
	m,p-Xylene	102	110	98	ug/kg	J
95-47-6	o-Xylene	ND	110	64	ug/kg	
1330-20-7	Xylene (total)	102	110	64	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		75-127%
17060-07-0	1,2-Dichloroethane-D4	102%		75-130%
2037-26-5	Toluene-D8	103%		80-120%
460-00-4	4-Bromofluorobenzene	102%		79-127%

(a) Diluted due to high concentration of non-target compound.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 3

Client Sample ID:	S-164(4-6)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-1	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	83.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P89927.D	1	09/26/19 21:13	JC	09/26/19 05:15	OP22953	E2P3979
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	31.6 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	76	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	32	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	190	67	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	190	41	ug/kg	
95-48-7	2-Methylphenol	ND	76	24	ug/kg	
	3&4-Methylphenol	ND	76	31	ug/kg	
88-75-5	2-Nitrophenol	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol	ND	380	100	ug/kg	
87-86-5	Pentachlorophenol	ND	150	36	ug/kg	
108-95-2	Phenol	ND	76	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	28	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	23	ug/kg	
83-32-9	Acenaphthene	ND	38	13	ug/kg	
208-96-8	Acenaphthylene	68.7	38	19	ug/kg	
98-86-2	Acetophenone	ND	190	8.1	ug/kg	
120-12-7	Anthracene	175	38	23	ug/kg	
1912-24-9	Atrazine ^a	ND	76	16	ug/kg	
56-55-3	Benzo(a)anthracene	274	38	11	ug/kg	
50-32-8	Benzo(a)pyrene	242	38	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	318	38	17	ug/kg	
191-24-2	Benzo(g,h,i)perylene	179	38	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	122	38	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	76	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	76	9.2	ug/kg	
92-52-4	1,1'-Biphenyl	5.7	76	5.2	ug/kg	J
100-52-7	Benzaldehyde	ND	190	9.4	ug/kg	
91-58-7	2-Chloronaphthalene	ND	76	9.0	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	43.7	76	5.5	ug/kg	J

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-164(4-6)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-1	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	83.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	76	15	ug/kg	
218-01-9	Chrysene	294	38	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	76	8.1	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	76	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	76	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	76	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	38	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	38	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	76	32	ug/kg	
123-91-1	1,4-Dioxane	ND	38	25	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	39.1	38	17	ug/kg	
132-64-9	Dibenzofuran	43.2	76	15	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	76	6.2	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	76	9.4	ug/kg	
84-66-2	Diethyl phthalate	ND	76	8.1	ug/kg	
131-11-3	Dimethyl phthalate	ND	76	6.7	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	76	8.9	ug/kg	
206-44-0	Fluoranthene	644	38	17	ug/kg	
86-73-7	Fluorene	68.1	38	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	76	9.6	ug/kg	
87-68-3	Hexachlorobutadiene	ND	38	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	380	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	204	38	18	ug/kg	
78-59-1	Isophorone	ND	76	8.1	ug/kg	
91-57-6	2-Methylnaphthalene	18.6	38	8.6	ug/kg	J
88-74-4	2-Nitroaniline	ND	190	8.9	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.5	ug/kg	
100-01-6	4-Nitroaniline	ND	190	9.8	ug/kg	
91-20-3	Naphthalene	38.2	38	11	ug/kg	
98-95-3	Nitrobenzene	ND	76	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	76	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	450	38	13	ug/kg	
129-00-0	Pyrene	558	38	12	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.6	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	64%		23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-164(4-6) Lab Sample ID: JC95411-1 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 09/19/19 Date Received: 09/20/19 Percent Solids: 83.5
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	70%		27-114%
118-79-6	2,4,6-Tribromophenol	76%		19-152%
4165-60-0	Nitrobenzene-d5	78%		26-134%
321-60-8	2-Fluorobiphenyl	64%		39-124%
1718-51-0	Terphenyl-d14	95%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: S-164(4-6)

Lab Sample ID: JC95411-1

Matrix: SO - Soil

Date Sampled: 09/19/19

Date Received: 09/20/19

Percent Solids: 83.5

Project: National Grid, Philly Coke, Philadelphia, PA

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	12400	61	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Antimony	< 2.4	2.4	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Arsenic	< 2.4	2.4	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Barium	125	24	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Beryllium ^a	1.3	0.49	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Cadmium	< 0.61	0.61	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Calcium	2510	610	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Chromium	23.7	1.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Cobalt	13.3	6.1	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Copper	36.1	3.1	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Iron	21100	61	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Lead	13.7	2.4	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Magnesium	7440	610	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Manganese	878	1.8	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Mercury	0.22	0.039	mg/kg	1	09/27/19	09/27/19	CH	SW846 7471B ¹	SW846 7471B ⁴
Nickel	24.1	4.9	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Potassium	8000	1200	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Selenium	< 2.4	2.4	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Silver ^a	< 1.2	1.2	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Sodium	< 1200	1200	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Thallium ^a	< 2.4	2.4	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Vanadium	47.5	6.1	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Zinc	103	6.1	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵

(1) Instrument QC Batch: MA47516

(2) Instrument QC Batch: MA47539

(3) Instrument QC Batch: MA47552

(4) Prep QC Batch: MP17545

(5) Prep QC Batch: MP17592

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

Report of Analysis

Client Sample ID: S-164(4-6)	Date Sampled: 09/19/19
Lab Sample ID: JC95411-1	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 83.5
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.33	0.30	mg/kg	1	10/02/19 13:03	KI	SW846 9012B/LACHAT
Solids, Percent	83.5		%	1	09/30/19 17:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit

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Report of Analysis

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Client Sample ID:	S-173(5-7)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-2	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	86.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1C167548.D	1	10/03/19 13:11	PS	n/a	n/a	V1C7330
Run #2							

Run #	Initial Weight
Run #1	4.7 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	217	12	4.9	ug/kg	
71-43-2	Benzene	ND	0.61	0.56	ug/kg	
74-97-5	Bromochloromethane	ND	6.1	0.69	ug/kg	
75-27-4	Bromodichloromethane	ND	2.5	0.54	ug/kg	
75-25-2	Bromoform	ND	6.1	0.71	ug/kg	
74-83-9	Bromomethane ^a	ND	6.1	1.2	ug/kg	
78-93-3	2-Butanone (MEK)	19.1	12	4.6	ug/kg	
75-15-0	Carbon disulfide	2.0	2.5	1.1	ug/kg	J
56-23-5	Carbon tetrachloride	ND	2.5	0.76	ug/kg	
108-90-7	Chlorobenzene	ND	2.5	0.56	ug/kg	
75-00-3	Chloroethane	ND	6.1	0.73	ug/kg	
67-66-3	Chloroform	ND	2.5	0.60	ug/kg	
74-87-3	Chloromethane	ND	6.1	2.4	ug/kg	
110-82-7	Cyclohexane	ND	2.5	0.81	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.5	1.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.5	0.69	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.2	0.52	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.2	0.67	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.2	0.61	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.2	0.61	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	6.1	0.89	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	1.2	0.61	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.2	0.58	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.2	0.80	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.2	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.2	0.75	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.5	0.58	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.5	0.58	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.5	0.56	ug/kg	
100-41-4	Ethylbenzene	0.79	1.2	0.68	ug/kg	J
76-13-1	Freon 113	ND	6.1	1.2	ug/kg	
591-78-6	2-Hexanone	ND	6.1	2.6	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-173(5-7)		Date Sampled: 09/19/19
Lab Sample ID: JC95411-2		Date Received: 09/20/19
Matrix: SO - Soil		Percent Solids: 86.7
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.5	0.86	ug/kg	
79-20-9	Methyl Acetate	ND	6.1	1.7	ug/kg	
108-87-2	Methylcyclohexane	ND	2.5	1.1	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.2	0.58	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.1	2.8	ug/kg	
75-09-2	Methylene chloride	ND	6.1	1.2	ug/kg	
100-42-5	Styrene	ND	2.5	0.71	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.5	0.73	ug/kg	
127-18-4	Tetrachloroethene	ND	2.5	0.71	ug/kg	
108-88-3	Toluene	ND	1.2	0.64	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.1	2.4	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.1	1.9	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.5	0.59	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.5	0.68	ug/kg	
79-01-6	Trichloroethene	ND	1.2	0.93	ug/kg	
75-69-4	Trichlorofluoromethane ^b	ND	6.1	0.84	ug/kg	UJ
75-01-4	Vinyl chloride	ND	2.5	0.59	ug/kg	
	m,p-Xylene	1.5	1.2	1.1	ug/kg	
95-47-6	o-Xylene	0.95	1.2	0.72	ug/kg	J
1330-20-7	Xylene (total)	2.5	1.2	0.72	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		75-127%
17060-07-0	1,2-Dichloroethane-D4	107%		75-130%
2037-26-5	Toluene-D8	105%		80-120%
460-00-4	4-Bromofluorobenzene	105%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-173(5-7)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-2	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	86.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P89929.D	1	09/26/19 22:03	JC	09/26/19 05:15	OP22953	E2P3979
Run #2	2P89965.D	5	09/27/19 19:33	AR	09/26/19 05:15	OP22953	E2P3981

Run #	Initial Weight	Final Volume
Run #1	31.3 g	1.0 ml
Run #2	31.3 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	74	18	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	180	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	180	31	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	180	66	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	180	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	180	39	ug/kg	
95-48-7	2-Methylphenol	ND	74	24	ug/kg	
	3&4-Methylphenol	ND	74	30	ug/kg	
88-75-5	2-Nitrophenol	ND	180	24	ug/kg	
100-02-7	4-Nitrophenol	ND	370	98	ug/kg	
87-86-5	Pentachlorophenol	ND	150	35	ug/kg	
108-95-2	Phenol	ND	74	19	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	180	24	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	180	28	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	180	22	ug/kg	
83-32-9	Acenaphthene	960	37	13	ug/kg	
208-96-8	Acenaphthylene	114	37	19	ug/kg	
98-86-2	Acetophenone	ND	180	7.9	ug/kg	
120-12-7	Anthracene	2510	37	23	ug/kg	
1912-24-9	Atrazine ^a	ND	74	16	ug/kg	
56-55-3	Benzo(a)anthracene	4910 ^b	180	52	ug/kg	D
50-32-8	Benzo(a)pyrene	4320 ^b	180	84	ug/kg	D
205-99-2	Benzo(b)fluoranthene	5160 ^b	180	81	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	2680	37	18	ug/kg	
207-08-9	Benzo(k)fluoranthene	1720	37	17	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	74	14	ug/kg	
85-68-7	Butyl benzyl phthalate	1120	74	9.0	ug/kg	
92-52-4	1,1'-Biphenyl	58.8	74	5.0	ug/kg	J
100-52-7	Benzaldehyde	ND	180	9.1	ug/kg	
91-58-7	2-Chloronaphthalene	ND	74	8.8	ug/kg	
106-47-8	4-Chloroaniline	ND	180	13	ug/kg	
86-74-8	Carbazole	1280	74	5.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-173(5-7)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-2	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	86.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	74	15	ug/kg	
218-01-9	Chrysene	4410 ^b	180	58	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	74	7.9	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	74	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	74	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	74	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	37	11	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	37	18	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	74	31	ug/kg	
123-91-1	1,4-Dioxane	ND	37	24	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	671	37	16	ug/kg	
132-64-9	Dibenzofuran	617	74	15	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	74	6.0	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	74	9.2	ug/kg	
84-66-2	Diethyl phthalate	ND	74	7.8	ug/kg	
131-11-3	Dimethyl phthalate	ND	74	6.6	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	222	74	8.6	ug/kg	
206-44-0	Fluoranthene	13000 ^b	180	82	ug/kg	D
86-73-7	Fluorene	1130	37	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	74	9.3	ug/kg	
87-68-3	Hexachlorobutadiene	ND	37	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	370	15	ug/kg	
67-72-1	Hexachloroethane	ND	180	18	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	2500	37	17	ug/kg	
78-59-1	Isophorone	ND	74	7.9	ug/kg	
91-57-6	2-Methylnaphthalene	190	37	8.3	ug/kg	
88-74-4	2-Nitroaniline	ND	180	8.7	ug/kg	
99-09-2	3-Nitroaniline	ND	180	9.2	ug/kg	
100-01-6	4-Nitroaniline	ND	180	9.5	ug/kg	
91-20-3	Naphthalene	453	37	10	ug/kg	
98-95-3	Nitrobenzene	ND	74	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	74	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	180	13	ug/kg	
85-01-8	Phenanthrene	10200 ^b	180	62	ug/kg	D
129-00-0	Pyrene	10500 ^b	180	59	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	180	9.4	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	63%	66%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-173(5-7) Lab Sample ID: JC95411-2 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 09/19/19 Date Received: 09/20/19 Percent Solids: 86.7
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	68%	72%	27-114%
118-79-6	2,4,6-Tribromophenol	71%	65%	19-152%
4165-60-0	Nitrobenzene-d5	69%	76%	26-134%
321-60-8	2-Fluorobiphenyl	62%	65%	39-124%
1718-51-0	Terphenyl-d14	84%	87%	36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Result is from Run# 2

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: S-173(5-7) Lab Sample ID: JC95411-2 Matrix: SO - Soil Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 09/19/19 Date Received: 09/20/19 Percent Solids: 86.7
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Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	14500	59	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	7.0	2.4	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	7.6	2.4	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	67.3	24	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.65	0.24	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	< 0.59	0.59	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	6640	590	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	23.7	1.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	6.9	5.9	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	18.1	3.0	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	22200	59	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	117	2.4	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	2910	590	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	262	1.8	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	1.4	0.17	mg/kg	5	09/27/19	09/27/19	CH	SW846 7471B ¹ SW846 7471B ³
Nickel	12.8	4.8	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	1530	1200	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	< 2.4	2.4	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	< 0.59	0.59	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	< 1200	1200	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	< 1.2	1.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	30.1	5.9	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	79.5	5.9	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴

(1) Instrument QC Batch: MA47516

(2) Instrument QC Batch: MA47539

(3) Prep QC Batch: MP17545

(4) Prep QC Batch: MP17592

RL = Reporting Limit

4.2
4

Report of Analysis

Client Sample ID: S-173(5-7)	Date Sampled: 09/19/19
Lab Sample ID: JC95411-2	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 86.7
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.28	0.28	mg/kg	1	10/02/19 12:22	KI	SW846 9012B/LACHAT
Solids, Percent	86.7		%	1	09/30/19 17:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit

4.2
4

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Report of Analysis

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Client Sample ID: S-172(5-7)	Date Sampled: 09/19/19
Lab Sample ID: JC95411-3	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 86.1
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D266648.D	1	10/02/19 11:42	TDN	n/a	n/a	VD10746
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.6 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	1100	450	ug/kg	
71-43-2	Benzene	ND	56	51	ug/kg	
74-97-5	Bromochloromethane	ND	560	63	ug/kg	
75-27-4	Bromodichloromethane	ND	220	50	ug/kg	
75-25-2	Bromoform	ND	560	64	ug/kg	
74-83-9	Bromomethane	ND	560	110	ug/kg	
78-93-3	2-Butanone (MEK)	ND	1100	420	ug/kg	
75-15-0	Carbon disulfide	ND	220	100	ug/kg	
56-23-5	Carbon tetrachloride	ND	220	69	ug/kg	
108-90-7	Chlorobenzene	ND	220	51	ug/kg	
75-00-3	Chloroethane	ND	560	66	ug/kg	
67-66-3	Chloroform	ND	220	55	ug/kg	
74-87-3	Chloromethane	ND	560	220	ug/kg	
110-82-7	Cyclohexane	ND	220	73	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	220	93	ug/kg	
124-48-1	Dibromochloromethane	ND	220	63	ug/kg	
106-93-4	1,2-Dibromoethane	ND	110	47	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	110	61	ug/kg	
541-73-1	1,3-Dichlorobenzene	120	110	55	ug/kg	
106-46-7	1,4-Dichlorobenzene	407	110	55	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	560	81	ug/kg	
75-34-3	1,1-Dichloroethane	ND	110	55	ug/kg	
107-06-2	1,2-Dichloroethane	ND	110	53	ug/kg	
75-35-4	1,1-Dichloroethene	ND	110	73	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	110	94	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	110	68	ug/kg	
78-87-5	1,2-Dichloropropane	ND	220	53	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	220	53	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	220	51	ug/kg	
100-41-4	Ethylbenzene	ND	110	62	ug/kg	
76-13-1	Freon 113	ND	560	110	ug/kg	
591-78-6	2-Hexanone	ND	560	240	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-172(5-7)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-3	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	86.1
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	220	78	ug/kg	
79-20-9	Methyl Acetate	ND	560	160	ug/kg	
108-87-2	Methylcyclohexane	ND	220	98	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	110	52	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	560	250	ug/kg	
75-09-2	Methylene chloride	ND	560	110	ug/kg	
100-42-5	Styrene	ND	220	64	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	220	67	ug/kg	
127-18-4	Tetrachloroethene	ND	220	65	ug/kg	
108-88-3	Toluene	ND	110	59	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	560	220	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	606	560	170	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	220	54	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	220	62	ug/kg	
79-01-6	Trichloroethene	ND	110	85	ug/kg	
75-69-4	Trichlorofluoromethane	ND	560	76	ug/kg	
75-01-4	Vinyl chloride	ND	220	54	ug/kg	
	m,p-Xylene	ND	110	100	ug/kg	
95-47-6	o-Xylene	ND	110	65	ug/kg	
1330-20-7	Xylene (total)	ND	110	65	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		75-127%
17060-07-0	1,2-Dichloroethane-D4	101%		75-130%
2037-26-5	Toluene-D8	94%		80-120%
460-00-4	4-Bromofluorobenzene	89%		79-127%

(a) Diluted due to high concentration of non-target compound.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-172(5-7)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-3	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	86.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P89977.D	1	09/28/19 00:27	AR	09/26/19 05:15	OP22953	E2P3981
Run #2	2P90020.D	5	09/30/19 22:57	JC	09/26/19 05:15	OP22953	E2P3983

Run #	Initial Weight	Final Volume
Run #1	30.9 g	1.0 ml
Run #2	30.9 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	75	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	23	ug/kg	
120-83-2	2,4-Dichlorophenol	64.2	190	32	ug/kg	J
105-67-9	2,4-Dimethylphenol	ND	190	67	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	190	40	ug/kg	
95-48-7	2-Methylphenol	ND	75	24	ug/kg	
	3&4-Methylphenol	ND	75	31	ug/kg	
88-75-5	2-Nitrophenol ^a	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol	ND	380	100	ug/kg	
87-86-5	Pentachlorophenol	ND	150	35	ug/kg	
108-95-2	Phenol	ND	75	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	28	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	22	ug/kg	
83-32-9	Acenaphthene	410	38	13	ug/kg	
208-96-8	Acenaphthylene	147	38	19	ug/kg	
98-86-2	Acetophenone	10.5	190	8.1	ug/kg	J
120-12-7	Anthracene	1180	38	23	ug/kg	
1912-24-9	Atrazine	ND	75	16	ug/kg	
56-55-3	Benzo(a)anthracene	4270 ^b	190	53	ug/kg	D
50-32-8	Benzo(a)pyrene	4550 ^b	190	86	ug/kg	D
205-99-2	Benzo(b)fluoranthene	5330 ^b	190	83	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	2630	38	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	1390	38	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	75	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	75	9.2	ug/kg	
92-52-4	1,1'-Biphenyl	32.8	75	5.1	ug/kg	J
100-52-7	Benzaldehyde	23.5	190	9.3	ug/kg	J
91-58-7	2-Chloronaphthalene	ND	75	8.9	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	490	75	5.5	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-172(5-7)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-3	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	86.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	75	15	ug/kg	
218-01-9	Chrysene	3960 ^b	190	59	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	75	8.0	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	75	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	75	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	75	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	38	12	ug/kg	
606-20-2	2,6-Dinitrotoluene ^a	ND	38	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	75	31	ug/kg	
123-91-1	1,4-Dioxane	ND	38	25	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	928	38	17	ug/kg	
132-64-9	Dibenzofuran	220	75	15	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	75	6.1	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	75	9.4	ug/kg	
84-66-2	Diethyl phthalate	ND	75	8.0	ug/kg	
131-11-3	Dimethyl phthalate	ND	75	6.7	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	345	75	8.8	ug/kg	
206-44-0	Fluoranthene	7760 ^b	190	84	ug/kg	D
86-73-7	Fluorene	389	38	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	75	9.5	ug/kg	
87-68-3	Hexachlorobutadiene	ND	38	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	380	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	2550	38	18	ug/kg	
78-59-1	Isophorone	ND	75	8.0	ug/kg	
91-57-6	2-Methylnaphthalene	94.3	38	8.5	ug/kg	
88-74-4	2-Nitroaniline	ND	190	8.9	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.4	ug/kg	
100-01-6	4-Nitroaniline	ND	190	9.7	ug/kg	
91-20-3	Naphthalene	605	38	11	ug/kg	
98-95-3	Nitrobenzene	ND	75	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	75	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	4210 ^b	190	63	ug/kg	D
129-00-0	Pyrene	7080 ^b	190	60	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	18.5	190	9.5	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	62%	65%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-172(5-7) Lab Sample ID: JC95411-3 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 09/19/19 Date Received: 09/20/19 Percent Solids: 86.1
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	66%	68%	27-114%
118-79-6	2,4,6-Tribromophenol	66%	60%	19-152%
4165-60-0	Nitrobenzene-d5	73%	77%	26-134%
321-60-8	2-Fluorobiphenyl	60%	61%	39-124%
1718-51-0	Terphenyl-d14	78%	81%	36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Result is from Run# 2

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID: S-172(5-7)	Date Sampled: 09/19/19
Lab Sample ID: JC95411-3	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 86.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	15800	59	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Antimony	< 2.3	2.3	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Arsenic ^a	14.7	4.7	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Barium	109	23	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Beryllium	0.65	0.23	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Cadmium ^a	< 1.2	1.2	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Calcium	13500	590	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Chromium	42.8	1.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Cobalt	7.6	5.9	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Copper ^a	252	5.9	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Iron	32200	120	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Lead ^a	210	4.7	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Magnesium	3770	590	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Manganese ^a	307	3.5	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Mercury	0.75	0.037	mg/kg	1	09/27/19	09/27/19	CH	SW846 7471B ¹	SW846 7471B ⁴
Nickel	26.3	4.7	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Potassium	1760	1200	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Selenium ^a	< 4.7	4.7	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Silver ^a	< 1.2	1.2	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Sodium	< 1200	1200	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Thallium ^a	< 2.3	2.3	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Vanadium	30.9	5.9	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Zinc	787	5.9	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA47516
- (2) Instrument QC Batch: MA47539
- (3) Instrument QC Batch: MA47552
- (4) Prep QC Batch: MP17545
- (5) Prep QC Batch: MP17592

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

4.3
4

Report of Analysis

Client Sample ID: S-172(5-7)	Date Sampled: 09/19/19
Lab Sample ID: JC95411-3	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 86.1
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.27	0.27	mg/kg	1	10/02/19 12:23	KI	SW846 9012B/LACHAT
Solids, Percent	86.1		%	1	09/30/19 17:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit

4.3
4

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Report of Analysis

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Client Sample ID: S-171(5-7)	Date Sampled: 09/19/19
Lab Sample ID: JC95411-4	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 88.3
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	1C167549.D	1	10/03/19 13:37	PS	n/a	n/a	V1C7330

Run #1	Initial Weight
Run #2	5.7 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	24.2	9.9	4.0	ug/kg	
71-43-2	Benzene	ND	0.50	0.45	ug/kg	
74-97-5	Bromochloromethane	ND	5.0	0.56	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	0.44	ug/kg	
75-25-2	Bromoform	ND	5.0	0.57	ug/kg	
74-83-9	Bromomethane ^a	ND	5.0	0.99	ug/kg	
78-93-3	2-Butanone (MEK)	ND	9.9	3.7	ug/kg	
75-15-0	Carbon disulfide	ND	2.0	0.92	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	0.61	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	0.46	ug/kg	
75-00-3	Chloroethane	ND	5.0	0.59	ug/kg	
67-66-3	Chloroform	ND	2.0	0.49	ug/kg	
74-87-3	Chloromethane	ND	5.0	1.9	ug/kg	
110-82-7	Cyclohexane	ND	2.0	0.65	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.83	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	0.56	ug/kg	
106-93-4	1,2-Dibromoethane	ND	0.99	0.42	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.99	0.54	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.99	0.49	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.99	0.49	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	5.0	0.72	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	0.99	0.49	ug/kg	
107-06-2	1,2-Dichloroethane	ND	0.99	0.47	ug/kg	
75-35-4	1,1-Dichloroethene	ND	0.99	0.65	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.99	0.83	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.99	0.61	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.0	0.47	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	0.47	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	0.45	ug/kg	
100-41-4	Ethylbenzene	ND	0.99	0.55	ug/kg	
76-13-1	Freon 113	ND	5.0	1.0	ug/kg	
591-78-6	2-Hexanone	ND	5.0	2.1	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-171(5-7)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-4	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	88.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.0	0.69	ug/kg	
79-20-9	Methyl Acetate	2.2	5.0	1.4	ug/kg	J
108-87-2	Methylcyclohexane	ND	2.0	0.87	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.99	0.47	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	2.3	ug/kg	
75-09-2	Methylene chloride	ND	5.0	0.99	ug/kg	
100-42-5	Styrene	ND	2.0	0.57	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	0.60	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	0.58	ug/kg	
108-88-3	Toluene	ND	0.99	0.52	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	1.9	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	1.5	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	0.48	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	0.55	ug/kg	
79-01-6	Trichloroethene	ND	0.99	0.76	ug/kg	
75-69-4	Trichlorofluoromethane ^b	ND	5.0	0.68	ug/kg	UJ
75-01-4	Vinyl chloride	ND	2.0	0.48	ug/kg	
	m,p-Xylene	ND	0.99	0.89	ug/kg	
95-47-6	o-Xylene	ND	0.99	0.58	ug/kg	
1330-20-7	Xylene (total)	ND	0.99	0.58	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		75-127%
17060-07-0	1,2-Dichloroethane-D4	104%		75-130%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	93%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-171(5-7)	Date Sampled: 09/19/19
Lab Sample ID: JC95411-4	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 88.3
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P89925.D	1	09/26/19 20:23	JC	09/26/19 05:15	OP22953	E2P3979
Run #2	2P89960.D	2	09/27/19 17:29	AR	09/26/19 05:15	OP22953	E2P3981

Run #	Initial Weight	Final Volume
Run #1	31.0 g	1.0 ml
Run #2	31.0 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	73	18	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	180	22	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	180	31	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	180	65	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	180	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	180	39	ug/kg	
95-48-7	2-Methylphenol	ND	73	23	ug/kg	
	3&4-Methylphenol	ND	73	30	ug/kg	
88-75-5	2-Nitrophenol	ND	180	24	ug/kg	
100-02-7	4-Nitrophenol	ND	370	98	ug/kg	
87-86-5	Pentachlorophenol	ND	150	34	ug/kg	
108-95-2	Phenol	ND	73	19	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	180	24	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	180	27	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	180	22	ug/kg	
83-32-9	Acenaphthene	361	37	13	ug/kg	
208-96-8	Acenaphthylene	137	37	19	ug/kg	
98-86-2	Acetophenone	ND	180	7.9	ug/kg	
120-12-7	Anthracene	910	37	22	ug/kg	
1912-24-9	Atrazine ^a	ND	73	16	ug/kg	
56-55-3	Benzo(a)anthracene	1730	37	10	ug/kg	
50-32-8	Benzo(a)pyrene	1360	37	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	1690	37	16	ug/kg	
191-24-2	Benzo(g,h,i)perylene	796	37	18	ug/kg	
207-08-9	Benzo(k)fluoranthene	592	37	17	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	73	14	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	73	8.9	ug/kg	
92-52-4	1,1'-Biphenyl	44.5	73	5.0	ug/kg	J
100-52-7	Benzaldehyde	ND	180	9.1	ug/kg	
91-58-7	2-Chloronaphthalene	ND	73	8.7	ug/kg	
106-47-8	4-Chloroaniline	ND	180	13	ug/kg	
86-74-8	Carbazole	373	73	5.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-171(5-7)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-4	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	88.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	73	14	ug/kg	
218-01-9	Chrysene	1630	37	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	73	7.8	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	73	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	73	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	73	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	37	11	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	37	18	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	73	30	ug/kg	
123-91-1	1,4-Dioxane	ND	37	24	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	218	37	16	ug/kg	
132-64-9	Dibenzofuran	347	73	15	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	73	6.0	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	73	9.1	ug/kg	
84-66-2	Diethyl phthalate	ND	73	7.8	ug/kg	
131-11-3	Dimethyl phthalate	ND	73	6.5	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	69.2	73	8.5	ug/kg	J
206-44-0	Fluoranthene	3840 ^b	73	33	ug/kg	D
86-73-7	Fluorene	483	37	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	73	9.2	ug/kg	
87-68-3	Hexachlorobutadiene	ND	37	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	370	15	ug/kg	
67-72-1	Hexachloroethane	ND	180	18	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	865	37	17	ug/kg	
78-59-1	Isophorone	ND	73	7.8	ug/kg	
91-57-6	2-Methylnaphthalene	173	37	8.3	ug/kg	
88-74-4	2-Nitroaniline	ND	180	8.6	ug/kg	
99-09-2	3-Nitroaniline	ND	180	9.1	ug/kg	
100-01-6	4-Nitroaniline	ND	180	9.5	ug/kg	
91-20-3	Naphthalene	406	37	10	ug/kg	
98-95-3	Nitrobenzene	ND	73	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	73	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	180	13	ug/kg	
85-01-8	Phenanthrene	3690 ^b	73	25	ug/kg	D
129-00-0	Pyrene	3550	37	12	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	180	9.3	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	63%	57%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-171(5-7) Lab Sample ID: JC95411-4 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 09/19/19 Date Received: 09/20/19 Percent Solids: 88.3
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	66%	62%	27-114%
118-79-6	2,4,6-Tribromophenol	72%	60%	19-152%
4165-60-0	Nitrobenzene-d5	74%	69%	26-134%
321-60-8	2-Fluorobiphenyl	62%	58%	39-124%
1718-51-0	Terphenyl-d14	85%	78%	36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Result is from Run# 2

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

4.4
4

Report of Analysis

Client Sample ID: S-171(5-7) Lab Sample ID: JC95411-4 Matrix: SO - Soil Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 09/19/19 Date Received: 09/20/19 Percent Solids: 88.3
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Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	13100	58	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	< 2.3	2.3	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	6.0	2.3	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	66.8	23	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.68	0.23	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	< 0.58	0.58	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	19800	580	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	25.7	1.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	6.0	5.8	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	27.1	2.9	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	18900	58	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	127	2.3	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	7030	580	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	189	1.7	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	0.61	0.035	mg/kg	1	09/27/19	09/27/19	CH	SW846 7471B ¹ SW846 7471B ³
Nickel	13.0	4.6	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	1510	1200	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	< 2.3	2.3	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	< 0.58	0.58	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	< 1200	1200	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	< 1.2	1.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	28.6	5.8	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	137	5.8	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴

(1) Instrument QC Batch: MA47516

(2) Instrument QC Batch: MA47539

(3) Prep QC Batch: MP17545

(4) Prep QC Batch: MP17592

RL = Reporting Limit

4.4
4

Report of Analysis

Client Sample ID: S-171(5-7)	Date Sampled: 09/19/19
Lab Sample ID: JC95411-4	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 88.3
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.30	0.23	mg/kg	1	10/02/19 12:25	KI	SW846 9012B/LACHAT
Solids, Percent	88.3		%	1	09/30/19 17:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit

4.4
4

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Report of Analysis

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Client Sample ID:	S-168(6-8)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-5	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	82.5
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	2C170455.D	1	10/01/19 14:22	ED	n/a	n/a	V2C7665
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.2 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	1960	1500	620	ug/kg	
71-43-2	Benzene	1840	77	70	ug/kg	
74-97-5	Bromochloromethane	ND	770	87	ug/kg	
75-27-4	Bromodichloromethane	ND	310	69	ug/kg	
75-25-2	Bromoform	ND	770	89	ug/kg	
74-83-9	Bromomethane	ND	770	150	ug/kg	
78-93-3	2-Butanone (MEK) ^b	ND	1500	580	ug/kg	
75-15-0	Carbon disulfide	185	310	140	ug/kg	J
56-23-5	Carbon tetrachloride	ND	310	96	ug/kg	
108-90-7	Chlorobenzene	ND	310	71	ug/kg	
75-00-3	Chloroethane	ND	770	92	ug/kg	
67-66-3	Chloroform	ND	310	76	ug/kg	
74-87-3	Chloromethane	ND	770	300	ug/kg	
110-82-7	Cyclohexane	ND	310	100	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	310	130	ug/kg	
124-48-1	Dibromochloromethane	ND	310	87	ug/kg	
106-93-4	1,2-Dibromoethane	ND	150	65	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	150	85	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	150	77	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	150	77	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	770	110	ug/kg	
75-34-3	1,1-Dichloroethane	ND	150	77	ug/kg	
107-06-2	1,2-Dichloroethane	ND	150	73	ug/kg	
75-35-4	1,1-Dichloroethene	ND	150	100	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	150	130	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	150	95	ug/kg	
78-87-5	1,2-Dichloropropane	ND	310	73	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	310	74	ug/kg	
10061-02-6	trans-1,3-Dichloropropene ^b	ND	310	71	ug/kg	
100-41-4	Ethylbenzene	216	150	86	ug/kg	
76-13-1	Freon 113	ND	770	160	ug/kg	
591-78-6	2-Hexanone	ND	770	330	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-168(6-8)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-5	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	82.5
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	310	110	ug/kg	
79-20-9	Methyl Acetate	4740	770	220	ug/kg	
108-87-2	Methylcyclohexane	ND	310	140	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	150	73	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	770	350	ug/kg	
75-09-2	Methylene chloride	ND	770	150	ug/kg	
100-42-5	Styrene	ND	310	89	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	310	93	ug/kg	
127-18-4	Tetrachloroethene	ND	310	90	ug/kg	
108-88-3	Toluene	465	150	81	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	770	300	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	770	240	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	310	75	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	310	86	ug/kg	
79-01-6	Trichloroethene	ND	150	120	ug/kg	
75-69-4	Trichlorofluoromethane	ND	770	110	ug/kg	
75-01-4	Vinyl chloride	ND	310	75	ug/kg	
	m,p-Xylene	315	150	140	ug/kg	
95-47-6	o-Xylene	ND	150	90	ug/kg	
1330-20-7	Xylene (total)	315	150	90	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		75-127%
17060-07-0	1,2-Dichloroethane-D4	98%		75-130%
2037-26-5	Toluene-D8	106%		80-120%
460-00-4	4-Bromofluorobenzene	99%		79-127%

(a) Diluted due to high concentration of target and non-target compound.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-168(6-8)	Date Sampled: 09/19/19
Lab Sample ID: JC95411-5	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 82.5
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P89924.D	1	09/26/19 19:59	JC	09/26/19 05:15	OP22953	E2P3979
Run #2	2P89963.D	2	09/27/19 18:43	AR	09/26/19 05:15	OP22953	E2P3981

Run #	Initial Weight	Final Volume
Run #1	31.1 g	1.0 ml
Run #2	31.1 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	78	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	24	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	33	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	190	69	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	190	42	ug/kg	
95-48-7	2-Methylphenol	ND	78	25	ug/kg	
	3&4-Methylphenol	ND	78	32	ug/kg	
88-75-5	2-Nitrophenol	ND	190	26	ug/kg	
100-02-7	4-Nitrophenol	ND	390	100	ug/kg	
87-86-5	Pentachlorophenol	ND	160	37	ug/kg	
108-95-2	Phenol	ND	78	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	26	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	29	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	23	ug/kg	
83-32-9	Acenaphthene	802	39	13	ug/kg	
208-96-8	Acenaphthylene	609	39	20	ug/kg	
98-86-2	Acetophenone	16.8	190	8.4	ug/kg	J
120-12-7	Anthracene	743	39	24	ug/kg	
1912-24-9	Atrazine ^a	ND	78	17	ug/kg	
56-55-3	Benzo(a)anthracene	2500	39	11	ug/kg	
50-32-8	Benzo(a)pyrene	2390	39	18	ug/kg	
205-99-2	Benzo(b)fluoranthene	3130 ^b	78	34	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	1580	39	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	942	39	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	78	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	78	9.5	ug/kg	
92-52-4	1,1'-Biphenyl	60.2	78	5.3	ug/kg	J
100-52-7	Benzaldehyde	ND	190	9.7	ug/kg	
91-58-7	2-Chloronaphthalene	ND	78	9.3	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	175	78	5.7	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-168(6-8)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-5	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	82.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	78	15	ug/kg	
218-01-9	Chrysene	2560	39	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	78	8.3	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	78	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	78	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	78	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	39	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	39	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	78	33	ug/kg	
123-91-1	1,4-Dioxane	ND	39	26	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	443	39	17	ug/kg	
132-64-9	Dibenzofuran	400	78	16	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	78	6.4	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	78	9.7	ug/kg	
84-66-2	Diethyl phthalate	ND	78	8.3	ug/kg	
131-11-3	Dimethyl phthalate	ND	78	6.9	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	105	78	9.1	ug/kg	
206-44-0	Fluoranthene	4710 ^b	78	35	ug/kg	D
86-73-7	Fluorene	962	39	18	ug/kg	
118-74-1	Hexachlorobenzene	ND	78	9.9	ug/kg	
87-68-3	Hexachlorobutadiene	ND	39	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	390	16	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1600	39	18	ug/kg	
78-59-1	Isophorone	ND	78	8.3	ug/kg	
91-57-6	2-Methylnaphthalene	163	39	8.8	ug/kg	
88-74-4	2-Nitroaniline	ND	190	9.2	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.7	ug/kg	
100-01-6	4-Nitroaniline	ND	190	10	ug/kg	
91-20-3	Naphthalene	347	39	11	ug/kg	
98-95-3	Nitrobenzene	ND	78	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	78	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	1820	39	13	ug/kg	
129-00-0	Pyrene	4010 ^b	78	25	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.9	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	55%	52%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-168(6-8)	
Lab Sample ID: JC95411-5	Date Sampled: 09/19/19
Matrix: SO - Soil	Date Received: 09/20/19
Method: SW846 8270D SW846 3546	Percent Solids: 82.5
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	59%	56%	27-114%
118-79-6	2,4,6-Tribromophenol	62%	55%	19-152%
4165-60-0	Nitrobenzene-d5	61%	61%	26-134%
321-60-8	2-Fluorobiphenyl	53%	50%	39-124%
1718-51-0	Terphenyl-d14	74%	67%	36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.5
4

Report of Analysis

Client Sample ID: S-168(6-8)	Date Sampled: 09/19/19
Lab Sample ID: JC95411-5	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 82.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	10000	59	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Antimony ^a	< 4.7	4.7	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³
Arsenic ^a	138	4.7	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³
Barium	73.4	24	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Beryllium	0.75	0.24	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Cadmium ^a	< 1.2	1.2	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³
Calcium	6940	590	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Chromium	19.8	1.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Cobalt	6.8	5.9	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Copper ^a	66.8	5.9	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³
Iron	41800	120	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³
Lead ^a	91.1	4.7	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³
Magnesium	2760	590	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Manganese ^a	311	3.5	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³
Mercury	0.40	0.040	mg/kg	1	09/27/19	09/27/19	CH	SW846 7471B ¹
Nickel	15.6	4.7	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Potassium	< 1200	1200	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Selenium ^a	< 4.7	4.7	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³
Silver ^a	< 1.2	1.2	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³
Sodium	< 1200	1200	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Thallium ^a	< 2.4	2.4	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³
Vanadium	27.6	5.9	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Zinc	137	5.9	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²

- (1) Instrument QC Batch: MA47516
- (2) Instrument QC Batch: MA47539
- (3) Instrument QC Batch: MA47552
- (4) Prep QC Batch: MP17545
- (5) Prep QC Batch: MP17592

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

4.5
4

Report of Analysis

Client Sample ID: S-168(6-8)	Date Sampled: 09/19/19
Lab Sample ID: JC95411-5	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 82.5
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.82	0.26	mg/kg	1	10/02/19 12:26	KI	SW846 9012B/LACHAT
Solids, Percent	82.5		%	1	09/30/19 17:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit

4.5
4

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Report of Analysis

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Client Sample ID: S-163(0.5-2)	Date Sampled: 09/19/19
Lab Sample ID: JC95411-6	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 87.8
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	2C170460.D	1	10/01/19 16:45	ED	n/a	n/a	V2C7665
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	3.4 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	1700	700	ug/kg	
71-43-2	Benzene	ND	87	79	ug/kg	
74-97-5	Bromochloromethane	ND	870	98	ug/kg	
75-27-4	Bromodichloromethane	ND	350	77	ug/kg	
75-25-2	Bromoform	ND	870	100	ug/kg	
74-83-9	Bromomethane	ND	870	170	ug/kg	
78-93-3	2-Butanone (MEK) ^b	ND	1700	650	ug/kg	
75-15-0	Carbon disulfide	ND	350	160	ug/kg	
56-23-5	Carbon tetrachloride	ND	350	110	ug/kg	
108-90-7	Chlorobenzene	ND	350	80	ug/kg	
75-00-3	Chloroethane	ND	870	100	ug/kg	
67-66-3	Chloroform	ND	350	85	ug/kg	
74-87-3	Chloromethane	ND	870	340	ug/kg	
110-82-7	Cyclohexane	158	350	110	ug/kg	J
96-12-8	1,2-Dibromo-3-chloropropane	ND	350	150	ug/kg	
124-48-1	Dibromochloromethane	ND	350	98	ug/kg	
106-93-4	1,2-Dibromoethane	ND	170	73	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	170	95	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	170	87	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	170	86	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	870	130	ug/kg	
75-34-3	1,1-Dichloroethane	ND	170	86	ug/kg	
107-06-2	1,2-Dichloroethane	ND	170	82	ug/kg	
75-35-4	1,1-Dichloroethene	ND	170	110	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	170	150	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	170	110	ug/kg	
78-87-5	1,2-Dichloropropane	ND	350	83	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	350	83	ug/kg	
10061-02-6	trans-1,3-Dichloropropene ^b	ND	350	80	ug/kg	
100-41-4	Ethylbenzene	ND	170	96	ug/kg	
76-13-1	Freon 113	ND	870	180	ug/kg	
591-78-6	2-Hexanone	ND	870	370	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-163(0.5-2)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-6	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	87.8
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	350	120	ug/kg	
79-20-9	Methyl Acetate	ND	870	240	ug/kg	
108-87-2	Methylcyclohexane	409	350	150	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	170	82	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	870	400	ug/kg	
75-09-2	Methylene chloride	ND	870	170	ug/kg	
100-42-5	Styrene	ND	350	100	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	350	100	ug/kg	
127-18-4	Tetrachloroethene	ND	350	100	ug/kg	
108-88-3	Toluene	311	170	92	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	870	340	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	870	270	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	350	84	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	350	97	ug/kg	
79-01-6	Trichloroethene	ND	170	130	ug/kg	
75-69-4	Trichlorofluoromethane	ND	870	120	ug/kg	
75-01-4	Vinyl chloride	ND	350	84	ug/kg	
	m,p-Xylene	286	170	160	ug/kg	
95-47-6	o-Xylene	161	170	100	ug/kg	J
1330-20-7	Xylene (total)	447	170	100	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		75-127%
17060-07-0	1,2-Dichloroethane-D4	95%		75-130%
2037-26-5	Toluene-D8	105%		80-120%
460-00-4	4-Bromofluorobenzene	100%		79-127%

(a) Diluted due to high concentration of non-target compound.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-163(0.5-2)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-6	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	87.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	2P89973.D	5	09/27/19 22:49	AR	09/26/19 05:15	OP22953	E2P3981
Run #2	2P90050.D	200	10/01/19 12:10	CS	09/26/19 05:15	OP22953	E2P3984

Run #	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2	30.4 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	370	93	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	940	110	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	940	160	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	940	330	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	940	700	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	940	200	ug/kg	
95-48-7	2-Methylphenol	131	370	120	ug/kg	J
	3&4-Methylphenol	485	370	150	ug/kg	
88-75-5	2-Nitrophenol ^b	ND	940	120	ug/kg	
100-02-7	4-Nitrophenol	ND	1900	500	ug/kg	
87-86-5	Pentachlorophenol	ND	750	180	ug/kg	
108-95-2	Phenol	404	370	98	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	940	120	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	940	140	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	940	110	ug/kg	
83-32-9	Acenaphthene	2960	190	65	ug/kg	
208-96-8	Acenaphthylene	36000 ^c	7500	3800	ug/kg	D
98-86-2	Acetophenone	ND	940	40	ug/kg	
120-12-7	Anthracene	85400 ^c	7500	4600	ug/kg	D
1912-24-9	Atrazine	ND	370	80	ug/kg	
56-55-3	Benzo(a)anthracene	201000 ^c	7500	2100	ug/kg	D
50-32-8	Benzo(a)pyrene	156000 ^c	7500	3400	ug/kg	D
205-99-2	Benzo(b)fluoranthene	218000 ^c	7500	3300	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	79600 ^c	7500	3700	ug/kg	D
207-08-9	Benzo(k)fluoranthene	66100 ^c	7500	3500	ug/kg	D
101-55-3	4-Bromophenyl phenyl ether	ND	370	72	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	370	46	ug/kg	
92-52-4	1,1'-Biphenyl	3190	370	26	ug/kg	
100-52-7	Benzaldehyde	ND	940	46	ug/kg	
91-58-7	2-Chloronaphthalene	ND	370	45	ug/kg	
106-47-8	4-Chloroaniline	ND	940	67	ug/kg	
86-74-8	Carbazole	10200	370	27	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-163(0.5-2)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-6	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	87.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	370	74	ug/kg	
218-01-9	Chrysene	174000 ^c	7500	2400	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	370	40	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	370	81	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	370	67	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	370	61	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	190	58	ug/kg	
606-20-2	2,6-Dinitrotoluene ^b	ND	190	94	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	370	160	ug/kg	
123-91-1	1,4-Dioxane	ND	190	120	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	23800 ^c	7500	3300	ug/kg	D
132-64-9	Dibenzofuran	42000 ^c	15000	3000	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	370	31	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	370	47	ug/kg	
84-66-2	Diethyl phthalate	ND	370	40	ug/kg	
131-11-3	Dimethyl phthalate	ND	370	33	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	370	44	ug/kg	
206-44-0	Fluoranthene	477000 ^c	7500	3300	ug/kg	D
86-73-7	Fluorene	69300 ^c	7500	3400	ug/kg	D
118-74-1	Hexachlorobenzene	ND	370	47	ug/kg	
87-68-3	Hexachlorobutadiene	ND	190	75	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	1900	75	ug/kg	
67-72-1	Hexachloroethane	ND	940	93	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	95100 ^c	7500	3500	ug/kg	D
78-59-1	Isophorone	ND	370	40	ug/kg	
91-57-6	2-Methylnaphthalene	15300	190	42	ug/kg	
88-74-4	2-Nitroaniline	ND	940	44	ug/kg	
99-09-2	3-Nitroaniline	ND	940	47	ug/kg	
100-01-6	4-Nitroaniline	ND	940	49	ug/kg	
91-20-3	Naphthalene	37200 ^c	7500	2100	ug/kg	D
98-95-3	Nitrobenzene	ND	370	72	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	370	54	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	940	69	ug/kg	
85-01-8	Phenanthrene	324000 ^c	7500	2500	ug/kg	D
129-00-0	Pyrene	353000 ^c	7500	2400	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	940	48	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	55%	77%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-163(0.5-2)	
Lab Sample ID: JC95411-6	Date Sampled: 09/19/19
Matrix: SO - Soil	Date Received: 09/20/19
Method: SW846 8270D SW846 3546	Percent Solids: 87.8
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	60%	92%	27-114%
118-79-6	2,4,6-Tribromophenol	65%	66%	19-152%
4165-60-0	Nitrobenzene-d5	66%	103%	26-134%
321-60-8	2-Fluorobiphenyl	53%	82%	39-124%
1718-51-0	Terphenyl-d14	60%	104%	36-134%

- (a) Dilution required due to viscosity of the extract matrix.
- (b) Associated CCV outside of control limits high, sample was ND.
- (c) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.6
4

Report of Analysis

Client Sample ID: S-163(0.5-2) Lab Sample ID: JC95411-6 Matrix: SO - Soil Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 09/19/19 Date Received: 09/20/19 Percent Solids: 87.8
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Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	11400	54	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁵
Antimony	< 2.2	2.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁵
Arsenic	7.6	2.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁵
Barium	217	22	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁵
Beryllium	1.2	0.22	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁵
Cadmium	< 0.54	0.54	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁵
Calcium	41400	1600	mg/kg	3	09/29/19	10/01/19	RP	SW846 6010D ³ SW846 3050B ⁵
Chromium	17.4	1.1	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁵
Cobalt	< 5.4	5.4	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁵
Copper	20.7	2.7	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁵
Iron	10300	54	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁵
Lead	34.5	2.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁵
Magnesium	15400	540	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁵
Manganese	1710	4.9	mg/kg	3	09/29/19	10/01/19	RP	SW846 6010D ³ SW846 3050B ⁵
Mercury	< 0.035	0.035	mg/kg	1	09/27/19	09/27/19	CH	SW846 7471B ¹ SW846 7471B ⁴
Nickel	8.6	4.3	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁵
Potassium	1980	1100	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁵
Selenium	< 2.2	2.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁵
Silver	< 0.54	0.54	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁵
Sodium	< 1100	1100	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁵
Thallium ^a	< 3.3	3.3	mg/kg	3	09/29/19	10/01/19	RP	SW846 6010D ³ SW846 3050B ⁵
Vanadium ^a	41.3	16	mg/kg	3	09/29/19	10/01/19	RP	SW846 6010D ³ SW846 3050B ⁵
Zinc	25.2	5.4	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁵

- (1) Instrument QC Batch: MA47516
- (2) Instrument QC Batch: MA47539
- (3) Instrument QC Batch: MA47552
- (4) Prep QC Batch: MP17545
- (5) Prep QC Batch: MP17592

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

4.6
4

Report of Analysis

Client Sample ID: S-163(0.5-2)	Date Sampled: 09/19/19
Lab Sample ID: JC95411-6	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 87.8
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.96	0.27	mg/kg	1	10/02/19 12:30	KI	SW846 9012B/LACHAT
Solids, Percent	87.8		%	1	09/30/19 17:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit

4.6
4

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Report of Analysis

Page 1 of 2

Client Sample ID:	S-163(2-4)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-7	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	88.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	1C167546.D	1	10/03/19 12:17	PS	n/a	n/a	V1C7330

Run #1	Initial Weight
Run #2	6.6 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	19.3	8.6	3.4	ug/kg	
71-43-2	Benzene	ND	0.43	0.39	ug/kg	
74-97-5	Bromochloromethane	ND	4.3	0.48	ug/kg	
75-27-4	Bromodichloromethane	ND	1.7	0.38	ug/kg	
75-25-2	Bromoform	ND	4.3	0.50	ug/kg	
74-83-9	Bromomethane ^a	ND	4.3	0.85	ug/kg	
78-93-3	2-Butanone (MEK)	ND	8.6	3.2	ug/kg	
75-15-0	Carbon disulfide	0.89	1.7	0.80	ug/kg	J
56-23-5	Carbon tetrachloride	ND	1.7	0.53	ug/kg	
108-90-7	Chlorobenzene	ND	1.7	0.39	ug/kg	
75-00-3	Chloroethane	ND	4.3	0.51	ug/kg	
67-66-3	Chloroform	ND	1.7	0.42	ug/kg	
74-87-3	Chloromethane	ND	4.3	1.7	ug/kg	
110-82-7	Cyclohexane	ND	1.7	0.56	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.7	0.72	ug/kg	
124-48-1	Dibromochloromethane	ND	1.7	0.48	ug/kg	
106-93-4	1,2-Dibromoethane	ND	0.86	0.36	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.86	0.47	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.86	0.43	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.86	0.42	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	4.3	0.62	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	0.86	0.42	ug/kg	
107-06-2	1,2-Dichloroethane	ND	0.86	0.40	ug/kg	
75-35-4	1,1-Dichloroethene	ND	0.86	0.56	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.86	0.72	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.86	0.52	ug/kg	
78-87-5	1,2-Dichloropropane	ND	1.7	0.41	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	1.7	0.41	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	1.7	0.39	ug/kg	
100-41-4	Ethylbenzene	ND	0.86	0.47	ug/kg	
76-13-1	Freon 113	ND	4.3	0.87	ug/kg	
591-78-6	2-Hexanone	ND	4.3	1.8	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-163(2-4)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-7	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	88.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.7	0.60	ug/kg	
79-20-9	Methyl Acetate	ND	4.3	1.2	ug/kg	
108-87-2	Methylcyclohexane	ND	1.7	0.75	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.86	0.40	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	4.3	1.9	ug/kg	
75-09-2	Methylene chloride	ND	4.3	0.85	ug/kg	
100-42-5	Styrene	ND	1.7	0.49	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.7	0.51	ug/kg	
127-18-4	Tetrachloroethene	ND	1.7	0.50	ug/kg	
108-88-3	Toluene	ND	0.86	0.45	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	4.3	1.7	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	4.3	1.3	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	1.7	0.41	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	1.7	0.48	ug/kg	
79-01-6	Trichloroethene	ND	0.86	0.65	ug/kg	
75-69-4	Trichlorofluoromethane ^b	ND	4.3	0.59	ug/kg	UJ
75-01-4	Vinyl chloride	ND	1.7	0.41	ug/kg	
	m,p-Xylene	ND	0.86	0.77	ug/kg	
95-47-6	o-Xylene	ND	0.86	0.50	ug/kg	
1330-20-7	Xylene (total)	ND	0.86	0.50	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		75-127%
17060-07-0	1,2-Dichloroethane-D4	103%		75-130%
2037-26-5	Toluene-D8	103%		80-120%
460-00-4	4-Bromofluorobenzene	98%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 3

Client Sample ID:	S-163(2-4)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-7	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	88.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P89926.D	1	09/26/19 20:48	JC	09/26/19 05:15	OP22953	E2P3979
Run #2	2P89961.D	5	09/27/19 17:54	AR	09/26/19 05:15	OP22953	E2P3981

Run #	Initial Weight	Final Volume
Run #1	31.6 g	1.0 ml
Run #2	31.6 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	72	18	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	180	22	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	180	31	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	180	64	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	180	130	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	180	38	ug/kg	
95-48-7	2-Methylphenol	ND	72	23	ug/kg	
	3&4-Methylphenol	ND	72	29	ug/kg	
88-75-5	2-Nitrophenol	ND	180	24	ug/kg	
100-02-7	4-Nitrophenol	ND	360	96	ug/kg	
87-86-5	Pentachlorophenol	ND	140	34	ug/kg	
108-95-2	Phenol	ND	72	19	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	180	24	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	180	27	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	180	21	ug/kg	
83-32-9	Acenaphthene	477	36	12	ug/kg	
208-96-8	Acenaphthylene	329	36	18	ug/kg	
98-86-2	Acetophenone	80.0	180	7.7	ug/kg	J
120-12-7	Anthracene	818	36	22	ug/kg	
1912-24-9	Atrazine ^a	ND	72	15	ug/kg	
56-55-3	Benzo(a)anthracene	1960	36	10	ug/kg	
50-32-8	Benzo(a)pyrene	1790	36	16	ug/kg	
205-99-2	Benzo(b)fluoranthene	1730	36	16	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1000	36	18	ug/kg	
207-08-9	Benzo(k)fluoranthene	437	36	17	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	72	14	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	72	8.7	ug/kg	
92-52-4	1,1'-Biphenyl	31.5	72	4.9	ug/kg	J
100-52-7	Benzaldehyde	ND	180	8.9	ug/kg	
91-58-7	2-Chloronaphthalene	ND	72	8.5	ug/kg	
106-47-8	4-Chloroaniline	ND	180	13	ug/kg	
86-74-8	Carbazole	189	72	5.2	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-163(2-4)	Date Sampled:	09/19/19
Lab Sample ID:	JC95411-7	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	88.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	72	14	ug/kg	
218-01-9	Chrysene	2090	36	11	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	72	7.7	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	72	15	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	72	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	72	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	36	11	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	36	18	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	72	30	ug/kg	
123-91-1	1,4-Dioxane	ND	36	24	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	283	36	16	ug/kg	
132-64-9	Dibenzofuran	83.4	72	15	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	72	5.8	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	72	8.9	ug/kg	
84-66-2	Diethyl phthalate	ND	72	7.6	ug/kg	
131-11-3	Dimethyl phthalate	ND	72	6.4	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	72	8.4	ug/kg	
206-44-0	Fluoranthene	3050	36	16	ug/kg	
86-73-7	Fluorene	431	36	16	ug/kg	
118-74-1	Hexachlorobenzene	ND	72	9.1	ug/kg	
87-68-3	Hexachlorobutadiene	ND	36	14	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	360	14	ug/kg	
67-72-1	Hexachloroethane	ND	180	18	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	894	36	17	ug/kg	
78-59-1	Isophorone	ND	72	7.7	ug/kg	
91-57-6	2-Methylnaphthalene	164	36	8.1	ug/kg	
88-74-4	2-Nitroaniline	ND	180	8.5	ug/kg	
99-09-2	3-Nitroaniline	ND	180	9.0	ug/kg	
100-01-6	4-Nitroaniline	ND	180	9.3	ug/kg	
91-20-3	Naphthalene	164	36	10	ug/kg	
98-95-3	Nitrobenzene	ND	72	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	72	10	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	180	13	ug/kg	
85-01-8	Phenanthrene	3470	36	12	ug/kg	
129-00-0	Pyrene	4510 ^b	180	57	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	180	9.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	51%	49%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-163(2-4)	Date Sampled: 09/19/19
Lab Sample ID: JC95411-7	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 88.3
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	51%	48%	27-114%
118-79-6	2,4,6-Tribromophenol	51%	42%	19-152%
4165-60-0	Nitrobenzene-d5	57%	54%	26-134%
321-60-8	2-Fluorobiphenyl	44%	41%	39-124%
1718-51-0	Terphenyl-d14	59%	54%	36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.7
4

Report of Analysis

Client Sample ID: S-163(2-4)	Date Sampled: 09/19/19
Lab Sample ID: JC95411-7	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 88.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	6900	58	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	< 2.3	2.3	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	7.5	2.3	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	74.5	23	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.74	0.23	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	< 0.58	0.58	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	3580	580	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	12.7	1.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	8.1	5.8	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	94.7	2.9	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	21000	58	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	219	2.3	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	2020	580	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	244	1.8	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	1.6	0.17	mg/kg	5	09/27/19	09/27/19	CH	SW846 7471B ¹ SW846 7471B ³
Nickel	16.5	4.7	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	< 1200	1200	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	< 2.3	2.3	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	< 0.58	0.58	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	< 1200	1200	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	< 1.2	1.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	18.6	5.8	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	174	5.8	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴

(1) Instrument QC Batch: MA47516

(2) Instrument QC Batch: MA47539

(3) Prep QC Batch: MP17545

(4) Prep QC Batch: MP17592

RL = Reporting Limit

Report of Analysis

Client Sample ID: S-163(2-4)	Date Sampled: 09/19/19
Lab Sample ID: JC95411-7	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 88.3
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	2.5	0.23	mg/kg	1	10/02/19 12:31	KI	SW846 9012B/LACHAT
Solids, Percent	88.3		%	1	09/30/19 17:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit

4.7
4

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Report of Analysis

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Client Sample ID: S-167(7-9)	Date Sampled: 09/20/19
Lab Sample ID: JC95411-8	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 82.3
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	1C167552.D	1	10/03/19 14:56	PS	n/a	n/a	V1C7330

Run #1	Initial Weight
Run #2	6.8 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	44.6	8.9	3.6	ug/kg	
71-43-2	Benzene	ND	0.45	0.41	ug/kg	
74-97-5	Bromochloromethane	ND	4.5	0.50	ug/kg	
75-27-4	Bromodichloromethane	ND	1.8	0.40	ug/kg	
75-25-2	Bromoform	ND	4.5	0.52	ug/kg	
74-83-9	Bromomethane ^a	ND	4.5	0.89	ug/kg	
78-93-3	2-Butanone (MEK)	6.0	8.9	3.3	ug/kg	J
75-15-0	Carbon disulfide	ND	1.8	0.83	ug/kg	
56-23-5	Carbon tetrachloride	ND	1.8	0.55	ug/kg	
108-90-7	Chlorobenzene	ND	1.8	0.41	ug/kg	
75-00-3	Chloroethane	ND	4.5	0.53	ug/kg	
67-66-3	Chloroform	ND	1.8	0.44	ug/kg	
74-87-3	Chloromethane	ND	4.5	1.8	ug/kg	
110-82-7	Cyclohexane	ND	1.8	0.59	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.8	0.75	ug/kg	
124-48-1	Dibromochloromethane	ND	1.8	0.50	ug/kg	
106-93-4	1,2-Dibromoethane	ND	0.89	0.38	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.89	0.49	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.89	0.44	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.89	0.44	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	4.5	0.65	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	0.89	0.44	ug/kg	
107-06-2	1,2-Dichloroethane	ND	0.89	0.42	ug/kg	
75-35-4	1,1-Dichloroethene	ND	0.89	0.59	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.89	0.75	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.89	0.55	ug/kg	
78-87-5	1,2-Dichloropropane	ND	1.8	0.42	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	1.8	0.42	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	1.8	0.41	ug/kg	
100-41-4	Ethylbenzene	ND	0.89	0.49	ug/kg	
76-13-1	Freon 113	ND	4.5	0.90	ug/kg	
591-78-6	2-Hexanone	ND	4.5	1.9	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-167(7-9)	Date Sampled:	09/20/19
Lab Sample ID:	JC95411-8	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	82.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.8	0.62	ug/kg	
79-20-9	Methyl Acetate	ND	4.5	1.2	ug/kg	
108-87-2	Methylcyclohexane	ND	1.8	0.78	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.89	0.42	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	4.5	2.0	ug/kg	
75-09-2	Methylene chloride	1.1	4.5	0.89	ug/kg	J
100-42-5	Styrene	ND	1.8	0.51	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.8	0.54	ug/kg	
127-18-4	Tetrachloroethene	ND	1.8	0.52	ug/kg	
108-88-3	Toluene	ND	0.89	0.47	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	4.5	1.7	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	4.5	1.4	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	1.8	0.43	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	1.8	0.49	ug/kg	
79-01-6	Trichloroethene	ND	0.89	0.68	ug/kg	
75-69-4	Trichlorofluoromethane ^b	ND	4.5	0.61	ug/kg	UJ
75-01-4	Vinyl chloride	ND	1.8	0.43	ug/kg	
	m,p-Xylene	ND	0.89	0.80	ug/kg	
95-47-6	o-Xylene	ND	0.89	0.52	ug/kg	
1330-20-7	Xylene (total)	ND	0.89	0.52	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%		75-127%
17060-07-0	1,2-Dichloroethane-D4	107%		75-130%
2037-26-5	Toluene-D8	108%		80-120%
460-00-4	4-Bromofluorobenzene	104%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-167(7-9)	Date Sampled:	09/20/19
Lab Sample ID:	JC95411-8	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	82.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P89928.D	1	09/26/19 21:38	JC	09/26/19 05:15	OP22953	E2P3979
Run #2	2P89962.D	5	09/27/19 18:19	AR	09/26/19 05:15	OP22953	E2P3981

Run #	Initial Weight	Final Volume
Run #1	31.7 g	1.0 ml
Run #2	31.7 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	77	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	33	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	190	68	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	190	41	ug/kg	
95-48-7	2-Methylphenol	ND	77	24	ug/kg	
	3&4-Methylphenol	ND	77	32	ug/kg	
88-75-5	2-Nitrophenol	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol	ND	380	100	ug/kg	
87-86-5	Pentachlorophenol	ND	150	36	ug/kg	
108-95-2	Phenol	ND	77	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	29	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	23	ug/kg	
83-32-9	Acenaphthene	296	38	13	ug/kg	
208-96-8	Acenaphthylene	787	38	19	ug/kg	
98-86-2	Acetophenone	ND	190	8.2	ug/kg	
120-12-7	Anthracene	1820	38	23	ug/kg	
1912-24-9	Atrazine ^a	ND	77	16	ug/kg	
56-55-3	Benzo(a)anthracene	7670 ^b	190	54	ug/kg	D
50-32-8	Benzo(a)pyrene	6780 ^b	190	87	ug/kg	D
205-99-2	Benzo(b)fluoranthene	7970 ^b	190	85	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	3760 ^b	190	96	ug/kg	D
207-08-9	Benzo(k)fluoranthene	2680	38	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	77	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	77	9.4	ug/kg	
92-52-4	1,1'-Biphenyl	54.3	77	5.3	ug/kg	J
100-52-7	Benzaldehyde	ND	190	9.5	ug/kg	
91-58-7	2-Chloronaphthalene	ND	77	9.1	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	783	77	5.6	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-167(7-9)	Date Sampled:	09/20/19
Lab Sample ID:	JC95411-8	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	82.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	77	15	ug/kg	
218-01-9	Chrysene	7430 ^b	190	60	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	77	8.2	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	77	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	77	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	77	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	38	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	38	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	77	32	ug/kg	
123-91-1	1,4-Dioxane	ND	38	25	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	1140	38	17	ug/kg	
132-64-9	Dibenzofuran	204	77	16	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	77	6.2	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	77	9.5	ug/kg	
84-66-2	Diethyl phthalate	ND	77	8.2	ug/kg	
131-11-3	Dimethyl phthalate	ND	77	6.8	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	77	9.0	ug/kg	
206-44-0	Fluoranthene	16600 ^b	190	85	ug/kg	D
86-73-7	Fluorene	504	38	18	ug/kg	
118-74-1	Hexachlorobenzene	ND	77	9.7	ug/kg	
87-68-3	Hexachlorobutadiene	ND	38	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	380	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	3820	38	18	ug/kg	
78-59-1	Isophorone	ND	77	8.2	ug/kg	
91-57-6	2-Methylnaphthalene	199	38	8.7	ug/kg	
88-74-4	2-Nitroaniline	ND	190	9.0	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.6	ug/kg	
100-01-6	4-Nitroaniline	ND	190	9.9	ug/kg	
91-20-3	Naphthalene	513	38	11	ug/kg	
98-95-3	Nitrobenzene	ND	77	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	77	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	5300 ^b	190	64	ug/kg	D
129-00-0	Pyrene	14600 ^b	190	61	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.7	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	52%	53%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-167(7-9) Lab Sample ID: JC95411-8 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 09/20/19 Date Received: 09/20/19 Percent Solids: 82.3
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	57%	56%	27-114%
118-79-6	2,4,6-Tribromophenol	65%	55%	19-152%
4165-60-0	Nitrobenzene-d5	60%	62%	26-134%
321-60-8	2-Fluorobiphenyl	52%	51%	39-124%
1718-51-0	Terphenyl-d14	65%	63%	36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.8
4

Report of Analysis

Client Sample ID: S-167(7-9) Lab Sample ID: JC95411-8 Matrix: SO - Soil Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 09/20/19 Date Received: 09/20/19 Percent Solids: 82.3
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Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	17500	62	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Antimony ^a	< 7.4	7.4	mg/kg	3	09/29/19	10/01/19	RP	SW846 6010D ³
Arsenic ^a	10.1	7.4	mg/kg	3	09/29/19	10/01/19	RP	SW846 6010D ³
Barium	37.7	25	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Beryllium	6.2	0.25	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Cadmium ^a	< 1.9	1.9	mg/kg	3	09/29/19	10/01/19	RP	SW846 6010D ³
Calcium	4280	620	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Chromium	30.3	1.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Cobalt	21.3	6.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Copper ^a	306	9.3	mg/kg	3	09/29/19	10/01/19	RP	SW846 6010D ³
Iron	59100	190	mg/kg	3	09/29/19	10/01/19	RP	SW846 6010D ³
Lead ^a	105	7.4	mg/kg	3	09/29/19	10/01/19	RP	SW846 6010D ³
Magnesium	7340	620	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Manganese ^a	720	5.6	mg/kg	3	09/29/19	10/01/19	RP	SW846 6010D ³
Mercury	0.21	0.037	mg/kg	1	09/27/19	09/27/19	CH	SW846 7471B ¹
Nickel	49.5	5.0	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Potassium	1230	1200	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Selenium ^a	< 7.4	7.4	mg/kg	3	09/29/19	10/01/19	RP	SW846 6010D ³
Silver ^a	< 1.9	1.9	mg/kg	3	09/29/19	10/01/19	RP	SW846 6010D ³
Sodium	< 1200	1200	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Thallium ^a	< 3.7	3.7	mg/kg	3	09/29/19	10/01/19	RP	SW846 6010D ³
Vanadium	35.0	6.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²
Zinc	297	6.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²

- (1) Instrument QC Batch: MA47516
- (2) Instrument QC Batch: MA47539
- (3) Instrument QC Batch: MA47552
- (4) Prep QC Batch: MP17545
- (5) Prep QC Batch: MP17592

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

4.8
4

Report of Analysis

Client Sample ID: S-167(7-9)	Date Sampled: 09/20/19
Lab Sample ID: JC95411-8	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 82.3
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.24	0.24	mg/kg	1	10/02/19 12:33	KI	SW846 9012B/LACHAT
Solids, Percent	82.3		%	1	09/30/19 17:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit

4.8
4

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Report of Analysis

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Client Sample ID:	PCTP-07R(10-12)	Date Sampled:	09/20/19
Lab Sample ID:	JC95411-9	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	72.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	2C170459.D	1	10/01/19 16:16	ED	n/a	n/a	V2C7665
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.2 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	1800	730	ug/kg	
71-43-2	Benzene	ND	91	83	ug/kg	
74-97-5	Bromochloromethane	ND	910	100	ug/kg	
75-27-4	Bromodichloromethane	ND	370	81	ug/kg	
75-25-2	Bromoform	ND	910	110	ug/kg	
74-83-9	Bromomethane	ND	910	180	ug/kg	
78-93-3	2-Butanone (MEK) ^b	ND	1800	680	ug/kg	
75-15-0	Carbon disulfide	ND	370	170	ug/kg	
56-23-5	Carbon tetrachloride	ND	370	110	ug/kg	
108-90-7	Chlorobenzene	ND	370	84	ug/kg	
75-00-3	Chloroethane	ND	910	110	ug/kg	
67-66-3	Chloroform	ND	370	89	ug/kg	
74-87-3	Chloromethane	ND	910	360	ug/kg	
110-82-7	Cyclohexane	ND	370	120	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	370	150	ug/kg	
124-48-1	Dibromochloromethane	ND	370	100	ug/kg	
106-93-4	1,2-Dibromoethane	ND	180	77	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	180	100	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	180	91	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	180	90	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	910	130	ug/kg	
75-34-3	1,1-Dichloroethane	ND	180	90	ug/kg	
107-06-2	1,2-Dichloroethane	ND	180	86	ug/kg	
75-35-4	1,1-Dichloroethene	ND	180	120	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	180	150	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	180	110	ug/kg	
78-87-5	1,2-Dichloropropane	ND	370	86	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	370	87	ug/kg	
10061-02-6	trans-1,3-Dichloropropene ^b	ND	370	83	ug/kg	
100-41-4	Ethylbenzene	ND	180	100	ug/kg	
76-13-1	Freon 113	ND	910	180	ug/kg	
591-78-6	2-Hexanone	ND	910	390	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-07R(10-12)	Date Sampled: 09/20/19
Lab Sample ID: JC95411-9	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 72.7
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	370	130	ug/kg	
79-20-9	Methyl Acetate	ND	910	250	ug/kg	
108-87-2	Methylcyclohexane	ND	370	160	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	180	86	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	910	410	ug/kg	
75-09-2	Methylene chloride	ND	910	180	ug/kg	
100-42-5	Styrene	ND	370	100	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	370	110	ug/kg	
127-18-4	Tetrachloroethene	ND	370	110	ug/kg	
108-88-3	Toluene	ND	180	96	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	910	350	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	910	280	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	370	88	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	370	100	ug/kg	
79-01-6	Trichloroethene	ND	180	140	ug/kg	
75-69-4	Trichlorofluoromethane	ND	910	120	ug/kg	
75-01-4	Vinyl chloride	ND	370	88	ug/kg	
	m,p-Xylene	ND	180	160	ug/kg	
95-47-6	o-Xylene	ND	180	110	ug/kg	
1330-20-7	Xylene (total)	ND	180	110	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		75-127%
17060-07-0	1,2-Dichloroethane-D4	96%		75-130%
2037-26-5	Toluene-D8	104%		80-120%
460-00-4	4-Bromofluorobenzene	99%		79-127%

- (a) Diluted due to high concentration of non-target compound.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCTP-07R(10-12)	Date Sampled:	09/20/19
Lab Sample ID:	JC95411-9	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	72.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	2P90157.D	5	10/04/19 15:47	JC	09/26/19 05:15	OP22953	E2P3990
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.9 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	450	110	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	1100	140	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	1100	190	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	1100	400	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	1100	840	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	1100	240	ug/kg	
95-48-7	2-Methylphenol	ND	450	140	ug/kg	
	3&4-Methylphenol	ND	450	180	ug/kg	
88-75-5	2-Nitrophenol	ND	1100	150	ug/kg	
100-02-7	4-Nitrophenol	ND	2200	590	ug/kg	
87-86-5	Pentachlorophenol ^b	ND	890	210	ug/kg	UJ
108-95-2	Phenol	ND	450	120	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	1100	150	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	1100	170	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	1100	130	ug/kg	
83-32-9	Acenaphthene	1650	220	77	ug/kg	
208-96-8	Acenaphthylene	ND	220	110	ug/kg	
98-86-2	Acetophenone	ND	1100	48	ug/kg	
120-12-7	Anthracene	615	220	140	ug/kg	
1912-24-9	Atrazine	ND	450	95	ug/kg	
56-55-3	Benzo(a)anthracene	467	220	63	ug/kg	
50-32-8	Benzo(a)pyrene	305	220	100	ug/kg	
205-99-2	Benzo(b)fluoranthene	440	220	98	ug/kg	
191-24-2	Benzo(g,h,i)perylene	188	220	110	ug/kg	J
207-08-9	Benzo(k)fluoranthene	127	220	100	ug/kg	J
101-55-3	4-Bromophenyl phenyl ether	ND	450	86	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	450	54	ug/kg	
92-52-4	1,1'-Biphenyl	ND	450	30	ug/kg	
100-52-7	Benzaldehyde	ND	1100	55	ug/kg	
91-58-7	2-Chloronaphthalene	ND	450	53	ug/kg	
106-47-8	4-Chloroaniline	ND	1100	80	ug/kg	
86-74-8	Carbazole ^b	ND	450	32	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-07R(10-12)	Date Sampled:	09/20/19
Lab Sample ID:	JC95411-9	Date Received:	09/20/19
Matrix:	SO - Soil	Percent Solids:	72.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	450	88	ug/kg	
218-01-9	Chrysene	445	220	70	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	450	48	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	450	96	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	450	80	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	450	72	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	220	69	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	220	110	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	450	190	ug/kg	
123-91-1	1,4-Dioxane	ND	220	150	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	220	98	ug/kg	
132-64-9	Dibenzofuran	444	450	91	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	450	36	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	450	55	ug/kg	
84-66-2	Diethyl phthalate	ND	450	47	ug/kg	
131-11-3	Dimethyl phthalate	ND	450	40	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	450	52	ug/kg	
206-44-0	Fluoranthene	1200	220	99	ug/kg	
86-73-7	Fluorene	ND	220	100	ug/kg	
118-74-1	Hexachlorobenzene	ND	450	56	ug/kg	
87-68-3	Hexachlorobutadiene	ND	220	89	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^b	ND	2200	89	ug/kg	UJ
67-72-1	Hexachloroethane	ND	1100	110	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	317	220	100	ug/kg	
78-59-1	Isophorone	ND	450	48	ug/kg	
91-57-6	2-Methylnaphthalene	ND	220	50	ug/kg	
88-74-4	2-Nitroaniline	ND	1100	53	ug/kg	
99-09-2	3-Nitroaniline	ND	1100	56	ug/kg	
100-01-6	4-Nitroaniline	ND	1100	58	ug/kg	
91-20-3	Naphthalene	204	220	63	ug/kg	J
98-95-3	Nitrobenzene	ND	450	86	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	450	64	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	1100	81	ug/kg	
85-01-8	Phenanthrene	542	220	75	ug/kg	
129-00-0	Pyrene	1500	220	71	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	1100	57	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	52%		23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-07R(10-12) Lab Sample ID: JC95411-9 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 09/20/19 Date Received: 09/20/19 Percent Solids: 72.7
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	59%		27-114%
118-79-6	2,4,6-Tribromophenol	58%		19-152%
4165-60-0	Nitrobenzene-d5	67%		26-134%
321-60-8	2-Fluorobiphenyl	56%		39-124%
1718-51-0	Terphenyl-d14	73%		36-134%

- (a) Dilution required due to matrix interference. Sample extracted outside the holding time due to scheduling error.
- (b) Associated CCV outside of control limits low. Low-level verification was analyzed to demonstrate system suitability to detect affected analytes.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: PCTP-07R(10-12)	Date Sampled: 09/20/19
Lab Sample ID: JC95411-9	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 72.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	1740	70	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	< 2.8	2.8	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	12.2	2.8	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	53.7	28	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.46	0.28	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	< 0.70	0.70	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	1770	700	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	4.7	1.4	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	< 7.0	7.0	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	20.4	3.5	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	23900	70	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	19.7	2.8	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	< 700	700	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	387	2.1	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	2.5	0.20	mg/kg	5	09/27/19	09/27/19	CH	SW846 7471B ¹ SW846 7471B ³
Nickel	8.4	5.6	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	< 1400	1400	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	< 2.8	2.8	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	< 0.70	0.70	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	< 1400	1400	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	< 1.4	1.4	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	8.9	7.0	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	82.2	7.0	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴

(1) Instrument QC Batch: MA47516

(2) Instrument QC Batch: MA47539

(3) Prep QC Batch: MP17545

(4) Prep QC Batch: MP17592

RL = Reporting Limit

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Report of Analysis

Client Sample ID: PCTP-07R(10-12)	Date Sampled: 09/20/19
Lab Sample ID: JC95411-9	Date Received: 09/20/19
Matrix: SO - Soil	Percent Solids: 72.7
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.36	0.36	mg/kg	1	10/02/19 12:34	KI	SW846 9012B/LACHAT
Solids, Percent	72.7		%	1	09/30/19 17:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit

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Report of Analysis

Page 1 of 2

Client Sample ID:	TRIP BLANK	Date Sampled:	09/20/19
Lab Sample ID:	JC95411-10	Date Received:	09/20/19
Matrix:	AQ - Trip Blank Soil	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2C170438.D	1	09/30/19 20:22	ED	n/a	n/a	V2C7664
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	6.0	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.48	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.58	ug/l	
75-25-2	Bromoform ^a	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	6.9	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.95	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.55	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.56	ug/l	
75-00-3	Chloroethane	ND	1.0	0.73	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane	ND	1.0	0.76	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.78	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.2	ug/l	
124-48-1	Dibromochloromethane ^a	ND	1.0	0.56	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.48	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.53	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.54	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.51	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.4	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.57	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.60	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.59	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.54	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.51	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.47	ug/l	
10061-02-6	trans-1,3-Dichloropropene ^b	ND	1.0	0.43	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.60	ug/l	
76-13-1	Freon 113	ND	5.0	1.9	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.0	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TRIP BLANK	Date Sampled: 09/20/19
Lab Sample ID: JC95411-10	Date Received: 09/20/19
Matrix: AQ - Trip Blank Soil	Percent Solids: n/a
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

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VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.65	ug/l	
79-20-9	Methyl Acetate	ND	5.0	0.80	ug/l	
108-87-2	Methylcyclohexane ^c	ND	5.0	0.60	ug/l	UJ
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	1.9	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.70	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.90	ug/l	
108-88-3	Toluene	ND	1.0	0.53	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.54	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.53	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.84	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.79	ug/l	
	m,p-Xylene	ND	1.0	0.78	ug/l	
95-47-6	o-Xylene	ND	1.0	0.59	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.59	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	114%		80-120%
17060-07-0	1,2-Dichloroethane-D4	108%		81-124%
2037-26-5	Toluene-D8	104%		80-120%
460-00-4	4-Bromofluorobenzene	92%		80-120%

- (a) This compound in BS is outside in house QC limits bias high.
- (b) Associated CCV outside of control limits high, sample was ND. This compound in BS is outside in house QC limits bias high.
- (c) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

National Grid

Philly Coke

DATA REVIEW

Philadelphia, Pennsylvania

Volatile Organic Compound (VOC), Semivolatile Organic Compounds (SVOC), Metals, and Miscellaneous Analyses

SDG # JC95555

Analyses Reported By:
SGS Laboratories
Dayton, New Jersey

Report #34669R
Review Level: Tier II
Project: 30004026 (B0036790.0001) 00006

DATA REVIEW REPORT

SUMMARY

This data review report summarizes the review of Sample Delivery Group (SDG) # JC95555 for samples collected in association with the National Grid Philly Coke site in Philadelphia, Pennsylvania. The review was conducted as a Tier II evaluation and included review of laboratory analytical data package completeness. Field documentation was not included in this review. Included with this assessment are the post-validation annotated sample result sheets, and chain of custody (COC). Analyses were performed on the following samples

SDG Number	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PEST/PCB	Metals	MISC
JC95555	MW-111(11-13)	JC95555-1	Soil	9/19/2019		X	X		X	X
	MW-111(13-15)	JC95555-2	Soil	9/19/2019		X	X		X	X
	MW-108(5-7)	JC95555-3	Soil	9/19/2019		X	X		X	X
	MW-108(10-12)	JC95555-4	Soil	9/19/2019		X	X		X	X
	TRIP BLANK	JC95555-5	Water	9/19/2019		X				

Notes:

1. PEST/PCB = Pesticides and polychlorinated biphenyls
2. SVOC = Semivolatile Organic Compounds
3. VOC = Volatile Organic Compound
4. MISC = Miscellaneous (total cyanide)

DATA REVIEW REPORT

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW REPORT

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260C and 8270D. Data were reviewed in accordance with the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540/R-2017-002, January 2017 and the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, EPA540/R-99/008, October 1999 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

DATA REVIEW REPORT

that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times/Preservation

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis (preserved) 7 days from collection to analysis (non-preserved)	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis (Samples stored in deionized water must be frozen or analyzed within 48 hours)	Cool to <6 °C.

Note:

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
MW-108(10-12)	1,2-Dichloroethane-d4	AC
	4-Bromofluorobenzene	> UL

DATA REVIEW REPORT

Sample Locations	Surrogate	Recovery
	Dibromofluoromethane	AC
	Toluene-d8	> UL

Notes:

UL Upper control limit
AC Acceptable

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
	Detect	J
< LL but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

DATA REVIEW REPORT

All identified compounds met the specified criteria.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

The laboratory narrative indicates internal standard deviations. These deviations are normally not evaluated in a tier II data review. Sample locations associated with internal standards exhibiting responses outside of the control limits are presented in the following table.

Sample Locations	Internal Standard	Response
MW-108(10-12)	Chlorobenzene-D5	< LL but > 25%
	1,4-Dichlorobenzene-d4	< 25%

Note:

AC Acceptable

The criteria used to evaluate the internal standard responses are presented in the following table. In the case of an internal standard deviation, the compounds quantitated under the deviant internal standard are qualified as documented in the table below.

Control limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No action
	Detect	J
< the lower control limit (LL) but > 25%	Non-detect	UJ
	Detect	J
< 25%	Non-detect	R
	Detect	J

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Trip blanks		X		X	
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)		X		X	
Matrix Spike Duplicate(MSD)		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

- %RSD Relative standard deviation
- %R Percent recovery
- RPD Relative percent difference
- %D Percent difference

DATA REVIEW REPORT

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
MW-111(11-13)	Phenol-d5	AC
	2-Fluorophenol	AC
	2,4,6-Tribromophenol	AC
MW-108(5-7)	Nitrobenzene-d5	<LL but > 10%
	2-Fluorobiphenyl	AC
	Terphenyl-d14	AC

DATA REVIEW REPORT

Notes:

LL Lower control limit
AC Acceptable

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
	Detect	J
< LL but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Surrogates diluted below the calibration curve due to the high concentration of a target compounds	Non-detect	J ¹
	Detect	

Note:

- ¹ A more concentrated analysis was not performed with surrogate compounds within the calibration range; therefore, no determination of extraction efficiency could be made.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD analysis was not performed on a sample within this SDG.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

The LCS/LCSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

DATA REVIEW REPORT

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. Several samples were diluted to bring target compounds within linear range of the instrument. Sample results that were reported from a secondary dilution were qualified with a "D", indicating the result is diluted.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

DATA REVIEW REPORT

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6010D, 7471A, and 9012B. Data were reviewed in accordance with the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA 540/R-2017-001, January 2017; and the USEPA CLP National Functional Guidelines for Inorganic Data Review, EPA 540-R-01-008, July 2002 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6010D	Water	180 days from collection to analysis	Preserved to a pH of less than 2.
	Soil	180 days from collection to analysis	Cool to <6 °C.
SW-846 7471A	Soil	28 days from collection to analysis	Cool to <6 °C.
SW-846 7470A	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL and/or were non-detect. No qualification of the sample results was required.

3. Matrix Spike (MS)/Matrix Spike Duplicate(MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS/MSD analysis was not performed on a sample within this SDG.

DATA REVIEW REPORT

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD analysis was not performed on a sample within this SDG.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR METAL

METALS; SW846 6010D/7471A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field Blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate (MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)	X				X
Total vs. Dissolved	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Cyanide by SW-846 9012	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of greater than 12.
	Soil		Cool to <6 °C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS analysis was not performed on a sample within this SDG.

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

The laboratory duplicate analysis was not performed on a sample within this SDG.

DATA REVIEW REPORT

4. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis is not required for this analysis.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: EPA 9012	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)	X			X	
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%R - percent recovery

RPD - relative percent difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: November 6, 2019

PEER REVIEW: Dennis Capria

DATE: November 11, 2019

CHAIN OF CUSTODY SAMPLE ANALYSIS DATA SHEETS





SLL
STR

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com/shsusa

FED-EX Tracking #
Bottle Order Control # KR-09619-173
SGS Quote # JC95555
SGS Job #

Client / Reporting Information		Project Information			Requested Analysis											Matrix Codes										
Company Name: ARCADIS		Project Name: PHILLY COKE - NATIONAL GRID														DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank										
Street Address: 1 LINCOLN CENTER		Street: Richmond St																								
City: SYRACUSE NY		City: PHILA PA																								
State: NY		State: PA																								
Zip: 13202		Zip: 19104																								
Project Contact: CAREY HENLY		Project #:																								
Phone #: 315-671-9338		Client Purchase Order #:																								
Sample(s) Name(s): CHARLIS CR TOULASO		Project Manager:																								
Phone #:		Attention:																								
SGS Service #	Field ID / Point of Collection	MECH/ID Vial #	Collection			Matrix	Number of preserved Bottles											LAB USE ONLY								
			Date	Time	Sampled By		Grab (G) Comp (C)	# of bottles	HCl	NO3	NO2	HAPO	HAPO	HAPO	HAPO	HAPO	HAPO		HAPO	HAPO	HAPO	HAPO	HAPO	HAPO	HAPO	
1	MW-111 (11-13)		9/23/19	0845	CO	G	SO	5																		C13
2	MW-111 (13-15)		9/23/19	0655	CO	G	SO	5																		P50
3	MW-108 (5-7)		9/24/19	1115	CO	G	SO	5																		LYRS
4	MW-108 (10-12)		9/24/19	1130	CO	G	SO	5																		40109
5	TRIP BLANK							2	2																	V1076

Turn Around Time (Business Days)

Approved By (SGS PM) / Date:

10 Business Days

5 Business Days

3 Business Days

2 Business Days

1 Business Day

Other

All data available via lablink

Deliverable

Commercial "A" (Level 1)

Commercial "B" (Level 2)

NJ Reduced (Level 3)

Full Tier I (Level 4)

Commercial "C"

NJ DKQP

Comments / Special Instructions

NYASP Category A

NYASP Category B

MA MCP Criteria

CT RCP Criteria

State Forms

EDD Format

Commercial "A" = Results only; Commercial "B" = Results + QC Summary
 Commercial "C" = Results + QC Summary + Partial Raw data

<http://www.sgs.com/en/terms-and-conditions>

Sample Custody must be documented below each time samples change possession, including courier delivery.

Rainquished by:	Date / Time:	Received By:	Date / Time:	Rainquished by:	Date / Time:	Received By:	Date / Time:
1 [Signature]	9/24/19 1300	2 [Signature]	9/24/19 1300	3 [Signature]	9/24/19 1300	4 [Signature]	9/24/19 1300

Intact Not intact Preserved where applicable Absent Therm: ID: On Ice Cooler Temp: °C: 2.6 C

INITIAL ASSESSMENT **JAK**
LABEL VERIFICATION _____

EHSQA-CAC-0023-02-FORM-Dayton - Standard COC.docx

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Report of Analysis

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Client Sample ID:	MW-111(11-13)	Date Sampled:	09/23/19
Lab Sample ID:	JC95555-1	Date Received:	09/24/19
Matrix:	SO - Soil	Percent Solids:	87.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D266689.D	1	10/03/19 17:39	TDN	n/a	n/a	VD10747
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.9 g	10.0 ml	2.0 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	62000	25000	ug/kg	
71-43-2	Benzene	131000	3100	2800	ug/kg	
74-97-5	Bromochloromethane	ND	31000	3500	ug/kg	
75-27-4	Bromodichloromethane	ND	12000	2700	ug/kg	
75-25-2	Bromoform	ND	31000	3600	ug/kg	
74-83-9	Bromomethane	ND	31000	6100	ug/kg	
78-93-3	2-Butanone (MEK)	ND	62000	23000	ug/kg	
75-15-0	Carbon disulfide	ND	12000	5700	ug/kg	
56-23-5	Carbon tetrachloride	ND	12000	3800	ug/kg	
108-90-7	Chlorobenzene	ND	12000	2800	ug/kg	
75-00-3	Chloroethane	ND	31000	3600	ug/kg	
67-66-3	Chloroform	ND	12000	3000	ug/kg	
74-87-3	Chloromethane	ND	31000	12000	ug/kg	
110-82-7	Cyclohexane	ND	12000	4100	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	12000	5200	ug/kg	
124-48-1	Dibromochloromethane	ND	12000	3500	ug/kg	
106-93-4	1,2-Dibromoethane	ND	6200	2600	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	6200	3400	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	6200	3100	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	6200	3000	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	31000	4500	ug/kg	
75-34-3	1,1-Dichloroethane	ND	6200	3100	ug/kg	
107-06-2	1,2-Dichloroethane	ND	6200	2900	ug/kg	
75-35-4	1,1-Dichloroethene	ND	6200	4000	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	6200	5200	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	6200	3800	ug/kg	
78-87-5	1,2-Dichloropropane	ND	12000	2900	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	12000	2900	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	12000	2800	ug/kg	
100-41-4	Ethylbenzene	21300	6200	3400	ug/kg	
76-13-1	Freon 113	ND	31000	6200	ug/kg	
591-78-6	2-Hexanone	ND	31000	13000	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-111(11-13)	Date Sampled:	09/23/19
Lab Sample ID:	JC95555-1	Date Received:	09/24/19
Matrix:	SO - Soil	Percent Solids:	87.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	12000	4300	ug/kg	
79-20-9	Methyl Acetate	ND	31000	8600	ug/kg	
108-87-2	Methylcyclohexane	ND	12000	5400	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	6200	2900	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	31000	14000	ug/kg	
75-09-2	Methylene chloride	ND	31000	6100	ug/kg	
100-42-5	Styrene	29500	12000	3500	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	12000	3700	ug/kg	
127-18-4	Tetrachloroethene	ND	12000	3600	ug/kg	
108-88-3	Toluene	99200	6200	3200	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	31000	12000	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	31000	9400	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	12000	3000	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	12000	3400	ug/kg	
79-01-6	Trichloroethene	ND	6200	4700	ug/kg	
75-69-4	Trichlorofluoromethane	ND	31000	4200	ug/kg	
75-01-4	Vinyl chloride	ND	12000	3000	ug/kg	
	m,p-Xylene	127000	6200	5500	ug/kg	
95-47-6	o-Xylene	42600	6200	3600	ug/kg	
1330-20-7	Xylene (total)	170000	6200	3600	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		75-127%
17060-07-0	1,2-Dichloroethane-D4	98%		75-130%
2037-26-5	Toluene-D8	95%		80-120%
460-00-4	4-Bromofluorobenzene	88%		79-127%

(a) Diluted due to high concentration of non-target compound.

ND = Not detected MDL = Method Detection Limit
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 E = Indicates value exceeds calibration range

J = Indicates an estimated value
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Report of Analysis

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Client Sample ID:	MW-111(11-13)	Date Sampled:	09/23/19
Lab Sample ID:	JC95555-1	Date Received:	09/24/19
Matrix:	SO - Soil	Percent Solids:	87.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	5P63459.D	5	10/01/19 11:01	CS	09/28/19 22:45	OP23015	E5P2977
Run #2	5P63492.D	200	10/02/19 00:21	HSS	09/28/19 22:45	OP23015	E5P2978

Run #	Initial Weight	Final Volume
Run #1	31.5 g	5.0 ml
Run #2	31.5 g	5.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	1800	450	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	4500	550	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	4500	770	ug/kg	
105-67-9	2,4-Dimethylphenol	64600	4500	1600	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	4500	3400	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	4500	970	ug/kg	
95-48-7	2-Methylphenol	27700	1800	580	ug/kg	
	3&4-Methylphenol	79300	1800	740	ug/kg	
88-75-5	2-Nitrophenol	ND	4500	600	ug/kg	
100-02-7	4-Nitrophenol	ND	9000	2400	ug/kg	
87-86-5	Pentachlorophenol	ND	3600	850	ug/kg	
108-95-2	Phenol	31300	1800	470	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	4500	600	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	4500	680	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	4500	540	ug/kg	
83-32-9	Acenaphthene	274000 ^b	36000	12000	ug/kg	D
208-96-8	Acenaphthylene	770000 ^b	36000	18000	ug/kg	D
98-86-2	Acetophenone	374	4500	190	ug/kg	J
120-12-7	Anthracene	421000 ^b	36000	22000	ug/kg	D
1912-24-9	Atrazine	ND	1800	390	ug/kg	
56-55-3	Benzo(a)anthracene	592000 ^b	36000	10000	ug/kg	D
50-32-8	Benzo(a)pyrene	469000 ^b	36000	16000	ug/kg	D
205-99-2	Benzo(b)fluoranthene	581000 ^b	36000	16000	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	242000 ^b	36000	18000	ug/kg	D
207-08-9	Benzo(k)fluoranthene	194000 ^b	36000	17000	ug/kg	D
101-55-3	4-Bromophenyl phenyl ether	ND	1800	350	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	1800	220	ug/kg	
92-52-4	1,1'-Biphenyl	158000 ^b	72000	5000	ug/kg	D
100-52-7	Benzaldehyde	ND	4500	220	ug/kg	
91-58-7	2-Chloronaphthalene	ND	1800	220	ug/kg	
106-47-8	4-Chloroaniline	ND	4500	330	ug/kg	
86-74-8	Carbazole	296000 ^b	72000	5200	ug/kg	D

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Report of Analysis

Client Sample ID:	MW-111(11-13)	Date Sampled:	09/23/19
Lab Sample ID:	JC95555-1	Date Received:	09/24/19
Matrix:	SO - Soil	Percent Solids:	87.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	1800	360	ug/kg	
218-01-9	Chrysene	437000 ^b	36000	11000	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	1800	190	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	1800	390	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	1800	320	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	1800	290	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	900	280	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	900	450	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	1800	750	ug/kg	
123-91-1	1,4-Dioxane	ND	900	600	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	65400	900	400	ug/kg	
132-64-9	Dibenzofuran	663000 ^b	72000	15000	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	1800	150	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	1800	230	ug/kg	
84-66-2	Diethyl phthalate	ND	1800	190	ug/kg	
131-11-3	Dimethyl phthalate	ND	1800	160	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	1800	210	ug/kg	
206-44-0	Fluoranthene	1600000 ^b	36000	16000	ug/kg	D
86-73-7	Fluorene	983000 ^b	36000	17000	ug/kg	D
118-74-1	Hexachlorobenzene	ND	1800	230	ug/kg	
87-68-3	Hexachlorobutadiene	ND	900	360	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	9000	360	ug/kg	
67-72-1	Hexachloroethane	ND	4500	450	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	261000 ^b	36000	17000	ug/kg	D
78-59-1	Isophorone	ND	1800	190	ug/kg	
91-57-6	2-Methylnaphthalene	761000 ^b	36000	8200	ug/kg	D
88-74-4	2-Nitroaniline	ND	4500	210	ug/kg	
99-09-2	3-Nitroaniline	ND	4500	230	ug/kg	
100-01-6	4-Nitroaniline	ND	4500	230	ug/kg	
91-20-3	Naphthalene	3190000 ^b	36000	10000	ug/kg	D
98-95-3	Nitrobenzene	ND	1800	350	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	1800	260	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	4500	330	ug/kg	
85-01-8	Phenanthrene	2380000 ^b	36000	12000	ug/kg	D
129-00-0	Pyrene	1080000 ^b	36000	12000	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	4500	230	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	73%	0% ^c	23-115%

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E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-111(11-13) Lab Sample ID: JC95555-1 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 09/23/19 Date Received: 09/24/19 Percent Solids: 87.7
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	85%	0% ^c	27-114%
118-79-6	2,4,6-Tribromophenol	79%	0% ^c	19-152%
4165-60-0	Nitrobenzene-d5	146% ^d	0% ^c	26-134%
321-60-8	2-Fluorobiphenyl	98%	0% ^c	39-124%
1718-51-0	Terphenyl-d14	88%	0% ^c	36-134%

- (a) Dilution required due to viscosity of the extract matrix. Elevated detection limit due to high final volume of viscous extract.
- (b) Result is from Run# 2
- (c) Outside control limits due to dilution.
- (d) Outside control limits due to matrix interference.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: MW-111(11-13)

Lab Sample ID: JC95555-1

Matrix: SO - Soil

Date Sampled: 09/23/19

Date Received: 09/24/19

Percent Solids: 87.7

Project: National Grid, Philly Coke, Philadelphia, PA

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	4410	55	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	< 2.2	2.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	6.2	2.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	32.8	22	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.30	0.22	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	< 0.55	0.55	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	893	550	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	12.5	1.1	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	< 5.5	5.5	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	25.0	2.8	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	11100	55	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	55.4	2.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	1460	550	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	168	1.7	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	0.15	0.037	mg/kg	1	09/27/19	09/27/19	CH	SW846 7471B ¹ SW846 7471B ³
Nickel	9.5	4.4	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	< 1100	1100	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	< 2.2	2.2	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	< 0.55	0.55	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	< 1100	1100	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	< 1.1	1.1	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	8.7	5.5	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	74.0	5.5	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ² SW846 3050B ⁴

(1) Instrument QC Batch: MA47516

(2) Instrument QC Batch: MA47539

(3) Prep QC Batch: MP17543

(4) Prep QC Batch: MP17592

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-111(11-13)	Date Sampled: 09/23/19
Lab Sample ID: JC95555-1	Date Received: 09/24/19
Matrix: SO - Soil	Percent Solids: 87.7
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.29	0.29	mg/kg	1	10/03/19 16:25	KI	SW846 9012B/LACHAT
Solids, Percent	87.7		%	1	10/02/19 17:05	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit

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Report of Analysis

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Client Sample ID:	MW-111(13-15)	Date Sampled:	09/23/19
Lab Sample ID:	JC95555-2	Date Received:	09/24/19
Matrix:	SO - Soil	Percent Solids:	63.4
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D266676.D	1	10/03/19 11:28	TDN	n/a	n/a	VD10747
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.3 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	2100	850	ug/kg	
71-43-2	Benzene	13200	110	97	ug/kg	
74-97-5	Bromochloromethane	ND	1100	120	ug/kg	
75-27-4	Bromodichloromethane	ND	420	94	ug/kg	
75-25-2	Bromoform	ND	1100	120	ug/kg	
74-83-9	Bromomethane	ND	1100	210	ug/kg	
78-93-3	2-Butanone (MEK)	ND	2100	790	ug/kg	
75-15-0	Carbon disulfide	400	420	200	ug/kg	J
56-23-5	Carbon tetrachloride	ND	420	130	ug/kg	
108-90-7	Chlorobenzene	ND	420	97	ug/kg	
75-00-3	Chloroethane	ND	1100	130	ug/kg	
67-66-3	Chloroform	ND	420	100	ug/kg	
74-87-3	Chloromethane	ND	1100	420	ug/kg	
110-82-7	Cyclohexane	ND	420	140	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	420	180	ug/kg	
124-48-1	Dibromochloromethane	ND	420	120	ug/kg	
106-93-4	1,2-Dibromoethane	ND	210	89	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	210	120	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	210	110	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	210	100	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	1100	150	ug/kg	
75-34-3	1,1-Dichloroethane	ND	210	110	ug/kg	
107-06-2	1,2-Dichloroethane	ND	210	100	ug/kg	
75-35-4	1,1-Dichloroethene	ND	210	140	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	210	180	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	210	130	ug/kg	
78-87-5	1,2-Dichloropropane	ND	420	100	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	420	100	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	420	97	ug/kg	
100-41-4	Ethylbenzene	190	210	120	ug/kg	J
76-13-1	Freon 113	ND	1100	210	ug/kg	
591-78-6	2-Hexanone	ND	1100	450	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-111(13-15)	Date Sampled:	09/23/19
Lab Sample ID:	JC95555-2	Date Received:	09/24/19
Matrix:	SO - Soil	Percent Solids:	63.4
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	192	420	150	ug/kg	J
79-20-9	Methyl Acetate	ND	1100	300	ug/kg	
108-87-2	Methylcyclohexane	ND	420	190	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	210	100	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	1100	480	ug/kg	
75-09-2	Methylene chloride	ND	1100	210	ug/kg	
100-42-5	Styrene	ND	420	120	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	420	130	ug/kg	
127-18-4	Tetrachloroethene	ND	420	120	ug/kg	
108-88-3	Toluene	1500	210	110	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	1100	410	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	1100	320	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	420	100	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	420	120	ug/kg	
79-01-6	Trichloroethene	ND	210	160	ug/kg	
75-69-4	Trichlorofluoromethane	ND	1100	150	ug/kg	
75-01-4	Vinyl chloride	ND	420	100	ug/kg	
	m,p-Xylene	346	210	190	ug/kg	
95-47-6	o-Xylene	368	210	120	ug/kg	
1330-20-7	Xylene (total)	714	210	120	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		75-127%
17060-07-0	1,2-Dichloroethane-D4	97%		75-130%
2037-26-5	Toluene-D8	96%		80-120%
460-00-4	4-Bromofluorobenzene	90%		79-127%

(a) Diluted due to high concentration of non-target compound.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 3

Client Sample ID:	MW-111(13-15)	Date Sampled:	09/23/19
Lab Sample ID:	JC95555-2	Date Received:	09/24/19
Matrix:	SO - Soil	Percent Solids:	63.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P63452.D	1	10/01/19 08:10	CS	09/28/19 22:45	OP23015	E5P2977
Run #2	5P63493.D	2	10/02/19 00:45	HSS	09/28/19 22:45	OP23015	E5P2978

Run #	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2	30.0 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	110	26	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	260	32	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	260	45	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	260	94	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	260	200	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	260	56	ug/kg	
95-48-7	2-Methylphenol	ND	110	34	ug/kg	
	3&4-Methylphenol	ND	110	43	ug/kg	
88-75-5	2-Nitrophenol	ND	260	35	ug/kg	
100-02-7	4-Nitrophenol	ND	530	140	ug/kg	
87-86-5	Pentachlorophenol	ND	210	49	ug/kg	
108-95-2	Phenol	ND	110	27	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	260	35	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	260	39	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	260	31	ug/kg	
83-32-9	Acenaphthene	2630	53	18	ug/kg	
208-96-8	Acenaphthylene	411	53	27	ug/kg	
98-86-2	Acetophenone	ND	260	11	ug/kg	
120-12-7	Anthracene	1170	53	32	ug/kg	
1912-24-9	Atrazine	ND	110	23	ug/kg	
56-55-3	Benzo(a)anthracene	2090	53	15	ug/kg	
50-32-8	Benzo(a)pyrene	1710	53	24	ug/kg	
205-99-2	Benzo(b)fluoranthene	1910	53	23	ug/kg	
191-24-2	Benzo(g,h,i)perylene	975	53	26	ug/kg	
207-08-9	Benzo(k)fluoranthene	803	53	25	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	110	20	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	110	13	ug/kg	
92-52-4	1,1'-Biphenyl	357	110	7.2	ug/kg	
100-52-7	Benzaldehyde	ND	260	13	ug/kg	
91-58-7	2-Chloronaphthalene	ND	110	13	ug/kg	
106-47-8	4-Chloroaniline	ND	260	19	ug/kg	
86-74-8	Carbazole	820	110	7.6	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-111(13-15)	Date Sampled:	09/23/19
Lab Sample ID:	JC95555-2	Date Received:	09/24/19
Matrix:	SO - Soil	Percent Solids:	63.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	110	21	ug/kg	
218-01-9	Chrysene	1580	53	17	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	110	11	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	110	23	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	110	19	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	110	17	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	53	16	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	53	26	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	110	44	ug/kg	
123-91-1	1,4-Dioxane	ND	53	35	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	333	53	23	ug/kg	
132-64-9	Dibenzofuran	1660	110	21	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	110	8.6	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	110	13	ug/kg	
84-66-2	Diethyl phthalate	ND	110	11	ug/kg	
131-11-3	Dimethyl phthalate	ND	110	9.4	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	110	12	ug/kg	
206-44-0	Fluoranthene	4220	53	23	ug/kg	
86-73-7	Fluorene	2490	53	24	ug/kg	
118-74-1	Hexachlorobenzene	ND	110	13	ug/kg	
87-68-3	Hexachlorobutadiene	ND	53	21	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	530	21	ug/kg	
67-72-1	Hexachloroethane	ND	260	26	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1040	53	25	ug/kg	
78-59-1	Isophorone	ND	110	11	ug/kg	
91-57-6	2-Methylnaphthalene	1270	53	12	ug/kg	
88-74-4	2-Nitroaniline	ND	260	12	ug/kg	
99-09-2	3-Nitroaniline	ND	260	13	ug/kg	
100-01-6	4-Nitroaniline	ND	260	14	ug/kg	
91-20-3	Naphthalene	4500	53	15	ug/kg	
98-95-3	Nitrobenzene	ND	110	20	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	110	15	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	260	19	ug/kg	
85-01-8	Phenanthrene	7070 ^a	110	35	ug/kg	D
129-00-0	Pyrene	3720	53	17	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	260	13	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	57%	54%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-111(13-15)	Date Sampled: 09/23/19
Lab Sample ID: JC95555-2	Date Received: 09/24/19
Matrix: SO - Soil	Percent Solids: 63.4
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	61%	59%	27-114%
118-79-6	2,4,6-Tribromophenol	62%	63%	19-152%
4165-60-0	Nitrobenzene-d5	66%	66%	26-134%
321-60-8	2-Fluorobiphenyl	61%	61%	39-124%
1718-51-0	Terphenyl-d14	77%	73%	36-134%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID:	MW-111(13-15)	Date Sampled:	09/23/19
Lab Sample ID:	JC95555-2	Date Received:	09/24/19
Matrix:	SO - Soil	Percent Solids:	63.4
Project:	National Grid, Philly Coke, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	17500	76	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Antimony	< 3.0	3.0	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Arsenic	34.7	3.0	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Barium	170	30	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Beryllium	1.2	0.30	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Cadmium	1.5	0.76	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Calcium	3580	760	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Chromium	162	1.5	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Cobalt	15.1	7.6	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Copper	88.8	3.8	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Iron	28200	76	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Lead	185	3.0	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Magnesium	4760	760	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Manganese	860	2.3	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Mercury	1.4	0.094	mg/kg	2	09/27/19	09/27/19	CH SW846 7471B ¹	SW846 7471B ³
Nickel	30.6	6.1	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Potassium	1950	1500	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Selenium	< 3.0	3.0	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Silver	1.2	0.76	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Sodium	< 1500	1500	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Thallium	< 1.5	1.5	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Vanadium	32.6	7.6	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴
Zinc	504	7.6	mg/kg	1	09/29/19	09/30/19	ND SW846 6010D ²	SW846 3050B ⁴

(1) Instrument QC Batch: MA47516

(2) Instrument QC Batch: MA47539

(3) Prep QC Batch: MP17543

(4) Prep QC Batch: MP17592

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-111(13-15)	Date Sampled: 09/23/19
Lab Sample ID: JC95555-2	Date Received: 09/24/19
Matrix: SO - Soil	Percent Solids: 63.4
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.87	0.36	mg/kg	1	10/03/19 16:26	KI	SW846 9012B/LACHAT
Solids, Percent	63.4		%	1	10/02/19 17:05	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit

4.2
4

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Report of Analysis

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Client Sample ID:	MW-108(5-7)	Date Sampled:	09/24/19
Lab Sample ID:	JC95555-3	Date Received:	09/24/19
Matrix:	SO - Soil	Percent Solids:	79.4
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D266690.D	1	10/03/19 18:08	TDN	n/a	n/a	VD10747
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.0 g	10.0 ml	2.0 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	85000	34000	ug/kg	
71-43-2	Benzene	9980	4300	3900	ug/kg	
74-97-5	Bromochloromethane	ND	43000	4800	ug/kg	
75-27-4	Bromodichloromethane	ND	17000	3800	ug/kg	
75-25-2	Bromoform	ND	43000	4900	ug/kg	
74-83-9	Bromomethane	ND	43000	8500	ug/kg	
78-93-3	2-Butanone (MEK)	ND	85000	32000	ug/kg	
75-15-0	Carbon disulfide	8420	17000	7900	ug/kg	J
56-23-5	Carbon tetrachloride	ND	17000	5300	ug/kg	
108-90-7	Chlorobenzene	ND	17000	3900	ug/kg	
75-00-3	Chloroethane	ND	43000	5000	ug/kg	
67-66-3	Chloroform	ND	17000	4200	ug/kg	
74-87-3	Chloromethane	ND	43000	17000	ug/kg	
110-82-7	Cyclohexane	ND	17000	5600	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	17000	7100	ug/kg	
124-48-1	Dibromochloromethane	ND	17000	4800	ug/kg	
106-93-4	1,2-Dibromoethane	ND	8500	3600	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	8500	4700	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	8500	4200	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	8500	4200	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	43000	6200	ug/kg	
75-34-3	1,1-Dichloroethane	ND	8500	4200	ug/kg	
107-06-2	1,2-Dichloroethane	ND	8500	4000	ug/kg	
75-35-4	1,1-Dichloroethene	ND	8500	5600	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	8500	7200	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	8500	5200	ug/kg	
78-87-5	1,2-Dichloropropane	ND	17000	4000	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	17000	4000	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	17000	3900	ug/kg	
100-41-4	Ethylbenzene	ND	8500	4700	ug/kg	
76-13-1	Freon 113	ND	43000	8600	ug/kg	
591-78-6	2-Hexanone	ND	43000	18000	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-108(5-7)	Date Sampled:	09/24/19
Lab Sample ID:	JC95555-3	Date Received:	09/24/19
Matrix:	SO - Soil	Percent Solids:	79.4
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	17000	5900	ug/kg	
79-20-9	Methyl Acetate	ND	43000	12000	ug/kg	
108-87-2	Methylcyclohexane	ND	17000	7500	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	8500	4000	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	43000	19000	ug/kg	
75-09-2	Methylene chloride	ND	43000	8500	ug/kg	
100-42-5	Styrene	ND	17000	4900	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	17000	5100	ug/kg	
127-18-4	Tetrachloroethene	ND	17000	4900	ug/kg	
108-88-3	Toluene	12500	8500	4500	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	43000	16000	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	43000	13000	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	17000	4100	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	17000	4700	ug/kg	
79-01-6	Trichloroethene	ND	8500	6500	ug/kg	
75-69-4	Trichlorofluoromethane	ND	43000	5800	ug/kg	
75-01-4	Vinyl chloride	ND	17000	4100	ug/kg	
	m,p-Xylene	36900	8500	7600	ug/kg	
95-47-6	o-Xylene	14400	8500	5000	ug/kg	
1330-20-7	Xylene (total)	51300	8500	5000	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		75-127%
17060-07-0	1,2-Dichloroethane-D4	101%		75-130%
2037-26-5	Toluene-D8	97%		80-120%
460-00-4	4-Bromofluorobenzene	91%		79-127%

(a) Diluted due to high concentration of non-target compound.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-108(5-7)	Date Sampled:	09/24/19
Lab Sample ID:	JC95555-3	Date Received:	09/24/19
Matrix:	SO - Soil	Percent Solids:	79.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P63460.D	5	10/01/19 11:25	CS	09/28/19 22:45	OP23015	E5P2977
Run #2	5P63494.D	200	10/02/19 01:10	HSS	09/28/19 22:45	OP23015	E5P2978
Run #3	5P63684.D	2000	10/07/19 12:29	HSS	09/28/19 22:45	OP23015	E5P2987

Run #1	Initial Weight	Final Volume
Run #1	30.5 g	5.0 ml
Run #2	30.5 g	5.0 ml
Run #3	30.5 g	5.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	2100	510	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	5200	630	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	5200	880	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	94900	5200	1800	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	5200	3900	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	5200	1100	ug/kg	
95-48-7	2-Methylphenol	37300	2100	660	ug/kg	
	3&4-Methylphenol	75800	2100	850	ug/kg	
88-75-5	2-Nitrophenol	ND	5200	680	ug/kg	
100-02-7	4-Nitrophenol	ND	10000	2800	ug/kg	
87-86-5	Pentachlorophenol	ND	4100	970	ug/kg	
108-95-2	Phenol	24800	2100	540	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5200	680	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	5200	770	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	5200	620	ug/kg	
83-32-9	Acenaphthene	160000 ^b	41000	14000	ug/kg	D
208-96-8	Acenaphthylene	305000 ^b	41000	21000	ug/kg	D
98-86-2	Acetophenone	6880	5200	220	ug/kg	
120-12-7	Anthracene	1010000 ^b	41000	25000	ug/kg	D
1912-24-9	Atrazine	ND	2100	440	ug/kg	
56-55-3	Benzo(a)anthracene	1050000 ^b	41000	12000	ug/kg	D
50-32-8	Benzo(a)pyrene	681000 ^b	41000	19000	ug/kg	D
205-99-2	Benzo(b)fluoranthene	903000 ^b	41000	18000	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	321000 ^b	41000	21000	ug/kg	D
207-08-9	Benzo(k)fluoranthene	320000 ^b	41000	19000	ug/kg	D
101-55-3	4-Bromophenyl phenyl ether	ND	2100	400	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	2100	250	ug/kg	
92-52-4	1,1'-Biphenyl	310000 ^b	83000	5700	ug/kg	D
100-52-7	Benzaldehyde	ND	5200	260	ug/kg	
91-58-7	2-Chloronaphthalene	ND	2100	250	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-108(5-7)	Date Sampled:	09/24/19
Lab Sample ID:	JC95555-3	Date Received:	09/24/19
Matrix:	SO - Soil	Percent Solids:	79.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	5200	370	ug/kg	
86-74-8	Carbazole	594000 ^b	83000	6000	ug/kg	D
105-60-2	Caprolactam	ND	2100	410	ug/kg	
218-01-9	Chrysene	927000 ^b	41000	13000	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	2100	220	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	2100	440	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2100	370	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2100	330	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	1000	320	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	1000	520	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	2100	860	ug/kg	
123-91-1	1,4-Dioxane	ND	1000	680	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	119000 ^b	41000	18000	ug/kg	D
132-64-9	Dibenzofuran	1270000 ^b	83000	17000	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	2100	170	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	2100	260	ug/kg	
84-66-2	Diethyl phthalate	ND	2100	220	ug/kg	
131-11-3	Dimethyl phthalate	ND	2100	180	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2100	240	ug/kg	
206-44-0	Fluoranthene	2470000 ^b	41000	18000	ug/kg	D
86-73-7	Fluorene	1940000 ^b	41000	19000	ug/kg	D
118-74-1	Hexachlorobenzene	ND	2100	260	ug/kg	
87-68-3	Hexachlorobutadiene	ND	1000	410	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	10000	410	ug/kg	
67-72-1	Hexachloroethane	ND	5200	510	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	377000 ^b	41000	19000	ug/kg	D
78-59-1	Isophorone	ND	2100	220	ug/kg	
91-57-6	2-Methylnaphthalene	1610000 ^b	41000	9300	ug/kg	D
88-74-4	2-Nitroaniline	ND	5200	240	ug/kg	
99-09-2	3-Nitroaniline	ND	5200	260	ug/kg	
100-01-6	4-Nitroaniline	ND	5200	270	ug/kg	
91-20-3	Naphthalene	8500000 ^c	410000	120000	ug/kg	D
98-95-3	Nitrobenzene	ND	2100	400	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	2100	300	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	5200	380	ug/kg	
85-01-8	Phenanthrene	5220000 ^c	410000	140000	ug/kg	D
129-00-0	Pyrene	1760000 ^b	41000	13000	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	5200	260	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-108(5-7)		Date Sampled: 09/24/19
Lab Sample ID: JC95555-3		Date Received: 09/24/19
Matrix: SO - Soil		Percent Solids: 79.4
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	79%	0% ^d	0% ^d	23-115%
4165-62-2	Phenol-d5	86%	0% ^d	0% ^d	27-114%
118-79-6	2,4,6-Tribromophenol	97%	0% ^d	0% ^d	19-152%
4165-60-0	Nitrobenzene-d5	145% ^e	0% ^d	0% ^d	26-134%
321-60-8	2-Fluorobiphenyl	72%	0% ^d	0% ^d	39-124%
1718-51-0	Terphenyl-d14	71%	0% ^d	0% ^d	36-134%

(a) Estimated value, due to corresponding internal standard failing low.

(b) Result is from Run# 2

(c) Result is from Run# 3

(d) Outside control limits due to dilution.

(e) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-108(5-7)**Lab Sample ID:** JC95555-3**Matrix:** SO - Soil**Date Sampled:** 09/24/19**Date Received:** 09/24/19**Percent Solids:** 79.4**Project:** National Grid, Philly Coke, Philadelphia, PA

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	1100	63	mg/kg	1	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Antimony	2.6	2.5	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Arsenic ^a	16.0	5.0	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Barium	194	25	mg/kg	1	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Beryllium	< 0.25	0.25	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Cadmium ^a	< 1.3	1.3	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Calcium	2190	630	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Chromium	185	1.3	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Cobalt	< 6.3	6.3	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Copper ^a	92.4	6.3	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Iron	28400	130	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Lead ^a	145	5.0	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Magnesium	< 630	630	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Manganese ^a	116	3.8	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Mercury	3.5	0.40	mg/kg	10	09/27/19	09/27/19	CH	SW846 7471B ¹	SW846 7471B ⁴
Nickel	32.6	5.0	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Potassium	< 1300	1300	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Selenium ^a	< 5.0	5.0	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Silver ^a	< 1.3	1.3	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Sodium	< 1300	1300	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Thallium ^a	< 2.5	2.5	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Vanadium	8.7	6.3	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Zinc	94.0	6.3	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵

(1) Instrument QC Batch: MA47516

(2) Instrument QC Batch: MA47539

(3) Instrument QC Batch: MA47552

(4) Prep QC Batch: MP17543

(5) Prep QC Batch: MP17592

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-108(5-7)	Date Sampled: 09/24/19
Lab Sample ID: JC95555-3	Date Received: 09/24/19
Matrix: SO - Soil	Percent Solids: 79.4
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	12.8	0.30	mg/kg	1	10/03/19 16:30	KI	SW846 9012B/LACHAT
Solids, Percent	79.4		%	1	10/02/19 17:05	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit

4.3
4

Report of Analysis

Client Sample ID: MW-108(10-12)		Date Sampled: 09/24/19
Lab Sample ID: JC95555-4		Date Received: 09/24/19
Matrix: SO - Soil		Percent Solids: 72.6
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1C167581.D	1	10/04/19 14:13	PS	n/a	n/a	VIC7331
Run #2 ^a	D266675.D	1	10/03/19 10:59	TDN	n/a	n/a	VD10747
Run #3 ^a	1C167585.D	1	10/04/19 15:59	PS	n/a	n/a	VIC7331

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	2.9 g		
Run #2	3.8 g	10.0 ml	100 ul
Run #3	2.8 g		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	16.3	24	9.5	ug/kg	J
71-43-2	Benzene	ND	1.2	1.1	ug/kg	
74-97-5	Bromochloromethane	ND	12	1.3	ug/kg	
75-27-4	Bromodichloromethane	ND	4.7	1.1	ug/kg	
75-25-2	Bromoform	ND	12	1.4	ug/kg	UJ
74-83-9	Bromomethane ^b	ND	12	2.4	ug/kg	
78-93-3	2-Butanone (MEK)	ND	24	8.9	ug/kg	
75-15-0	Carbon disulfide	ND	4.7	2.2	ug/kg	
56-23-5	Carbon tetrachloride	ND	4.7	1.5	ug/kg	
108-90-7	Chlorobenzene	ND	4.7	1.1	ug/kg	UJ
75-00-3	Chloroethane	ND	12	1.4	ug/kg	
67-66-3	Chloroform	ND	4.7	1.2	ug/kg	
74-87-3	Chloromethane	ND	12	4.7	ug/kg	
110-82-7	Cyclohexane	5.4	4.7	1.6	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	4.7	2.0	ug/kg	R
124-48-1	Dibromochloromethane	ND	4.7	1.3	ug/kg	UJ
106-93-4	1,2-Dibromoethane	ND	2.4	1.0	ug/kg	UJ
95-50-1	1,2-Dichlorobenzene	ND	2.4	1.3	ug/kg	R
541-73-1	1,3-Dichlorobenzene	ND	2.4	1.2	ug/kg	R
106-46-7	1,4-Dichlorobenzene	ND	2.4	1.2	ug/kg	R
75-71-8	Dichlorodifluoromethane	ND	12	1.7	ug/kg	
75-34-3	1,1-Dichloroethane	ND	2.4	1.2	ug/kg	
107-06-2	1,2-Dichloroethane	ND	2.4	1.1	ug/kg	
75-35-4	1,1-Dichloroethene	ND	2.4	1.6	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	2.4	2.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	2.4	1.5	ug/kg	
78-87-5	1,2-Dichloropropane	ND	4.7	1.1	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	4.7	1.1	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	4.7	1.1	ug/kg	
100-41-4	Ethylbenzene	ND	2.4	1.3	ug/kg	UJ

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.4
4

Report of Analysis

Client Sample ID:	MW-108(10-12)	Date Sampled:	09/24/19
Lab Sample ID:	JC95555-4	Date Received:	09/24/19
Matrix:	SO - Soil	Percent Solids:	72.6
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
76-13-1	Freon 113	ND	12	2.4	ug/kg	
591-78-6	2-Hexanone	ND	12	5.0	ug/kg	UJ
98-82-8	Isopropylbenzene	ND	4.7	1.7	ug/kg	
79-20-9	Methyl Acetate	ND	12	3.3	ug/kg	
108-87-2	Methylcyclohexane	14.8	4.7	2.1	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	2.4	1.1	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	12	5.4	ug/kg	
75-09-2	Methylene chloride	ND	12	2.4	ug/kg	
100-42-5	Styrene	ND	4.7	1.4	ug/kg	UJ
79-34-5	1,1,2,2-Tetrachloroethane	ND	4.7	1.4	ug/kg	R
127-18-4	Tetrachloroethene	ND	4.7	1.4	ug/kg	UJ
108-88-3	Toluene	ND	2.4	1.2	ug/kg	UJ
87-61-6	1,2,3-Trichlorobenzene	ND	12	4.6	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	12	3.6	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	4.7	1.1	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	4.7	1.3	ug/kg	
79-01-6	Trichloroethene	ND	2.4	1.8	ug/kg	
75-69-4	Trichlorofluoromethane	ND	12	1.6	ug/kg	
75-01-4	Vinyl chloride	ND	4.7	1.1	ug/kg	
	m,p-Xylene	2.4	2.4	2.1	ug/kg	UJ
95-47-6	o-Xylene	1.6	2.4	1.4	ug/kg	J
1330-20-7	Xylene (total)	4.0	2.4	1.4	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
1868-53-7	Dibromofluoromethane	97%	102%	94%	75-127%
17060-07-0	1,2-Dichloroethane-D4	103%	102%	98%	75-130%
2037-26-5	Toluene-D8	167% ^c	97%	143% ^c	80-120%
460-00-4	4-Bromofluorobenzene	138% ^c	88%	140% ^c	79-127%

(a) Confirmation run.

(b) Associated CCV outside of control limits high, sample was ND.

(c) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-108(10-12)	Date Sampled:	09/24/19
Lab Sample ID:	JC95555-4	Date Received:	09/24/19
Matrix:	SO - Soil	Percent Solids:	72.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P63449.D	1	10/01/19 06:58	CS	09/28/19 22:45	OP23015	E5P2977
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	90	22	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	230	28	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	230	38	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	230	80	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	230	170	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	230	48	ug/kg	
95-48-7	2-Methylphenol	ND	90	29	ug/kg	
	3&4-Methylphenol	ND	90	37	ug/kg	
88-75-5	2-Nitrophenol	ND	230	30	ug/kg	
100-02-7	4-Nitrophenol	ND	450	120	ug/kg	
87-86-5	Pentachlorophenol	ND	180	42	ug/kg	
108-95-2	Phenol	ND	90	23	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	230	30	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	230	34	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	230	27	ug/kg	
83-32-9	Acenaphthene	48.5	45	16	ug/kg	
208-96-8	Acenaphthylene	36.3	45	23	ug/kg	J
98-86-2	Acetophenone	ND	230	9.7	ug/kg	
120-12-7	Anthracene	76.6	45	28	ug/kg	
1912-24-9	Atrazine	ND	90	19	ug/kg	
56-55-3	Benzo(a)anthracene	118	45	13	ug/kg	
50-32-8	Benzo(a)pyrene	108	45	20	ug/kg	
205-99-2	Benzo(b)fluoranthene	140	45	20	ug/kg	
191-24-2	Benzo(g,h,i)perylene	79.8	45	23	ug/kg	
207-08-9	Benzo(k)fluoranthene	53.6	45	21	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	90	17	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	90	11	ug/kg	
92-52-4	1,1'-Biphenyl	43.9	90	6.2	ug/kg	J
100-52-7	Benzaldehyde	ND	230	11	ug/kg	
91-58-7	2-Chloronaphthalene	ND	90	11	ug/kg	
106-47-8	4-Chloroaniline	ND	230	16	ug/kg	
86-74-8	Carbazole	43.6	90	6.5	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-108(10-12)	Date Sampled:	09/24/19
Lab Sample ID:	JC95555-4	Date Received:	09/24/19
Matrix:	SO - Soil	Percent Solids:	72.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	90	18	ug/kg	
218-01-9	Chrysene	148	45	14	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	90	9.6	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	90	19	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	90	16	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	90	15	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	45	14	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	45	23	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	90	38	ug/kg	
123-91-1	1,4-Dioxane	ND	45	30	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	45	20	ug/kg	
132-64-9	Dibenzofuran	103	90	18	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	90	7.3	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	90	11	ug/kg	
84-66-2	Diethyl phthalate	ND	90	9.6	ug/kg	
131-11-3	Dimethyl phthalate	ND	90	8.0	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	90	11	ug/kg	
206-44-0	Fluoranthene	241	45	20	ug/kg	
86-73-7	Fluorene	127	45	21	ug/kg	
118-74-1	Hexachlorobenzene	ND	90	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	45	18	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	450	18	ug/kg	
67-72-1	Hexachloroethane	ND	230	22	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	71.8	45	21	ug/kg	
78-59-1	Isophorone	ND	90	9.6	ug/kg	
91-57-6	2-Methylnaphthalene	270	45	10	ug/kg	
88-74-4	2-Nitroaniline	ND	230	11	ug/kg	
99-09-2	3-Nitroaniline	ND	230	11	ug/kg	
100-01-6	4-Nitroaniline	ND	230	12	ug/kg	
91-20-3	Naphthalene	1060	45	13	ug/kg	
98-95-3	Nitrobenzene	ND	90	17	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	90	13	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	230	16	ug/kg	
85-01-8	Phenanthrene	363	45	15	ug/kg	
129-00-0	Pyrene	254	45	14	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	230	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	56%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-108(10-12) Lab Sample ID: JC95555-4 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 09/24/19 Date Received: 09/24/19 Percent Solids: 72.6
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	61%		27-114%
118-79-6	2,4,6-Tribromophenol	60%		19-152%
4165-60-0	Nitrobenzene-d5	67%		26-134%
321-60-8	2-Fluorobiphenyl	62%		39-124%
1718-51-0	Terphenyl-d14	66%		36-134%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.4
4

Report of Analysis

Client Sample ID: MW-108(10-12)	Date Sampled: 09/24/19
Lab Sample ID: JC95555-4	Date Received: 09/24/19
Matrix: SO - Soil	Percent Solids: 72.6
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	20600	67	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Antimony	< 2.7	2.7	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Arsenic ^a	18.4	5.3	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Barium	189	27	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Beryllium	1.2	0.27	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Cadmium ^a	< 1.3	1.3	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Calcium	3280	670	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Chromium	107	1.3	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Cobalt	13.2	6.7	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Copper ^a	80.9	6.7	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Iron	42200	130	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Lead ^a	150	5.3	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Magnesium	5470	670	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Manganese ^a	640	4.0	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Mercury	0.50	0.042	mg/kg	1	09/27/19	09/27/19	CH	SW846 7471B ¹	SW846 7471B ⁴
Nickel	33.2	5.3	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Potassium	2770	1300	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Selenium ^a	< 5.3	5.3	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Silver ^a	1.4	1.3	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Sodium	< 1300	1300	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Thallium ^a	< 2.7	2.7	mg/kg	2	09/29/19	10/01/19	RP	SW846 6010D ³	SW846 3050B ⁵
Vanadium	37.9	6.7	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵
Zinc	445	6.7	mg/kg	1	09/29/19	09/30/19	ND	SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA47516
- (2) Instrument QC Batch: MA47539
- (3) Instrument QC Batch: MA47552
- (4) Prep QC Batch: MP17543
- (5) Prep QC Batch: MP17592

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

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Report of Analysis

Client Sample ID: MW-108(10-12)	Date Sampled: 09/24/19
Lab Sample ID: JC95555-4	Date Received: 09/24/19
Matrix: SO - Soil	Percent Solids: 72.6
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.40	0.39	mg/kg	1	10/03/19 16:31	KI	SW846 9012B/LACHAT
Solids, Percent	72.6		%	1	10/02/19 17:05	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit

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Report of Analysis

Client Sample ID: TRIP BLANK		Date Sampled: 09/24/19
Lab Sample ID: JC95555-5		Date Received: 09/24/19
Matrix: AQ - Trip Blank Soil		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	A253704.D	1	10/04/19 09:48	KC	n/a	n/a	VA9835
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	6.0	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.48	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.58	ug/l	
75-25-2	Bromoform ^a	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane ^a	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	6.9	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.95	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.55	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.56	ug/l	
75-00-3	Chloroethane	ND	1.0	0.73	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane	ND	1.0	0.76	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.78	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.2	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.56	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.48	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.53	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.54	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.51	ug/l	
75-71-8	Dichlorodifluoromethane	ND	2.0	1.4	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.57	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.60	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.59	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.54	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.51	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.47	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.43	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.60	ug/l	
76-13-1	Freon 113 ^a	ND	5.0	1.9	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.0	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TRIP BLANK		Date Sampled: 09/24/19
Lab Sample ID: JC95555-5		Date Received: 09/24/19
Matrix: AQ - Trip Blank Soil		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.65	ug/l	
79-20-9	Methyl Acetate	ND	5.0	0.80	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.60	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	1.9	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.70	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.90	ug/l	
108-88-3	Toluene	ND	1.0	0.53	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.54	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.53	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.84	ug/l	
75-01-4	Vinyl chloride ^a	ND	1.0	0.79	ug/l	
	m,p-Xylene	ND	1.0	0.78	ug/l	
95-47-6	o-Xylene	ND	1.0	0.59	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.59	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		80-120%
17060-07-0	1,2-Dichloroethane-D4	93%		81-124%
2037-26-5	Toluene-D8	85%		80-120%
460-00-4	4-Bromofluorobenzene	83%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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National Grid

Philly Coke

DATA REVIEW

Philadelphia, Pennsylvania

Volatile Organic Compound (VOC), Semivolatile Organic Compounds (SVOC), Metals, and Miscellaneous Analyses

SDG # JC96248

Analyses Reported By:
SGS Laboratories
Dayton, New Jersey

Report #34670R
Review Level: Tier II
Project: 30004026 (B0036790.0001) 00006

DATA REVIEW REPORT

SUMMARY

This data review report summarizes the review of Sample Delivery Group (SDG) # JC96248 for samples collected in association with the National Grid Philly Coke site in Philadelphia, Pennsylvania. The review was conducted as a Tier II evaluation and included review of laboratory analytical data package completeness. Field documentation was not included in this review. Included with this assessment are the post-validation annotated sample result sheets, and chain of custody (COC). Analyses were performed on the following samples

SDG Number	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PEST/PCB	Metals	MISC
JC96248	MW-108 (10-04-2019)	JC96248-1	Water	10/4/2019		X	X		X	X
	MW-109 (10-04-2019)	JC96248-2	Water	10/4/2019		X	X		X	X
	MW-110 (10-04-2019)	JC96248-3	Water	10/4/2019		X	X		X	X
	MW-111 (10-04-2019)	JC96248-4	Water	10/4/2019		X	X		X	X
	MW-112 (10-04-2019)	JC96248-5	Water	10/4/2019		X	X		X	X
	MW-113 (10-04-2019)	JC96248-6	Water	10/4/2019		X	X		X	X
	DUP-100419	JC96248-7	Water	10/4/2019	MW-108 (10-04-2019)	X	X		X	X
	FB-100419	JC96248-8	Water	10/4/2019		X	X		X	X
	TRIP BLANK (10-04-2019)	JC96248-9	Water	10/4/2019		X				

Notes:

1. PEST/PCB = Pesticides and polychlorinated biphenyls
2. SVOC = Semivolatile Organic Compounds
3. VOC = Volatile Organic Compound
4. MISC = Miscellaneous (total cyanide)

DATA REVIEW REPORT

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW REPORT

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260C and 8270D. Data were reviewed in accordance with the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540/R-2017-002, January 2017 and the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, EPA540/R-99/008, October 1999 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

DATA REVIEW REPORT

that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times/Preservation

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis (preserved) 7 days from collection to analysis (non-preserved)	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis (Samples stored in deionized water must be frozen or analyzed within 48 hours)	Cool to <6 °C.

Note:

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

DATA REVIEW REPORT

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
MW-111 (10-04-2019)	cis-1,3-Dichloropropene	>UL	AC
	Toluene	>UL	AC

Note:

AC Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Parent sample concentration > four times the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

DATA REVIEW REPORT

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-108 (10-04-2019)/ DUP-100419	All compounds	U	U	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

Several samples were diluted to bring target compounds within linear range of the instrument. Sample results that were reported from a secondary dilution were qualified with a "D", indicating the result is diluted.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Trip blanks		X		X	
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)		X	X		
Matrix Spike Duplicate(MSD)		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

- %RSD Relative standard deviation
- %R Percent recovery
- RPD Relative percent difference
- %D Percent difference

DATA REVIEW REPORT

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

All compounds associated with the QA blanks exhibited a concentration less than the MDL, with the exception of the compounds listed in the following table. Sample results associated with QA blank contamination that were greater than the BAL resulted in the removal of the laboratory qualifier (B) from the data. Sample results less than the BAL associated with the following sample locations were qualified as listed in the following table.

Sample Locations	Analytes	Sample Result	Qualification
MW-113	Naphthalene	Detected sample results <RL and <BAL	"UB" at the RL

Note:

RL Reporting limit

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

DATA REVIEW REPORT

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
MW-111 (10-04-2019)	2-Methylphenol	AC	>UL
	Phenol	AC	>UL
	4-Nitrophenol	<10%	<10%
	Benzo(a)anthracene	>UL	AC
	Carbazole	<10%	AC
	Chrysene	>UL	AC
	2,2'-Oxybis(1-chloropropane)	>UL	AC
	4-Chlorophenyl phenyl ether	AC	<LL but >10%
	3,3'-Dichlorobenzidine	<10%	<10%
	Fluoranthene	>UL	AC
	2-Methylnaphthalene	<LL but >10%	AC
	N-Nitroso-di-n-propylamine	AC	<10%
	Phenanthrene	>UL	AC
	Pyrene	>UL	AC

Note:

AC Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ

DATA REVIEW REPORT

Control Limit	Sample Result	Qualification
< 10%	Detect	J
	Non-detect	R
	Detect	J
Parent sample concentration > four times the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

Sample locations associated with MS/MSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

Sample Locations	Compound
MW-111 (10-04-2019)	2-Methylphenol
	Phenol
	Atrazine
	Benzo(a)anthracene
	Benzo(b)fluoranthene
	Chrysene
	Fluoranthene
	2-Methylnaphthalene
	Pyrene

The criteria used to evaluate the RPD between the MS/MSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS/LCSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

Sample Locations	Compound
MW-108 (10-04-2019) MW-109 (10-04-2019) MW-110 (10-04-2019)	Hexachlorocyclopentadiene

DATA REVIEW REPORT

The criteria used to evaluate the RPD between the LCS/LCSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-108 (10-04-2019)/ DUP-100419	2-Methylnaphthalene	0.77 J	0.67 J	AC
	Anthracene	0.37 J	0.43 J	AC
	Carbazole	0.85 J	0.91 J	AC
	Dibenzofuran	0.48 J	0.4 J	AC
	Fluoranthene	0.36 J	0.26 J	AC
	Fluorene	0.99 J	0.9 J	AC
	Naphthalene	7.2	5.8	21.5 %
	Phenanthrene	1.3	1.1	AC
	Pyrene	0.22 J	1.0 U	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

Several samples were diluted to bring target compounds within linear range of the instrument. Sample results that were reported from a secondary dilution were qualified with a "D", indicating the result is diluted.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the

DATA REVIEW REPORT

calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X	X		
B. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X	X		
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R		X	X		
MS/MSD Precision (RPD)		X	X		
Field/Lab Duplicate (RPD)		X			X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

DATA REVIEW REPORT

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6010D, 7471A, and 9012B. Data were reviewed in accordance with the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA 540/R-2017-001, January 2017; and the USEPA CLP National Functional Guidelines for Inorganic Data Review, EPA 540-R-01-008, July 2002 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6010D	Water	180 days from collection to analysis	Preserved to a pH of less than 2.
	Soil	180 days from collection to analysis	Cool to <6 °C.
SW-846 7471A	Soil	28 days from collection to analysis	Cool to <6 °C.
SW-846 7470A	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL and/or were non-detect. No qualification of the sample results was required.

3. Matrix Spike (MS)/Matrix Spike Duplicate(MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

DATA REVIEW REPORT

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-108 (10-04-2019)/ DUP-100419 (total)	Calcium	186000	178000	4.3 %
	Iron	12500	12200	2.4 %
	Lead	81.7	82.7	1.2 %
	Magnesium	80900	79100	2.2 %
	Manganese	719	699	2.8 %
	Potassium	17000	16600	2.3 %
	Sodium	20500	20000	2.4 %
MW-108 (10-04-2019)/ DUP-100419 (dissolved)	Calcium	191000	189000	1.0 %
	Iron	224	197	12.8 %
	Magnesium	83000	82100	1.0 %
	Manganese	710	701	1.2 %
	Potassium	18500	18100	2.1 %
	Sodium	22000	21700	1.3 %

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

DATA REVIEW REPORT

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR METAL

METALS; SW846 6010D/7471A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field Blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Total vs. Dissolved		X		X	

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Cyanide by SW-846 9012	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of greater than 12.
	Soil		Cool to <6 °C.
Total Dissolved Solids (TDS) by SM2540C	water	7 days from collection to analysis	Cool to <6 °C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS recoveries were within control limits with the exception of the following analytes present in the table below.

Sample Location	Analytes	MS Recovery
MW-111 (10-04-2019)	Cyanide (total)	72.0%

DATA REVIEW REPORT

The criteria used to evaluate MS recoveries are presented in the following table. In the case of an MS deviation, the sample results are qualified. The qualifications are applied to all sample results associated with this SDG.

Control limit	Sample Result	Qualification
MS percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS percent recovery <30%	Non-detect	R
	Detect	J
MS percent recovery >125%	Non-detect	No Action
	Detect	J

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

The laboratory duplicate sample results exhibited RPD within the control limit.

4. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis is not required for this analysis.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
MW-108 (10-04-2019)/ DUP-100419	Cyanide	0.031	0.034	AC
	Total Dissolved Solids	908	916	0.8%
	Cyanide (dissolved)	0.039	0.037	AC

DATA REVIEW REPORT

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: EPA 9012	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%R - percent recovery

RPD - relative percent difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: November 7, 2019

PEER REVIEW: Dennis Capria

DATE: November 11, 2019

CHAIN OF CUSTODY SAMPLE ANALYSIS DATA SHEETS





GW
FB
WLB

CHAIN OF CUSTODY

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Handwritten marks and signature

Client / Reporting Information Company Name: <u>Arcadis</u> Street Address: <u>10 W Fayet St #302</u> City: <u>Spartanburg NY</u> State: <u>13202</u> Zip: <u>13202</u> Project Contact: <u>Lawrence Healy</u> E-mail: <u>arcadis.com</u> Phone # <u>315-335-9495</u> Signature (Name(s)) <u>G. Bushy / James Macle</u> Phone # _____			Project Information Project Name: <u>Philly Coke</u> Street: <u>4501 Richmond St</u> Billing Information (if different from Report to) Company Name: <u>Same</u> Street Address: _____ City: _____ State: _____ Zip: _____ Client Purchase Order # _____ Project # <u>3000402 G</u> Project Manager: <u>John Brussl</u> Attention: _____			Requested Analysis V 8060 TLL 20 AB 8276 TLL 20 CN CN (Diss LF) MTRC X MTRC (D.B LF) TDS				Matrix Codes DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment AIR - Air LIQ - Other Liquid SOL - Other Solid WP - Waste FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank
Collection MECH/ID / Mat # Date Time Sampled by Que (ID) Comp (C) Matrix # of bottles H/C H2O HNO3 H2SO4 NONE DI Water MECH ERODIN		Number of preserved Bottles V 8060 TLL 20 AB 8276 TLL 20 CN CN (Diss LF) MTRC X MTRC (D.B LF) TDS				LAB USE ONLY E9 A30 C27 B24 G6772 V1173				
Turn Around Time (Business Days) <input checked="" type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days <input type="checkbox"/> 2 Business Days <input type="checkbox"/> 1 Business Day <input type="checkbox"/> Other _____ Approved By (SGS PM) / Date: _____ Approved needed for 1-3 Business Day TAT		Deliverable <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input checked="" type="checkbox"/> Full Tier I (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ DKQP <input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format <input type="checkbox"/> DOD-QSM5 Comments / Special Instructions: <u>* VOA OC</u>								
Chain of Custody Relinquished by: <u>[Signature]</u> Date / Time: <u>10/4/19 15:15</u> Received By: <u>Robin Temple</u> Date / Time: <u>10-4-19</u> Relinquished by: _____ Date / Time: _____ Received By: _____ Date / Time: _____ Relinquished by: _____ Date / Time: _____ Received By: _____ Date / Time: _____ Relinquished by: _____ Date / Time: _____ Received By: _____ Date / Time: _____ Custody Seal # <u>34</u> Intact <input checked="" type="checkbox"/> Not Intact <input type="checkbox"/> Preserved where applicable <input checked="" type="checkbox"/> Therm. ID: _____ On Ice <input checked="" type="checkbox"/> Cooler Temp. °C _____										

INITIAL ASSESSMENT LAOR
 LABEL VERIFICATION _____
4.0C
2.9C
IP
3.7C
IP
3.1C
JP
4.4C
IP

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5.1 5



SGS North America Inc.

Report of Analysis

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Client Sample ID: MW-108	Date Sampled: 10/04/19
Lab Sample ID: JC96248-1	Date Received: 10/04/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D185874.D	1	10/11/19 23:32	ED	n/a	n/a	V2D7993
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	6.0	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.48	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.58	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	6.9	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.95	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.55	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.56	ug/l	
75-00-3	Chloroethane	ND	1.0	0.73	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane	ND	1.0	0.76	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.78	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.2	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.56	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.48	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.53	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.54	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.51	ug/l	
75-71-8	Dichlorodifluoromethane ^a	ND	2.0	1.4	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.57	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.60	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.59	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.54	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.51	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.47	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.43	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.60	ug/l	
76-13-1	Freon 113	ND	5.0	1.9	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.0	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-108 Lab Sample ID: JC96248-1 Matrix: AQ - Ground Water Method: SW846 8260C Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 10/04/19 Date Received: 10/04/19 Percent Solids: n/a
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VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.65	ug/l	
79-20-9	Methyl Acetate	ND	5.0	0.80	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.60	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	1.9	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.70	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.90	ug/l	
108-88-3	Toluene	ND	1.0	0.53	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.54	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.53	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.84	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.79	ug/l	
	m,p-Xylene	ND	1.0	0.78	ug/l	
95-47-6	o-Xylene	ND	1.0	0.59	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.59	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		80-120%
17060-07-0	1,2-Dichloroethane-D4	90%		81-124%
2037-26-5	Toluene-D8	96%		80-120%
460-00-4	4-Bromofluorobenzene	98%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	MW-108	Date Sampled:	10/04/19
Lab Sample ID:	JC96248-1	Date Received:	10/04/19
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M160297.D	1	10/13/19 13:43	HSS	10/10/19 21:00	OP23204	EM6783
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	0.82	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	0.89	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.3	ug/l	
105-67-9	2,4-Dimethylphenol	ND	5.0	2.4	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.0	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.0	1.3	ug/l	
95-48-7	2-Methylphenol	ND	2.0	0.89	ug/l	
	3&4-Methylphenol	ND	2.0	0.88	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	0.96	ug/l	
100-02-7	4-Nitrophenol	ND	10	1.2	ug/l	
87-86-5	Pentachlorophenol	ND	4.0	1.4	ug/l	
108-95-2	Phenol	ND	2.0	0.39	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.0	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	0.92	ug/l	
83-32-9	Acenaphthene	ND	1.0	0.19	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.14	ug/l	
98-86-2	Acetophenone	ND	2.0	0.21	ug/l	
120-12-7	Anthracene	0.37	1.0	0.21	ug/l	J
1912-24-9	Atrazine	ND	2.0	0.45	ug/l	
100-52-7	Benzaldehyde	ND	5.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.21	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.21	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.34	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.21	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.40	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.46	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.21	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.24	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.34	ug/l	
86-74-8	Carbazole	0.85	1.0	0.23	ug/l	J

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-108		Date Sampled: 10/04/19
Lab Sample ID: JC96248-1		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.65	ug/l	
218-01-9	Chrysene	ND	1.0	0.18	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.28	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.25	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.40	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.37	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.0	0.55	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.0	0.48	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.51	ug/l	
123-91-1	1,4-Dioxane	ND	1.0	0.66	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.33	ug/l	
132-64-9	Dibenzofuran	0.48	5.0	0.22	ug/l	J
84-74-2	Di-n-butyl phthalate	ND	2.0	0.50	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.23	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.26	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.22	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.7	ug/l	
206-44-0	Fluoranthene	0.36	1.0	0.17	ug/l	J
86-73-7	Fluorene	0.99	1.0	0.17	ug/l	J
118-74-1	Hexachlorobenzene	ND	1.0	0.33	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.49	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	2.8	ug/l	UU
67-72-1	Hexachloroethane	ND	2.0	0.39	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.33	ug/l	
78-59-1	Isophorone	ND	2.0	0.28	ug/l	
91-57-6	2-Methylnaphthalene	0.77	1.0	0.21	ug/l	J
88-74-4	2-Nitroaniline	ND	5.0	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.39	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	0.44	ug/l	
91-20-3	Naphthalene	7.2	1.0	0.23	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.64	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.48	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.22	ug/l	
85-01-8	Phenanthrene	1.3	1.0	0.18	ug/l	
129-00-0	Pyrene	0.22	1.0	0.22	ug/l	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.37	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	24%		10-110%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID: MW-108	Date Sampled: 10/04/19
Lab Sample ID: JC96248-1	Date Received: 10/04/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	17%		10-110%
118-79-6	2,4,6-Tribromophenol	81%		36-151%
4165-60-0	Nitrobenzene-d5	71%		34-128%
321-60-8	2-Fluorobiphenyl	77%		38-119%
1718-51-0	Terphenyl-d14	55%		26-129%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID: MW-108	Date Sampled: 10/04/19
Lab Sample ID: JC96248-1	Date Received: 10/04/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Antimony	< 6.0	6.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Arsenic	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Barium	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Beryllium	< 1.0	1.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cadmium	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Calcium	186000	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Chromium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cobalt	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Copper	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Iron	12500	100	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Lead	81.7	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Magnesium	80900	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Manganese	719	15	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Mercury	< 0.20	0.20	ug/l	1	10/08/19	10/08/19	LL SW846 7470A ¹	SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Potassium	17000	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Selenium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Silver	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Sodium	20500	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Thallium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Vanadium	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Zinc	< 20	20	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³

(1) Instrument QC Batch: MA47587

(2) Instrument QC Batch: MA47598

(3) Prep QC Batch: MP17762

(4) Prep QC Batch: MP17766

RL = Reporting Limit

4.1
4

Report of Analysis

Client Sample ID: MW-108	Date Sampled: 10/04/19
Lab Sample ID: JC96248-1	Date Received: 10/04/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.031 J	0.010	mg/l	1	10/15/19 15:37	KI	EPA 335.4/LACHAT
Solids, Total Dissolved	908	10	mg/l	1	10/10/19 16:33	RC	SM2540 C-11

RL = Reporting Limit

4.1
4

Report of Analysis

Client Sample ID: MW-108 Lab Sample ID: JC96248-1F Matrix: AQ - Groundwater Filtered Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 10/04/19 Date Received: 10/04/19 Percent Solids: n/a
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Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Arsenic	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Barium	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Calcium	191000	5000	ug/l	1	10/08/19	10/10/19	ND SW846 6010D ³	SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Copper	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Iron	224	100	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Lead	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Magnesium	83000	5000	ug/l	1	10/08/19	10/10/19	ND SW846 6010D ³	SW846 3010A ⁴
Manganese	710	15	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	10/08/19	10/08/19	LL SW846 7470A ¹	SW846 7470A ⁵
Nickel	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Potassium	18500	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Silver	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Sodium	22000	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Thallium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Zinc	< 20	20	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴

- (1) Instrument QC Batch: MA47587
- (2) Instrument QC Batch: MA47601
- (3) Instrument QC Batch: MA47607
- (4) Prep QC Batch: MP17762
- (5) Prep QC Batch: MP17766

RL = Reporting Limit

4.2
4

Report of Analysis

Client Sample ID: MW-108	Date Sampled: 10/04/19
Lab Sample ID: JC96248-1F	Date Received: 10/04/19
Matrix: AQ - Groundwater Filtered	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.039	0.010	mg/l	1	10/15/19 15:51	KI	EPA 335.4/LACHAT

RL = Reporting Limit

4.2
4

SGS North America Inc.

Report of Analysis

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Client Sample ID: MW-109	Date Sampled: 10/04/19
Lab Sample ID: JC96248-2	Date Received: 10/04/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	2D185875.D	1	10/12/19 00:01	ED	n/a	n/a	V2D7993

Run #1	Purge Volume
Run #2	5.0 ml

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	6.0	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.48	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.58	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	6.9	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.95	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.55	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.56	ug/l	
75-00-3	Chloroethane	ND	1.0	0.73	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane	ND	1.0	0.76	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.78	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.2	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.56	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.48	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.53	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.54	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.51	ug/l	
75-71-8	Dichlorodifluoromethane ^a	ND	2.0	1.4	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.57	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.60	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.59	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.54	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.51	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.47	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.43	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.60	ug/l	
76-13-1	Freon 113	ND	5.0	1.9	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.0	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-109		Date Sampled: 10/04/19
Lab Sample ID: JC96248-2		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.65	ug/l	
79-20-9	Methyl Acetate	ND	5.0	0.80	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.60	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	1.9	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.70	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.90	ug/l	
108-88-3	Toluene	ND	1.0	0.53	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.54	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.53	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.84	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.79	ug/l	
	m,p-Xylene	ND	1.0	0.78	ug/l	
95-47-6	o-Xylene	ND	1.0	0.59	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.59	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		80-120%
17060-07-0	1,2-Dichloroethane-D4	90%		81-124%
2037-26-5	Toluene-D8	96%		80-120%
460-00-4	4-Bromofluorobenzene	98%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
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SGS North America Inc.

Report of Analysis

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Client Sample ID:	MW-109	Date Sampled:	10/04/19
Lab Sample ID:	JC96248-2	Date Received:	10/04/19
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	M160298.D	1	10/13/19 14:11	HSS	10/10/19 21:00	OP23204	EM6783

Run #1	Initial Volume	Final Volume
Run #2	1040 ml	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	4.8	0.79	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	4.8	0.86	ug/l	
120-83-2	2,4-Dichlorophenol	ND	1.9	1.2	ug/l	
105-67-9	2,4-Dimethylphenol	ND	4.8	2.3	ug/l	
51-28-5	2,4-Dinitrophenol	ND	4.8	1.5	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	4.8	1.2	ug/l	
95-48-7	2-Methylphenol	ND	1.9	0.85	ug/l	
	3&4-Methylphenol	ND	1.9	0.85	ug/l	
88-75-5	2-Nitrophenol	ND	4.8	0.92	ug/l	
100-02-7	4-Nitrophenol	ND	9.6	1.1	ug/l	
87-86-5	Pentachlorophenol	ND	3.8	1.3	ug/l	
108-95-2	Phenol	ND	1.9	0.38	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	4.8	1.4	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	4.8	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	4.8	0.89	ug/l	
83-32-9	Acenaphthene	1.2	0.96	0.18	ug/l	
208-96-8	Acenaphthylene	1.2	0.96	0.13	ug/l	
98-86-2	Acetophenone	0.25	1.9	0.20	ug/l	J
120-12-7	Anthracene	1.1	0.96	0.20	ug/l	
1912-24-9	Atrazine	ND	1.9	0.43	ug/l	
100-52-7	Benzaldehyde	ND	4.8	0.28	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.96	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.96	0.20	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.96	0.20	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.96	0.33	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.96	0.20	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	1.9	0.39	ug/l	
85-68-7	Butyl benzyl phthalate	ND	1.9	0.44	ug/l	
92-52-4	1,1'-Biphenyl	0.39	0.96	0.20	ug/l	J
91-58-7	2-Chloronaphthalene	ND	1.9	0.23	ug/l	
106-47-8	4-Chloroaniline	ND	4.8	0.33	ug/l	
86-74-8	Carbazole	2.2	0.96	0.22	ug/l	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-109		Date Sampled: 10/04/19
Lab Sample ID: JC96248-2		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	1.9	0.62	ug/l	
218-01-9	Chrysene	ND	0.96	0.17	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	1.9	0.27	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	1.9	0.24	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	1.9	0.39	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	1.9	0.35	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	0.96	0.53	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	0.96	0.46	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	1.9	0.49	ug/l	
123-91-1	1,4-Dioxane	ND	0.96	0.63	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.96	0.32	ug/l	
132-64-9	Dibenzofuran	2.0	4.8	0.21	ug/l	J
84-74-2	Di-n-butyl phthalate	ND	1.9	0.48	ug/l	
117-84-0	Di-n-octyl phthalate	ND	1.9	0.22	ug/l	
84-66-2	Diethyl phthalate	ND	1.9	0.25	ug/l	
131-11-3	Dimethyl phthalate	ND	1.9	0.21	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	1.9	1.6	ug/l	
206-44-0	Fluoranthene	1.2	0.96	0.16	ug/l	
86-73-7	Fluorene	4.2	0.96	0.16	ug/l	
118-74-1	Hexachlorobenzene	ND	0.96	0.31	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.96	0.47	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	9.6	2.7	ug/l	UJ
67-72-1	Hexachloroethane	ND	1.9	0.37	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.96	0.32	ug/l	
78-59-1	Isophorone	ND	1.9	0.27	ug/l	
91-57-6	2-Methylnaphthalene	1.5	0.96	0.20	ug/l	
88-74-4	2-Nitroaniline	ND	4.8	0.27	ug/l	
99-09-2	3-Nitroaniline	ND	4.8	0.37	ug/l	
100-01-6	4-Nitroaniline	ND	4.8	0.42	ug/l	
91-20-3	Naphthalene	8.8	0.96	0.22	ug/l	
98-95-3	Nitrobenzene	ND	1.9	0.62	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	1.9	0.46	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	4.8	0.21	ug/l	
85-01-8	Phenanthrene	7.7	0.96	0.17	ug/l	
129-00-0	Pyrene	0.71	0.96	0.21	ug/l	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	1.9	0.36	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	26%		10-110%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID: MW-109		Date Sampled: 10/04/19
Lab Sample ID: JC96248-2		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	18%		10-110%
118-79-6	2,4,6-Tribromophenol	79%		36-151%
4165-60-0	Nitrobenzene-d5	73%		34-128%
321-60-8	2-Fluorobiphenyl	75%		38-119%
1718-51-0	Terphenyl-d14	47%		26-129%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-109 Lab Sample ID: JC96248-2 Matrix: AQ - Ground Water Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 10/04/19 Date Received: 10/04/19 Percent Solids: n/a
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Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Antimony	< 6.0	6.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Arsenic	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Barium	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Beryllium	< 1.0	1.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cadmium	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Calcium	149000	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Chromium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cobalt	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Copper	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Iron	28000	100	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Lead	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Magnesium	83300	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Manganese	1660	15	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Mercury	< 0.20	0.20	ug/l	1	10/08/19	10/08/19	LL SW846 7470A ¹	SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Potassium	17700	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Selenium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Silver	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Sodium	37900	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Thallium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Vanadium	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Zinc	< 20	20	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³

(1) Instrument QC Batch: MA47587

(2) Instrument QC Batch: MA47598

(3) Prep QC Batch: MP17762

(4) Prep QC Batch: MP17766

RL = Reporting Limit

4.3
4

Report of Analysis

Client Sample ID: MW-109	Date Sampled: 10/04/19
Lab Sample ID: JC96248-2	Date Received: 10/04/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.011 J	0.010	mg/l	1	10/15/19 15:38	KI	EPA 335.4/LACHAT

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-109		Date Sampled: 10/04/19
Lab Sample ID: JC96248-2F		Date Received: 10/04/19
Matrix: AQ - Groundwater Filtered		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Antimony	< 6.0	6.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Arsenic	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Barium	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Beryllium	< 1.0	1.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cadmium	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Calcium	144000	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Chromium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cobalt	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Copper	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Iron	1860	100	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Lead	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Magnesium	83700	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Manganese	1520	15	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Mercury	< 0.20	0.20	ug/l	1	10/08/19	10/08/19	LL SW846 7470A ¹	SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Potassium	17900	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Selenium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Silver	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Sodium	38100	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Thallium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Vanadium	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Zinc	< 20	20	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³

(1) Instrument QC Batch: MA47587

(2) Instrument QC Batch: MA47601

(3) Prep QC Batch: MP17762

(4) Prep QC Batch: MP17766

RL = Reporting Limit

4.4
4

Report of Analysis

Client Sample ID: MW-109	Date Sampled: 10/04/19
Lab Sample ID: JC96248-2F	Date Received: 10/04/19
Matrix: AQ - Groundwater Filtered	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.019	0.010	mg/l	1	10/15/19 15:52	KI	EPA 335.4/LACHAT

RL = Reporting Limit

4.4
4

SGS North America Inc.

Report of Analysis

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Client Sample ID: MW-110		Date Sampled: 10/04/19
Lab Sample ID: JC96248-3		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D185876.D	1	10/12/19 00:31	ED	n/a	n/a	V2D7993
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	6.0	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.48	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.58	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	6.9	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.95	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.55	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.56	ug/l	
75-00-3	Chloroethane	ND	1.0	0.73	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane	ND	1.0	0.76	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.78	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.2	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.56	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.48	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.53	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.54	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.51	ug/l	
75-71-8	Dichlorodifluoromethane ^a	ND	2.0	1.4	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.57	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.60	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.59	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.54	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.51	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.47	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.43	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.60	ug/l	
76-13-1	Freon 113	ND	5.0	1.9	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.0	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-110	Date Sampled:	10/04/19
Lab Sample ID:	JC96248-3	Date Received:	10/04/19
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.65	ug/l	
79-20-9	Methyl Acetate	ND	5.0	0.80	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.60	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	1.9	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.70	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.90	ug/l	
108-88-3	Toluene	ND	1.0	0.53	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.54	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.53	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.84	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.79	ug/l	
	m,p-Xylene	ND	1.0	0.78	ug/l	
95-47-6	o-Xylene	ND	1.0	0.59	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.59	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		80-120%
17060-07-0	1,2-Dichloroethane-D4	90%		81-124%
2037-26-5	Toluene-D8	97%		80-120%
460-00-4	4-Bromofluorobenzene	97%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID: MW-110		Date Sampled: 10/04/19
Lab Sample ID: JC96248-3		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M160299.D	1	10/13/19 14:39	HSS	10/10/19 21:00	OP23204	EM6783
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	1050 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	4.8	0.78	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	4.8	0.85	ug/l	
120-83-2	2,4-Dichlorophenol	ND	1.9	1.2	ug/l	
105-67-9	2,4-Dimethylphenol	ND	4.8	2.3	ug/l	
51-28-5	2,4-Dinitrophenol	ND	4.8	1.5	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	4.8	1.2	ug/l	
95-48-7	2-Methylphenol	ND	1.9	0.85	ug/l	
	3&4-Methylphenol	ND	1.9	0.84	ug/l	
88-75-5	2-Nitrophenol	ND	4.8	0.91	ug/l	
100-02-7	4-Nitrophenol	ND	9.5	1.1	ug/l	
87-86-5	Pentachlorophenol	ND	3.8	1.3	ug/l	
108-95-2	Phenol	ND	1.9	0.37	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	4.8	1.4	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	4.8	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	4.8	0.88	ug/l	
83-32-9	Acenaphthene	0.19	0.95	0.18	ug/l	J
208-96-8	Acenaphthylene	0.72	0.95	0.13	ug/l	J
98-86-2	Acetophenone	ND	1.9	0.20	ug/l	
120-12-7	Anthracene	0.26	0.95	0.20	ug/l	J
1912-24-9	Atrazine	ND	1.9	0.43	ug/l	
100-52-7	Benzaldehyde	ND	4.8	0.28	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.95	0.19	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.95	0.20	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.95	0.20	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.95	0.32	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.95	0.20	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	1.9	0.38	ug/l	
85-68-7	Butyl benzyl phthalate	ND	1.9	0.44	ug/l	
92-52-4	1,1'-Biphenyl	0.35	0.95	0.20	ug/l	J
91-58-7	2-Chloronaphthalene	ND	1.9	0.22	ug/l	
106-47-8	4-Chloroaniline	ND	4.8	0.32	ug/l	
86-74-8	Carbazole	1.6	0.95	0.22	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-110		Date Sampled: 10/04/19
Lab Sample ID: JC96248-3		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	1.9	0.62	ug/l	
218-01-9	Chrysene	ND	0.95	0.17	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	1.9	0.26	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	1.9	0.24	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	1.9	0.38	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	1.9	0.35	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	0.95	0.53	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	0.95	0.45	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	1.9	0.48	ug/l	
123-91-1	1,4-Dioxane	ND	0.95	0.63	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.95	0.32	ug/l	
132-64-9	Dibenzofuran	0.85	4.8	0.21	ug/l	J
84-74-2	Di-n-butyl phthalate	ND	1.9	0.47	ug/l	
117-84-0	Di-n-octyl phthalate	ND	1.9	0.22	ug/l	
84-66-2	Diethyl phthalate	ND	1.9	0.25	ug/l	
131-11-3	Dimethyl phthalate	ND	1.9	0.21	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	1.9	1.6	ug/l	
206-44-0	Fluoranthene	0.25	0.95	0.16	ug/l	J
86-73-7	Fluorene	0.96	0.95	0.16	ug/l	
118-74-1	Hexachlorobenzene	ND	0.95	0.31	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.95	0.47	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	9.5	2.6	ug/l	UU
67-72-1	Hexachloroethane	ND	1.9	0.37	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.95	0.32	ug/l	
78-59-1	Isophorone	ND	1.9	0.26	ug/l	
91-57-6	2-Methylnaphthalene	1.2	0.95	0.20	ug/l	
88-74-4	2-Nitroaniline	ND	4.8	0.26	ug/l	
99-09-2	3-Nitroaniline	ND	4.8	0.37	ug/l	
100-01-6	4-Nitroaniline	ND	4.8	0.42	ug/l	
91-20-3	Naphthalene	15.5	0.95	0.22	ug/l	
98-95-3	Nitrobenzene	ND	1.9	0.61	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	1.9	0.46	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	4.8	0.21	ug/l	
85-01-8	Phenanthrene	ND	0.95	0.17	ug/l	
129-00-0	Pyrene	ND	0.95	0.21	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	1.9	0.35	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	22%		10-110%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.5
4

Report of Analysis

Client Sample ID: MW-110		Date Sampled: 10/04/19
Lab Sample ID: JC96248-3		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	15%		10-110%
118-79-6	2,4,6-Tribromophenol	76%		36-151%
4165-60-0	Nitrobenzene-d5	73%		34-128%
321-60-8	2-Fluorobiphenyl	80%		38-119%
1718-51-0	Terphenyl-d14	50%		26-129%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.5
4

Report of Analysis

Client Sample ID: MW-110		Date Sampled: 10/04/19
Lab Sample ID: JC96248-3		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Antimony	< 6.0	6.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Arsenic	5.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Barium	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Beryllium	< 1.0	1.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cadmium	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Calcium	178000	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Chromium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cobalt	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Copper	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Iron	18900	100	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Lead	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Magnesium	82100	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Manganese	1430	15	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Mercury	< 0.20	0.20	ug/l	1	10/08/19	10/08/19	LL SW846 7470A ¹	SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Potassium	16500	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Selenium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Silver	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Sodium	32800	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Thallium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Vanadium	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Zinc	< 20	20	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³

(1) Instrument QC Batch: MA47587

(2) Instrument QC Batch: MA47598

(3) Prep QC Batch: MP17762

(4) Prep QC Batch: MP17766

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-110	Date Sampled: 10/04/19
Lab Sample ID: JC96248-3	Date Received: 10/04/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.014 J	0.010	mg/l	1	10/15/19 15:40	KI	EPA 335.4/LACHAT

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-110		Date Sampled: 10/04/19
Lab Sample ID: JC96248-3F		Date Received: 10/04/19
Matrix: AQ - Groundwater Filtered		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Antimony	< 6.0	6.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Arsenic	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Barium	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Beryllium	< 1.0	1.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cadmium	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Calcium	179000	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Chromium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cobalt	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Copper	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Iron	2680	100	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Lead	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Magnesium	83700	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Manganese	1390	15	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Mercury	< 0.20	0.20	ug/l	1	10/08/19	10/08/19	LL SW846 7470A ¹	SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Potassium	16900	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Selenium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Silver	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Sodium	33300	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Thallium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Vanadium	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Zinc	< 20	20	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³

(1) Instrument QC Batch: MA47587

(2) Instrument QC Batch: MA47601

(3) Prep QC Batch: MP17762

(4) Prep QC Batch: MP17766

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-110	Date Sampled: 10/04/19
Lab Sample ID: JC96248-3F	Date Received: 10/04/19
Matrix: AQ - Groundwater Filtered	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.017	0.010	mg/l	1	10/15/19 15:53	KI	EPA 335.4/LACHAT

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: MW-111		Date Sampled: 10/04/19
Lab Sample ID: JC96248-4		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D185862.D	1	10/11/19 17:40	ED	n/a	n/a	V2D7993
Run #2	2D185865.D	10	10/11/19 19:07	ED	n/a	n/a	V2D7993

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	5.0 ml

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	8.6	10	6.0	ug/l	J
71-43-2	Benzene	686 ^a	5.0	4.3	ug/l	D
74-97-5	Bromochloromethane	ND	1.0	0.48	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.58	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	6.9	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.95	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.55	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.56	ug/l	
75-00-3	Chloroethane	ND	1.0	0.73	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane	ND	1.0	0.76	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.78	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.2	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.56	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.48	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.53	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.54	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.51	ug/l	
75-71-8	Dichlorodifluoromethane ^b	ND	2.0	1.4	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.57	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.60	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.59	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.54	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.51	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.47	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.43	ug/l	
100-41-4	Ethylbenzene	24.3	1.0	0.60	ug/l	
76-13-1	Freon 113	ND	5.0	1.9	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.0	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	MW-111	Date Sampled:	10/04/19
Lab Sample ID:	JC96248-4	Date Received:	10/04/19
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	1.2	1.0	0.65	ug/l	
79-20-9	Methyl Acetate	ND	5.0	0.80	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.60	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	1.9	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	9.4	1.0	0.70	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.90	ug/l	
108-88-3	Toluene	90.4	1.0	0.53	ug/l	J
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.54	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.53	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.84	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.79	ug/l	
	m,p-Xylene	72.9	1.0	0.78	ug/l	
95-47-6	o-Xylene	36.5	1.0	0.59	ug/l	
1330-20-7	Xylene (total)	109	1.0	0.59	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%	88%	80-120%
17060-07-0	1,2-Dichloroethane-D4	96%	87%	81-124%
2037-26-5	Toluene-D8	93%	95%	80-120%
460-00-4	4-Bromofluorobenzene	92%	94%	80-120%

(a) Result is from Run# 2

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID: MW-111		Date Sampled: 10/04/19
Lab Sample ID: JC96248-4		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M160249.D	1	10/11/19 19:47	HSS	10/09/19 22:00	OP23230	EM6781
Run #2	M160281.D	10	10/13/19 02:02	JC	10/09/19 22:00	OP23230	EM6782

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2	1000 ml	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	0.82	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	0.89	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.3	ug/l	
105-67-9	2,4-Dimethylphenol	241 ^a	50	24	ug/l	D
51-28-5	2,4-Dinitrophenol	ND	5.0	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.0	1.3	ug/l	
95-48-7	2-Methylphenol	177 ^a	20	8.9	ug/l	DJ
	3&4-Methylphenol	212 ^a	20	8.8	ug/l	D
88-75-5	2-Nitrophenol	ND	5.0	0.96	ug/l	
100-02-7	4-Nitrophenol	ND	10	1.2	ug/l	R
87-86-5	Pentachlorophenol	ND	4.0	1.4	ug/l	
108-95-2	Phenol	80.2	2.0	0.39	ug/l	J
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.0	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	0.92	ug/l	
83-32-9	Acenaphthene	87.7	1.0	0.19	ug/l	
208-96-8	Acenaphthylene	80.2	1.0	0.14	ug/l	
98-86-2	Acetophenone	2.1	2.0	0.21	ug/l	
120-12-7	Anthracene	16.1	1.0	0.21	ug/l	
1912-24-9	Atrazine	ND	2.0	0.45	ug/l	UJ
100-52-7	Benzaldehyde	ND	5.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	3.6	1.0	0.20	ug/l	J
50-32-8	Benzo(a)pyrene	2.6	1.0	0.21	ug/l	
205-99-2	Benzo(b)fluoranthene	2.9	1.0	0.21	ug/l	J
191-24-2	Benzo(g,h,i)perylene	1.4	1.0	0.34	ug/l	
207-08-9	Benzo(k)fluoranthene	1.3	1.0	0.21	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.40	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.46	ug/l	
92-52-4	1,1'-Biphenyl	20.7	1.0	0.21	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.24	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.34	ug/l	
86-74-8	Carbazole	189 ^a	10	2.3	ug/l	DJ

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-111		Date Sampled: 10/04/19
Lab Sample ID: JC96248-4		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.65	ug/l	
218-01-9	Chrysene	3.2	1.0	0.18	ug/l	J
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.28	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.25	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.40	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.37	ug/l	UJ
121-14-2	2,4-Dinitrotoluene	ND	1.0	0.55	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.0	0.48	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.51	ug/l	R
123-91-1	1,4-Dioxane	ND	1.0	0.66	ug/l	
53-70-3	Dibenzo(a,h)anthracene	0.42	1.0	0.33	ug/l	J
132-64-9	Dibenzofuran	64.2	5.0	0.22	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.50	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.23	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.26	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.22	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.7	ug/l	
206-44-0	Fluoranthene	22.9	1.0	0.17	ug/l	J
86-73-7	Fluorene	75.2	1.0	0.17	ug/l	
118-74-1	Hexachlorobenzene	ND	1.0	0.33	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.49	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	2.8	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.39	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	1.4	1.0	0.33	ug/l	
78-59-1	Isophorone	ND	2.0	0.28	ug/l	
91-57-6	2-Methylnaphthalene	97.8	1.0	0.21	ug/l	J
88-74-4	2-Nitroaniline	ND	5.0	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.39	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	0.44	ug/l	
91-20-3	Naphthalene	973 ^a	10	2.3	ug/l	D B
98-95-3	Nitrobenzene	ND	2.0	0.64	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.48	ug/l	R
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.22	ug/l	
85-01-8	Phenanthrene	136 ^a	10	1.8	ug/l	DJ
129-00-0	Pyrene	15.5	1.0	0.22	ug/l	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.37	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	23%	24%	10-110%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.7
4

Report of Analysis

Client Sample ID: MW-111		Date Sampled: 10/04/19
Lab Sample ID: JC96248-4		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	17%	19%	10-110%
118-79-6	2,4,6-Tribromophenol	68%	77%	36-151%
4165-60-0	Nitrobenzene-d5	69%	71%	34-128%
321-60-8	2-Fluorobiphenyl	64%	73%	38-119%
1718-51-0	Terphenyl-d14	38%	42%	26-129%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-111		Date Sampled: 10/04/19
Lab Sample ID: JC96248-4		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	6890	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Antimony	< 6.0	6.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Arsenic	26.8	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Barium	250	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Beryllium	< 1.0	1.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cadmium	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Calcium	72500	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Chromium	46.8	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cobalt	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Copper	38.5	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Iron	19200	100	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Lead	87.9	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Magnesium	38600	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Manganese	958	15	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Mercury	0.42	0.20	ug/l	1	10/08/19	10/08/19	LL SW846 7470A ¹	SW846 7470A ⁴
Nickel	11.5	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Potassium	20900	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Selenium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Silver	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Sodium	110000	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Thallium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Vanadium	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Zinc	173	20	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³

(1) Instrument QC Batch: MA47587

(2) Instrument QC Batch: MA47598

(3) Prep QC Batch: MP17762

(4) Prep QC Batch: MP17766

RL = Reporting Limit

4.7
4

Report of Analysis

Client Sample ID: MW-111	Date Sampled: 10/04/19
Lab Sample ID: JC96248-4	Date Received: 10/04/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.14 J	0.010	mg/l	1	10/15/19 15:41	KI	EPA 335.4/LACHAT
Solids, Total Dissolved	710	10	mg/l	1	10/10/19 16:33	RC	SM2540 C-11

RL = Reporting Limit

4.7
4

Report of Analysis

Client Sample ID: MW-111		Date Sampled: 10/04/19
Lab Sample ID: JC96248-4F		Date Received: 10/04/19
Matrix: AQ - Groundwater Filtered		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Antimony	< 6.0	6.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Arsenic	8.7	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Barium	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Beryllium	< 1.0	1.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cadmium	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Calcium	69100	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Chromium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cobalt	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Copper	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Iron	208	100	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Lead	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Magnesium	37300	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Manganese	730	15	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Mercury	< 0.20	0.20	ug/l	1	10/08/19	10/08/19	LL SW846 7470A ¹	SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Potassium	20400	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Selenium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Silver	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Sodium	110000	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Thallium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Vanadium	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Zinc	< 20	20	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³

(1) Instrument QC Batch: MA47587

(2) Instrument QC Batch: MA47598

(3) Prep QC Batch: MP17762

(4) Prep QC Batch: MP17766

RL = Reporting Limit

4.8
4

Report of Analysis

Client Sample ID: MW-111	Date Sampled: 10/04/19
Lab Sample ID: JC96248-4F	Date Received: 10/04/19
Matrix: AQ - Groundwater Filtered	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.19	0.010	mg/l	1	10/15/19 15:55	KI	EPA 335.4/LACHAT

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: MW-112		Date Sampled: 10/04/19
Lab Sample ID: JC96248-5		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D185877.D	1	10/12/19 01:00	ED	n/a	n/a	V2D7993
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	6.0	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.48	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.58	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	6.9	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.95	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.55	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.56	ug/l	
75-00-3	Chloroethane	ND	1.0	0.73	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane	ND	1.0	0.76	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.78	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.2	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.56	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.48	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.53	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.54	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.51	ug/l	
75-71-8	Dichlorodifluoromethane ^a	ND	2.0	1.4	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.57	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.60	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.59	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.54	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.51	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.47	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.43	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.60	ug/l	
76-13-1	Freon 113	ND	5.0	1.9	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.0	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-112		Date Sampled: 10/04/19
Lab Sample ID: JC96248-5		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.65	ug/l	
79-20-9	Methyl Acetate	ND	5.0	0.80	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.60	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	1.9	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.70	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.90	ug/l	
108-88-3	Toluene	ND	1.0	0.53	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.54	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.53	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.84	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.79	ug/l	
	m,p-Xylene	ND	1.0	0.78	ug/l	
95-47-6	o-Xylene	ND	1.0	0.59	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.59	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		80-120%
17060-07-0	1,2-Dichloroethane-D4	90%		81-124%
2037-26-5	Toluene-D8	97%		80-120%
460-00-4	4-Bromofluorobenzene	98%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID: MW-112		Date Sampled: 10/04/19
Lab Sample ID: JC96248-5		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M160245.D	1	10/11/19 17:55	HSS	10/09/19 22:00	OP23230	EM6781
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	0.82	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	0.89	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.3	ug/l	
105-67-9	2,4-Dimethylphenol ^a	ND	5.0	2.4	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.0	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.0	1.3	ug/l	
95-48-7	2-Methylphenol	ND	2.0	0.89	ug/l	
	3&4-Methylphenol	ND	2.0	0.88	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	0.96	ug/l	
100-02-7	4-Nitrophenol	ND	10	1.2	ug/l	
87-86-5	Pentachlorophenol	ND	4.0	1.4	ug/l	
108-95-2	Phenol	ND	2.0	0.39	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.0	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	0.92	ug/l	
83-32-9	Acenaphthene	1.4	1.0	0.19	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.14	ug/l	
98-86-2	Acetophenone	0.27	2.0	0.21	ug/l	J
120-12-7	Anthracene	0.22	1.0	0.21	ug/l	J
1912-24-9	Atrazine	ND	2.0	0.45	ug/l	
100-52-7	Benzaldehyde	ND	5.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.21	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.21	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.34	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.21	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.40	ug/l	
85-68-7	Butyl benzyl phthalate	1.7	2.0	0.46	ug/l	J
92-52-4	1,1'-Biphenyl	ND	1.0	0.21	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.24	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.34	ug/l	
86-74-8	Carbazole	ND	1.0	0.23	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-112		Date Sampled: 10/04/19
Lab Sample ID: JC96248-5		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.65	ug/l	
218-01-9	Chrysene	ND	1.0	0.18	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.28	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.25	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.40	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.37	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.0	0.55	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.0	0.48	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.51	ug/l	
123-91-1	1,4-Dioxane	ND	1.0	0.66	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.33	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.22	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.50	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.23	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.26	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.22	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.7	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.17	ug/l	
86-73-7	Fluorene	0.28	1.0	0.17	ug/l	J
118-74-1	Hexachlorobenzene	ND	1.0	0.33	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.49	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	2.8	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.39	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.33	ug/l	
78-59-1	Isophorone	ND	2.0	0.28	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.21	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.39	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	0.44	ug/l	
91-20-3	Naphthalene	ND	1.0	0.23	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.64	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.48	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.22	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.18	ug/l	
129-00-0	Pyrene	ND	1.0	0.22	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.37	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	24%		10-110%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-112		Date Sampled: 10/04/19
Lab Sample ID: JC96248-5		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	17%		10-110%
118-79-6	2,4,6-Tribromophenol	77%		36-151%
4165-60-0	Nitrobenzene-d5	64%		34-128%
321-60-8	2-Fluorobiphenyl	65%		38-119%
1718-51-0	Terphenyl-d14	46%		26-129%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-112		Date Sampled: 10/04/19
Lab Sample ID: JC96248-5		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Antimony	< 6.0	6.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Arsenic	5.2	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Barium	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Beryllium	< 1.0	1.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cadmium	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Calcium	123000	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Chromium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cobalt	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Copper	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Iron	3630	100	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Lead	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Magnesium	73300	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Manganese	5840	15	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Mercury	< 0.20	0.20	ug/l	1	10/08/19	10/08/19	LL SW846 7470A ¹	SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Potassium	< 10000	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Selenium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Silver	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Sodium	33600	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Thallium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Vanadium	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Zinc	< 20	20	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³

(1) Instrument QC Batch: MA47587

(2) Instrument QC Batch: MA47598

(3) Prep QC Batch: MP17762

(4) Prep QC Batch: MP17766

RL = Reporting Limit

4.9
4

Report of Analysis

Client Sample ID: MW-112	Date Sampled: 10/04/19
Lab Sample ID: JC96248-5	Date Received: 10/04/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.18 J	0.010	mg/l	1	10/15/19 15:42	KI	EPA 335.4/LACHAT

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-112		Date Sampled: 10/04/19
Lab Sample ID: JC96248-5F		Date Received: 10/04/19
Matrix: AQ - Groundwater Filtered		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Arsenic	4.3	3.0	ug/l	1	10/08/19	10/10/19	ND SW846 6010D ³	SW846 3010A ⁴
Barium	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Calcium	122000	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Copper	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Iron	240	100	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Lead	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Magnesium	72800	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Manganese	5570	15	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	10/08/19	10/08/19	LL SW846 7470A ¹	SW846 7470A ⁵
Nickel	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Potassium	< 10000	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Silver	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Sodium	33300	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Thallium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Zinc	< 20	20	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴

- (1) Instrument QC Batch: MA47587
- (2) Instrument QC Batch: MA47601
- (3) Instrument QC Batch: MA47607
- (4) Prep QC Batch: MP17762
- (5) Prep QC Batch: MP17766

RL = Reporting Limit

4.10
4

Report of Analysis

Client Sample ID: MW-112	Date Sampled: 10/04/19
Lab Sample ID: JC96248-5F	Date Received: 10/04/19
Matrix: AQ - Groundwater Filtered	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.14	0.010	mg/l	1	10/15/19 15:56	KI	EPA 335.4/LACHAT

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

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Client Sample ID: MW-113		Date Sampled: 10/04/19
Lab Sample ID: JC96248-6		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D185878.D	1	10/12/19 01:30	ED	n/a	n/a	V2D7993
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	6.0	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.48	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.58	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	6.9	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.95	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.55	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.56	ug/l	
75-00-3	Chloroethane	ND	1.0	0.73	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane	ND	1.0	0.76	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.78	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.2	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.56	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.48	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.53	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.54	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.51	ug/l	
75-71-8	Dichlorodifluoromethane ^a	ND	2.0	1.4	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.57	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.60	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.59	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.54	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.51	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.47	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.43	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.60	ug/l	
76-13-1	Freon 113	ND	5.0	1.9	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.0	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-113		Date Sampled: 10/04/19
Lab Sample ID: JC96248-6		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.65	ug/l	
79-20-9	Methyl Acetate	ND	5.0	0.80	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.60	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	1.9	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.70	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.90	ug/l	
108-88-3	Toluene	ND	1.0	0.53	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.54	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.53	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.84	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.79	ug/l	
	m,p-Xylene	ND	1.0	0.78	ug/l	
95-47-6	o-Xylene	ND	1.0	0.59	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.59	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		80-120%
17060-07-0	1,2-Dichloroethane-D4	91%		81-124%
2037-26-5	Toluene-D8	96%		80-120%
460-00-4	4-Bromofluorobenzene	98%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

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Client Sample ID: MW-113		Date Sampled: 10/04/19
Lab Sample ID: JC96248-6		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M160246.D	1	10/11/19 18:23	HSS	10/09/19 22:00	OP23230	EM6781
Run #2 ^a	F187974.D	1	10/19/19 08:00	CS	10/18/19 08:00	OP23404	EF8099

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2	1000 ml	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	0.82	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	0.89	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.3	ug/l	
105-67-9	2,4-Dimethylphenol ^b	ND	5.0	2.4	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.0	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.0	1.3	ug/l	
95-48-7	2-Methylphenol	ND	2.0	0.89	ug/l	
	3&4-Methylphenol	ND	2.0	0.88	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	0.96	ug/l	
100-02-7	4-Nitrophenol	ND	10	1.2	ug/l	
87-86-5	Pentachlorophenol	ND	4.0	1.4	ug/l	
108-95-2	Phenol	ND	2.0	0.39	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.0	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	0.92	ug/l	
83-32-9	Acenaphthene	ND	1.0	0.19	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.14	ug/l	
98-86-2	Acetophenone	ND	2.0	0.21	ug/l	
120-12-7	Anthracene	0.33	1.0	0.21	ug/l	J
1912-24-9	Atrazine	ND	2.0	0.45	ug/l	
100-52-7	Benzaldehyde	ND	5.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.21	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.21	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.34	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.21	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.40	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.46	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.21	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.24	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.34	ug/l	
86-74-8	Carbazole	ND	1.0	0.23	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-113		Date Sampled: 10/04/19
Lab Sample ID: JC96248-6		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.65	ug/l	
218-01-9	Chrysene	ND	1.0	0.18	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.28	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.25	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.40	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.37	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.0	0.55	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.0	0.48	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.51	ug/l	
123-91-1	1,4-Dioxane	ND	1.0	0.66	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.33	ug/l	
132-64-9	Dibenzofuran	ND	5.0	0.22	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.50	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.23	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.26	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.22	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.7	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.17	ug/l	
86-73-7	Fluorene	ND	1.0	0.17	ug/l	
118-74-1	Hexachlorobenzene	ND	1.0	0.33	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.49	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	2.8	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.39	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.33	ug/l	
78-59-1	Isophorone	ND	2.0	0.28	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.21	ug/l	
88-74-4	2-Nitroaniline	ND	5.0	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.39	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	0.44	ug/l	
91-20-3	Naphthalene	1.0	0.31 1.0	0.23	ug/l	JB UB
98-95-3	Nitrobenzene	ND	2.0	0.64	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.48	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.22	ug/l	
85-01-8	Phenanthrene	0.20	1.0	0.18	ug/l	J
129-00-0	Pyrene	ND	1.0	0.22	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.37	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	26%	35%	10-110%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.11
4

Report of Analysis

Client Sample ID: MW-113		Date Sampled: 10/04/19
Lab Sample ID: JC96248-6		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	19%	27%	10-110%
118-79-6	2,4,6-Tribromophenol	80%	98%	36-151%
4165-60-0	Nitrobenzene-d5	68%	91%	34-128%
321-60-8	2-Fluorobiphenyl	70%	74%	38-119%
1718-51-0	Terphenyl-d14	47%	85%	26-129%

- (a) Sample extracted outside the holding time. Confirmation run.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: MW-113		Date Sampled: 10/04/19
Lab Sample ID: JC96248-6		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Antimony	< 6.0	6.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Arsenic	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Barium	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Beryllium	< 1.0	1.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cadmium	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Calcium	105000	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Chromium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cobalt	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Copper	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Iron	25600	100	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Lead	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Magnesium	29900	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Manganese	1060	15	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Mercury	< 0.20	0.20	ug/l	1	10/08/19	10/08/19	LL SW846 7470A ¹	SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Potassium	< 10000	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Selenium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Silver	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Sodium	13200	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Thallium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Vanadium	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Zinc	< 20	20	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³

(1) Instrument QC Batch: MA47587

(2) Instrument QC Batch: MA47598

(3) Prep QC Batch: MP17762

(4) Prep QC Batch: MP17766

RL = Reporting Limit

4.11
4

Report of Analysis

Client Sample ID: MW-113	Date Sampled: 10/04/19
Lab Sample ID: JC96248-6	Date Received: 10/04/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.38 J	0.010	mg/l	1	10/15/19 15:44	KI	EPA 335.4/LACHAT

RL = Reporting Limit

Report of Analysis

Client Sample ID: MW-113		Date Sampled: 10/04/19
Lab Sample ID: JC96248-6F		Date Received: 10/04/19
Matrix: AQ - Groundwater Filtered		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Antimony	< 6.0	6.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Arsenic	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Barium	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Beryllium	< 1.0	1.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cadmium	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Calcium	104000	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Chromium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cobalt	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Copper	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Iron	7660	100	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Lead	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Magnesium	29700	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Manganese	1010	15	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Mercury	< 0.20	0.20	ug/l	1	10/08/19	10/08/19	LL SW846 7470A ¹	SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Potassium	< 10000	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Selenium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Silver	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Sodium	13100	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Thallium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Vanadium	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Zinc	< 20	20	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³

(1) Instrument QC Batch: MA47587

(2) Instrument QC Batch: MA47601

(3) Prep QC Batch: MP17762

(4) Prep QC Batch: MP17766

RL = Reporting Limit

4.12
4

Report of Analysis

Client Sample ID: MW-113	Date Sampled: 10/04/19
Lab Sample ID: JC96248-6F	Date Received: 10/04/19
Matrix: AQ - Groundwater Filtered	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.41	0.010	mg/l	1	10/15/19 15:57	KI	EPA 335.4/LACHAT

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

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Client Sample ID: DUP-100419	Date Sampled: 10/04/19
Lab Sample ID: JC96248-7	Date Received: 10/04/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D185879.D	1	10/12/19 01:59	ED	n/a	n/a	V2D7993
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	6.0	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.48	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.58	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	6.9	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.95	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.55	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.56	ug/l	
75-00-3	Chloroethane	ND	1.0	0.73	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane	ND	1.0	0.76	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.78	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.2	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.56	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.48	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.53	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.54	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.51	ug/l	
75-71-8	Dichlorodifluoromethane ^a	ND	2.0	1.4	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.57	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.60	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.59	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.54	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.51	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.47	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.43	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.60	ug/l	
76-13-1	Freon 113	ND	5.0	1.9	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.0	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: DUP-100419		Date Sampled: 10/04/19
Lab Sample ID: JC96248-7		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.65	ug/l	
79-20-9	Methyl Acetate	ND	5.0	0.80	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.60	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	1.9	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.70	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.90	ug/l	
108-88-3	Toluene	ND	1.0	0.53	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.54	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.53	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.84	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.79	ug/l	
	m,p-Xylene	ND	1.0	0.78	ug/l	
95-47-6	o-Xylene	ND	1.0	0.59	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.59	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	94%		80-120%
17060-07-0	1,2-Dichloroethane-D4	91%		81-124%
2037-26-5	Toluene-D8	97%		80-120%
460-00-4	4-Bromofluorobenzene	97%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

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Client Sample ID:	DUP-100419	Date Sampled:	10/04/19
Lab Sample ID:	JC96248-7	Date Received:	10/04/19
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270D SW846 3510C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M160247.D	1	10/11/19 18:51	HSS	10/09/19 22:00	OP23230	EM6781
Run #2 ^a	F187975.D	1	10/19/19 08:29	CS	10/18/19 08:00	OP23404	EF8099

Run #	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2	1000 ml	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.0	0.82	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.0	0.89	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.3	ug/l	
105-67-9	2,4-Dimethylphenol ^b	ND	5.0	2.4	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.0	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.0	1.3	ug/l	
95-48-7	2-Methylphenol	ND	2.0	0.89	ug/l	
	3&4-Methylphenol	ND	2.0	0.88	ug/l	
88-75-5	2-Nitrophenol	ND	5.0	0.96	ug/l	
100-02-7	4-Nitrophenol	ND	10	1.2	ug/l	
87-86-5	Pentachlorophenol	ND	4.0	1.4	ug/l	
108-95-2	Phenol	ND	2.0	0.39	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.0	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.0	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.0	0.92	ug/l	
83-32-9	Acenaphthene	ND	1.0	0.19	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.14	ug/l	
98-86-2	Acetophenone	ND	2.0	0.21	ug/l	
120-12-7	Anthracene	0.43	1.0	0.21	ug/l	J
1912-24-9	Atrazine	ND	2.0	0.45	ug/l	
100-52-7	Benzaldehyde	ND	5.0	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.20	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.21	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.21	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.34	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.21	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.40	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.46	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.21	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.24	ug/l	
106-47-8	4-Chloroaniline	ND	5.0	0.34	ug/l	
86-74-8	Carbazole	0.91	1.0	0.23	ug/l	J

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: DUP-100419	Date Sampled: 10/04/19
Lab Sample ID: JC96248-7	Date Received: 10/04/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Method: SW846 8270D SW846 3510C	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.65	ug/l	
218-01-9	Chrysene	ND	1.0	0.18	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.28	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.25	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.40	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.37	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.0	0.55	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.0	0.48	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.51	ug/l	
123-91-1	1,4-Dioxane	ND	1.0	0.66	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.33	ug/l	
132-64-9	Dibenzofuran	0.40	5.0	0.22	ug/l	J
84-74-2	Di-n-butyl phthalate	ND	2.0	0.50	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.23	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.26	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.22	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.7	ug/l	
206-44-0	Fluoranthene	0.26	1.0	0.17	ug/l	J
86-73-7	Fluorene	0.90	1.0	0.17	ug/l	J
118-74-1	Hexachlorobenzene	ND	1.0	0.33	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.49	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	2.8	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.39	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.33	ug/l	
78-59-1	Isophorone	ND	2.0	0.28	ug/l	
91-57-6	2-Methylnaphthalene	0.67	1.0	0.21	ug/l	J
88-74-4	2-Nitroaniline	ND	5.0	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	5.0	0.39	ug/l	
100-01-6	4-Nitroaniline	ND	5.0	0.44	ug/l	
91-20-3	Naphthalene	5.8	1.0	0.23	ug/l	B
98-95-3	Nitrobenzene	ND	2.0	0.64	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.48	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.0	0.22	ug/l	
85-01-8	Phenanthrene	1.1	1.0	0.18	ug/l	
129-00-0	Pyrene	ND	1.0	0.22	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.37	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	24%	35%	10-110%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.13
4

Report of Analysis

Client Sample ID: DUP-100419 Lab Sample ID: JC96248-7 Matrix: AQ - Ground Water Method: SW846 8270D SW846 3510C Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 10/04/19 Date Received: 10/04/19 Percent Solids: n/a
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	17%	27%	10-110%
118-79-6	2,4,6-Tribromophenol	81%	89%	36-151%
4165-60-0	Nitrobenzene-d5	63%	80%	34-128%
321-60-8	2-Fluorobiphenyl	64%	68%	38-119%
1718-51-0	Terphenyl-d14	52%	80%	26-129%

- (a) Sample extracted outside the holding time. Confirmation run.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.13
4

Report of Analysis

Client Sample ID: DUP-100419		Date Sampled: 10/04/19
Lab Sample ID: JC96248-7		Date Received: 10/04/19
Matrix: AQ - Ground Water		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analized By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Antimony	< 6.0	6.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Arsenic	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Barium	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Beryllium	< 1.0	1.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cadmium	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Calcium	178000	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Chromium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cobalt	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Copper	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Iron	12200	100	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Lead	82.7	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Magnesium	79100	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Manganese	699	15	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Mercury	< 0.20	0.20	ug/l	1	10/08/19	10/08/19	LL SW846 7470A ¹	SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Potassium	16600	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Selenium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Silver	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Sodium	20000	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Thallium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Vanadium	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Zinc	< 20	20	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³

(1) Instrument QC Batch: MA47587

(2) Instrument QC Batch: MA47598

(3) Prep QC Batch: MP17762

(4) Prep QC Batch: MP17766

RL = Reporting Limit

4.13
4

Report of Analysis

Client Sample ID: DUP-100419	Date Sampled: 10/04/19
Lab Sample ID: JC96248-7	Date Received: 10/04/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.034 J	0.010	mg/l	1	10/15/19 15:45	KI	EPA 335.4/LACHAT
Solids, Total Dissolved	916	10	mg/l	1	10/10/19 16:33	RC	SM2540 C-11

RL = Reporting Limit

Report of Analysis

Client Sample ID: DUP-100419		Date Sampled: 10/04/19
Lab Sample ID: JC96248-7F		Date Received: 10/04/19
Matrix: AQ - Groundwater Filtered		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA		

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Arsenic	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Barium	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Calcium	189000	5000	ug/l	1	10/08/19	10/10/19	ND SW846 6010D ³	SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Copper	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Iron	197	100	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Lead	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Magnesium	82100	5000	ug/l	1	10/08/19	10/10/19	ND SW846 6010D ³	SW846 3010A ⁴
Manganese	701	15	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	10/08/19	10/08/19	LL SW846 7470A ¹	SW846 7470A ⁵
Nickel	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Potassium	18100	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Silver	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Sodium	21700	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Thallium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Zinc	< 20	20	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴

- (1) Instrument QC Batch: MA47587
- (2) Instrument QC Batch: MA47601
- (3) Instrument QC Batch: MA47607
- (4) Prep QC Batch: MP17762
- (5) Prep QC Batch: MP17766

RL = Reporting Limit

4.14
4

Report of Analysis

Client Sample ID: DUP-100419	Date Sampled: 10/04/19
Lab Sample ID: JC96248-7F	Date Received: 10/04/19
Matrix: AQ - Groundwater Filtered	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	0.037	0.010	mg/l	1	10/15/19 15:59	KI	EPA 335.4/LACHAT

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

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Client Sample ID: FB-100419		Date Sampled: 10/04/19
Lab Sample ID: JC96248-8		Date Received: 10/04/19
Matrix: AQ - Field Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D186009.D	1	10/17/19 10:34	KC	n/a	n/a	V2D8000
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	6.0	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.48	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.58	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	6.9	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.95	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.55	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.56	ug/l	
75-00-3	Chloroethane	ND	1.0	0.73	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane	ND	1.0	0.76	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.78	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.2	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.56	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.48	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.53	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.54	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.51	ug/l	
75-71-8	Dichlorodifluoromethane ^a	ND	2.0	1.4	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.57	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.60	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.59	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.54	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.51	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.47	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.43	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.60	ug/l	
76-13-1	Freon 113	ND	5.0	1.9	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.0	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: FB-100419		Date Sampled: 10/04/19
Lab Sample ID: JC96248-8		Date Received: 10/04/19
Matrix: AQ - Field Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.65	ug/l	
79-20-9	Methyl Acetate	ND	5.0	0.80	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.60	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	1.9	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.70	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.90	ug/l	
108-88-3	Toluene	ND	1.0	0.53	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.54	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.53	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.84	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.79	ug/l	
	m,p-Xylene	ND	1.0	0.78	ug/l	
95-47-6	o-Xylene	ND	1.0	0.59	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.59	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		80-120%
17060-07-0	1,2-Dichloroethane-D4	91%		81-124%
2037-26-5	Toluene-D8	95%		80-120%
460-00-4	4-Bromofluorobenzene	99%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.15
4

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID: FB-100419		Date Sampled: 10/04/19
Lab Sample ID: JC96248-8		Date Received: 10/04/19
Matrix: AQ - Field Blank Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M160248.D	1	10/11/19 19:19	HSS	10/09/19 22:00	OP23230	EM6781
Run #2							

Run #1	Initial Volume	Final Volume
Run #1	990 ml	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	5.1	0.83	ug/l	
59-50-7	4-Chloro-3-methyl phenol	ND	5.1	0.90	ug/l	
120-83-2	2,4-Dichlorophenol	ND	2.0	1.3	ug/l	
105-67-9	2,4-Dimethylphenol ^a	ND	5.1	2.5	ug/l	
51-28-5	2,4-Dinitrophenol	ND	5.1	1.6	ug/l	
534-52-1	4,6-Dinitro-o-cresol	ND	5.1	1.3	ug/l	
95-48-7	2-Methylphenol	ND	2.0	0.90	ug/l	
	3&4-Methylphenol	ND	2.0	0.89	ug/l	
88-75-5	2-Nitrophenol	ND	5.1	0.97	ug/l	
100-02-7	4-Nitrophenol	ND	10	1.2	ug/l	
87-86-5	Pentachlorophenol	ND	4.0	1.4	ug/l	
108-95-2	Phenol	ND	2.0	0.40	ug/l	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	5.1	1.5	ug/l	
95-95-4	2,4,5-Trichlorophenol	ND	5.1	1.3	ug/l	
88-06-2	2,4,6-Trichlorophenol	ND	5.1	0.93	ug/l	
83-32-9	Acenaphthene	ND	1.0	0.19	ug/l	
208-96-8	Acenaphthylene	ND	1.0	0.14	ug/l	
98-86-2	Acetophenone	ND	2.0	0.21	ug/l	
120-12-7	Anthracene	ND	1.0	0.21	ug/l	
1912-24-9	Atrazine	ND	2.0	0.45	ug/l	
100-52-7	Benzaldehyde	ND	5.1	0.29	ug/l	
56-55-3	Benzo(a)anthracene	ND	1.0	0.21	ug/l	
50-32-8	Benzo(a)pyrene	ND	1.0	0.22	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	1.0	0.21	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	1.0	0.34	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	1.0	0.21	ug/l	
101-55-3	4-Bromophenyl phenyl ether	ND	2.0	0.41	ug/l	
85-68-7	Butyl benzyl phthalate	ND	2.0	0.46	ug/l	
92-52-4	1,1'-Biphenyl	ND	1.0	0.21	ug/l	
91-58-7	2-Chloronaphthalene	ND	2.0	0.24	ug/l	
106-47-8	4-Chloroaniline	ND	5.1	0.34	ug/l	
86-74-8	Carbazole	ND	1.0	0.23	ug/l	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: FB-100419		Date Sampled: 10/04/19
Lab Sample ID: JC96248-8		Date Received: 10/04/19
Matrix: AQ - Field Blank Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	2.0	0.66	ug/l	
218-01-9	Chrysene	ND	1.0	0.18	ug/l	
111-91-1	bis(2-Chloroethoxy)methane	ND	2.0	0.28	ug/l	
111-44-4	bis(2-Chloroethyl)ether	ND	2.0	0.25	ug/l	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	2.0	0.41	ug/l	
7005-72-3	4-Chlorophenyl phenyl ether	ND	2.0	0.37	ug/l	
121-14-2	2,4-Dinitrotoluene	ND	1.0	0.56	ug/l	
606-20-2	2,6-Dinitrotoluene	ND	1.0	0.48	ug/l	
91-94-1	3,3'-Dichlorobenzidine	ND	2.0	0.51	ug/l	
123-91-1	1,4-Dioxane	ND	1.0	0.66	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	1.0	0.33	ug/l	
132-64-9	Dibenzofuran	ND	5.1	0.22	ug/l	
84-74-2	Di-n-butyl phthalate	ND	2.0	0.50	ug/l	
117-84-0	Di-n-octyl phthalate	ND	2.0	0.24	ug/l	
84-66-2	Diethyl phthalate	ND	2.0	0.26	ug/l	
131-11-3	Dimethyl phthalate	ND	2.0	0.22	ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	2.0	1.7	ug/l	
206-44-0	Fluoranthene	ND	1.0	0.17	ug/l	
86-73-7	Fluorene	ND	1.0	0.17	ug/l	
118-74-1	Hexachlorobenzene	ND	1.0	0.33	ug/l	
87-68-3	Hexachlorobutadiene	ND	1.0	0.50	ug/l	
77-47-4	Hexachlorocyclopentadiene	ND	10	2.8	ug/l	
67-72-1	Hexachloroethane	ND	2.0	0.39	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	1.0	0.34	ug/l	
78-59-1	Isophorone	ND	2.0	0.28	ug/l	
91-57-6	2-Methylnaphthalene	ND	1.0	0.21	ug/l	
88-74-4	2-Nitroaniline	ND	5.1	0.28	ug/l	
99-09-2	3-Nitroaniline	ND	5.1	0.39	ug/l	
100-01-6	4-Nitroaniline	ND	5.1	0.44	ug/l	
91-20-3	Naphthalene	ND	1.0	0.23	ug/l	
98-95-3	Nitrobenzene	ND	2.0	0.65	ug/l	
621-64-7	N-Nitroso-di-n-propylamine	ND	2.0	0.49	ug/l	
86-30-6	N-Nitrosodiphenylamine	ND	5.1	0.22	ug/l	
85-01-8	Phenanthrene	ND	1.0	0.18	ug/l	
129-00-0	Pyrene	ND	1.0	0.22	ug/l	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2.0	0.37	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	25%		10-110%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.15
4

Report of Analysis

Client Sample ID: FB-100419		Date Sampled: 10/04/19
Lab Sample ID: JC96248-8		Date Received: 10/04/19
Matrix: AQ - Field Blank Water		Percent Solids: n/a
Method: SW846 8270D SW846 3510C		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	17%		10-110%
118-79-6	2,4,6-Tribromophenol	78%		36-151%
4165-60-0	Nitrobenzene-d5	66%		34-128%
321-60-8	2-Fluorobiphenyl	61%		38-119%
1718-51-0	Terphenyl-d14	63%		26-129%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: FB-100419		Date Sampled: 10/04/19
Lab Sample ID: JC96248-8		Date Received: 10/04/19
Matrix: AQ - Field Blank Water		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA		

4.15
4

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Antimony	< 6.0	6.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Arsenic	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Barium	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Beryllium	< 1.0	1.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cadmium	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Calcium	< 5000	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Chromium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Cobalt	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Copper	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Iron	< 100	100	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Lead	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Magnesium	< 5000	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Manganese	< 15	15	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Mercury	< 0.20	0.20	ug/l	1	10/08/19	10/08/19	LL SW846 7470A ¹	SW846 7470A ⁴
Nickel	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Potassium	< 10000	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Selenium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Silver	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Sodium	< 10000	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Thallium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Vanadium	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³
Zinc	< 20	20	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ³

(1) Instrument QC Batch: MA47587

(2) Instrument QC Batch: MA47601

(3) Prep QC Batch: MP17762

(4) Prep QC Batch: MP17766

RL = Reporting Limit

Report of Analysis

Client Sample ID: FB-100419	Date Sampled: 10/04/19
Lab Sample ID: JC96248-8	Date Received: 10/04/19
Matrix: AQ - Field Blank Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

4.15
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010	0.010	mg/l	1	10/15/19 15:49	KI	EPA 335.4/LACHAT

RL = Reporting Limit

Report of Analysis

Client Sample ID: FB-100419		Date Sampled: 10/04/19
Lab Sample ID: JC96248-8F		Date Received: 10/04/19
Matrix: AQ - Field Blank Filtered		Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA		

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4

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Antimony	< 6.0	6.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Arsenic	< 3.0	3.0	ug/l	1	10/08/19	10/10/19	ND SW846 6010D ³	SW846 3010A ⁴
Barium	< 200	200	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Beryllium	< 1.0	1.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Cadmium	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Calcium	< 5000	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Chromium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Cobalt	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Copper	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Iron	< 100	100	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Lead	< 3.0	3.0	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Magnesium	< 5000	5000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Manganese	< 15	15	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Mercury	< 0.20	0.20	ug/l	1	10/08/19	10/08/19	LL SW846 7470A ¹	SW846 7470A ⁵
Nickel	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Potassium	< 10000	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Selenium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Silver	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Sodium	< 10000	10000	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Thallium	< 10	10	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Vanadium	< 50	50	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴
Zinc	< 20	20	ug/l	1	10/08/19	10/09/19	EAL SW846 6010D ²	SW846 3010A ⁴

- (1) Instrument QC Batch: MA47587
- (2) Instrument QC Batch: MA47601
- (3) Instrument QC Batch: MA47607
- (4) Prep QC Batch: MP17762
- (5) Prep QC Batch: MP17766

RL = Reporting Limit

Report of Analysis

Client Sample ID: FB-100419	Date Sampled: 10/04/19
Lab Sample ID: JC96248-8F	Date Received: 10/04/19
Matrix: AQ - Field Blank Filtered	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010	0.010	mg/l	1	10/15/19 16:00	KI	EPA 335.4/LACHAT

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: TRIP BLANK		Date Sampled: 10/04/19
Lab Sample ID: JC96248-9		Date Received: 10/04/19
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2D186010.D	1	10/17/19 11:03	KC	n/a	n/a	V2D8000
Run #2							

Run #1	Purge Volume
Run #1	5.0 ml
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	6.0	ug/l	
71-43-2	Benzene	ND	0.50	0.43	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.48	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.58	ug/l	
75-25-2	Bromoform	ND	1.0	0.63	ug/l	
74-83-9	Bromomethane	ND	2.0	1.6	ug/l	
78-93-3	2-Butanone (MEK)	ND	10	6.9	ug/l	
75-15-0	Carbon disulfide	ND	2.0	0.95	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.55	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.56	ug/l	
75-00-3	Chloroethane	ND	1.0	0.73	ug/l	
67-66-3	Chloroform	ND	1.0	0.50	ug/l	
74-87-3	Chloromethane	ND	1.0	0.76	ug/l	
110-82-7	Cyclohexane	ND	5.0	0.78	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	1.2	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.56	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.48	ug/l	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.53	ug/l	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.54	ug/l	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.51	ug/l	
75-71-8	Dichlorodifluoromethane ^a	ND	2.0	1.4	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.57	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.60	ug/l	
75-35-4	1,1-Dichloroethene	ND	1.0	0.59	ug/l	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.51	ug/l	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.54	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.51	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.47	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.43	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.60	ug/l	
76-13-1	Freon 113	ND	5.0	1.9	ug/l	
591-78-6	2-Hexanone	ND	5.0	2.0	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TRIP BLANK		Date Sampled: 10/04/19
Lab Sample ID: JC96248-9		Date Received: 10/04/19
Matrix: AQ - Trip Blank Water		Percent Solids: n/a
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.0	0.65	ug/l	
79-20-9	Methyl Acetate	ND	5.0	0.80	ug/l	
108-87-2	Methylcyclohexane	ND	5.0	0.60	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.51	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	1.9	ug/l	
75-09-2	Methylene chloride	ND	2.0	1.0	ug/l	
100-42-5	Styrene	ND	1.0	0.70	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.65	ug/l	
127-18-4	Tetrachloroethene	ND	1.0	0.90	ug/l	
108-88-3	Toluene	ND	1.0	0.53	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	1.0	0.50	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	1.0	0.50	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.54	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.53	ug/l	
79-01-6	Trichloroethene	ND	1.0	0.53	ug/l	
75-69-4	Trichlorofluoromethane	ND	2.0	0.84	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.79	ug/l	
	m,p-Xylene	ND	1.0	0.78	ug/l	
95-47-6	o-Xylene	ND	1.0	0.59	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.59	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	93%		80-120%
17060-07-0	1,2-Dichloroethane-D4	90%		81-124%
2037-26-5	Toluene-D8	96%		80-120%
460-00-4	4-Bromofluorobenzene	99%		80-120%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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4

National Grid
Philly Coke

DATA REVIEW

Philadelphia, Pennsylvania

Metals and Total Dissolve Solids (TDS) Analyses

SDGs #: JC85367

Analyses Performed By:
SGS Laboratories
Dayton, New Jersey

TestAmeirca
Amherst, New York

Report #: 32438R
Review Level: Tier II
Project: B0036790.0001.00006

DATA REVIEW REPORT

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Groups (SDGs) # JC85367 for samples collected in association with the National Grid Philly Coke site in Philadelphia, Pennsylvania. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data as reported by the laboratory were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets and chain of custody. Analyses were performed for the following samples:

SDG	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOCs	SVOC	Pest./PCB	Metals	TDS
JC85367	MW-107 (03-28-2019)	JC85367-1	Water	3/28/2019				X	X	
	PCMW-05 (03-28-2019)	JC85367-2	Water	3/28/2019				X	X	
	GW-DUP-0328 (03-28-2019)	JC85367-3	Water	3/28/2019	PCMW-05 (03-28-2019)			X	X	
	PCMW-16D (03-28-2019)	JC85367-4	Water	3/28/2019				X	X	

DATA REVIEW REPORT

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of quality assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW REPORT

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) Methods 6010D, 7470A, and Standard Method 2540. Data were reviewed in accordance with USEPA National Functional Guidelines of October 2002.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW846 6010D	Water	180 days from collection to analysis	Preserved to a pH of less than 2.
SW-846 7470A	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL and/or were non-detect. No other qualification of the sample results was required.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis /Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

DATA REVIEW REPORT

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD recoveries exhibited acceptable RPD.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Analyte	Sample Result	Duplicate Result	RPD
PCMW-05 (03-28-2019)/ GW-DUP-0328 (03-28-2019)	Barium	365	360	AC
	Calcium	76700	76200	0.7%
	Iron	99.6 J	99.0 J	AC
	Lead	2.9 J	1.9 J	AC
	Magnesium	9710	9830	AC
	Manganese	182	186	2.2%
	Nickel	85.5	80.9	5.5%
	Potassium	2880 J	2890 J	AC
	Sodium	3790 J	3800 J	AC
	Zinc	27.2	28.2	AC

AC = Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR METAL

METALS; 6010C/7470A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	

Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)

Tier II Validation

Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Instrument Blanks		X		X	
B. Method Blanks		X		X	
C. Equipment/Field Blanks		X		X	
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Total vs. Dissolved	X				X
Reporting Limit Verification		X		X	

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Total Dissolved Solids (TDS) by SM2540C	Water	7 days from collection to analysis	Cool to <6 °C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

The correct number and type of standards were analyzed. The correlation coefficient of the initial calibration was greater than 0.995 and all initial calibration verification standard recoveries were within control limits.

All calibration standard recoveries were within the control limit.

4. Matrix Spike (MS)/Laboratory Duplicate Analysis

MS and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

4.1 MS Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS recovery control limits do not apply for MS performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

An MS analysis was not performed on a sample within this SDG.

DATA REVIEW REPORT

4.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

All analytes associated with laboratory duplicate RPD were within the control limit.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 30% for water matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PCMW-05 (03-28-2019)/ GW-DUP-0328 (03-28-2019)	TDS	600	750	22.2%

The calculated RPDs between the parent sample and field duplicate were acceptable.

6. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

7. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: SM2540	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Dilution Factor		X		X	
Moisture Content	X				X

Notes:

%RSD – relative standard deviation

%R - percent recovery

RPD - relative percent difference,

%D – difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: May 9, 2019

PEER REVIEW: Dennis Capria

DATE: May 20, 2019

CHAIN OF CUSTODY AND CORRECTED SAMPLE ANALYSIS DATA SHEETS



FED-EX Tracking #	Bottle or Canis #
SGS Quote #	SGS Job #
	AK-031919-43
	JC85367

Client / Reporting Information		Project Information				Requested Analysis										Matrix Codes																	
Company Name: Araçis - US		Project Name: National Gr. J, Philly Coke, Philadelphia PA				METAL (DSS, LF) TDS										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AR - Air SOL - Other Solid WP - Waste FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank																	
Street Address: 110 W. Fayette St Suite 300		City: Philadelphia PA		Billing Information (if different from Report to): Company Name: Same																													
City: Syracuse, NY 13202		State: PA		Street Address:																													
Project Contact: Charlady Lawrence, Halp@araçis.com		Project #: 80036790.00005		City:																													
Phone #: 315-335-9493		Client Purchase Order #:		State:		Zip:		City:		State:		Zip:		LAB USE ONLY																			
Sample(s) Name(s): Evan Green		Phone #: 63-35-2692		Project Manager: John Bussel		Absence:																											
SGS Service #		Field ID / Point of Collection		MEHQVI Vial #		Date		Time		Sampled by:		Grab (G) / Comp (C)		Matrix		# of bottles		HCl		NH ₄		HNO ₃		H ₂ SO ₄		NONE		IN WATER		MEHQ		BROUOZE	
1		Mw-167				3/28/19		10:00		EG		G		GW		2																	
1		Mw-107 MS				3/28/19		10:00		EG		G		GW		2																	
2		Mw-107 MSD				3/28/19		10:00		EG		G		GW		2																	
2		PC Mw-05				3/28/19		11:45		EG		G		GW		2																	
3		Gw-Dup-0328				3/28/19		-		EG		G		GW		2																	
4		PC Mw-16D				3/28/19		13:35		EG		G		GW		2																	
Turn Around Time (Business Days)		Approved by (SGS PM) / Date:				Deliverable										Comments / Special Instructions																	
<input checked="" type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days <input type="checkbox"/> 2 Business Days <input type="checkbox"/> 1 Business Day <input type="checkbox"/> Other						<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> NYASP Category A <input type="checkbox"/> DOD-QSMS <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NYASP Category B <input type="checkbox"/> NJ Reduced (Level 3) <input type="checkbox"/> MA MCP Criteria <input checked="" type="checkbox"/> Full Tier I (Level 4) <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> Commercial "C" <input type="checkbox"/> State Forms <input type="checkbox"/> NJ DKOP <input type="checkbox"/> EDD Format										INITIAL ASSESSMENT <u>315</u> LABEL VERIFICATION _____																	
All data available via Lablink		* Approval needed for 1-3 Business Day TAT				Commercial "A" = Results only, Commercial "B" = Results + QC Summary Commercial "C" = Results + QC Summary + Partial Raw data										http://www.sgs.com/en/terms-and-conditions																	
Sample Custody must be documented below each time samples change possession, including courier delivery.																																	
Relinquished by: 1 <u>EG</u>		Date / Time: 3/28/19 1530		Received By: 1 <u>Matthew Furb</u>		Relinquished by: 2 <u>Matthew Furb</u>		Date / Time: 3/28/19 1925		Received By: 2 <u>D</u>		Relinquished by: 3		Date / Time:		Received By: 3		Relinquished by: 4		Date / Time:		Received By: 4		Relinquished by: 5		Date / Time:		Received By: 5					
Custody Seal # <input type="checkbox"/> Intact <input type="checkbox"/> Preserved where applicable <input type="checkbox"/> Not intact <input type="checkbox"/> Absent <input type="checkbox"/> Therm. ID: On Ice <input type="checkbox"/> 24/70 °F																																	

Report of Analysis

Client Sample ID: MW-107	Date Sampled: 03/28/19
Lab Sample ID: JC85367-1	Date Received: 03/28/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	560	10	1.8	mg/l	1	03/30/19 11:55 RC	SM2540	C-11

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: MW-107	Date Sampled: 03/28/19
Lab Sample ID: JC85367-1F	Date Received: 03/28/19
Matrix: AQ - Groundwater Filtered	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	46 U	200	46	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Antimony	4.7 U	6.0	4.7	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Arsenic	2.8 U	3.0	2.8	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Barium	159 B	200	13	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Beryllium	0.50 U	1.0	0.50	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Cadmium	1.0 U	3.0	1.0	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Calcium	106000	5000	99	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Chromium	2.0 U	10	2.0	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Cobalt	2.6 U	50	2.6	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Copper	5.9 U	10	5.9	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Iron	621	100	32	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Lead	1.8 U	3.0	1.8	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Magnesium	43200	5000	140	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Manganese	1190	15	1.4	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Mercury	0.095 U	0.20	0.095	ug/l	1	04/02/19	04/02/19	EAL	SW846 7470A ¹ SW846 7470A ⁴
Nickel	1.7 U	10	1.7	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Potassium	8700 B	10000	200	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Selenium	4.9 U	10	4.9	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Silver	1.9 U	10	1.9	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Sodium	14300	10000	570	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Thallium	1.8 U	10	1.8	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Vanadium	2.0 B	50	1.8	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³
Zinc	6.9 U	20	6.9	ug/l	1	04/02/19	04/02/19	ND	SW846 6010D ² SW846 3010A ³

(1) Instrument QC Batch: MA46407

(2) Instrument QC Batch: MA46414

(3) Prep QC Batch: MP13758

(4) Prep QC Batch: MP13777

RL = Reporting Limit

MDL = Method Detection Limit

U = Indicates a result < MDL

B = Indicates a result > = MDL but < RL

4.2
4

Report of Analysis

Client Sample ID: PCMW-05	Date Sampled: 03/28/19
Lab Sample ID: JC85367-2	Date Received: 03/28/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	600	10	1.8	mg/l	1	03/30/19 11:55 RC	SM2540	C-11

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCMW-05	Date Sampled: 03/28/19
Lab Sample ID: JC85367-2F	Date Received: 03/28/19
Matrix: AQ - Groundwater Filtered	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	46 U	200	46	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Antimony	4.7 U	6.0	4.7	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Arsenic	2.8 U	3.0	2.8	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Barium	365	200	13	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Beryllium	0.50 U	1.0	0.50	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Cadmium	1.0 U	3.0	1.0	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Calcium	76700	5000	99	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Chromium	2.0 U	10	2.0	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Cobalt	2.6 U	50	2.6	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Copper	5.9 U	10	5.9	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Iron	99.6 B	100	32	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Lead	2.9 B	3.0	1.8	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Magnesium	9710	5000	140	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Manganese	182	15	1.4	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Mercury	0.095 U	0.20	0.095	ug/l	1	04/02/19	04/02/19	EAL	SW846 7470A ⁴
Nickel	85.5	10	1.7	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Potassium	2880 B	10000	200	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Selenium	4.9 U	10	4.9	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Silver	1.9 U	10	1.9	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Sodium	3790 B	10000	570	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Thallium	1.8 U	10	1.8	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Vanadium	1.8 U	50	1.8	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³
Zinc	27.2	20	6.9	ug/l	1	04/02/19	04/02/19	ND	SW846 3010A ³

(1) Instrument QC Batch: MA46407

(2) Instrument QC Batch: MA46414

(3) Prep QC Batch: MP13758

(4) Prep QC Batch: MP13777

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
B = Indicates a result > = MDL but < RL

4.4
4

Report of Analysis

Client Sample ID: GW-DUP-0328	Date Sampled: 03/28/19
Lab Sample ID: JC85367-3	Date Received: 03/28/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	750	10	1.8	mg/l	1	03/30/19 11:55 RC	SM2540	C-11

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: GW-DUP-0328	Date Sampled: 03/28/19
Lab Sample ID: JC85367-3F	Date Received: 03/28/19
Matrix: AQ - Groundwater Filtered	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	46 U	200	46	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Antimony	4.7 U	6.0	4.7	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Arsenic	2.8 U	3.0	2.8	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Barium	360	200	13	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Beryllium	0.50 U	1.0	0.50	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Cadmium	1.0 U	3.0	1.0	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Calcium	76200	5000	99	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Chromium	2.0 U	10	2.0	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Cobalt	2.6 U	50	2.6	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Copper	5.9 U	10	5.9	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Iron	99.0 B	100	32	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Lead	1.9 B	3.0	1.8	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Magnesium	9830	5000	140	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Manganese	186	15	1.4	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Mercury	0.095 U	0.20	0.095	ug/l	1	04/02/19	04/02/19	EAL	SW846 7470A ¹	SW846 7470A ⁴
Nickel	80.9	10	1.7	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Potassium	2890 B	10000	200	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Selenium	4.9 U	10	4.9	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Silver	1.9 U	10	1.9	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Sodium	3800 B	10000	570	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Thallium	1.8 U	10	1.8	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Vanadium	1.8 U	50	1.8	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³
Zinc	28.2	20	6.9	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ³

- (1) Instrument QC Batch: MA46407
- (2) Instrument QC Batch: MA46414
- (3) Prep QC Batch: MP13758
- (4) Prep QC Batch: MP13777

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 B = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCMW-16D	Date Sampled: 03/28/19
Lab Sample ID: JC85367-4	Date Received: 03/28/19
Matrix: AQ - Ground Water	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Solids, Total Dissolved	440	10	1.8	mg/l	1	03/30/19 11:55 RC	SM2540	C-11

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 B = Indicates a result > = MDL but < RL

4.7
4

Report of Analysis

Client Sample ID: PCMW-16D	Date Sampled: 03/28/19
Lab Sample ID: JC85367-4F	Date Received: 03/28/19
Matrix: AQ - Groundwater Filtered	Percent Solids: n/a
Project: National Grid, Philly Coke, Philadelphia, PA	

Dissolved Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	46 U	200	46	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Antimony	4.7 U	6.0	4.7	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Arsenic	5.8	3.0	2.8	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Barium	34.6 B	200	13	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Beryllium	0.50 U	1.0	0.50	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Cadmium	1.0 U	3.0	1.0	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Calcium	46700	5000	99	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Chromium	2.0 U	10	2.0	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Cobalt	2.8 B	50	2.6	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Copper	5.9 U	10	5.9	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Iron	27100	100	32	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Lead	1.8 U	3.0	1.8	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Magnesium	24900	5000	140	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Manganese	3130	15	1.4	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ³	SW846 3010A ⁴
Mercury	0.095 U	0.20	0.095	ug/l	1	04/02/19	04/02/19	EAL	SW846 7470A ¹	SW846 7470A ⁵
Nickel	1.7 U	10	1.7	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Potassium	2730 B	10000	200	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Selenium	4.9 U	10	4.9	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Silver	1.9 U	10	1.9	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Sodium	56100	10000	570	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Thallium	1.8 U	10	1.8	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Vanadium	4.5 B	50	1.8	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴
Zinc	6.9 U	20	6.9	ug/l	1	04/02/19	04/03/19	ND	SW846 6010D ²	SW846 3010A ⁴

- (1) Instrument QC Batch: MA46407
- (2) Instrument QC Batch: MA46414
- (3) Instrument QC Batch: MA46419
- (4) Prep QC Batch: MP13758
- (5) Prep QC Batch: MP13777

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 B = Indicates a result > = MDL but < RL

National Grid

Philly Coke

DATA REVIEW

Philadelphia, Pennsylvania

Volatile Organic Compound (VOC), Semivolatile Organic Compounds (SVOC), Metals, and Miscellaneous Analyses

SDG # JC86043

Analyses Reported By:
SGS Laboratories
Dayton, New Jersey

Report #33338R
Review Level: Tier II
Project: 30004026 (B0036790.0001) 00006

DATA REVIEW REPORT

SUMMARY

This data review report summarizes the review of Sample Delivery Group (SDG) #JC86043 for samples collected in association with the National Grid Philly Coke site in Philadelphia, Pennsylvania. The review was conducted as a Tier II evaluation and included review of laboratory analytical data package completeness. Field documentation was not included in this review. Included with this assessment are the post-validation annotated sample result sheets, and chain of custody (COC). Analyses were performed on the following samples

SDG Number	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PEST/PCB	Metals	MISC
JC86043	PCTP-08R (10-12) (04-09-2019)	JC86043-1	Soil	4/9/2019		X	X		X	X
	PCTP-10R (7-9) (04-09-2019)	JC86043-2	Soil	4/9/2019		X	X		X	X
	PCTP-47R (5-7) (04-09-2019)	JC86043-3	Soil	4/9/2019		X	X		X	X
	PCTP-32R (6-8) (04-09-2019)	JC86043-4	Soil	4/9/2019		X	X		X	X
	S-122 (10-12) (04-09-2019)	JC86043-5	Soil	4/9/2019		X	X		X	X

Notes:

1. PEST/PCB = Pesticides and polychlorinated biphenyls
2. SVOC = Semivolatile Organic Compounds
3. VOC = Volatile Organic Compound
4. MISC = Miscellaneous (total cyanide)

DATA REVIEW REPORT

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW REPORT

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260C and 8270D. Data were reviewed in accordance with the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540/R-2017-002, January 2017 and the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, EPA540/R-99/008, October 1999 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

DATA REVIEW REPORT

that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times/Preservation

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis (preserved) 7 days from collection to analysis (non-preserved)	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis	Cool to <6 °C.

Note:

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

DATA REVIEW REPORT

The MS/MSD was not performed on a sample within this SDG.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS/LCSD analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery	LCSD Recovery
S-122 (10-12)	1,2-Dibromoethane	AC	>UL

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Trip blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)		X	X		
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS)	X				X
Matrix Spike Duplicate(MSD)	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

- %RSD Relative standard deviation
- %R Percent recovery
- RPD Relative percent difference
- %D Percent difference

DATA REVIEW REPORT

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

DATA REVIEW REPORT

Sample Locations	Compound	MS Recovery	MSD Recovery
PCTP-47R (5-7) (04-09-2019)	Benzaldehyde	AC	>UL
	bis(2-Ethylhexyl)phthalate	AC	>UL

Note:

AC Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

Sample locations associated with MS/MSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

Sample Locations	Compound
PCTP-47R (5-7) (04-09-2019)	Benzaldehyde 2,4-Dinitrotoluene bis(2-Ethylhexyl)phthalate

The criteria used to evaluate the RPD between the MS/MSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS/LCSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

DATA REVIEW REPORT

Sample Locations	Compound
PCTP-47R (5-7) (04-09-2019)	4-Chloroaniline
PCTP-32R (6-8) (04-09-2019)	3,3'-Dichlorobenzidine
S-122 (10-12) (04-09-2019)	3-Nitroaniline

The criteria used to evaluate the RPD between the LCS/LCSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

Sample results associated with compound that exhibited a concentration greater than the linear range of the instrument calibration are summarized in the following table.

Sample ID	Compound	Original Analysis	Diluted Analysis	Reported Analysis
S-122 (10-12) (04-09-2019)	Acenaphthene	--	55300	55300 D
	Anthracene	--	30400	30400 D
	Dibenzofuran	--	28000	28000 D
	Fluoranthene	--	42400	42400 D
	Fluorene	--	43200	43200 D
	2-Methylnaphthalene	--	37600	37600 D
	Phenanthrene	--	129000	129000 D
	Pyrene	--	39300	39300 D

Note: In the instance where both the original analysis and the diluted analysis sample results exhibited a concentration greater than and/or less than the calibration linear range of the instrument; the sample result exhibiting the greatest concentration will be reported as the final result.

Sample results associated with compounds exhibiting concentrations greater than the linear range are qualified as documented in the table below when reported as the final reported sample result.

DATA REVIEW REPORT

Reported Sample Results	Qualification
Diluted sample result within calibration range	D
Diluted sample result less than the calibration range	DJ
Diluted sample result greater than the calibration range	EDJ
Original sample result greater than the calibration range	EJ

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X	X		
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

DATA REVIEW REPORT

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6010D, 7471A, and 9012B. Data were reviewed in accordance with the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA 540/R-2017-001, January 2017; and the USEPA CLP National Functional Guidelines for Inorganic Data Review, EPA 540-R-01-008, July 2002 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6010D	Water	180 days from collection to analysis	Preserved to a pH of less than 2.
	Soil	180 days from collection to analysis	Cool to <6 °C.
SW-846 7471A	Soil	28 days from collection to analysis	Cool to <6 °C.
SW-846 7470A	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL and/or were non-detect. No qualification of the sample results was required.

3. Matrix Spike (MS)/Matrix Spike Duplicate(MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analyte present in the table below.

DATA REVIEW REPORT

Sample Location	Analyte	MS Recovery	MSD Recovery
PCTP-32R (6-8) (04-09-2019)	Aluminum	204.7%	195.0%
	Antimony	74.2%	72.5%
	Iron	184.8%	177.8%
	Manganese	125.1%	120.9%

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications are applied to all sample results associated with this SDG.

Control limit	Sample Result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery <30%	Non-detect	R
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD analysis exhibited RPDs within the control limits.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

DATA REVIEW REPORT

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR METAL

METALS; SW846 6010D/7471A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field Blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate (MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)	X				X
Total vs. Dissolved	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Cyanide by SW-846 9012	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of greater than 12.
	Soil		Cool to <6 °C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS/MSD analysis was not performed on a sample within this SDG.

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

The laboratory duplicate analysis was not performed on a sample within this SDG.

DATA REVIEW REPORT

4. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis is not required for this analysis.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: EPA 9012	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Dilution Factor		X		X	
Moisture Content					X

Notes:

%R - percent recovery

RPD - relative percent difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: July 5, 2019

PEER REVIEW: Dennis Capria

DATE: July 22, 2019

CHAIN OF CUSTODY SAMPLE ANALYSIS DATA SHEETS





SCC

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
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www.sgs.com/ehsusa

FED-EX Tracking #
SGS Quote #
Bottle Order Control #
SGS Job #

AK-03M19-48
JC86043

Client / Reporting Information, Project Information, Requested Analysis, Matrix Codes, Turn Around Time, Deliverable, Comments / Special Instructions, Chain of Custody table, and signature blocks.

5.1
5



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Report of Analysis

Page 1 of 2

Client Sample ID:	PCTP-08R (10-12)	Date Sampled:	04/09/19
Lab Sample ID:	JC86043-1	Date Received:	04/09/19
Matrix:	SO - Soil	Percent Solids:	72.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151019.D	1	04/12/19 16:04	PS	n/a	n/a	V3C6794
Run #2							

Run #	Initial Weight
Run #1	4.7 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	98.7	15	7.3	ug/kg	
71-43-2	Benzene	ND	0.73	0.55	ug/kg	
74-97-5	Bromochloromethane	ND	7.3	0.63	ug/kg	
75-27-4	Bromodichloromethane	ND	2.9	0.65	ug/kg	
75-25-2	Bromoform	ND	7.3	0.59	ug/kg	
74-83-9	Bromomethane	ND	7.3	1.5	ug/kg	
78-93-3	2-Butanone (MEK)	ND	15	5.5	ug/kg	
75-15-0	Carbon disulfide	1.4	2.9	1.4	ug/kg	J
56-23-5	Carbon tetrachloride	ND	2.9	0.80	ug/kg	
108-90-7	Chlorobenzene	ND	2.9	0.52	ug/kg	
75-00-3	Chloroethane	ND	7.3	1.0	ug/kg	
67-66-3	Chloroform	ND	2.9	0.54	ug/kg	
74-87-3	Chloromethane	ND	7.3	2.9	ug/kg	
110-82-7	Cyclohexane	ND	2.9	0.59	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.9	1.2	ug/kg	
124-48-1	Dibromochloromethane	ND	2.9	0.49	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.5	0.48	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.5	0.45	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.5	0.53	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.5	0.50	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	7.3	0.93	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.5	0.56	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.5	0.69	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.5	0.96	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.5	1.4	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.5	0.98	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.9	0.60	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.9	0.52	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.9	0.48	ug/kg	
100-41-4	Ethylbenzene	ND	1.5	0.81	ug/kg	
76-13-1	Freon 113	ND	7.3	1.1	ug/kg	
591-78-6	2-Hexanone	ND	7.3	1.9	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-08R (10-12)	Date Sampled:	04/09/19
Lab Sample ID:	JC86043-1	Date Received:	04/09/19
Matrix:	SO - Soil	Percent Solids:	72.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.9	1.0	ug/kg	
79-20-9	Methyl Acetate	ND	7.3	2.0	ug/kg	
108-87-2	Methylcyclohexane	ND	2.9	1.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.5	0.52	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	7.3	2.3	ug/kg	
75-09-2	Methylene chloride	ND	7.3	3.7	ug/kg	
100-42-5	Styrene	ND	2.9	0.84	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.9	0.57	ug/kg	
127-18-4	Tetrachloroethene	ND	2.9	0.68	ug/kg	
108-88-3	Toluene	ND	1.5	0.55	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	7.3	1.5	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	7.3	1.5	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.9	0.62	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.9	0.50	ug/kg	
79-01-6	Trichloroethene	ND	1.5	1.1	ug/kg	
75-69-4	Trichlorofluoromethane	ND	7.3	1.0	ug/kg	
75-01-4	Vinyl chloride	ND	2.9	0.69	ug/kg	
	m,p-Xylene	ND	1.5	1.1	ug/kg	
95-47-6	o-Xylene	ND	1.5	0.85	ug/kg	
1330-20-7	Xylene (total)	ND	1.5	0.85	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		75-127%
17060-07-0	1,2-Dichloroethane-D4	102%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	101%		79-127%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: PCTP-08R (10-12)	
Lab Sample ID: JC86043-1	Date Sampled: 04/09/19
Matrix: SO - Soil	Date Received: 04/09/19
Method: SW846 8270D SW846 3546	Percent Solids: 72.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P86515.D	1	04/12/19 19:51	AR	04/10/19 19:00	OP19672	E2P3823
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	31.5 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	87	22	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	220	27	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	220	37	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	220	78	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	220	160	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	220	47	ug/kg	
95-48-7	2-Methylphenol	ND	87	28	ug/kg	
	3&4-Methylphenol	ND	87	36	ug/kg	
88-75-5	2-Nitrophenol	ND	220	29	ug/kg	
100-02-7	4-Nitrophenol	ND	440	120	ug/kg	
87-86-5	Pentachlorophenol	ND	170	41	ug/kg	
108-95-2	Phenol	ND	87	23	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	220	29	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	220	33	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	220	26	ug/kg	
83-32-9	Acenaphthene	24.8	44	15	ug/kg	J
208-96-8	Acenaphthylene	ND	44	22	ug/kg	
98-86-2	Acetophenone	ND	220	9.4	ug/kg	
120-12-7	Anthracene	ND	44	27	ug/kg	
1912-24-9	Atrazine	ND	87	19	ug/kg	
56-55-3	Benzo(a)anthracene	65.4	44	12	ug/kg	
50-32-8	Benzo(a)pyrene	63.3	44	20	ug/kg	
205-99-2	Benzo(b)fluoranthene	73.1	44	19	ug/kg	
191-24-2	Benzo(g,h,i)perylene	39.5	44	22	ug/kg	J
207-08-9	Benzo(k)fluoranthene	31.3	44	20	ug/kg	J
101-55-3	4-Bromophenyl phenyl ether	ND	87	17	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	87	11	ug/kg	
92-52-4	1,1'-Biphenyl	ND	87	6.0	ug/kg	
100-52-7	Benzaldehyde	ND	220	11	ug/kg	
91-58-7	2-Chloronaphthalene	ND	87	10	ug/kg	
106-47-8	4-Chloroaniline	ND	220	16	ug/kg	
86-74-8	Carbazole	10.3	87	6.3	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-08R (10-12)	Date Sampled:	04/09/19
Lab Sample ID:	JC86043-1	Date Received:	04/09/19
Matrix:	SO - Soil	Percent Solids:	72.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	87	17	ug/kg	
218-01-9	Chrysene	83.9	44	14	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	87	9.3	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	87	19	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	87	16	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	87	14	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	44	14	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	44	22	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	87	36	ug/kg	
123-91-1	1,4-Dioxane	ND	44	29	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	44	19	ug/kg	
132-64-9	Dibenzofuran	ND	87	18	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	87	7.1	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	87	11	ug/kg	
84-66-2	Diethyl phthalate	ND	87	9.3	ug/kg	
131-11-3	Dimethyl phthalate	ND	87	7.8	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	87	10	ug/kg	
206-44-0	Fluoranthene	85.3	44	19	ug/kg	
86-73-7	Fluorene	ND	44	20	ug/kg	
118-74-1	Hexachlorobenzene	ND	87	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	44	18	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	440	17	ug/kg	
67-72-1	Hexachloroethane	ND	220	22	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	31.2	44	20	ug/kg	J
78-59-1	Isophorone	ND	87	9.3	ug/kg	
91-57-6	2-Methylnaphthalene	19.5	44	9.9	ug/kg	J
88-74-4	2-Nitroaniline ^a	ND	220	10	ug/kg	
99-09-2	3-Nitroaniline	ND	220	11	ug/kg	
100-01-6	4-Nitroaniline	ND	220	11	ug/kg	
91-20-3	Naphthalene	28.0	44	12	ug/kg	J
98-95-3	Nitrobenzene	ND	87	17	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	87	13	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	220	16	ug/kg	
85-01-8	Phenanthrene	93.4	44	15	ug/kg	
129-00-0	Pyrene	132	44	14	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	220	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	54%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-08R (10-12) Lab Sample ID: JC86043-1 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/09/19 Date Received: 04/09/19 Percent Solids: 72.7
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	65%		27-114%
118-79-6	2,4,6-Tribromophenol	78%		19-152%
4165-60-0	Nitrobenzene-d5	78%		26-134%
321-60-8	2-Fluorobiphenyl	87%		39-124%
1718-51-0	Terphenyl-d14	87%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCTP-10R (7-9)	Date Sampled:	04/09/19
Lab Sample ID:	JC86043-2	Date Received:	04/09/19
Matrix:	SO - Soil	Percent Solids:	81.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151020.D	1	04/12/19 16:27	PS	n/a	n/a	V3C6794
Run #2							

Run #1	Initial Weight
Run #1	4.0 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	64.7	15	7.6	ug/kg	
71-43-2	Benzene	ND	0.76	0.58	ug/kg	
74-97-5	Bromochloromethane	ND	7.6	0.66	ug/kg	
75-27-4	Bromodichloromethane	ND	3.1	0.68	ug/kg	
75-25-2	Bromoform	ND	7.6	0.62	ug/kg	
74-83-9	Bromomethane	ND	7.6	1.5	ug/kg	
78-93-3	2-Butanone (MEK)	ND	15	5.7	ug/kg	
75-15-0	Carbon disulfide	ND	3.1	1.4	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.1	0.84	ug/kg	
108-90-7	Chlorobenzene	ND	3.1	0.54	ug/kg	
75-00-3	Chloroethane	ND	7.6	1.1	ug/kg	
67-66-3	Chloroform	ND	3.1	0.57	ug/kg	
74-87-3	Chloromethane	ND	7.6	3.0	ug/kg	
110-82-7	Cyclohexane	ND	3.1	0.62	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.1	1.3	ug/kg	
124-48-1	Dibromochloromethane	ND	3.1	0.52	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.5	0.50	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.5	0.47	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.5	0.55	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.5	0.53	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	7.6	0.97	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.5	0.59	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.5	0.72	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.5	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.5	1.5	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.5	1.0	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.1	0.62	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.1	0.54	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.1	0.50	ug/kg	
100-41-4	Ethylbenzene	ND	1.5	0.84	ug/kg	
76-13-1	Freon 113	ND	7.6	1.2	ug/kg	
591-78-6	2-Hexanone	ND	7.6	1.9	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-10R (7-9)	Date Sampled:	04/09/19
Lab Sample ID:	JC86043-2	Date Received:	04/09/19
Matrix:	SO - Soil	Percent Solids:	81.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.1	1.1	ug/kg	
79-20-9	Methyl Acetate	ND	7.6	2.1	ug/kg	
108-87-2	Methylcyclohexane	ND	3.1	1.1	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.5	0.54	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	7.6	2.4	ug/kg	
75-09-2	Methylene chloride	ND	7.6	3.8	ug/kg	
100-42-5	Styrene	ND	3.1	0.88	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.1	0.60	ug/kg	
127-18-4	Tetrachloroethene	ND	3.1	0.71	ug/kg	
108-88-3	Toluene	ND	1.5	0.58	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	7.6	1.5	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	7.6	1.5	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.1	0.65	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.1	0.52	ug/kg	
79-01-6	Trichloroethene	ND	1.5	1.2	ug/kg	
75-69-4	Trichlorofluoromethane	ND	7.6	1.0	ug/kg	
75-01-4	Vinyl chloride	ND	3.1	0.72	ug/kg	
	m,p-Xylene	ND	1.5	1.1	ug/kg	
95-47-6	o-Xylene	ND	1.5	0.89	ug/kg	
1330-20-7	Xylene (total)	ND	1.5	0.89	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		75-127%
17060-07-0	1,2-Dichloroethane-D4	104%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	102%		79-127%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCTP-10R (7-9)	Date Sampled:	04/09/19
Lab Sample ID:	JC86043-2	Date Received:	04/09/19
Matrix:	SO - Soil	Percent Solids:	81.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P86516.D	1	04/12/19 20:13	AR	04/10/19 19:00	OP19672	E2P3823
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.3 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	81	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	25	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	34	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	72	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	200	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	200	43	ug/kg	
95-48-7	2-Methylphenol	ND	81	26	ug/kg	
	3&4-Methylphenol	ND	81	33	ug/kg	
88-75-5	2-Nitrophenol	ND	200	27	ug/kg	
100-02-7	4-Nitrophenol	ND	400	110	ug/kg	
87-86-5	Pentachlorophenol	ND	160	38	ug/kg	
108-95-2	Phenol	ND	81	21	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	27	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	30	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	24	ug/kg	
83-32-9	Acenaphthene	234	40	14	ug/kg	
208-96-8	Acenaphthylene	32.0	40	21	ug/kg	J
98-86-2	Acetophenone	ND	200	8.7	ug/kg	
120-12-7	Anthracene	507	40	25	ug/kg	
1912-24-9	Atrazine	ND	81	17	ug/kg	
56-55-3	Benzo(a)anthracene	915	40	11	ug/kg	
50-32-8	Benzo(a)pyrene	836	40	18	ug/kg	
205-99-2	Benzo(b)fluoranthene	934	40	18	ug/kg	
191-24-2	Benzo(g,h,i)perylene	324	40	20	ug/kg	
207-08-9	Benzo(k)fluoranthene	396	40	19	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	81	16	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	81	9.9	ug/kg	
92-52-4	1,1'-Biphenyl	16.0	81	5.5	ug/kg	J
100-52-7	Benzaldehyde	23.0	200	10	ug/kg	J
91-58-7	2-Chloronaphthalene	ND	81	9.6	ug/kg	
106-47-8	4-Chloroaniline	ND	200	15	ug/kg	
86-74-8	Carbazole	155	81	5.9	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-10R (7-9)	Date Sampled:	04/09/19
Lab Sample ID:	JC86043-2	Date Received:	04/09/19
Matrix:	SO - Soil	Percent Solids:	81.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	81	16	ug/kg	
218-01-9	Chrysene	1060	40	13	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	81	8.6	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	81	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	81	15	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	81	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	40	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	40	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	81	34	ug/kg	
123-91-1	1,4-Dioxane	ND	40	27	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	122	40	18	ug/kg	
132-64-9	Dibenzofuran	94.7	81	16	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	81	6.6	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	81	10	ug/kg	
84-66-2	Diethyl phthalate	ND	81	8.6	ug/kg	
131-11-3	Dimethyl phthalate	ND	81	7.2	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	81	9.5	ug/kg	
206-44-0	Fluoranthene	1690	40	18	ug/kg	
86-73-7	Fluorene	187	40	19	ug/kg	
118-74-1	Hexachlorobenzene	ND	81	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	40	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	400	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	20	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	325	40	19	ug/kg	
78-59-1	Isophorone	ND	81	8.6	ug/kg	
91-57-6	2-Methylnaphthalene	48.0	40	9.1	ug/kg	
88-74-4	2-Nitroaniline ^a	ND	200	9.5	ug/kg	
99-09-2	3-Nitroaniline	ND	200	10	ug/kg	
100-01-6	4-Nitroaniline	ND	200	10	ug/kg	
91-20-3	Naphthalene	78.2	40	11	ug/kg	
98-95-3	Nitrobenzene	ND	81	16	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	81	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	15	ug/kg	
85-01-8	Phenanthrene	1970	40	14	ug/kg	
129-00-0	Pyrene	1810	40	13	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	47%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-10R (7-9)		Date Sampled: 04/09/19
Lab Sample ID: JC86043-2		Date Received: 04/09/19
Matrix: SO - Soil		Percent Solids: 81.7
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	57%		27-114%
118-79-6	2,4,6-Tribromophenol	63%		19-152%
4165-60-0	Nitrobenzene-d5	66%		26-134%
321-60-8	2-Fluorobiphenyl	76%		39-124%
1718-51-0	Terphenyl-d14	68%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
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Report of Analysis

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Client Sample ID: PCTP-47R (5-7)	
Lab Sample ID: JC86043-3	Date Sampled: 04/09/19
Matrix: SO - Soil	Date Received: 04/09/19
Method: SW846 8260C	Percent Solids: 87.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	3C151022.D	1	04/12/19 17:13	PS	n/a	n/a	V3C6794

Run #1	Initial Weight
Run #2	4.9 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	25.9	12	5.8	ug/kg	
71-43-2	Benzene	ND	0.58	0.44	ug/kg	
74-97-5	Bromochloromethane	ND	5.8	0.50	ug/kg	
75-27-4	Bromodichloromethane	ND	2.3	0.52	ug/kg	
75-25-2	Bromoform	ND	5.8	0.47	ug/kg	
74-83-9	Bromomethane	ND	5.8	1.2	ug/kg	
78-93-3	2-Butanone (MEK)	ND	12	4.4	ug/kg	
75-15-0	Carbon disulfide	1.2	2.3	1.1	ug/kg	J
56-23-5	Carbon tetrachloride	ND	2.3	0.64	ug/kg	
108-90-7	Chlorobenzene	ND	2.3	0.41	ug/kg	
75-00-3	Chloroethane	ND	5.8	0.80	ug/kg	
67-66-3	Chloroform	ND	2.3	0.43	ug/kg	
74-87-3	Chloromethane	ND	5.8	2.3	ug/kg	
110-82-7	Cyclohexane	ND	2.3	0.47	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.3	0.97	ug/kg	
124-48-1	Dibromochloromethane	ND	2.3	0.39	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.2	0.38	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.2	0.36	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.2	0.42	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.2	0.40	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.8	0.74	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.2	0.45	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.2	0.55	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.2	0.77	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.2	1.1	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.2	0.78	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.3	0.47	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.3	0.41	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.3	0.38	ug/kg	
100-41-4	Ethylbenzene	ND	1.2	0.64	ug/kg	
76-13-1	Freon 113	ND	5.8	0.89	ug/kg	
591-78-6	2-Hexanone	ND	5.8	1.5	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-47R (5-7)	Date Sampled:	04/09/19
Lab Sample ID:	JC86043-3	Date Received:	04/09/19
Matrix:	SO - Soil	Percent Solids:	87.5
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.3	0.81	ug/kg	
79-20-9	Methyl Acetate	ND	5.8	1.6	ug/kg	
108-87-2	Methylcyclohexane	ND	2.3	0.82	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.2	0.41	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.8	1.8	ug/kg	
75-09-2	Methylene chloride	ND	5.8	2.9	ug/kg	
100-42-5	Styrene	ND	2.3	0.67	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.3	0.45	ug/kg	
127-18-4	Tetrachloroethene	ND	2.3	0.54	ug/kg	
108-88-3	Toluene	ND	1.2	0.44	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.8	1.2	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.8	1.2	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.3	0.50	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.3	0.40	ug/kg	
79-01-6	Trichloroethene	ND	1.2	0.89	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.8	0.79	ug/kg	
75-01-4	Vinyl chloride	ND	2.3	0.55	ug/kg	
	m,p-Xylene	ND	1.2	0.87	ug/kg	
95-47-6	o-Xylene	ND	1.2	0.68	ug/kg	
1330-20-7	Xylene (total)	ND	1.2	0.68	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		75-127%
17060-07-0	1,2-Dichloroethane-D4	102%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	103%		79-127%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCTP-47R (5-7)	Date Sampled:	04/09/19
Lab Sample ID:	JC86043-3	Date Received:	04/09/19
Matrix:	SO - Soil	Percent Solids:	87.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	P129017.D	1	04/15/19 01:01	CB	04/10/19 19:00	OP19673	EP5838
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	76	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	32	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	190	68	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	190	41	ug/kg	
95-48-7	2-Methylphenol	ND	76	24	ug/kg	
	3&4-Methylphenol	ND	76	31	ug/kg	
88-75-5	2-Nitrophenol	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	380	100	ug/kg	
87-86-5	Pentachlorophenol	ND	150	36	ug/kg	
108-95-2	Phenol	ND	76	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol ^a	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	28	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	23	ug/kg	
83-32-9	Acenaphthene	111	38	13	ug/kg	
208-96-8	Acenaphthylene	110	38	19	ug/kg	
98-86-2	Acetophenone	ND	190	8.2	ug/kg	
120-12-7	Anthracene	364	38	23	ug/kg	
1912-24-9	Atrazine	ND	76	16	ug/kg	
56-55-3	Benzo(a)anthracene	1640	38	11	ug/kg	
50-32-8	Benzo(a)pyrene	1430	38	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	1670	38	17	ug/kg	
191-24-2	Benzo(g,h,i)perylene	908	38	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	721	38	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	76	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	76	9.3	ug/kg	
92-52-4	1,1'-Biphenyl	13.8	76	5.2	ug/kg	J
100-52-7	Benzaldehyde	ND	190	9.4	ug/kg	UJ
91-58-7	2-Chloronaphthalene	ND	76	9.0	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	UJ
86-74-8	Carbazole	159	76	5.5	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-47R (5-7)	Date Sampled:	04/09/19
Lab Sample ID:	JC86043-3	Date Received:	04/09/19
Matrix:	SO - Soil	Percent Solids:	87.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	76	15	ug/kg	
218-01-9	Chrysene	1720	38	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	76	8.1	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	76	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	76	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	76	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	38	12	ug/kg	UJ
606-20-2	2,6-Dinitrotoluene	ND	38	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	76	32	ug/kg	UJ
123-91-1	1,4-Dioxane	ND	38	25	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	247	38	17	ug/kg	
132-64-9	Dibenzofuran	65.1	76	15	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	76	6.2	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	76	9.5	ug/kg	
84-66-2	Diethyl phthalate	ND	76	8.1	ug/kg	
131-11-3	Dimethyl phthalate	ND	76	6.8	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	142	76	8.9	ug/kg	J
206-44-0	Fluoranthene	2600	38	17	ug/kg	
86-73-7	Fluorene	110	38	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	76	9.6	ug/kg	
87-68-3	Hexachlorobutadiene	ND	38	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	380	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	912	38	18	ug/kg	
78-59-1	Isophorone	ND	76	8.1	ug/kg	
91-57-6	2-Methylnaphthalene	41.7	38	8.6	ug/kg	
88-74-4	2-Nitroaniline	ND	190	9.0	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.5	ug/kg	UJ
100-01-6	4-Nitroaniline	ND	190	9.8	ug/kg	
91-20-3	Naphthalene	70.7	38	11	ug/kg	
98-95-3	Nitrobenzene	ND	76	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	76	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	1360	38	13	ug/kg	
129-00-0	Pyrene	2540	38	12	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.6	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	73%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-47R (5-7) Lab Sample ID: JC86043-3 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/09/19 Date Received: 04/09/19 Percent Solids: 87.5
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	79%		27-114%
118-79-6	2,4,6-Tribromophenol	59%		19-152%
4165-60-0	Nitrobenzene-d5	90%		26-134%
321-60-8	2-Fluorobiphenyl	87%		39-124%
1718-51-0	Terphenyl-d14	94%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
4

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Report of Analysis

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Client Sample ID: PCTP-32R (6-8)	
Lab Sample ID: JC86043-4	Date Sampled: 04/09/19
Matrix: SO - Soil	Date Received: 04/09/19
Method: SW846 8260C	Percent Solids: 75.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151021.D	1	04/12/19 16:50	PS	n/a	n/a	V3C6794
Run #2							

Run #1	Initial Weight
Run #1	5.5 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	204	12	6.0	ug/kg	
71-43-2	Benzene	5.2	0.60	0.45	ug/kg	
74-97-5	Bromochloromethane	ND	6.0	0.52	ug/kg	
75-27-4	Bromodichloromethane	ND	2.4	0.53	ug/kg	
75-25-2	Bromoform	ND	6.0	0.49	ug/kg	
74-83-9	Bromomethane	ND	6.0	1.2	ug/kg	
78-93-3	2-Butanone (MEK)	17.2	12	4.5	ug/kg	
75-15-0	Carbon disulfide	1.8	2.4	1.1	ug/kg	J
56-23-5	Carbon tetrachloride	ND	2.4	0.66	ug/kg	
108-90-7	Chlorobenzene	ND	2.4	0.43	ug/kg	
75-00-3	Chloroethane	ND	6.0	0.83	ug/kg	
67-66-3	Chloroform	ND	2.4	0.45	ug/kg	
74-87-3	Chloromethane	ND	6.0	2.4	ug/kg	
110-82-7	Cyclohexane	ND	2.4	0.49	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.4	1.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.4	0.41	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.2	0.39	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.2	0.37	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.2	0.43	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.2	0.41	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.0	0.76	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.2	0.46	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.2	0.57	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.2	0.79	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.2	1.2	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.2	0.80	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.4	0.49	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.4	0.42	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.4	0.39	ug/kg	
100-41-4	Ethylbenzene	ND	1.2	0.66	ug/kg	
76-13-1	Freon 113	ND	6.0	0.92	ug/kg	
591-78-6	2-Hexanone	ND	6.0	1.5	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-32R (6-8)	Date Sampled:	04/09/19
Lab Sample ID:	JC86043-4	Date Received:	04/09/19
Matrix:	SO - Soil	Percent Solids:	75.5
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.4	0.84	ug/kg	
79-20-9	Methyl Acetate	ND	6.0	1.7	ug/kg	
108-87-2	Methylcyclohexane	ND	2.4	0.85	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.2	0.42	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.0	1.9	ug/kg	
75-09-2	Methylene chloride	ND	6.0	3.0	ug/kg	
100-42-5	Styrene	ND	2.4	0.69	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.4	0.47	ug/kg	
127-18-4	Tetrachloroethene	ND	2.4	0.56	ug/kg	
108-88-3	Toluene	1.9	1.2	0.45	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.0	1.2	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.0	1.2	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.4	0.51	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.4	0.41	ug/kg	
79-01-6	Trichloroethene	ND	1.2	0.92	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.0	0.82	ug/kg	
75-01-4	Vinyl chloride	ND	2.4	0.56	ug/kg	
	m,p-Xylene	1.1	1.2	0.90	ug/kg	J
95-47-6	o-Xylene	ND	1.2	0.70	ug/kg	
1330-20-7	Xylene (total)	1.1	1.2	0.70	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		75-127%
17060-07-0	1,2-Dichloroethane-D4	102%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	105%		79-127%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCTP-32R (6-8)	Date Sampled:	04/09/19
Lab Sample ID:	JC86043-4	Date Received:	04/09/19
Matrix:	SO - Soil	Percent Solids:	75.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	P129046.D	2	04/15/19 21:19	YC	04/10/19 19:00	OP19673	EP5839
Run #2							

Run #	Initial Weight	Final Volume
Run #1	31.1 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	170	42	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	430	52	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	430	73	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	430	150	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	430	320	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	430	91	ug/kg	
95-48-7	2-Methylphenol	218	170	54	ug/kg	
	3&4-Methylphenol	280	170	70	ug/kg	
88-75-5	2-Nitrophenol	ND	430	56	ug/kg	
100-02-7	4-Nitrophenol	ND	850	230	ug/kg	
87-86-5	Pentachlorophenol	ND	340	80	ug/kg	
108-95-2	Phenol	ND	170	44	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	430	56	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	430	64	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	430	51	ug/kg	
83-32-9	Acenaphthene	127	85	29	ug/kg	
208-96-8	Acenaphthylene	74.5	85	43	ug/kg	J
98-86-2	Acetophenone	41.4	430	18	ug/kg	J
120-12-7	Anthracene	132	85	52	ug/kg	
1912-24-9	Atrazine	ND	170	36	ug/kg	
56-55-3	Benzo(a)anthracene	213	85	24	ug/kg	
50-32-8	Benzo(a)pyrene	239	85	39	ug/kg	
205-99-2	Benzo(b)fluoranthene	238	85	38	ug/kg	
191-24-2	Benzo(g,h,i)perylene	184	85	43	ug/kg	
207-08-9	Benzo(k)fluoranthene	103	85	40	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	170	33	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	170	21	ug/kg	
92-52-4	1,1'-Biphenyl	71.8	170	12	ug/kg	J
100-52-7	Benzaldehyde	ND	430	21	ug/kg	
91-58-7	2-Chloronaphthalene	ND	170	20	ug/kg	
106-47-8	4-Chloroaniline	ND	430	31	ug/kg	UJ
86-74-8	Carbazole	39.6	170	12	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-32R (6-8)	Date Sampled:	04/09/19
Lab Sample ID:	JC86043-4	Date Received:	04/09/19
Matrix:	SO - Soil	Percent Solids:	75.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	170	34	ug/kg	
218-01-9	Chrysene	246	85	27	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	170	18	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	170	37	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	170	31	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	170	28	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	85	26	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	85	43	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	170	71	ug/kg	UJ
123-91-1	1,4-Dioxane	ND	85	56	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	85	38	ug/kg	
132-64-9	Dibenzofuran	96.3	170	35	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	170	14	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	170	21	ug/kg	
84-66-2	Diethyl phthalate	ND	170	18	ug/kg	
131-11-3	Dimethyl phthalate	ND	170	15	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	170	20	ug/kg	
206-44-0	Fluoranthene	341	85	38	ug/kg	
86-73-7	Fluorene	132	85	39	ug/kg	
118-74-1	Hexachlorobenzene	ND	170	22	ug/kg	
87-68-3	Hexachlorobutadiene	ND	85	34	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	850	34	ug/kg	
67-72-1	Hexachloroethane	ND	430	42	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	161	85	40	ug/kg	
78-59-1	Isophorone	ND	170	18	ug/kg	
91-57-6	2-Methylnaphthalene	492	85	19	ug/kg	
88-74-4	2-Nitroaniline	ND	430	20	ug/kg	
99-09-2	3-Nitroaniline	ND	430	21	ug/kg	UJ
100-01-6	4-Nitroaniline	ND	430	22	ug/kg	
91-20-3	Naphthalene	4880	85	24	ug/kg	
98-95-3	Nitrobenzene	ND	170	33	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	170	25	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	430	31	ug/kg	
85-01-8	Phenanthrene	344	85	29	ug/kg	
129-00-0	Pyrene	401	85	27	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	430	22	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	74%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-32R (6-8) Lab Sample ID: JC86043-4 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/09/19 Date Received: 04/09/19 Percent Solids: 75.5
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	76%		27-114%
118-79-6	2,4,6-Tribromophenol	76%		19-152%
4165-60-0	Nitrobenzene-d5	94%		26-134%
321-60-8	2-Fluorobiphenyl	83%		39-124%
1718-51-0	Terphenyl-d14	81%		36-134%

(a) Dilution required due to viscosity of the extract matrix.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.4
4

Report of Analysis

Client Sample ID: S-122 (10-12)	
Lab Sample ID: JC86043-5	Date Sampled: 04/09/19
Matrix: SO - Soil	Date Received: 04/09/19
Method: SW846 8260C	Percent Solids: 58.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	I225322.D	1	04/11/19 15:04	TDN	n/a	n/a	VI9080
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.5 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	2300	1100	ug/kg	
71-43-2	Benzene	ND	110	85	ug/kg	
74-97-5	Bromochloromethane	ND	1100	97	ug/kg	
75-27-4	Bromodichloromethane	ND	450	100	ug/kg	
75-25-2	Bromoform	ND	1100	91	ug/kg	
74-83-9	Bromomethane	ND	1100	220	ug/kg	
78-93-3	2-Butanone (MEK)	ND	2300	840	ug/kg	
75-15-0	Carbon disulfide	ND	450	210	ug/kg	
56-23-5	Carbon tetrachloride	ND	450	120	ug/kg	
108-90-7	Chlorobenzene	ND	450	80	ug/kg	
75-00-3	Chloroethane	ND	1100	150	ug/kg	
67-66-3	Chloroform	ND	450	84	ug/kg	
74-87-3	Chloromethane	ND	1100	440	ug/kg	
110-82-7	Cyclohexane	ND	450	92	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	450	190	ug/kg	
124-48-1	Dibromochloromethane	ND	450	76	ug/kg	
106-93-4	1,2-Dibromoethane ^b	ND	230	73	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	230	69	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	230	81	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	230	78	ug/kg	
75-71-8	Dichlorodifluoromethane ^c	ND	1100	140	ug/kg	
75-34-3	1,1-Dichloroethane	ND	230	87	ug/kg	
107-06-2	1,2-Dichloroethane	ND	230	110	ug/kg	
75-35-4	1,1-Dichloroethene	ND	230	150	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	230	220	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	230	150	ug/kg	
78-87-5	1,2-Dichloropropane	ND	450	92	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	450	79	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	450	74	ug/kg	
100-41-4	Ethylbenzene	1020	230	120	ug/kg	
76-13-1	Freon 113	ND	1100	170	ug/kg	
591-78-6	2-Hexanone	ND	1100	290	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-122 (10-12)	Date Sampled:	04/09/19
Lab Sample ID:	JC86043-5	Date Received:	04/09/19
Matrix:	SO - Soil	Percent Solids:	58.5
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	1780	450	160	ug/kg	
79-20-9	Methyl Acetate	ND	1100	310	ug/kg	
108-87-2	Methylcyclohexane	339	450	160	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	230	79	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	1100	350	ug/kg	
75-09-2	Methylene chloride	829	1100	560	ug/kg	J
100-42-5	Styrene	ND	450	130	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	450	88	ug/kg	
127-18-4	Tetrachloroethene	ND	450	100	ug/kg	
108-88-3	Toluene	212	230	85	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	1100	230	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	1100	230	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	450	96	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	450	77	ug/kg	
79-01-6	Trichloroethene	ND	230	170	ug/kg	
75-69-4	Trichlorofluoromethane	ND	1100	150	ug/kg	
75-01-4	Vinyl chloride	ND	450	110	ug/kg	
	m,p-Xylene	475	230	170	ug/kg	
95-47-6	o-Xylene	315	230	130	ug/kg	
1330-20-7	Xylene (total)	790	230	130	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		75-127%
17060-07-0	1,2-Dichloroethane-D4	103%		75-130%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	113%		79-127%

- (a) Diluted due to high concentration of non-target compound.
 (b) This compound in BSD is outside in house QC limits bias high.
 (c) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-122 (10-12)	Date Sampled:	04/09/19
Lab Sample ID:	JC86043-5	Date Received:	04/09/19
Matrix:	SO - Soil	Percent Solids:	58.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	P128947.D	5	04/11/19 10:27	CS	04/10/19 19:00	OP19673	EP5835
Run #2	P128965.D	50	04/11/19 21:56	CC	04/10/19 19:00	OP19673	EP5836

Run #	Initial Weight	Final Volume
Run #1	32.0 g	1.0 ml
Run #2	32.0 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	530	130	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	1300	160	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	1300	230	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	1300	480	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	1300	1000	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	1300	290	ug/kg	
95-48-7	2-Methylphenol	ND	530	170	ug/kg	
	3&4-Methylphenol	975	530	220	ug/kg	
88-75-5	2-Nitrophenol	ND	1300	180	ug/kg	
100-02-7	4-Nitrophenol ^b	ND	2700	710	ug/kg	
87-86-5	Pentachlorophenol	ND	1100	250	ug/kg	
108-95-2	Phenol	ND	530	140	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	1300	180	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	1300	200	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	1300	160	ug/kg	
83-32-9	Acenaphthene	55300 ^c	2700	920	ug/kg	D
208-96-8	Acenaphthylene	2040	270	140	ug/kg	
98-86-2	Acetophenone	ND	1300	57	ug/kg	
120-12-7	Anthracene	30400 ^c	2700	1600	ug/kg	D
1912-24-9	Atrazine	ND	530	110	ug/kg	
56-55-3	Benzo(a)anthracene	11200	270	76	ug/kg	
50-32-8	Benzo(a)pyrene	7070	270	120	ug/kg	
205-99-2	Benzo(b)fluoranthene	7330	270	120	ug/kg	
191-24-2	Benzo(g,h,i)perylene	3420	270	130	ug/kg	
207-08-9	Benzo(k)fluoranthene	2730	270	120	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	530	100	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	530	65	ug/kg	
92-52-4	1,1'-Biphenyl	1910	530	37	ug/kg	
100-52-7	Benzaldehyde	ND	1300	66	ug/kg	
91-58-7	2-Chloronaphthalene	ND	530	64	ug/kg	
106-47-8	4-Chloroaniline	ND	1300	96	ug/kg	UJ
86-74-8	Carbazole	7790	530	39	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-122 (10-12)	
Lab Sample ID: JC86043-5	Date Sampled: 04/09/19
Matrix: SO - Soil	Date Received: 04/09/19
Method: SW846 8270D SW846 3546	Percent Solids: 58.5
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	530	110	ug/kg	
218-01-9	Chrysene	12600	270	84	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	530	57	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	530	120	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	530	96	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	530	87	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	270	83	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	270	130	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	530	220	ug/kg	UJ
123-91-1	1,4-Dioxane	ND	270	180	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	884	270	120	ug/kg	
132-64-9	Dibenzofuran	28000 ^c	5300	1100	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	530	44	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	530	67	ug/kg	
84-66-2	Diethyl phthalate	ND	530	57	ug/kg	
131-11-3	Dimethyl phthalate	ND	530	48	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	530	62	ug/kg	
206-44-0	Fluoranthene	42400 ^c	2700	1200	ug/kg	D
86-73-7	Fluorene	43200 ^c	2700	1200	ug/kg	D
118-74-1	Hexachlorobenzene	ND	530	68	ug/kg	
87-68-3	Hexachlorobutadiene	ND	270	110	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	2700	110	ug/kg	
67-72-1	Hexachloroethane	ND	1300	130	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	3260	270	130	ug/kg	
78-59-1	Isophorone	ND	530	57	ug/kg	
91-57-6	2-Methylnaphthalene	37600 ^c	2700	600	ug/kg	D
88-74-4	2-Nitroaniline	ND	1300	63	ug/kg	
99-09-2	3-Nitroaniline	ND	1300	67	ug/kg	UJ
100-01-6	4-Nitroaniline	ND	1300	69	ug/kg	
91-20-3	Naphthalene	26400	270	75	ug/kg	
98-95-3	Nitrobenzene	ND	530	100	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	530	77	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	1300	98	ug/kg	
85-01-8	Phenanthrene	129000 ^c	2700	900	ug/kg	D
129-00-0	Pyrene	39300 ^c	2700	850	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	1300	68	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	62%	49%	23-115%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.5
4

Report of Analysis

Client Sample ID: S-122 (10-12)		Date Sampled: 04/09/19
Lab Sample ID: JC86043-5		Date Received: 04/09/19
Matrix: SO - Soil		Percent Solids: 58.5
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	65%	49%	27-114%
118-79-6	2,4,6-Tribromophenol	74%	60%	19-152%
4165-60-0	Nitrobenzene-d5	82%	82%	26-134%
321-60-8	2-Fluorobiphenyl	81%	90%	39-124%
1718-51-0	Terphenyl-d14	91%	92%	36-134%

- (a) Dilution required due to viscosity of the extract matrix.
- (b) Associated CCV outside of control limits high, sample was ND.
- (c) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.5
4

Report of Analysis

Client Sample ID: PCTP-08R (10-12) Lab Sample ID: JC86043-1 Matrix: SO - Soil Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/09/19 Date Received: 04/09/19 Percent Solids: 72.7
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Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	7790 J	66	11	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.89 J	2.6	0.54	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic	7.7	2.6	0.37	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Barium	114	26	2.5	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.65	0.26	0.11	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.74	0.66	0.093	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	8290	660	58	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	14.9	1.3	0.49	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	5.5 J	6.6	0.37	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Copper	78.3	3.3	1.1	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Iron	20700 J	66	25	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Lead	193	2.6	0.54	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Magnesium	2950	660	18	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Manganese	118 J	2.0	0.54	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Mercury	0.23	0.037	0.016	mg/kg	1	04/11/19	04/11/19 EAL	SW846 7471B ¹	SW846 7471B ³
Nickel	14.3	5.3	0.46	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	886 J	1300	42	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	0.95 J	2.6	0.86	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Silver	0.34 J	0.66	0.22	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Sodium	108 J	1300	100	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Thallium	0.77 U	1.3	0.77	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Vanadium	21.2	6.6	0.25	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	312	6.6	3.0	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁴

(1) Instrument QC Batch: MA46477

(2) Instrument QC Batch: MA46484

(3) Prep QC Batch: MP14056

(4) Prep QC Batch: MP14093

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.1
4

Report of Analysis

Client Sample ID: PCTP-08R (10-12)	Date Sampled: 04/09/19
Lab Sample ID: JC86043-1	Date Received: 04/09/19
Matrix: SO - Soil	Percent Solids: 72.7
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.22 J	0.32	0.16	mg/kg	1	04/17/19 16:02 KI	SW846	9012B/LACHAT
Solids, Percent	72.7			%	1	04/10/19 16:05 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.1
4

Report of Analysis

Client Sample ID: PCTP-10R (7-9)	Date Sampled: 04/09/19
Lab Sample ID: JC86043-2	Date Received: 04/09/19
Matrix: SO - Soil	Percent Solids: 81.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	6490 J	59	9.5	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Antimony	1.6 J	2.4	0.48	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Arsenic	9.0	2.4	0.33	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Barium	489	24	2.2	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Beryllium	0.46	0.24	0.094	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Cadmium	5.9	0.59	0.082	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Calcium	9700	590	52	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Chromium	21.0	1.2	0.44	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Cobalt	5.8 J	5.9	0.33	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Copper	82.5	2.9	0.99	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Iron	20300 J	59	23	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Lead	2530	12	2.4	mg/kg	5	04/11/19	04/12/19 ND	SW846 6010D ³	SW846 3050B ⁵
Magnesium	6720	590	16	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Manganese	181 J	1.8	0.48	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Mercury	0.18	0.039	0.017	mg/kg	1	04/11/19	04/11/19 EAL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	12.9	4.7	0.41	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Potassium	715 J	1200	37	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Selenium	0.89 J	2.4	0.76	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Silver	0.44 J	0.59	0.20	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Sodium	92 U	1200	92	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Thallium	0.68 U	1.2	0.68	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Vanadium	15.4	5.9	0.22	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Zinc	487	5.9	2.7	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46477
- (2) Instrument QC Batch: MA46484
- (3) Instrument QC Batch: MA46494
- (4) Prep QC Batch: MP14056
- (5) Prep QC Batch: MP14093

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.2
4

Report of Analysis

Client Sample ID: PCTP-10R (7-9)	Date Sampled: 04/09/19
Lab Sample ID: JC86043-2	Date Received: 04/09/19
Matrix: SO - Soil	Percent Solids: 81.7
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.14 U	0.28	0.14	mg/kg	1	04/17/19 16:03 KI	SW846	9012B/LACHAT
Solids, Percent	81.7			%	1	04/10/19 16:05 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.2
4

Report of Analysis

Client Sample ID: PCTP-47R (5-7)	Date Sampled: 04/09/19
Lab Sample ID: JC86043-3	Date Received: 04/09/19
Matrix: SO - Soil	Percent Solids: 87.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	11000 J	59	9.5	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Antimony	2.2 J	2.4	0.48	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Arsenic	7.5	2.4	0.33	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Barium	97.9	24	2.2	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Beryllium	0.59	0.24	0.094	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Cadmium	0.39 J	0.59	0.082	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Calcium	37500	1200	100	mg/kg	2	04/11/19	04/12/19 ND	SW846 6010D ³	SW846 3050B ⁵
Chromium	20.6	1.2	0.44	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Cobalt	6.0	5.9	0.33	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Copper	265	2.9	0.99	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Iron	19000 J	59	23	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Lead	359	2.4	0.48	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Magnesium	12500	590	16	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Manganese	299 J	1.8	0.48	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Mercury	0.53	0.038	0.017	mg/kg	1	04/11/19	04/11/19 EAL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	12.8	4.7	0.41	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Potassium	1460	1200	37	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Selenium	0.77 U	2.4	0.77	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Silver	0.48 J	0.59	0.20	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Sodium	135 J	1200	92	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Thallium	0.68 U	1.2	0.68	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Vanadium	27.0	5.9	0.22	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵
Zinc	244	5.9	2.7	mg/kg	1	04/11/19	04/12/19 ND	SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46477
- (2) Instrument QC Batch: MA46484
- (3) Instrument QC Batch: MA46494
- (4) Prep QC Batch: MP14056
- (5) Prep QC Batch: MP14093

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.3
 4

Report of Analysis

Client Sample ID: PCTP-47R (5-7)	Date Sampled: 04/09/19
Lab Sample ID: JC86043-3	Date Received: 04/09/19
Matrix: SO - Soil	Percent Solids: 87.5
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.20 J	0.26	0.13	mg/kg	1	04/17/19 16:04	KI	SW846 9012B/LACHAT
Solids, Percent	87.5			%	1	04/10/19 16:05	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCTP-32R (6-8)	Date Sampled: 04/09/19
Lab Sample ID: JC86043-4	Date Received: 04/09/19
Matrix: SO - Soil	Percent Solids: 75.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	4290 J	65	10	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵
Antimony	0.53 U J	2.6	0.53	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵
Arsenic	3.9	2.6	0.36	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵
Barium	30.3	26	2.5	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵
Beryllium	0.22 J	0.26	0.10	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵
Cadmium	0.13 J	0.65	0.091	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵
Calcium	65200	3200	290	mg/kg	5	04/11/19	04/12/19 ND	SW846 6010D ³	SW846 3050B ⁵
Chromium	14.6	1.3	0.48	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵
Cobalt	4.2 J	6.5	0.36	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵
Copper	13.8	3.2	1.1	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵
Iron	9540 J	65	25	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵
Lead	21.3	2.6	0.53	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵
Magnesium	37200	650	18	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵
Manganese	196 J	1.9	0.53	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵
Mercury	0.21	0.038	0.016	mg/kg	1	04/11/19	04/11/19 EAL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	8.6	5.2	0.45	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵
Potassium	679 J	1300	41	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵
Selenium	0.84 U	2.6	0.84	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵
Silver	0.22 U	0.65	0.22	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵
Sodium	100 U	1300	100	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵
Thallium	0.75 U	1.3	0.75	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵
Vanadium	10.6	6.5	0.25	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵
Zinc	66.5	6.5	3.0	mg/kg	1	04/11/19	04/11/19 ND	SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46477
- (2) Instrument QC Batch: MA46484
- (3) Instrument QC Batch: MA46494
- (4) Prep QC Batch: MP14056
- (5) Prep QC Batch: MP14093

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.4
4

Report of Analysis

Client Sample ID: PCTP-32R (6-8)	Date Sampled: 04/09/19
Lab Sample ID: JC86043-4	Date Received: 04/09/19
Matrix: SO - Soil	Percent Solids: 75.5
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.45	0.31	0.15	mg/kg	1	04/17/19 16:06 KI	SW846	9012B/LACHAT
Solids, Percent	75.5			%	1	04/10/19 16:05 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.4
4

Report of Analysis

Client Sample ID: S-122 (10-12)		Date Sampled: 04/09/19
Lab Sample ID: JC86043-5		Date Received: 04/09/19
Matrix: SO - Soil		Percent Solids: 58.5
Project: National Grid, Philly Coke, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	18200 J	85	14	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	1.5 J	3.4	0.70	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	49.4	3.4	0.48	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	187	34	3.2	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	1.2	0.34	0.14	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	2.2	0.85	0.12	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	4120	850	75	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	200	1.7	0.63	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	17.5	8.5	0.48	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	127	4.3	1.4	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	31600 J	85	33	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	251	3.4	0.70	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	4630	850	23	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	751 J	2.6	0.70	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	1.1	0.047	0.021	mg/kg	1	04/11/19	04/11/19	EAL	SW846 7471B ¹ SW846 7471B ³
Nickel	31.2	6.8	0.60	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	2130	1700	54	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	1.5 J	3.4	1.1	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	1.1	0.85	0.29	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	202 J	1700	130	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	0.99 U	1.7	0.99	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	36.9	8.5	0.32	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	684	8.5	3.9	mg/kg	1	04/11/19	04/12/19	ND	SW846 6010D ² SW846 3050B ⁴

(1) Instrument QC Batch: MA46477

(2) Instrument QC Batch: MA46484

(3) Prep QC Batch: MP14056

(4) Prep QC Batch: MP14093

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.5
4

Report of Analysis

Client Sample ID: S-122 (10-12)	Date Sampled: 04/09/19
Lab Sample ID: JC86043-5	Date Received: 04/09/19
Matrix: SO - Soil	Percent Solids: 58.5
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.20 U	0.39	0.20	mg/kg	1	04/17/19 16:10 KI	SW846	9012B/LACHAT
Solids, Percent	58.5			%	1	04/10/19 16:05 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

National Grid

Philly Coke

DATA REVIEW

Philadelphia, Pennsylvania

Volatile Organic Compound (VOC), Semivolatile Organic Compounds (SVOC), Pesticides, PCBs, Metals,
and Miscellaneous Analyses

SDG # JC86204

Analyses Reported By:
SGS Laboratories
Dayton, New Jersey

Report #33339R
Review Level: Tier II
Project: 30004026 (B0036790.0001) 00006

DATA REVIEW REPORT

SUMMARY

This data review report summarizes the review of Sample Delivery Group (SDG) #JC86204 for samples collected in association with the National Grid Philly Coke site in Philadelphia, Pennsylvania. The review was conducted as a Tier II evaluation and included review of laboratory analytical data package completeness. Field documentation was not included in this review. Included with this assessment are the post-validation annotated sample result sheets, and chain of custody (COC). Analyses were performed on the following samples

SDG Number	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PEST/PCB	Metals	MISC
JC86204	PSSTP-01R(5-6) (04-10-2019)	JC86204-1	Soil	4/10/2019		X	X	X	X	X
	S-139(0.0-0.5) (04-10-2019)	JC86204-2	Soil	4/10/2019				PCB		
	S-139(0.5-2.0) (04-10-2019)	JC86204-3	Soil	4/10/2019				PCB		
	PCTP-73R(0.0-0.5) (04-10-2019)	JC86204-4	Soil	4/10/2019		X	X	X	X	X
	S-140(0.0-0.5) (04-10-2019)	JC86204-5	Soil	4/10/2019				PCB		
	S-140(0.5-2.0) (04-10-2019)	JC86204-6	Soil	4/10/2019				PCB		
	S-104(10-12) (04-10-2019)	JC86204-7	Soil	4/10/2019		X	X			
	S-104(15.5-17.5) (04-10-2019)	JC86204-8	Soil	4/10/2019		X	X			
	S-101(10-12) (04-10-2019)	JC86204-9	Soil	4/10/2019		X	X			
	S-101(14.5-16.5) (04-10-2019)	JC86204-10	Soil	4/10/2019		X	X			
	S-102(10-12) (04-10-2019)	JC86204-11	Soil	4/10/2019		X	X			
	S-102(13.5-15.5) (04-10-2019)	JC86204-12	Soil	4/10/2019		X	X			
	PCTP-75R(10-12) (04-11-2019)	JC86204-13	Soil	4/11/2019		X	X		X	X
	PCTP-75R(14-16) (04-11-2019)	JC86204-14	Soil	4/11/2019		X	X		X	X
	S-103(10-12) (04-11-2019)	JC86204-15	Soil	4/11/2019		X	X			
	S-103(13-15) (04-11-2019)	JC86204-16	Soil	4/11/2019		X	X			
	PSSTP-04R(1-2) (04-11-2019)	JC86204-17	Soil	4/11/2019		X	X	X	X	X
	PSSTP-04R(7-8) (04-11-2019)	JC86204-18	Soil	4/11/2019		X	X	X	X	X
	PSSTP-04R(8-9) (04-11-2019)	JC86204-19	Soil	4/11/2019		X	X	X	X	X
	PSSTP-04R(16-17) (04-11-2019)	JC86204-20	Soil	4/11/2019		X	X	X	X	X
	PCTP-28R(6-8) (04-11-2019)	JC86204-21	Soil	4/11/2019		X	X		X	X
	PCTP-28R(11-12) (04-11-2019)	JC86204-22	Soil	4/11/2019		X	X		X	X

Notes:

1. PEST/PCB = Pesticides and polychlorinated biphenyls
2. SVOC = Semivolatile Organic Compounds
3. VOC = Volatile Organic Compound

DATA REVIEW REPORT

4. MISC = Miscellaneous (total cyanide)

DATA REVIEW REPORT

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW REPORT

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260C and 8270D. Data were reviewed in accordance with the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540/R-2017-002, January 2017 and the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, EPA540/R-99/008, October 1999 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

DATA REVIEW REPORT

that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times/Preservation

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis (preserved) 7 days from collection to analysis (non-preserved)	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis	Cool to <6 °C.

Note:

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

DATA REVIEW REPORT

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
PSSTP-01R(5-6) (04-10-2019)	Methyl Acetate	<LL but >10%	--
	1,1,2,2-Tetrachloroethane	<10%	--
	Trichloroethene	>UL	--

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Parent sample concentration > four times the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS/LCSD analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery	LCSD Recovery
PSSTP-04R(7-8) (04-11-2019) PSSTP-04R(8-9) (04-11-2019)	1,2-Dibromoethane	>UL	AC

Note:

AC = Acceptable

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

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Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ). No volatile results required qualification due to calibration exceedances.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Trip blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS)		X	X		
Matrix Spike Duplicate(MSD)	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

- %RSD Relative standard deviation
- %R Percent recovery
- RPD Relative percent difference
- %D Percent difference

DATA REVIEW REPORT

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
PSSTP-01R(5-6) (04-10-2019)	Phenol-d6	AC
	2-Fluorophenol	AC
	2,4,6-Tribromophenol	< 10%
	Nitrobenzene-d5	AC
	2-Fluorobiphenyl	AC
	Terphenyl-d14	AC

DATA REVIEW REPORT

Notes:

AC Acceptable

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
	Detect	J
< LL but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

The LCS/LCSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

Several samples were diluted to bring target compounds within linear range of the instrument. Sample results that were reported from a secondary dilution were qualified with a "D", indicating the result is diluted.

DATA REVIEW REPORT

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X	X		
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

DATA REVIEW REPORT

PESTICIDE ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8081A	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. Herbicide analysis requires that one of the two pesticide surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
PSSTP-01R(5-6)	Tetrachloro-m-xylene	AC
PSSTP-04R(1-2)	Decachlorobiphenyl	> UL
PSSTP-04R(7-8)	Tetrachloro-m-xylene	<LL but >10%
	Decachlorobiphenyl	AC

Notes:

Upper control limit (UL)

Lower control limit (LL)

Acceptable (AC)

DATA REVIEW REPORT

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
One surrogate exhibiting recovery outside the control limits but > 10%	Non-detect	No Action
	Detect	

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
PSSTP-01R(5-6) (04-10-2019)	Aldrin	<10%	<10%
	gamma-Chlordane	>UL	AC
	4,4'-DDD	>UL	AC
	4,4'-DDE	<10%	<10%
	4,4'-DDT	>UL	AC
	Endrin aldehyde	>UL	>UL
	Endosulfan-II	>UL	AC
	Heptachlor	<10%	<10%
	Heptachlor epoxide	<10%	<10%
	Methoxychlor	>UL	>UL
	Endrin ketone	>UL	>UL

DATA REVIEW REPORT

Note:

AC Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Parent sample concentration > four times the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

Sample locations associated with MS/MSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

Sample Locations	Compound
PSSTP-01R(5-6) (04-10-2019)	alpha-BHC
	delta-BHC
	gamma-BHC (Lindane)
	gamma-Chlordane
	4,4'-DDD
	4,4'-DDT
	Endrin
	Methoxychlor

The criteria used to evaluate the RPD between the MS/MSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

DATA REVIEW REPORT

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 40% for water matrices and 70% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

7. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows for both the primary and confirmation columns. When dual column analysis is performed the percent difference (%D) of detected sample results must be less than 40%.

Sample locations associated with %D analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	%D
PSSTP-01R(5-6)	Aldrin	96.1%
	Dieldrin	102%
	4,4'-DDE	45.2%
	4,4'-DDT	90.8%
	Endosulfan-I	132.9%
	Endrin ketone	80.8%
PCTP-73R(0.0-0.5)	4,4'-DDE	59.6%
	4,4'-DDT	103.4%
	Heptachlor epoxide	100.7%
PSSTP-04R(1-2)	Aldrin	105.1%
	4,4'-DDT	54.6%
	Endrin aldehyde	86.3%
	Heptachlor epoxide	137.3%
PSSTP-04R(7-8)	4,4'-DDE	91.9%
	4,4'-DDT	133.7%
PSSTP-04R(8-9)	Endosulfan-I	70.2%
PSSTP-04R(16-17)	gamma-BHC (Lindane)	147.5%

DATA REVIEW REPORT

The criteria used to evaluate the %D are presented in the following table. In the case of a %D deviation, the sample results are qualified as documented in the table below.

Control Limit (%D)	Qualification
>40% to 70%	J
>70% to 100%	JN
>100% ¹	R
>100% to 200% (Interference detected) ²	J or JN
>50% (pesticide) sample results less than the RL)	U

When the pesticide sample results are less than the RL and the %D greater than 50% the sample result are raised to the RL and reported as non-detect.

Notes:

- 1: If the pattern is confirmed sample results will be qualified as estimated (J). If pattern exhibits interference or if the pesticide cannot be positively determined due to weathering the sample results will be qualified as tentative identification estimate (JN).
- 2: If interference is detected in either column the sample results will be qualified as tentative identification estimate (JN).

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR PESTICIDES

Pesticides; SW-846 8081	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)		X	X		
Matrix Spike Duplicate(MSD)		X	X		
MS/MSD Precision (RPD)		X	X		
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X	X		
Column %D ≤ 40% (If dual column is performed for reporting-not confirmation)		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%RSD – relative standard deviation

%R - percent recovery

RPD - relative percent difference

%D – difference.

DATA REVIEW REPORT

POLYCHLORINATED BIPHENYLS (PCBs) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8082A	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. PCB analysis requires that one of the two PCB surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
PSSTP-04R(7-8) (04-11-2019)	Tetrachloro-m-xylene	> UL
PSSTP-04R(8-9) (04-11-2019)	Decachlorobiphenyl	> UL
PSSTP-04R(16-17) (04-11-2019)	Tetrachloro-m-xylene	AC
	Decachlorobiphenyl	> UL

Notes:

Upper control limit (UL)

Lower control limit (LL)

Acceptable (AC)

DATA REVIEW REPORT

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
One surrogate exhibiting recovery outside the control limits but > 10%	Non-detect	No Action
	Detect	

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD was not performed on a sample within this SDG.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

7. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows for both the primary and confirmation columns. When dual column analysis is performed the relative percent difference (%RPD) of detected sample results must be less than 40%.

DATA REVIEW REPORT

Sample locations associated with %D analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	%D
PSSTP-04R(1-2)	Aroclor 1254	46.1%

The criteria used to evaluate the %D are presented in the following table. In the case of a %D deviation, the sample results are qualified as documented in the table below.

Control Limit (%D)	Qualification
>40% to 70%	J
>70% to 100%	JN
>100% ¹	R
>100% to 200% (Interference detected) ²	J or JN
>50% (pesticide) sample results less than the RL)	U

When the pesticide sample results are less than the RL and the %D greater than 50% the sample result are raised to the RL and reported as non-detect.

Notes:

- 1: If the pattern is confirmed sample results will be qualified as estimated (J). If pattern exhibits interference or if the pesticide cannot be positively determined due to weathering the sample results will be qualified as tentative identification estimate (JN).
- 2: If interference is detected in either column the sample results will be qualified as tentative identification estimate (JN).

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR PCBs

PCBs; SW-846 8082A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X	X		
Column (%D) (If dual column is performed-not confirmation purposes only)		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	

%R - percent recovery

RPD - relative percent difference

%D – difference

DATA REVIEW REPORT

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6010D, 7471A, and 9012B. Data were reviewed in accordance with the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA 540/R-2017-001, January 2017; and the USEPA CLP National Functional Guidelines for Inorganic Data Review, EPA 540-R-01-008, July 2002 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6010D	Water	180 days from collection to analysis	Preserved to a pH of less than 2.
	Soil	180 days from collection to analysis	Cool to <6 °C.
SW-846 7471A	Soil	28 days from collection to analysis	Cool to <6 °C.
SW-846 7470A	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL and/or were non-detect. No qualification of the sample results was required.

3. Matrix Spike (MS)/Matrix Spike Duplicate(MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS/MSD recoveries were within control limits.

DATA REVIEW REPORT

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD analysis exhibited RPDs within the control limits.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR METAL

METALS; SW846 6010D/7471A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field Blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate (MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)	X				X
Total vs. Dissolved	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Cyanide by SW-846 9012	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of greater than 12.
	Soil		Cool to <6 °C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS analysis exhibited recovery within control limits.

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

The laboratory duplicate analysis exhibited RPD within control limits.

DATA REVIEW REPORT

4. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis is not required for this analysis.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: EPA 9012	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Dilution Factor		X		X	
Moisture Content					X

Notes:

%R - percent recovery

RPD - relative percent difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: July 5, 2019

PEER REVIEW: Dennis Capria

DATE: July 22, 2019

CHAIN OF CUSTODY SAMPLE ANALYSIS DATA SHEETS





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5LL

CHAIN OF CUSTODY

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SGS Quote # **SC86204**

Client / Reporting Information		Project Information			Requested Analysis										Matrix Codes																																
Company Name: Arcadis - US		Project Name: Philadelphia Coke			<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> V8260 TEL 20 CN AB8270 TCL 20 M TAL PS851 PESTICL PS852 RC 11 </div> <div> <table border="1"> <tr><td>DW - Drinking Water</td><td></td></tr> <tr><td>GW - Ground Water</td><td></td></tr> <tr><td>WW - Water</td><td></td></tr> <tr><td>SW - Surface Water</td><td></td></tr> <tr><td>SO - Soil</td><td></td></tr> <tr><td>SL - Sludge</td><td></td></tr> <tr><td>SED - Sediment</td><td></td></tr> <tr><td>CI - Oil</td><td></td></tr> <tr><td>LIQ - Other Liquid</td><td></td></tr> <tr><td>AIR - Air</td><td></td></tr> <tr><td>SOL - Other Solid</td><td></td></tr> <tr><td>WP - Wipe</td><td></td></tr> <tr><td>FB - Field Blank</td><td></td></tr> <tr><td>EB - Equipment Blank</td><td></td></tr> <tr><td>RB - Rinse Blank</td><td></td></tr> <tr><td>TB - Trip Blank</td><td></td></tr> </table> </div> </div>										DW - Drinking Water		GW - Ground Water		WW - Water		SW - Surface Water		SO - Soil		SL - Sludge		SED - Sediment		CI - Oil		LIQ - Other Liquid		AIR - Air		SOL - Other Solid		WP - Wipe		FB - Field Blank		EB - Equipment Blank		RB - Rinse Blank		TB - Trip Blank		LAB USE ONLY
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WW - Water																																															
SW - Surface Water																																															
SO - Soil																																															
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SED - Sediment																																															
CI - Oil																																															
LIQ - Other Liquid																																															
AIR - Air																																															
SOL - Other Solid																																															
WP - Wipe																																															
FB - Field Blank																																															
EB - Equipment Blank																																															
RB - Rinse Blank																																															
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City: Syracuse NY State: NY Zip: 13202		City: Philadelphia PA State: PA Zip: 19102			SO	SL	SED	CI	LIQ	AIR	SOL	WP	FB	EB	RB	TB					P27																										
Project Contact: Carla Kelly E-mail: Lawrence.Haley@Arcadis.com Phone #: (315) 335-9453		Billing Information (if different from Report to): SamC			SO	SL	SED	CI	LIQ	AIR	SOL	WP	FB	EB	RB	TB					1453																										
Client Purchase Order #: 80036790.0001		Project #: BC036790.0001			SO	SL	SED	CI	LIQ	AIR	SOL	WP	FB	EB	RB	TB					4076																										
Project Manager: John Bussell		City: Philadelphia PA State: PA Zip: 19102			SO	SL	SED	CI	LIQ	AIR	SOL	WP	FB	EB	RB	TB																															
Soil Sample #	Field ID / Point of Collection	MEQ/NOI Val #	Date	Time	Sampled by	Grab (to container)	Matrix	# of bottles	Number of preserved bottles										LAB USE ONLY																												
									ICL	HMDS	HMDS	HMDS	HMDS	HMDS	HMDS	HMDS	HMDS	HMDS		HMDS	HMDS																										
1	PSSTP-01P(S-6)		4/16/19	1020	EG	G	SO	6																																							
2	S-139(0.0-0.5)		4/16/19	1105	EG	G	SO	1																																							
3	S-139(0.5-2.0)		4/16/19	1108	EG	G	SO	1																																							
4	PRTP-75R(0.0-0.5)		4/16/19	1200	EG	G	SO	6																																							
5	S-140(0.0-0.5)		4/16/19	1310	EG	G	SO	1																																							
6	S-140(0.5-2.0)		4/16/19	1315	EG	G	SO	1																																							
7	S-104(10-12)		4/16/19	1465	EG	G	SO	5																																							
8	S-104(15.5-17.5)		4/16/19	1415	EG	G	SO	5																																							
9	S-101(10-12)		4/16/19	1515	EG	G	SO	5																																							
10	S-101(14.5-16.5)		4/16/19	1520	EG	G	SO	5																																							
11	S-102(10-12)		4/16/19	1605	EG	G	SO	5																																							
12	S-102(13.5-15.5)		4/16/19	1615	EG	G	SO	5																																							
Turn Around Time (Business Days)				Approved by (SGS PM): / Date:				Deliverable				Comments / Special Instructions																																			
<input checked="" type="checkbox"/> 10 Business Days <input type="checkbox"/> 9 Business Days <input type="checkbox"/> 8 Business Days <input type="checkbox"/> 7 Business Days <input type="checkbox"/> 6 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> Other _____				<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input checked="" type="checkbox"/> Full Tier 1 (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ DKQP				<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format				<input type="checkbox"/> DOD-QSMS http://www.sgs.com/en/terms-and-conditions																																			
Sample Custody must be documented below each time samples change possession, including courier delivery.																																															
Relinquished by:	Date / Time:	Received by:	Date / Time:	Relinquished by:	Date / Time:	Received by:	Date / Time:	Relinquished by:	Date / Time:	Received by:	Date / Time:	Relinquished by:	Date / Time:	Received by:	Date / Time:	Relinquished by:	Date / Time:	Received by:	Date / Time:	Relinquished by:	Date / Time:	Received by:																									
1	4/16/19	James Jones	4/16/19	2				3				4				5																															
Custody Seal #		Isotact		Preserved where applicable		On Ice		Cooler Temp. °C		Therm. ID:																																					
		<input type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>		27.8																																							

INITIAL ASSESSMENT **2BJK**

LABEL VERIFICATION _____

3.0°C
FP





CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com/ehsusa

FED-EX Tracking #
Bottle Order Control #
SGS Quote #
SGS Job # JC86204

Client / Reporting Information
Project Information
Requested Analysis
Matrix Codes
Table with columns for Sample #, Field ID / Point of Collection, Date, Time, Matrix, # of bottles, and various analysis results (e.g., PCBs, PAHs, Metals).
Turn Around Time (Business Days)
Deliverable
Comments / Special Instructions
Signature and Date fields for receipt and release.

5.1
5

EHS-QAC-0023-02-FORM-Dayton - Standard COC.xlsx



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Report of Analysis

Page 1 of 2

Client Sample ID:	PSSTP-01R(5-6)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-1	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	81.8
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	Y184637.D	1	04/20/19 13:46	PS	n/a	n/a	VY8010

Run #1	Initial Weight
Run #2	3.7 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	66.8	17	8.3	ug/kg	
71-43-2	Benzene	ND	0.83	0.62	ug/kg	
74-97-5	Bromochloromethane	ND	8.3	0.71	ug/kg	
75-27-4	Bromodichloromethane	ND	3.3	0.73	ug/kg	
75-25-2	Bromoform	ND	8.3	0.67	ug/kg	
74-83-9	Bromomethane	ND	8.3	1.6	ug/kg	
78-93-3	2-Butanone (MEK)	ND	17	6.2	ug/kg	
75-15-0	Carbon disulfide	4.8	3.3	1.5	ug/kg	
56-23-5	Carbon tetrachloride ^a	ND	3.3	0.91	ug/kg	
108-90-7	Chlorobenzene	ND	3.3	0.58	ug/kg	
75-00-3	Chloroethane	ND	8.3	1.1	ug/kg	
67-66-3	Chloroform	ND	3.3	0.61	ug/kg	
74-87-3	Chloromethane ^a	ND	8.3	3.2	ug/kg	
110-82-7	Cyclohexane ^a	ND	3.3	0.67	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.3	1.4	ug/kg	
124-48-1	Dibromochloromethane	ND	3.3	0.56	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.7	0.54	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.7	0.50	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.7	0.59	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.7	0.57	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	8.3	1.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.7	0.64	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.7	0.78	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.7	1.1	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.7	1.6	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.7	1.1	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.3	0.67	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.3	0.58	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.3	0.54	ug/kg	
100-41-4	Ethylbenzene	ND	1.7	0.91	ug/kg	
76-13-1	Freon 113 ^a	ND	8.3	1.3	ug/kg	
591-78-6	2-Hexanone	ND	8.3	2.1	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSSTP-01R(5-6)		Date Sampled: 04/10/19
Lab Sample ID: JC86204-1		Date Received: 04/11/19
Matrix: SO - Soil		Percent Solids: 81.8
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.3	1.2	ug/kg	
79-20-9	Methyl Acetate	ND	8.3	2.3	ug/kg	UJ
108-87-2	Methylcyclohexane	ND	3.3	1.2	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.7	0.58	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	8.3	2.6	ug/kg	
75-09-2	Methylene chloride	ND	8.3	4.1	ug/kg	
100-42-5	Styrene	ND	3.3	0.95	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.3	0.64	ug/kg	R
127-18-4	Tetrachloroethene	ND	3.3	0.76	ug/kg	
108-88-3	Toluene	ND	1.7	0.62	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	1.9	8.3	1.7	ug/kg	J
120-82-1	1,2,4-Trichlorobenzene	ND	8.3	1.7	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.3	0.70	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.3	0.56	ug/kg	
79-01-6	Trichloroethene	ND	1.7	1.3	ug/kg	
75-69-4	Trichlorofluoromethane ^a	ND	8.3	1.1	ug/kg	
75-01-4	Vinyl chloride ^a	ND	3.3	0.77	ug/kg	
	m,p-Xylene	ND	1.7	1.2	ug/kg	
95-47-6	o-Xylene	ND	1.7	0.96	ug/kg	
1330-20-7	Xylene (total)	ND	1.7	0.96	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	90%		75-127%
17060-07-0	1,2-Dichloroethane-D4	109%		75-130%
2037-26-5	Toluene-D8	97%		80-120%
460-00-4	4-Bromofluorobenzene	93%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSSTP-01R(5-6)		Date Sampled: 04/10/19
Lab Sample ID: JC86204-1		Date Received: 04/11/19
Matrix: SO - Soil		Percent Solids: 81.8
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	M153498.D	2	04/16/19 21:05	CC	04/14/19 12:30	OP19732	EM6560
Run #2	M153555.D	20	04/18/19 02:07	YC	04/14/19 12:30	OP19732	EM6562

Run #	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2	30.0 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	160	40	ug/kg	R
59-50-7	4-Chloro-3-methyl phenol	ND	410	50	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	410	70	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	410	150	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	410	310	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	410	87	ug/kg	
95-48-7	2-Methylphenol	ND	160	52	ug/kg	
	3&4-Methylphenol	ND	160	67	ug/kg	
88-75-5	2-Nitrophenol	ND	410	54	ug/kg	
100-02-7	4-Nitrophenol	ND	810	220	ug/kg	
87-86-5	Pentachlorophenol	ND	330	77	ug/kg	J
108-95-2	Phenol	183	160	43	ug/kg	J
58-90-2	2,3,4,6-Tetrachlorophenol	ND	410	54	ug/kg	R
95-95-4	2,4,5-Trichlorophenol	ND	410	61	ug/kg	R
88-06-2	2,4,6-Trichlorophenol	ND	410	49	ug/kg	R
83-32-9	Acenaphthene	2130	81	28	ug/kg	
208-96-8	Acenaphthylene	54.4	81	41	ug/kg	J
98-86-2	Acetophenone	ND	410	18	ug/kg	
120-12-7	Anthracene	6150	81	50	ug/kg	
1912-24-9	Atrazine ^b	ND	160	35	ug/kg	
56-55-3	Benzo(a)anthracene	10400 ^c	810	230	ug/kg	D
50-32-8	Benzo(a)pyrene	7670	81	37	ug/kg	
205-99-2	Benzo(b)fluoranthene	11200 ^c	810	360	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	5000	81	41	ug/kg	
207-08-9	Benzo(k)fluoranthene	4290 ^c	810	380	ug/kg	D
101-55-3	4-Bromophenyl phenyl ether	ND	160	31	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	160	20	ug/kg	
92-52-4	1,1'-Biphenyl	262	160	11	ug/kg	
100-52-7	Benzaldehyde	27.0	410	20	ug/kg	J
91-58-7	2-Chloronaphthalene	ND	160	19	ug/kg	
106-47-8	4-Chloroaniline	ND	410	29	ug/kg	
86-74-8	Carbazole	2550	160	12	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-01R(5-6)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-1	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	81.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	160	32	ug/kg	
218-01-9	Chrysene	9780 ^c	810	260	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	160	17	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	160	35	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	160	29	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	160	26	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	81	25	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	81	41	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	160	68	ug/kg	
123-91-1	1,4-Dioxane	ND	81	54	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	1280	81	36	ug/kg	
132-64-9	Dibenzofuran	1820	160	33	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	160	13	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	160	20	ug/kg	
84-66-2	Diethyl phthalate	ND	160	17	ug/kg	
131-11-3	Dimethyl phthalate	ND	160	15	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	3300	160	19	ug/kg	
206-44-0	Fluoranthene	25200 ^c	810	360	ug/kg	D
86-73-7	Fluorene	2920	81	37	ug/kg	
118-74-1	Hexachlorobenzene	ND	160	21	ug/kg	
87-68-3	Hexachlorobutadiene	ND	81	33	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	810	32	ug/kg	
67-72-1	Hexachloroethane	ND	410	40	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	4970	81	38	ug/kg	
78-59-1	Isophorone	ND	160	17	ug/kg	
91-57-6	2-Methylnaphthalene	861	81	18	ug/kg	
88-74-4	2-Nitroaniline ^b	ND	410	19	ug/kg	
99-09-2	3-Nitroaniline	ND	410	20	ug/kg	
100-01-6	4-Nitroaniline	ND	410	21	ug/kg	
91-20-3	Naphthalene	577	81	23	ug/kg	
98-95-3	Nitrobenzene	ND	160	31	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	160	24	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	410	30	ug/kg	
85-01-8	Phenanthrene	29000 ^c	810	270	ug/kg	D
129-00-0	Pyrene	19500 ^c	810	260	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	410	21	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	37%	37%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSSTP-01R(5-6)		Date Sampled: 04/10/19
Lab Sample ID: JC86204-1		Date Received: 04/11/19
Matrix: SO - Soil		Percent Solids: 81.8
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	59%	58%	27-114%
118-79-6	2,4,6-Tribromophenol	2% ^d	0% ^d	19-152%
4165-60-0	Nitrobenzene-d5	64%	70%	26-134%
321-60-8	2-Fluorobiphenyl	71%	89%	39-124%
1718-51-0	Terphenyl-d14	95%	86%	36-134%

- (a) Dilution required due to viscosity of the extract matrix.
- (b) Associated CCV outside of control limits high, sample was ND.
- (c) Result is from Run# 2
- (d) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PSSTP-01R(5-6)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-1	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	81.8
Method:	SW846 8081B SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G152561.D	1	04/19/19 17:51	MH	04/19/19 09:50	OP19830	G1G4913
Run #2 ^a	6G64377.D	5	04/23/19 01:34	TL	04/19/19 09:50	OP19830	G6G1987

Run #1	Initial Weight	Final Volume
Run #1	15.7 g	10.0 ml
Run #2	15.7 g	10.0 ml

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin ^b	15.9	0.78	0.64	ug/kg	JN
319-84-6	alpha-BHC	ND	0.78	0.63	ug/kg	
319-85-7	beta-BHC	ND	0.78	0.70	ug/kg	
319-86-8	delta-BHC	ND	0.78	0.75	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.78	0.57	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.78	0.63	ug/kg	
5103-74-2	gamma-Chlordane	12.0	0.78	0.35	ug/kg	
60-57-1	Dieldrin ^b	19.8	0.78	0.53	ug/kg	JN
72-54-8	4,4'-DDD	ND	0.78	0.71	ug/kg	
72-55-9	4,4'-DDE ^b	46.6	0.78	0.68	ug/kg	J
50-29-3	4,4'-DDT ^b	36.0	0.78	0.69	ug/kg	JN
72-20-8	Endrin	28.2	0.78	0.61	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.78	0.61	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.78	0.44	ug/kg	
959-98-8	Endosulfan-I ^b	12.1	0.78	0.45	ug/kg	JN
33213-65-9	Endosulfan-II	ND	0.78	0.49	ug/kg	
76-44-8	Heptachlor	15.8	0.78	0.67	ug/kg	
1024-57-3	Heptachlor epoxide	37.7	0.78	0.55	ug/kg	
72-43-5	Methoxychlor	ND	1.6	0.62	ug/kg	
53494-70-5	Endrin ketone ^b	25.5	0.78	0.56	ug/kg	JN
8001-35-2	Toxaphene	ND	19	18	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	85%	109%	25-135%
877-09-8	Tetrachloro-m-xylene	55%	86%	25-135%
2051-24-3	Decachlorobiphenyl	188% ^c	119%	10-156%
2051-24-3	Decachlorobiphenyl	602% ^c	588% ^c	10-156%

(a) Confirmation run.

(b) More than 40 % RPD for detected concentrations between the two GC columns.

(c) Outside control limits due to matrix interference.

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 1

Client Sample ID:	PSSTP-01R(5-6)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-1	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	81.8
Method:	SW846 8082A SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF189220.D	1	04/22/19 10:43	TR	04/19/19 09:50	OP19829	GEF6427
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	15.7 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016 ^a	ND	39	18	ug/kg	
11104-28-2	Aroclor 1221	ND	39	20	ug/kg	
11141-16-5	Aroclor 1232	ND	39	30	ug/kg	
53469-21-9	Aroclor 1242	ND	39	16	ug/kg	
12672-29-6	Aroclor 1248	ND	39	35	ug/kg	
11097-69-1	Aroclor 1254	1510	39	21	ug/kg	
11096-82-5	Aroclor 1260	ND	39	17	ug/kg	
11100-14-4	Aroclor 1268	ND	39	16	ug/kg	
37324-23-5	Aroclor 1262	ND	39	25	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	78%		31-146%
877-09-8	Tetrachloro-m-xylene	78%		31-146%
2051-24-3	Decachlorobiphenyl	524% ^b		17-164%
2051-24-3	Decachlorobiphenyl	622% ^b		17-164%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Client Sample ID: S-139(0.0-0.5)	
Lab Sample ID: JC86204-2	Date Sampled: 04/10/19
Matrix: SO - Soil	Date Received: 04/11/19
Method: SW846 8082A SW846 3540C	Percent Solids: 87.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G87715.D	1	04/18/19 17:36	SK	04/17/19 05:00	OP19811	G5G2110
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	15.6 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	36	17	ug/kg	
11104-28-2	Aroclor 1221	ND	36	19	ug/kg	
11141-16-5	Aroclor 1232	ND	36	28	ug/kg	
53469-21-9	Aroclor 1242	ND	36	15	ug/kg	
12672-29-6	Aroclor 1248	ND	36	33	ug/kg	
11097-69-1	Aroclor 1254	406	36	20	ug/kg	
11096-82-5	Aroclor 1260	ND	36	16	ug/kg	
11100-14-4	Aroclor 1268	ND	36	15	ug/kg	
37324-23-5	Aroclor 1262	ND	36	24	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	73%		31-146%
877-09-8	Tetrachloro-m-xylene	78%		31-146%
2051-24-3	Decachlorobiphenyl	93%		17-164%
2051-24-3	Decachlorobiphenyl	74%		17-164%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Client Sample ID: S-139(0.5-2.0)	
Lab Sample ID: JC86204-3	Date Sampled: 04/10/19
Matrix: SO - Soil	Date Received: 04/11/19
Method: SW846 8082A SW846 3540C	Percent Solids: 90.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G87716.D	1	04/18/19 18:09	SK	04/17/19 05:00	OP19811	G5G2110
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	15.8 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	35	16	ug/kg	
11104-28-2	Aroclor 1221	ND	35	18	ug/kg	
11141-16-5	Aroclor 1232	ND	35	27	ug/kg	
53469-21-9	Aroclor 1242	ND	35	14	ug/kg	
12672-29-6	Aroclor 1248	ND	35	31	ug/kg	
11097-69-1	Aroclor 1254	171	35	19	ug/kg	
11096-82-5	Aroclor 1260	ND	35	15	ug/kg	
11100-14-4	Aroclor 1268	ND	35	15	ug/kg	
37324-23-5	Aroclor 1262	ND	35	23	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	76%		31-146%
877-09-8	Tetrachloro-m-xylene	84%		31-146%
2051-24-3	Decachlorobiphenyl	99%		17-164%
2051-24-3	Decachlorobiphenyl	82%		17-164%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-73R(0.0-0.5)	
Lab Sample ID: JC86204-4	Date Sampled: 04/10/19
Matrix: SO - Soil	Date Received: 04/11/19
Method: SW846 8260C	Percent Solids: 78.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184638.D	1	04/20/19 14:15	PS	n/a	n/a	VY8010
Run #2							

Run #1	Initial Weight
Run #1	5.2 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	12	6.1	ug/kg	
71-43-2	Benzene	ND	0.61	0.46	ug/kg	
74-97-5	Bromochloromethane	ND	6.1	0.53	ug/kg	
75-27-4	Bromodichloromethane	ND	2.5	0.54	ug/kg	
75-25-2	Bromoform	ND	6.1	0.49	ug/kg	
74-83-9	Bromomethane	ND	6.1	1.2	ug/kg	
78-93-3	2-Butanone (MEK)	ND	12	4.6	ug/kg	
75-15-0	Carbon disulfide	ND	2.5	1.1	ug/kg	
56-23-5	Carbon tetrachloride ^a	ND	2.5	0.68	ug/kg	
108-90-7	Chlorobenzene	ND	2.5	0.43	ug/kg	
75-00-3	Chloroethane	ND	6.1	0.84	ug/kg	
67-66-3	Chloroform	ND	2.5	0.46	ug/kg	
74-87-3	Chloromethane ^a	ND	6.1	2.4	ug/kg	
110-82-7	Cyclohexane ^a	ND	2.5	0.50	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.5	1.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.5	0.42	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.2	0.40	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.2	0.37	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.2	0.44	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.2	0.42	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	6.1	0.78	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.2	0.47	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.2	0.58	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.2	0.81	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.2	1.2	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.2	0.82	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.5	0.50	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.5	0.43	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.5	0.40	ug/kg	
100-41-4	Ethylbenzene	ND	1.2	0.68	ug/kg	
76-13-1	Freon 113 ^a	ND	6.1	0.94	ug/kg	
591-78-6	2-Hexanone	ND	6.1	1.6	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-73R(0.0-0.5)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-4	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	78.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.5	0.86	ug/kg	
79-20-9	Methyl Acetate	ND	6.1	1.7	ug/kg	
108-87-2	Methylcyclohexane	ND	2.5	0.87	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.2	0.43	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.1	1.9	ug/kg	
75-09-2	Methylene chloride	ND	6.1	3.1	ug/kg	
100-42-5	Styrene	ND	2.5	0.71	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.5	0.48	ug/kg	
127-18-4	Tetrachloroethene	ND	2.5	0.57	ug/kg	
108-88-3	Toluene	ND	1.2	0.46	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.1	1.2	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.1	1.2	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.5	0.52	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.5	0.42	ug/kg	
79-01-6	Trichloroethene	ND	1.2	0.94	ug/kg	
75-69-4	Trichlorofluoromethane ^a	ND	6.1	0.84	ug/kg	
75-01-4	Vinyl chloride ^a	ND	2.5	0.58	ug/kg	
	m,p-Xylene	ND	1.2	0.92	ug/kg	
95-47-6	o-Xylene	ND	1.2	0.72	ug/kg	
1330-20-7	Xylene (total)	ND	1.2	0.72	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%		75-127%
17060-07-0	1,2-Dichloroethane-D4	109%		75-130%
2037-26-5	Toluene-D8	96%		80-120%
460-00-4	4-Bromofluorobenzene	96%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Client Sample ID:	PCTP-73R(0.0-0.5)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-4	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	78.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153741.D	1	04/23/19 23:10	CC	04/14/19 12:30	OP19732	EM6569
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	85	21	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	210	26	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	210	36	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	210	75	ug/kg	
51-28-5	2,4-Dinitrophenol ^a	ND	210	160	ug/kg	
534-52-1	4,6-Dinitro-o-cresol ^a	ND	210	45	ug/kg	
95-48-7	2-Methylphenol	ND	85	27	ug/kg	
	3&4-Methylphenol	ND	85	35	ug/kg	
88-75-5	2-Nitrophenol	ND	210	28	ug/kg	
100-02-7	4-Nitrophenol	ND	420	110	ug/kg	
87-86-5	Pentachlorophenol ^a	ND	170	40	ug/kg	
108-95-2	Phenol	ND	85	22	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	210	28	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	210	32	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	210	25	ug/kg	
83-32-9	Acenaphthene	44.5	42	15	ug/kg	
208-96-8	Acenaphthylene	137	42	21	ug/kg	
98-86-2	Acetophenone	ND	210	9.1	ug/kg	
120-12-7	Anthracene	226	42	26	ug/kg	
1912-24-9	Atrazine	ND	85	18	ug/kg	
56-55-3	Benzo(a)anthracene	742	42	12	ug/kg	
50-32-8	Benzo(a)pyrene	742	42	19	ug/kg	
205-99-2	Benzo(b)fluoranthene	981	42	19	ug/kg	
191-24-2	Benzo(g,h,i)perylene	507	42	21	ug/kg	
207-08-9	Benzo(k)fluoranthene	341	42	20	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	85	16	ug/kg	
85-68-7	Butyl benzyl phthalate	84.6	85	10	ug/kg	J
92-52-4	1,1'-Biphenyl	13.1	85	5.8	ug/kg	J
100-52-7	Benzaldehyde	48.9	210	10	ug/kg	J
91-58-7	2-Chloronaphthalene	ND	85	10	ug/kg	
106-47-8	4-Chloroaniline	ND	210	15	ug/kg	
86-74-8	Carbazole	76.8	85	6.1	ug/kg	J

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-73R(0.0-0.5)	
Lab Sample ID: JC86204-4	Date Sampled: 04/10/19
Matrix: SO - Soil	Date Received: 04/11/19
Method: SW846 8270D SW846 3546	Percent Solids: 78.3
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	85	17	ug/kg	
218-01-9	Chrysene	741	42	13	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	85	9.0	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	85	18	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	85	15	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	85	14	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	42	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	42	21	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	85	35	ug/kg	
123-91-1	1,4-Dioxane ^b	ND	42	28	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	137	42	19	ug/kg	
132-64-9	Dibenzofuran	40.3	85	17	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	85	6.9	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	85	11	ug/kg	
84-66-2	Diethyl phthalate	ND	85	9.0	ug/kg	
131-11-3	Dimethyl phthalate	ND	85	7.5	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	182	85	9.9	ug/kg	
206-44-0	Fluoranthene	1340	42	19	ug/kg	
86-73-7	Fluorene	57.7	42	19	ug/kg	
118-74-1	Hexachlorobenzene	ND	85	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	42	17	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	420	17	ug/kg	
67-72-1	Hexachloroethane	ND	210	21	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	525	42	20	ug/kg	
78-59-1	Isophorone	ND	85	9.0	ug/kg	
91-57-6	2-Methylnaphthalene	40.4	42	9.6	ug/kg	J
88-74-4	2-Nitroaniline	ND	210	10	ug/kg	
99-09-2	3-Nitroaniline	ND	210	11	ug/kg	
100-01-6	4-Nitroaniline	ND	210	11	ug/kg	
91-20-3	Naphthalene	55.2	42	12	ug/kg	
98-95-3	Nitrobenzene	ND	85	16	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	85	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	210	15	ug/kg	
85-01-8	Phenanthrene	732	42	14	ug/kg	
129-00-0	Pyrene	1260	42	14	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	210	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	46%		23-115%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-73R(0.0-0.5)		Date Sampled: 04/10/19
Lab Sample ID: JC86204-4		Date Received: 04/11/19
Matrix: SO - Soil		Percent Solids: 78.3
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	50%		27-114%
118-79-6	2,4,6-Tribromophenol	92%		19-152%
4165-60-0	Nitrobenzene-d5	55%		26-134%
321-60-8	2-Fluorobiphenyl	67%		39-124%
1718-51-0	Terphenyl-d14	74%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

4.4
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Client Sample ID:	PCTP-73R(0.0-0.5)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-4	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	78.3
Method:	SW846 8081B SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G152551.D	1	04/19/19 15:08	MH	04/19/19 09:50	OP19830	G1G4913
Run #2 ^a	6G64375.D	5	04/23/19 00:58	TL	04/19/19 09:50	OP19830	G6G1987

Run #	Initial Weight	Final Volume
Run #1	16.7 g	10.0 ml
Run #2	16.7 g	10.0 ml

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.76	0.63	ug/kg	
319-84-6	alpha-BHC	ND	0.76	0.62	ug/kg	
319-85-7	beta-BHC	ND	0.76	0.69	ug/kg	
319-86-8	delta-BHC	ND	0.76	0.73	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.76	0.56	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.76	0.62	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.76	0.35	ug/kg	
60-57-1	Dieldrin	ND	0.76	0.53	ug/kg	
72-54-8	4,4'-DDD	ND	0.76	0.70	ug/kg	
72-55-9	4,4'-DDE ^b	16.5	0.76	0.67	ug/kg	J
50-29-3	4,4'-DDT ^b	34.7	0.76	0.68	ug/kg	JN
72-20-8	Endrin	ND	0.76	0.59	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.76	0.60	ug/kg	
7421-93-4	Endrin aldehyde	38.8	0.76	0.43	ug/kg	
959-98-8	Endosulfan-I	ND	0.76	0.44	ug/kg	
33213-65-9	Endosulfan-II	ND	0.76	0.48	ug/kg	
76-44-8	Heptachlor	ND	0.76	0.66	ug/kg	
1024-57-3	Heptachlor epoxide ^b	6.9	0.76	0.54	ug/kg	JN
72-43-5	Methoxychlor	ND	1.5	0.61	ug/kg	
53494-70-5	Endrin ketone	9.1	0.76	0.55	ug/kg	
8001-35-2	Toxaphene	ND	19	18	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	61%	73%	25-135%
877-09-8	Tetrachloro-m-xylene	68%	80%	25-135%
2051-24-3	Decachlorobiphenyl	52%	78%	10-156%
2051-24-3	Decachlorobiphenyl	113%	188% ^c	10-156%

(a) Confirmation run.

(b) More than 40 % RPD for detected concentrations between the two GC columns.

(c) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-73R(0.0-0.5)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-4	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	78.3
Method:	SW846 8082A SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF189197.D	1	04/19/19 11:46	TR	04/19/19 09:50	OP19829	GEF6426
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	16.7 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	38	18	ug/kg	
11104-28-2	Aroclor 1221	ND	38	20	ug/kg	
11141-16-5	Aroclor 1232	ND	38	29	ug/kg	
53469-21-9	Aroclor 1242	ND	38	16	ug/kg	
12672-29-6	Aroclor 1248	ND	38	34	ug/kg	
11097-69-1	Aroclor 1254	932	38	21	ug/kg	
11096-82-5	Aroclor 1260	ND	38	16	ug/kg	
11100-14-4	Aroclor 1268	ND	38	16	ug/kg	
37324-23-5	Aroclor 1262	ND	38	25	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	71%		31-146%
877-09-8	Tetrachloro-m-xylene	67%		31-146%
2051-24-3	Decachlorobiphenyl	92%		17-164%
2051-24-3	Decachlorobiphenyl	284% ^a		17-164%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-140(0.0-0.5)	
Lab Sample ID: JC86204-5	Date Sampled: 04/10/19
Matrix: SO - Soil	Date Received: 04/11/19
Method: SW846 8082A SW846 3540C	Percent Solids: 79.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G87717.D	1	04/18/19 18:41	SK	04/17/19 05:00	OP19811	G5G2110
Run #2							

Run #	Initial Weight	Final Volume
Run #1	15.3 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	41	19	ug/kg	
11104-28-2	Aroclor 1221	ND	41	21	ug/kg	
11141-16-5	Aroclor 1232	ND	41	32	ug/kg	
53469-21-9	Aroclor 1242	ND	41	17	ug/kg	
12672-29-6	Aroclor 1248	ND	41	37	ug/kg	
11097-69-1	Aroclor 1254	25.6	41	22	ug/kg	J
11096-82-5	Aroclor 1260	ND	41	18	ug/kg	
11100-14-4	Aroclor 1268	ND	41	17	ug/kg	
37324-23-5	Aroclor 1262	ND	41	27	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	71%		31-146%
877-09-8	Tetrachloro-m-xylene	77%		31-146%
2051-24-3	Decachlorobiphenyl	73%		17-164%
2051-24-3	Decachlorobiphenyl	72%		17-164%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-140(0.5-2.0)	
Lab Sample ID: JC86204-6	Date Sampled: 04/10/19
Matrix: SO - Soil	Date Received: 04/11/19
Method: SW846 8082A SW846 3540C	Percent Solids: 84.8
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G87718.D	1	04/18/19 19:13	SK	04/17/19 05:00	OP19811	G5G2110
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	15.5 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	38	18	ug/kg	
11104-28-2	Aroclor 1221	ND	38	19	ug/kg	
11141-16-5	Aroclor 1232	ND	38	29	ug/kg	
53469-21-9	Aroclor 1242	ND	38	16	ug/kg	
12672-29-6	Aroclor 1248	ND	38	34	ug/kg	
11097-69-1	Aroclor 1254	ND	38	20	ug/kg	
11096-82-5	Aroclor 1260	ND	38	16	ug/kg	
11100-14-4	Aroclor 1268	ND	38	16	ug/kg	
37324-23-5	Aroclor 1262	ND	38	25	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	63%		31-146%
877-09-8	Tetrachloro-m-xylene	68%		31-146%
2051-24-3	Decachlorobiphenyl	100%		17-164%
2051-24-3	Decachlorobiphenyl	70%		17-164%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-104(10-12)	
Lab Sample ID: JC86204-7	Date Sampled: 04/10/19
Matrix: SO - Soil	Date Received: 04/11/19
Method: SW846 8260C	Percent Solids: 77.6
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184639.D	1	04/20/19 14:43	PS	n/a	n/a	VY8010
Run #2							

Run #1	Initial Weight
Run #1	5.8 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	61.5	11	5.6	ug/kg	
71-43-2	Benzene	ND	0.56	0.42	ug/kg	
74-97-5	Bromochloromethane	ND	5.6	0.48	ug/kg	
75-27-4	Bromodichloromethane	ND	2.2	0.49	ug/kg	
75-25-2	Bromoform	ND	5.6	0.45	ug/kg	
74-83-9	Bromomethane	ND	5.6	1.1	ug/kg	
78-93-3	2-Butanone (MEK)	ND	11	4.2	ug/kg	
75-15-0	Carbon disulfide	ND	2.2	1.0	ug/kg	
56-23-5	Carbon tetrachloride ^a	ND	2.2	0.61	ug/kg	
108-90-7	Chlorobenzene	ND	2.2	0.39	ug/kg	
75-00-3	Chloroethane	ND	5.6	0.76	ug/kg	
67-66-3	Chloroform	ND	2.2	0.41	ug/kg	
74-87-3	Chloromethane ^a	ND	5.6	2.2	ug/kg	
110-82-7	Cyclohexane ^a	ND	2.2	0.45	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.2	0.93	ug/kg	
124-48-1	Dibromochloromethane	ND	2.2	0.38	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.1	0.36	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.1	0.34	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.1	0.40	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.1	0.38	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	5.6	0.71	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.1	0.43	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.1	0.52	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.1	0.73	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.1	1.1	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.1	0.74	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.2	0.45	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.2	0.39	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.2	0.36	ug/kg	
100-41-4	Ethylbenzene	ND	1.1	0.61	ug/kg	
76-13-1	Freon 113 ^a	ND	5.6	0.85	ug/kg	
591-78-6	2-Hexanone	ND	5.6	1.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-104(10-12)		Date Sampled: 04/10/19
Lab Sample ID: JC86204-7		Date Received: 04/11/19
Matrix: SO - Soil		Percent Solids: 77.6
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.2	0.77	ug/kg	
79-20-9	Methyl Acetate	ND	5.6	1.5	ug/kg	
108-87-2	Methylcyclohexane	ND	2.2	0.79	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.1	0.39	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.6	1.7	ug/kg	
75-09-2	Methylene chloride	ND	5.6	2.8	ug/kg	
100-42-5	Styrene	ND	2.2	0.64	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.2	0.43	ug/kg	
127-18-4	Tetrachloroethene	ND	2.2	0.51	ug/kg	
108-88-3	Toluene	ND	1.1	0.42	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.6	1.1	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.6	1.1	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.2	0.47	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.2	0.38	ug/kg	
79-01-6	Trichloroethene	ND	1.1	0.85	ug/kg	
75-69-4	Trichlorofluoromethane ^a	ND	5.6	0.76	ug/kg	
75-01-4	Vinyl chloride ^a	ND	2.2	0.52	ug/kg	
	m,p-Xylene	ND	1.1	0.83	ug/kg	
95-47-6	o-Xylene	ND	1.1	0.65	ug/kg	
1330-20-7	Xylene (total)	ND	1.1	0.65	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		75-127%
17060-07-0	1,2-Dichloroethane-D4	104%		75-130%
2037-26-5	Toluene-D8	96%		80-120%
460-00-4	4-Bromofluorobenzene	98%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-104(10-12)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-7	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	77.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153460.D	1	04/15/19 21:38	CC	04/14/19 12:30	OP19732	EM6559
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	84	21	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	210	26	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	210	36	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	210	75	ug/kg	
51-28-5	2,4-Dinitrophenol ^a	ND	210	160	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	210	45	ug/kg	
95-48-7	2-Methylphenol	30.5	84	27	ug/kg	J
	3&4-Methylphenol	138	84	35	ug/kg	
88-75-5	2-Nitrophenol	ND	210	28	ug/kg	
100-02-7	4-Nitrophenol	ND	420	110	ug/kg	
87-86-5	Pentachlorophenol	ND	170	39	ug/kg	
108-95-2	Phenol	80.8	84	22	ug/kg	J
58-90-2	2,3,4,6-Tetrachlorophenol	ND	210	28	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	210	31	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	210	25	ug/kg	
83-32-9	Acenaphthene	133	42	14	ug/kg	
208-96-8	Acenaphthylene	46.3	42	21	ug/kg	
98-86-2	Acetophenone	ND	210	9.0	ug/kg	
120-12-7	Anthracene	312	42	26	ug/kg	
1912-24-9	Atrazine	ND	84	18	ug/kg	
56-55-3	Benzo(a)anthracene	553	42	12	ug/kg	
50-32-8	Benzo(a)pyrene	518	42	19	ug/kg	
205-99-2	Benzo(b)fluoranthene	603	42	19	ug/kg	
191-24-2	Benzo(g,h,i)perylene	311	42	21	ug/kg	
207-08-9	Benzo(k)fluoranthene	246	42	20	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	84	16	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	84	10	ug/kg	
92-52-4	1,1'-Biphenyl	42.5	84	5.8	ug/kg	J
100-52-7	Benzaldehyde	ND	210	10	ug/kg	
91-58-7	2-Chloronaphthalene	ND	84	10	ug/kg	
106-47-8	4-Chloroaniline	ND	210	15	ug/kg	
86-74-8	Carbazole	139	84	6.1	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-104(10-12)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-7	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	77.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	84	17	ug/kg	
218-01-9	Chrysene	570	42	13	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	84	9.0	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	84	18	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	84	15	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	84	14	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	42	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	42	21	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	84	35	ug/kg	
123-91-1	1,4-Dioxane	ND	42	28	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	84.8	42	19	ug/kg	
132-64-9	Dibenzofuran	125	84	17	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	84	6.8	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	84	10	ug/kg	
84-66-2	Diethyl phthalate	ND	84	8.9	ug/kg	
131-11-3	Dimethyl phthalate	ND	84	7.5	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	47.5	84	9.8	ug/kg	J
206-44-0	Fluoranthene	1070	42	19	ug/kg	
86-73-7	Fluorene	174	42	19	ug/kg	
118-74-1	Hexachlorobenzene	ND	84	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	42	17	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	420	17	ug/kg	
67-72-1	Hexachloroethane	ND	210	21	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	335	42	20	ug/kg	
78-59-1	Isophorone	ND	84	9.0	ug/kg	
91-57-6	2-Methylnaphthalene	195	42	9.5	ug/kg	
88-74-4	2-Nitroaniline	ND	210	9.9	ug/kg	
99-09-2	3-Nitroaniline	ND	210	10	ug/kg	
100-01-6	4-Nitroaniline	ND	210	11	ug/kg	
91-20-3	Naphthalene	1190	42	12	ug/kg	
98-95-3	Nitrobenzene	ND	84	16	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	84	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	210	15	ug/kg	
85-01-8	Phenanthrene	1200	42	14	ug/kg	
129-00-0	Pyrene	1070	42	13	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	210	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	56%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-104(10-12) Lab Sample ID: JC86204-7 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/10/19 Date Received: 04/11/19 Percent Solids: 77.6
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	60%		27-114%
118-79-6	2,4,6-Tribromophenol	78%		19-152%
4165-60-0	Nitrobenzene-d5	63%		26-134%
321-60-8	2-Fluorobiphenyl	69%		39-124%
1718-51-0	Terphenyl-d14	79%		36-134%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	S-104(15.5-17.5)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-8	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	85.2
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	Y184640.D	1	04/20/19 15:13	PS	n/a	n/a	VY8010

Run #1	Initial Weight
Run #2	5.8 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	28.6	10	5.1	ug/kg	
71-43-2	Benzene	ND	0.51	0.38	ug/kg	
74-97-5	Bromochloromethane	ND	5.1	0.44	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	0.45	ug/kg	
75-25-2	Bromoform	ND	5.1	0.41	ug/kg	
74-83-9	Bromomethane	ND	5.1	1.0	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	3.8	ug/kg	
75-15-0	Carbon disulfide	ND	2.0	0.94	ug/kg	
56-23-5	Carbon tetrachloride ^a	ND	2.0	0.56	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	0.36	ug/kg	
75-00-3	Chloroethane	ND	5.1	0.70	ug/kg	
67-66-3	Chloroform	ND	2.0	0.38	ug/kg	
74-87-3	Chloromethane ^a	ND	5.1	2.0	ug/kg	
110-82-7	Cyclohexane ^a	ND	2.0	0.41	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.85	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	0.34	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	0.33	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.31	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.36	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.35	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	5.1	0.64	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	0.39	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.48	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	0.66	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.97	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.67	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.0	0.41	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	0.36	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	0.33	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.56	ug/kg	
76-13-1	Freon 113 ^a	ND	5.1	0.77	ug/kg	
591-78-6	2-Hexanone	ND	5.1	1.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-104(15.5-17.5)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-8	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	85.2
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.0	0.71	ug/kg	
79-20-9	Methyl Acetate	ND	5.1	1.4	ug/kg	
108-87-2	Methylcyclohexane	ND	2.0	0.72	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.36	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.1	1.6	ug/kg	
75-09-2	Methylene chloride	ND	5.1	2.5	ug/kg	
100-42-5	Styrene	ND	2.0	0.58	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	0.39	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	0.47	ug/kg	
108-88-3	Toluene	ND	1.0	0.38	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.1	1.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.1	1.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	0.43	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	0.35	ug/kg	
79-01-6	Trichloroethene	ND	1.0	0.77	ug/kg	
75-69-4	Trichlorofluoromethane ^a	ND	5.1	0.69	ug/kg	
75-01-4	Vinyl chloride ^a	ND	2.0	0.47	ug/kg	
	m,p-Xylene	ND	1.0	0.75	ug/kg	
95-47-6	o-Xylene	ND	1.0	0.59	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.59	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		75-127%
17060-07-0	1,2-Dichloroethane-D4	103%		75-130%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	98%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-104(15.5-17.5)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-8	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	85.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153463.D	1	04/15/19 23:02	CC	04/14/19 12:30	OP19732	EM6559
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.9 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	76	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	32	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	190	68	ug/kg	
51-28-5	2,4-Dinitrophenol ^a	ND	190	140	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	190	41	ug/kg	
95-48-7	2-Methylphenol	ND	76	24	ug/kg	
	3&4-Methylphenol	ND	76	31	ug/kg	
88-75-5	2-Nitrophenol	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol	ND	380	100	ug/kg	
87-86-5	Pentachlorophenol	ND	150	36	ug/kg	
108-95-2	Phenol	ND	76	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	28	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	23	ug/kg	
83-32-9	Acenaphthene	ND	38	13	ug/kg	
208-96-8	Acenaphthylene	ND	38	19	ug/kg	
98-86-2	Acetophenone	ND	190	8.2	ug/kg	
120-12-7	Anthracene	ND	38	23	ug/kg	
1912-24-9	Atrazine	ND	76	16	ug/kg	
56-55-3	Benzo(a)anthracene	26.8	38	11	ug/kg	J
50-32-8	Benzo(a)pyrene	22.1	38	17	ug/kg	J
205-99-2	Benzo(b)fluoranthene	27.1	38	17	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	20.8	38	19	ug/kg	J
207-08-9	Benzo(k)fluoranthene	ND	38	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	76	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	76	9.3	ug/kg	
92-52-4	1,1'-Biphenyl	10.4	76	5.2	ug/kg	J
100-52-7	Benzaldehyde	ND	190	9.4	ug/kg	
91-58-7	2-Chloronaphthalene	ND	76	9.0	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	6.7	76	5.5	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-104(15.5-17.5)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-8	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	85.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	76	15	ug/kg	
218-01-9	Chrysene	34.1	38	12	ug/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	76	8.1	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	76	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	76	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	76	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	38	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	38	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	76	32	ug/kg	
123-91-1	1,4-Dioxane	ND	38	25	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	38	17	ug/kg	
132-64-9	Dibenzofuran	ND	76	15	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	76	6.2	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	76	9.5	ug/kg	
84-66-2	Diethyl phthalate	ND	76	8.1	ug/kg	
131-11-3	Dimethyl phthalate	ND	76	6.8	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	36.5	76	8.9	ug/kg	J
206-44-0	Fluoranthene	24.8	38	17	ug/kg	J
86-73-7	Fluorene	ND	38	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	76	9.6	ug/kg	
87-68-3	Hexachlorobutadiene	ND	38	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	380	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	34.8	38	18	ug/kg	J
78-59-1	Isophorone	ND	76	8.1	ug/kg	
91-57-6	2-Methylnaphthalene	24.4	38	8.6	ug/kg	J
88-74-4	2-Nitroaniline	ND	190	9.0	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.5	ug/kg	
100-01-6	4-Nitroaniline	ND	190	9.8	ug/kg	
91-20-3	Naphthalene	33.6	38	11	ug/kg	J
98-95-3	Nitrobenzene	ND	76	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	76	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	49.3	38	13	ug/kg	
129-00-0	Pyrene	36.3	38	12	ug/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.6	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	58%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-104(15.5-17.5) Lab Sample ID: JC86204-8 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/10/19 Date Received: 04/11/19 Percent Solids: 85.2
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	62%		27-114%
118-79-6	2,4,6-Tribromophenol	83%		19-152%
4165-60-0	Nitrobenzene-d5	65%		26-134%
321-60-8	2-Fluorobiphenyl	67%		39-124%
1718-51-0	Terphenyl-d14	77%		36-134%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-101(10-12)		Date Sampled: 04/10/19
Lab Sample ID: JC86204-9		Date Received: 04/11/19
Matrix: SO - Soil		Percent Solids: 80.5
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184641.D	1	04/20/19 15:41	PS	n/a	n/a	VY8010
Run #2							

Run #1	Initial Weight
Run #1	3.3 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	45.1	19	9.4	ug/kg	
71-43-2	Benzene	ND	0.94	0.71	ug/kg	
74-97-5	Bromochloromethane	ND	9.4	0.81	ug/kg	
75-27-4	Bromodichloromethane	ND	3.8	0.83	ug/kg	
75-25-2	Bromoform	ND	9.4	0.76	ug/kg	
74-83-9	Bromomethane	ND	9.4	1.9	ug/kg	
78-93-3	2-Butanone (MEK)	ND	19	7.0	ug/kg	
75-15-0	Carbon disulfide	ND	3.8	1.7	ug/kg	
56-23-5	Carbon tetrachloride ^a	ND	3.8	1.0	ug/kg	
108-90-7	Chlorobenzene	ND	3.8	0.67	ug/kg	
75-00-3	Chloroethane	ND	9.4	1.3	ug/kg	
67-66-3	Chloroform	ND	3.8	0.70	ug/kg	
74-87-3	Chloromethane ^a	ND	9.4	3.7	ug/kg	
110-82-7	Cyclohexane ^a	ND	3.8	0.76	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.8	1.6	ug/kg	
124-48-1	Dibromochloromethane	ND	3.8	0.64	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.9	0.61	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.9	0.57	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.9	0.68	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.9	0.65	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	9.4	1.2	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.9	0.72	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.9	0.88	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.9	1.2	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.9	1.8	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.9	1.3	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.8	0.77	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.8	0.66	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.8	0.62	ug/kg	
100-41-4	Ethylbenzene	ND	1.9	1.0	ug/kg	
76-13-1	Freon 113 ^a	ND	9.4	1.4	ug/kg	
591-78-6	2-Hexanone	ND	9.4	2.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-101(10-12)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-9	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	80.5
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.8	1.3	ug/kg	
79-20-9	Methyl Acetate	ND	9.4	2.6	ug/kg	
108-87-2	Methylcyclohexane	ND	3.8	1.3	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.9	0.66	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	9.4	2.9	ug/kg	
75-09-2	Methylene chloride	ND	9.4	4.7	ug/kg	
100-42-5	Styrene	ND	3.8	1.1	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.8	0.73	ug/kg	
127-18-4	Tetrachloroethene	ND	3.8	0.87	ug/kg	
108-88-3	Toluene	ND	1.9	0.71	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	9.4	1.9	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	9.4	1.9	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.8	0.80	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.8	0.64	ug/kg	
79-01-6	Trichloroethene	ND	1.9	1.4	ug/kg	
75-69-4	Trichlorofluoromethane ^a	ND	9.4	1.3	ug/kg	
75-01-4	Vinyl chloride ^a	ND	3.8	0.88	ug/kg	
	m,p-Xylene	ND	1.9	1.4	ug/kg	
95-47-6	o-Xylene	ND	1.9	1.1	ug/kg	
1330-20-7	Xylene (total)	ND	1.9	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		75-127%
17060-07-0	1,2-Dichloroethane-D4	103%		75-130%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	101%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-101(10-12)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-9	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	80.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153466.D	1	04/16/19 00:26	CC	04/14/19 12:30	OP19732	EM6559
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	82	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	210	25	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	210	35	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	210	73	ug/kg	
51-28-5	2,4-Dinitrophenol ^a	ND	210	150	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	210	44	ug/kg	
95-48-7	2-Methylphenol	ND	82	26	ug/kg	
	3&4-Methylphenol	ND	82	34	ug/kg	
88-75-5	2-Nitrophenol	ND	210	27	ug/kg	
100-02-7	4-Nitrophenol	ND	410	110	ug/kg	
87-86-5	Pentachlorophenol	ND	160	39	ug/kg	
108-95-2	Phenol	ND	82	21	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	210	27	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	210	31	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	210	25	ug/kg	
83-32-9	Acenaphthene	90.9	41	14	ug/kg	
208-96-8	Acenaphthylene	28.9	41	21	ug/kg	J
98-86-2	Acetophenone	ND	210	8.8	ug/kg	
120-12-7	Anthracene	106	41	25	ug/kg	
1912-24-9	Atrazine	ND	82	18	ug/kg	
56-55-3	Benzo(a)anthracene	151	41	12	ug/kg	
50-32-8	Benzo(a)pyrene	139	41	19	ug/kg	
205-99-2	Benzo(b)fluoranthene	172	41	18	ug/kg	
191-24-2	Benzo(g,h,i)perylene	93.6	41	21	ug/kg	
207-08-9	Benzo(k)fluoranthene	63.8	41	19	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	82	16	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	82	10	ug/kg	
92-52-4	1,1'-Biphenyl	84.2	82	5.6	ug/kg	
100-52-7	Benzaldehyde	ND	210	10	ug/kg	
91-58-7	2-Chloronaphthalene	ND	82	9.8	ug/kg	
106-47-8	4-Chloroaniline	ND	210	15	ug/kg	
86-74-8	Carbazole	36.6	82	6.0	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-101(10-12)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-9	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	80.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	82	16	ug/kg	
218-01-9	Chrysene	203	41	13	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	82	8.8	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	82	18	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	82	15	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	82	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	41	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	41	21	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	82	34	ug/kg	
123-91-1	1,4-Dioxane	ND	41	27	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	29.1	41	18	ug/kg	J
132-64-9	Dibenzofuran	72.7	82	17	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	82	6.7	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	82	10	ug/kg	
84-66-2	Diethyl phthalate	ND	82	8.8	ug/kg	
131-11-3	Dimethyl phthalate	ND	82	7.3	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	84.7	82	9.6	ug/kg	
206-44-0	Fluoranthene	276	41	18	ug/kg	
86-73-7	Fluorene	107	41	19	ug/kg	
118-74-1	Hexachlorobenzene	ND	82	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	41	17	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	410	16	ug/kg	
67-72-1	Hexachloroethane	ND	210	20	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	96.9	41	19	ug/kg	
78-59-1	Isophorone	ND	82	8.8	ug/kg	
91-57-6	2-Methylnaphthalene	378	41	9.3	ug/kg	
88-74-4	2-Nitroaniline	ND	210	9.7	ug/kg	
99-09-2	3-Nitroaniline	ND	210	10	ug/kg	
100-01-6	4-Nitroaniline	ND	210	11	ug/kg	
91-20-3	Naphthalene	2110	41	12	ug/kg	
98-95-3	Nitrobenzene	ND	82	16	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	82	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	210	15	ug/kg	
85-01-8	Phenanthrene	430	41	14	ug/kg	
129-00-0	Pyrene	283	41	13	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	210	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	56%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-101(10-12) Lab Sample ID: JC86204-9 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/10/19 Date Received: 04/11/19 Percent Solids: 80.5
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	60%		27-114%
118-79-6	2,4,6-Tribromophenol	75%		19-152%
4165-60-0	Nitrobenzene-d5	67%		26-134%
321-60-8	2-Fluorobiphenyl	71%		39-124%
1718-51-0	Terphenyl-d14	75%		36-134%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Client Sample ID: S-101(14.5-16.5)	
Lab Sample ID: JC86204-10	Date Sampled: 04/10/19
Matrix: SO - Soil	Date Received: 04/11/19
Method: SW846 8260C	Percent Solids: 82.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184642.D	1	04/20/19 16:10	PS	n/a	n/a	VY8010
Run #2							

Run #1	Initial Weight
Run #1	4.2 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	52.9	14	7.2	ug/kg	
71-43-2	Benzene	ND	0.72	0.54	ug/kg	
74-97-5	Bromochloromethane	ND	7.2	0.62	ug/kg	
75-27-4	Bromodichloromethane	ND	2.9	0.64	ug/kg	
75-25-2	Bromoform	ND	7.2	0.58	ug/kg	
74-83-9	Bromomethane	ND	7.2	1.4	ug/kg	
78-93-3	2-Butanone (MEK)	ND	14	5.4	ug/kg	
75-15-0	Carbon disulfide	1.9	2.9	1.3	ug/kg	J
56-23-5	Carbon tetrachloride ^a	ND	2.9	0.79	ug/kg	
108-90-7	Chlorobenzene	ND	2.9	0.51	ug/kg	
75-00-3	Chloroethane	ND	7.2	0.99	ug/kg	
67-66-3	Chloroform	ND	2.9	0.54	ug/kg	
74-87-3	Chloromethane ^a	ND	7.2	2.8	ug/kg	
110-82-7	Cyclohexane ^a	ND	2.9	0.58	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.9	1.2	ug/kg	
124-48-1	Dibromochloromethane	ND	2.9	0.49	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.4	0.47	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.4	0.44	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.4	0.52	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.4	0.50	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	7.2	0.91	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.4	0.55	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.4	0.68	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.4	0.94	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.4	1.4	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.4	0.96	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.9	0.59	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.9	0.51	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.9	0.47	ug/kg	
100-41-4	Ethylbenzene	ND	1.4	0.79	ug/kg	
76-13-1	Freon 113 ^a	ND	7.2	1.1	ug/kg	
591-78-6	2-Hexanone	ND	7.2	1.8	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-101(14.5-16.5)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-10	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	82.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.9	1.0	ug/kg	
79-20-9	Methyl Acetate	ND	7.2	2.0	ug/kg	
108-87-2	Methylcyclohexane	ND	2.9	1.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.4	0.51	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	7.2	2.2	ug/kg	
75-09-2	Methylene chloride	ND	7.2	3.6	ug/kg	
100-42-5	Styrene	ND	2.9	0.83	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.9	0.56	ug/kg	
127-18-4	Tetrachloroethene	ND	2.9	0.67	ug/kg	
108-88-3	Toluene	ND	1.4	0.54	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	7.2	1.4	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	7.2	1.4	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.9	0.61	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.9	0.49	ug/kg	
79-01-6	Trichloroethene	ND	1.4	1.1	ug/kg	
75-69-4	Trichlorofluoromethane ^a	ND	7.2	0.98	ug/kg	
75-01-4	Vinyl chloride ^a	ND	2.9	0.68	ug/kg	
	m,p-Xylene	ND	1.4	1.1	ug/kg	
95-47-6	o-Xylene	ND	1.4	0.84	ug/kg	
1330-20-7	Xylene (total)	ND	1.4	0.84	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		75-127%
17060-07-0	1,2-Dichloroethane-D4	106%		75-130%
2037-26-5	Toluene-D8	97%		80-120%
460-00-4	4-Bromofluorobenzene	98%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Client Sample ID:	S-101(14.5-16.5)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-10	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	82.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153465.D	1	04/15/19 23:58	CC	04/14/19 12:30	OP19732	EM6559
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	79	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	24	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	34	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	70	ug/kg	
51-28-5	2,4-Dinitrophenol ^a	ND	200	150	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	200	42	ug/kg	
95-48-7	2-Methylphenol	ND	79	25	ug/kg	
	3&4-Methylphenol	ND	79	32	ug/kg	
88-75-5	2-Nitrophenol	ND	200	26	ug/kg	
100-02-7	4-Nitrophenol	ND	390	110	ug/kg	
87-86-5	Pentachlorophenol	ND	160	37	ug/kg	
108-95-2	Phenol	ND	79	21	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	26	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	30	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	23	ug/kg	
83-32-9	Acenaphthene	33.1	39	14	ug/kg	J
208-96-8	Acenaphthylene	23.6	39	20	ug/kg	J
98-86-2	Acetophenone	ND	200	8.5	ug/kg	
120-12-7	Anthracene	61.3	39	24	ug/kg	
1912-24-9	Atrazine	ND	79	17	ug/kg	
56-55-3	Benzo(a)anthracene	130	39	11	ug/kg	
50-32-8	Benzo(a)pyrene	118	39	18	ug/kg	
205-99-2	Benzo(b)fluoranthene	129	39	17	ug/kg	
191-24-2	Benzo(g,h,i)perylene	68.6	39	20	ug/kg	
207-08-9	Benzo(k)fluoranthene	48.9	39	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	79	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	79	9.6	ug/kg	
92-52-4	1,1'-Biphenyl	14.2	79	5.4	ug/kg	J
100-52-7	Benzaldehyde	ND	200	9.8	ug/kg	
91-58-7	2-Chloronaphthalene	ND	79	9.4	ug/kg	
106-47-8	4-Chloroaniline	ND	200	14	ug/kg	
86-74-8	Carbazole	21.8	79	5.7	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-101(14.5-16.5)	
Lab Sample ID: JC86204-10	Date Sampled: 04/10/19
Matrix: SO - Soil	Date Received: 04/11/19
Method: SW846 8270D SW846 3546	Percent Solids: 82.7
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	79	16	ug/kg	
218-01-9	Chrysene	150	39	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	79	8.4	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	79	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	79	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	79	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	39	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	39	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	79	33	ug/kg	
123-91-1	1,4-Dioxane	ND	39	26	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	22.0	39	17	ug/kg	J
132-64-9	Dibenzofuran	26.1	79	16	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	79	6.4	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	79	9.8	ug/kg	
84-66-2	Diethyl phthalate	ND	79	8.4	ug/kg	
131-11-3	Dimethyl phthalate	ND	79	7.0	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	40.4	79	9.2	ug/kg	J
206-44-0	Fluoranthene	187	39	18	ug/kg	
86-73-7	Fluorene	39.2	39	18	ug/kg	
118-74-1	Hexachlorobenzene	ND	79	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	39	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	390	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	80.1	39	18	ug/kg	
78-59-1	Isophorone	ND	79	8.4	ug/kg	
91-57-6	2-Methylnaphthalene	59.5	39	8.9	ug/kg	
88-74-4	2-Nitroaniline	ND	200	9.3	ug/kg	
99-09-2	3-Nitroaniline	ND	200	9.8	ug/kg	
100-01-6	4-Nitroaniline	ND	200	10	ug/kg	
91-20-3	Naphthalene	255	39	11	ug/kg	
98-95-3	Nitrobenzene	ND	79	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	79	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	14	ug/kg	
85-01-8	Phenanthrene	225	39	13	ug/kg	
129-00-0	Pyrene	292	39	13	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	50%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-101(14.5-16.5) Lab Sample ID: JC86204-10 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/10/19 Date Received: 04/11/19 Percent Solids: 82.7
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	56%		27-114%
118-79-6	2,4,6-Tribromophenol	60%		19-152%
4165-60-0	Nitrobenzene-d5	59%		26-134%
321-60-8	2-Fluorobiphenyl	62%		39-124%
1718-51-0	Terphenyl-d14	74%		36-134%

(a) Associated CCV outside of control limits low.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

4.10
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Client Sample ID: S-102(10-12)	
Lab Sample ID: JC86204-11	Date Sampled: 04/10/19
Matrix: SO - Soil	Date Received: 04/11/19
Method: SW846 8260C	Percent Solids: 76.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184643.D	1	04/20/19 16:38	PS	n/a	n/a	VY8010
Run #2							

Run #1	Initial Weight
Run #1	5.3 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	74.0	12	6.2	ug/kg	
71-43-2	Benzene	ND	0.62	0.46	ug/kg	
74-97-5	Bromochloromethane	ND	6.2	0.53	ug/kg	
75-27-4	Bromodichloromethane	ND	2.5	0.55	ug/kg	
75-25-2	Bromoform	ND	6.2	0.50	ug/kg	
74-83-9	Bromomethane	ND	6.2	1.2	ug/kg	
78-93-3	2-Butanone (MEK)	11.1	12	4.6	ug/kg	J
75-15-0	Carbon disulfide	ND	2.5	1.1	ug/kg	
56-23-5	Carbon tetrachloride ^a	ND	2.5	0.68	ug/kg	
108-90-7	Chlorobenzene	ND	2.5	0.44	ug/kg	
75-00-3	Chloroethane	ND	6.2	0.85	ug/kg	
67-66-3	Chloroform	ND	2.5	0.46	ug/kg	
74-87-3	Chloromethane ^a	ND	6.2	2.4	ug/kg	
110-82-7	Cyclohexane ^a	ND	2.5	0.50	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.5	1.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.5	0.42	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.2	0.40	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.2	0.38	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.2	0.44	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.2	0.42	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	6.2	0.78	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.2	0.47	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.2	0.58	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.2	0.81	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.2	1.2	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.2	0.82	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.5	0.50	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.5	0.43	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.5	0.40	ug/kg	
100-41-4	Ethylbenzene	ND	1.2	0.68	ug/kg	
76-13-1	Freon 113 ^a	ND	6.2	0.94	ug/kg	
591-78-6	2-Hexanone	ND	6.2	1.6	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-102(10-12)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-11	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	76.5
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.5	0.86	ug/kg	
79-20-9	Methyl Acetate	ND	6.2	1.7	ug/kg	
108-87-2	Methylcyclohexane	ND	2.5	0.87	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.2	0.43	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.2	1.9	ug/kg	
75-09-2	Methylene chloride	ND	6.2	3.1	ug/kg	
100-42-5	Styrene	ND	2.5	0.71	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.5	0.48	ug/kg	
127-18-4	Tetrachloroethene	ND	2.5	0.57	ug/kg	
108-88-3	Toluene	ND	1.2	0.46	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.2	1.2	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.2	1.2	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.5	0.53	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.5	0.42	ug/kg	
79-01-6	Trichloroethene	ND	1.2	0.94	ug/kg	
75-69-4	Trichlorofluoromethane ^a	ND	6.2	0.84	ug/kg	
75-01-4	Vinyl chloride ^a	ND	2.5	0.58	ug/kg	
	m,p-Xylene	ND	1.2	0.92	ug/kg	
95-47-6	o-Xylene	ND	1.2	0.72	ug/kg	
1330-20-7	Xylene (total)	ND	1.2	0.72	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		75-127%
17060-07-0	1,2-Dichloroethane-D4	104%		75-130%
2037-26-5	Toluene-D8	97%		80-120%
460-00-4	4-Bromofluorobenzene	100%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Client Sample ID:	S-102(10-12)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-11	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	76.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	M153560.D	2	04/18/19 04:27	YC	04/14/19 12:30	OP19732	EM6562
Run #2	M153582.D	10	04/18/19 20:14	CC	04/14/19 12:30	OP19732	EM6563

	Initial Weight	Final Volume
Run #1	30.5 g	1.0 ml
Run #2	30.5 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	170	42	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	430	53	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	430	73	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	430	150	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	430	320	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	430	92	ug/kg	
95-48-7	2-Methylphenol	ND	170	55	ug/kg	
	3&4-Methylphenol	ND	170	70	ug/kg	
88-75-5	2-Nitrophenol	ND	430	57	ug/kg	
100-02-7	4-Nitrophenol	ND	860	230	ug/kg	
87-86-5	Pentachlorophenol ^b	ND	340	80	ug/kg	
108-95-2	Phenol	ND	170	45	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	430	57	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	430	64	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	430	51	ug/kg	
83-32-9	Acenaphthene	540	86	30	ug/kg	
208-96-8	Acenaphthylene	589	86	44	ug/kg	
98-86-2	Acetophenone	ND	430	18	ug/kg	
120-12-7	Anthracene	2300	86	53	ug/kg	
1912-24-9	Atrazine ^b	ND	170	37	ug/kg	
56-55-3	Benzo(a)anthracene	4530	86	24	ug/kg	
50-32-8	Benzo(a)pyrene	3750	86	39	ug/kg	
205-99-2	Benzo(b)fluoranthene	4220	86	38	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1690	86	43	ug/kg	
207-08-9	Benzo(k)fluoranthene	1410	86	40	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	170	33	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	170	21	ug/kg	
92-52-4	1,1'-Biphenyl	19.1	170	12	ug/kg	J
100-52-7	Benzaldehyde	ND	430	21	ug/kg	
91-58-7	2-Chloronaphthalene	ND	170	20	ug/kg	
106-47-8	4-Chloroaniline	ND	430	31	ug/kg	
86-74-8	Carbazole	288	170	12	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-102(10-12)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-11	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	76.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	170	34	ug/kg	
218-01-9	Chrysene	4490	86	27	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	170	18	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	170	37	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	170	31	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	170	28	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	86	27	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	86	43	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	170	71	ug/kg	
123-91-1	1,4-Dioxane ^c	ND	86	57	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	512	86	38	ug/kg	
132-64-9	Dibenzofuran	115	170	35	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	170	14	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	170	21	ug/kg	
84-66-2	Diethyl phthalate	ND	170	18	ug/kg	
131-11-3	Dimethyl phthalate	ND	170	15	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	170	20	ug/kg	
206-44-0	Fluoranthene	10700 ^d	430	190	ug/kg	D
86-73-7	Fluorene	824	86	39	ug/kg	
118-74-1	Hexachlorobenzene	ND	170	22	ug/kg	
87-68-3	Hexachlorobutadiene	ND	86	34	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^b	ND	860	34	ug/kg	
67-72-1	Hexachloroethane	ND	430	42	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1890	86	40	ug/kg	
78-59-1	Isophorone	ND	170	18	ug/kg	
91-57-6	2-Methylnaphthalene	63.6	86	19	ug/kg	J
88-74-4	2-Nitroaniline	ND	430	20	ug/kg	
99-09-2	3-Nitroaniline	ND	430	21	ug/kg	
100-01-6	4-Nitroaniline	ND	430	22	ug/kg	
91-20-3	Naphthalene	28.5	86	24	ug/kg	J
98-95-3	Nitrobenzene	ND	170	33	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	170	25	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	430	31	ug/kg	
85-01-8	Phenanthrene	8180	86	29	ug/kg	
129-00-0	Pyrene	9920 ^d	430	140	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	430	22	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	42%	51%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-102(10-12) Lab Sample ID: JC86204-11 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/10/19 Date Received: 04/11/19 Percent Solids: 76.5
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	42%	51%	27-114%
118-79-6	2,4,6-Tribromophenol	69%	75%	19-152%
4165-60-0	Nitrobenzene-d5	49%	59%	26-134%
321-60-8	2-Fluorobiphenyl	53%	66%	39-124%
1718-51-0	Terphenyl-d14	59%	65%	36-134%

- (a) Dilution required due to viscosity of the extract matrix.
- (b) Associated CCV outside of control limits high, sample was ND.
- (c) Associated CCV outside of control limits low.
- (d) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-102(13.5-15.5)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-12	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	78.6
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	Y184644.D	1	04/20/19 17:07	PS	n/a	n/a	VY8010

	Initial Weight
Run #1	5.9 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	52.1	11	5.4	ug/kg	
71-43-2	Benzene	ND	0.54	0.41	ug/kg	
74-97-5	Bromochloromethane	ND	5.4	0.46	ug/kg	
75-27-4	Bromodichloromethane	ND	2.2	0.48	ug/kg	
75-25-2	Bromoform	ND	5.4	0.43	ug/kg	
74-83-9	Bromomethane	ND	5.4	1.1	ug/kg	
78-93-3	2-Butanone (MEK)	4.2	11	4.0	ug/kg	J
75-15-0	Carbon disulfide	ND	2.2	1.0	ug/kg	
56-23-5	Carbon tetrachloride ^a	ND	2.2	0.59	ug/kg	
108-90-7	Chlorobenzene	ND	2.2	0.38	ug/kg	
75-00-3	Chloroethane	ND	5.4	0.74	ug/kg	
67-66-3	Chloroform	ND	2.2	0.40	ug/kg	
74-87-3	Chloromethane ^a	ND	5.4	2.1	ug/kg	
110-82-7	Cyclohexane ^a	ND	2.2	0.44	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.2	0.90	ug/kg	
124-48-1	Dibromochloromethane	ND	2.2	0.36	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.1	0.35	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.1	0.33	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.1	0.39	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.1	0.37	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	5.4	0.68	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.1	0.42	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.1	0.51	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.1	0.71	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.1	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.1	0.72	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.2	0.44	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.2	0.38	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.2	0.35	ug/kg	
100-41-4	Ethylbenzene	ND	1.1	0.60	ug/kg	
76-13-1	Freon 113 ^a	ND	5.4	0.82	ug/kg	
591-78-6	2-Hexanone	ND	5.4	1.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-102(13.5-15.5)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-12	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	78.6
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.2	0.75	ug/kg	
79-20-9	Methyl Acetate	ND	5.4	1.5	ug/kg	
108-87-2	Methylcyclohexane	ND	2.2	0.76	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.1	0.38	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.4	1.7	ug/kg	
75-09-2	Methylene chloride	ND	5.4	2.7	ug/kg	
100-42-5	Styrene	ND	2.2	0.62	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.2	0.42	ug/kg	
127-18-4	Tetrachloroethene	ND	2.2	0.50	ug/kg	
108-88-3	Toluene	ND	1.1	0.41	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.4	1.1	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.4	1.1	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.2	0.46	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.2	0.37	ug/kg	
79-01-6	Trichloroethene	ND	1.1	0.82	ug/kg	
75-69-4	Trichlorofluoromethane ^a	ND	5.4	0.73	ug/kg	
75-01-4	Vinyl chloride ^a	ND	2.2	0.51	ug/kg	
	m,p-Xylene	ND	1.1	0.80	ug/kg	
95-47-6	o-Xylene	ND	1.1	0.63	ug/kg	
1330-20-7	Xylene (total)	ND	1.1	0.63	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		75-127%
17060-07-0	1,2-Dichloroethane-D4	105%		75-130%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	99%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 3

Client Sample ID:	S-102(13.5-15.5)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-12	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	78.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153468.D	1	04/16/19 01:22	CC	04/14/19 12:30	OP19732	EM6559
Run #2	M153497.D	5	04/16/19 20:37	CC	04/14/19 12:30	OP19732	EM6560

Run #1	Initial Weight	Final Volume
Run #1	31.0 g	1.0 ml
Run #2	31.0 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	82	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	210	25	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	210	35	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	210	73	ug/kg	
51-28-5	2,4-Dinitrophenol ^a	ND	210	150	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	210	44	ug/kg	
95-48-7	2-Methylphenol	ND	82	26	ug/kg	
	3&4-Methylphenol	ND	82	34	ug/kg	
88-75-5	2-Nitrophenol	ND	210	27	ug/kg	
100-02-7	4-Nitrophenol	ND	410	110	ug/kg	
87-86-5	Pentachlorophenol	ND	160	39	ug/kg	
108-95-2	Phenol	ND	82	21	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	210	27	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	210	31	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	210	24	ug/kg	
83-32-9	Acenaphthene	977	41	14	ug/kg	
208-96-8	Acenaphthylene	262	41	21	ug/kg	
98-86-2	Acetophenone	ND	210	8.8	ug/kg	
120-12-7	Anthracene	2380	41	25	ug/kg	
1912-24-9	Atrazine	ND	82	18	ug/kg	
56-55-3	Benzo(a)anthracene	3440	41	12	ug/kg	
50-32-8	Benzo(a)pyrene	2740	41	19	ug/kg	
205-99-2	Benzo(b)fluoranthene	3290	41	18	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1580	41	21	ug/kg	
207-08-9	Benzo(k)fluoranthene	1120	41	19	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	82	16	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	82	10	ug/kg	
92-52-4	1,1'-Biphenyl	122	82	5.6	ug/kg	
100-52-7	Benzaldehyde	43.7	210	10	ug/kg	J
91-58-7	2-Chloronaphthalene	ND	82	9.8	ug/kg	
106-47-8	4-Chloroaniline	ND	210	15	ug/kg	
86-74-8	Carbazole	555	82	6.0	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-102(13.5-15.5)	Date Sampled:	04/10/19
Lab Sample ID:	JC86204-12	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	78.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	82	16	ug/kg	
218-01-9	Chrysene	3570	41	13	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	82	8.8	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	82	18	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	82	15	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	82	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	41	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	41	21	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	82	34	ug/kg	
123-91-1	1,4-Dioxane	ND	41	27	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	523	41	18	ug/kg	
132-64-9	Dibenzofuran	802	82	17	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	82	6.7	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	82	10	ug/kg	
84-66-2	Diethyl phthalate	ND	82	8.7	ug/kg	
131-11-3	Dimethyl phthalate	ND	82	7.3	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	82	9.6	ug/kg	
206-44-0	Fluoranthene	5750 ^b	210	92	ug/kg	D
86-73-7	Fluorene	1390	41	19	ug/kg	
118-74-1	Hexachlorobenzene	ND	82	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	41	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	410	16	ug/kg	
67-72-1	Hexachloroethane	ND	210	20	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1680	41	19	ug/kg	
78-59-1	Isophorone	ND	82	8.8	ug/kg	
91-57-6	2-Methylnaphthalene	305	41	9.3	ug/kg	
88-74-4	2-Nitroaniline	ND	210	9.7	ug/kg	
99-09-2	3-Nitroaniline	ND	210	10	ug/kg	
100-01-6	4-Nitroaniline	ND	210	11	ug/kg	
91-20-3	Naphthalene	243	41	12	ug/kg	
98-95-3	Nitrobenzene	ND	82	16	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	82	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	210	15	ug/kg	
85-01-8	Phenanthrene	7620 ^b	210	69	ug/kg	D
129-00-0	Pyrene	6430 ^b	210	66	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	210	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	53%	52%	23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-102(13.5-15.5)		Date Sampled: 04/10/19
Lab Sample ID: JC86204-12		Date Received: 04/11/19
Matrix: SO - Soil		Percent Solids: 78.6
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	53%	50%	27-114%
118-79-6	2,4,6-Tribromophenol	69%	64%	19-152%
4165-60-0	Nitrobenzene-d5	61%	55%	26-134%
321-60-8	2-Fluorobiphenyl	60%	62%	39-124%
1718-51-0	Terphenyl-d14	77%	73%	36-134%

(a) Associated CCV outside of control limits low.

(b) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.12
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Report of Analysis

Client Sample ID:	PCTP-75R(10-12)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-13	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	71.8
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	Y184650.D	1	04/20/19 19:57	PS	n/a	n/a	VY8010

Run #1	Initial Weight
Run #2	3.3 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	52.3	21	11	ug/kg	
71-43-2	Benzene	ND	1.1	0.80	ug/kg	
74-97-5	Bromochloromethane	ND	11	0.91	ug/kg	
75-27-4	Bromodichloromethane	ND	4.2	0.93	ug/kg	
75-25-2	Bromoform	ND	11	0.85	ug/kg	
74-83-9	Bromomethane	ND	11	2.1	ug/kg	
78-93-3	2-Butanone (MEK)	ND	21	7.9	ug/kg	
75-15-0	Carbon disulfide	ND	4.2	2.0	ug/kg	
56-23-5	Carbon tetrachloride ^a	ND	4.2	1.2	ug/kg	
108-90-7	Chlorobenzene	ND	4.2	0.75	ug/kg	
75-00-3	Chloroethane	ND	11	1.4	ug/kg	
67-66-3	Chloroform	ND	4.2	0.79	ug/kg	
74-87-3	Chloromethane ^a	ND	11	4.1	ug/kg	
110-82-7	Cyclohexane ^a	ND	4.2	0.86	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	4.2	1.8	ug/kg	
124-48-1	Dibromochloromethane	ND	4.2	0.71	ug/kg	
106-93-4	1,2-Dibromoethane	ND	2.1	0.69	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	2.1	0.64	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	2.1	0.76	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	2.1	0.73	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	11	1.3	ug/kg	
75-34-3	1,1-Dichloroethane	ND	2.1	0.81	ug/kg	
107-06-2	1,2-Dichloroethane	ND	2.1	0.99	ug/kg	
75-35-4	1,1-Dichloroethene	ND	2.1	1.4	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	2.1	2.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	2.1	1.4	ug/kg	
78-87-5	1,2-Dichloropropane	ND	4.2	0.86	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	4.2	0.74	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	4.2	0.69	ug/kg	
100-41-4	Ethylbenzene	ND	2.1	1.2	ug/kg	
76-13-1	Freon 113 ^a	ND	11	1.6	ug/kg	
591-78-6	2-Hexanone	ND	11	2.7	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-75R(10-12)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-13	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	71.8
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	4.2	1.5	ug/kg	
79-20-9	Methyl Acetate	ND	11	2.9	ug/kg	
108-87-2	Methylcyclohexane	ND	4.2	1.5	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	2.1	0.74	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	11	3.3	ug/kg	
75-09-2	Methylene chloride	ND	11	5.3	ug/kg	
100-42-5	Styrene	ND	4.2	1.2	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	4.2	0.82	ug/kg	
127-18-4	Tetrachloroethene	ND	4.2	0.97	ug/kg	
108-88-3	Toluene	ND	2.1	0.79	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	11	2.1	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	11	2.1	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	4.2	0.90	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	4.2	0.72	ug/kg	
79-01-6	Trichloroethene	ND	2.1	1.6	ug/kg	
75-69-4	Trichlorofluoromethane ^a	ND	11	1.4	ug/kg	
75-01-4	Vinyl chloride ^a	ND	4.2	0.99	ug/kg	
	m,p-Xylene	ND	2.1	1.6	ug/kg	
95-47-6	o-Xylene	ND	2.1	1.2	ug/kg	
1330-20-7	Xylene (total)	ND	2.1	1.2	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		75-127%
17060-07-0	1,2-Dichloroethane-D4	102%		75-130%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	101%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCTP-75R(10-12)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-13	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	71.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153467.D	1	04/16/19 00:54	CC	04/14/19 12:30	OP19732	EM6559
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.5 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	91	23	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	230	28	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	230	39	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	230	81	ug/kg	
51-28-5	2,4-Dinitrophenol ^a	ND	230	170	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	230	49	ug/kg	
95-48-7	2-Methylphenol	ND	91	29	ug/kg	
	3&4-Methylphenol	ND	91	38	ug/kg	
88-75-5	2-Nitrophenol	ND	230	30	ug/kg	
100-02-7	4-Nitrophenol	ND	460	120	ug/kg	
87-86-5	Pentachlorophenol	ND	180	43	ug/kg	
108-95-2	Phenol	ND	91	24	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	230	30	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	230	34	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	230	27	ug/kg	
83-32-9	Acenaphthene	86.7	46	16	ug/kg	
208-96-8	Acenaphthylene	45.3	46	23	ug/kg	J
98-86-2	Acetophenone	ND	230	9.8	ug/kg	
120-12-7	Anthracene	254	46	28	ug/kg	
1912-24-9	Atrazine	ND	91	20	ug/kg	
56-55-3	Benzo(a)anthracene	437	46	13	ug/kg	
50-32-8	Benzo(a)pyrene	417	46	21	ug/kg	
205-99-2	Benzo(b)fluoranthene	482	46	20	ug/kg	
191-24-2	Benzo(g,h,i)perylene	277	46	23	ug/kg	
207-08-9	Benzo(k)fluoranthene	185	46	21	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	91	18	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	91	11	ug/kg	
92-52-4	1,1'-Biphenyl	25.5	91	6.3	ug/kg	J
100-52-7	Benzaldehyde	ND	230	11	ug/kg	
91-58-7	2-Chloronaphthalene	ND	91	11	ug/kg	
106-47-8	4-Chloroaniline	ND	230	16	ug/kg	
86-74-8	Carbazole	120	91	6.6	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-75R(10-12)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-13	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	71.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	91	18	ug/kg	
218-01-9	Chrysene	524	46	14	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	91	9.8	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	91	20	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	91	16	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	91	15	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	46	14	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	46	23	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	91	38	ug/kg	
123-91-1	1,4-Dioxane	ND	46	30	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	82.5	46	20	ug/kg	
132-64-9	Dibenzofuran	83.1	91	19	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	91	7.4	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	91	11	ug/kg	
84-66-2	Diethyl phthalate	ND	91	9.7	ug/kg	
131-11-3	Dimethyl phthalate	ND	91	8.1	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	53.3	91	11	ug/kg	J
206-44-0	Fluoranthene	764	46	20	ug/kg	
86-73-7	Fluorene	115	46	21	ug/kg	
118-74-1	Hexachlorobenzene	ND	91	12	ug/kg	
87-68-3	Hexachlorobutadiene	ND	46	18	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	460	18	ug/kg	
67-72-1	Hexachloroethane	ND	230	23	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	258	46	21	ug/kg	
78-59-1	Isophorone	ND	91	9.8	ug/kg	
91-57-6	2-Methylnaphthalene	86.6	46	10	ug/kg	
88-74-4	2-Nitroaniline	ND	230	11	ug/kg	
99-09-2	3-Nitroaniline	ND	230	11	ug/kg	
100-01-6	4-Nitroaniline	ND	230	12	ug/kg	
91-20-3	Naphthalene	184	46	13	ug/kg	
98-95-3	Nitrobenzene	ND	91	18	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	91	13	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	230	17	ug/kg	
85-01-8	Phenanthrene	1110	46	15	ug/kg	
129-00-0	Pyrene	739	46	15	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	230	12	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	55%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-75R(10-12)	
Lab Sample ID: JC86204-13	Date Sampled: 04/11/19
Matrix: SO - Soil	Date Received: 04/11/19
Method: SW846 8270D SW846 3546	Percent Solids: 71.8
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	57%		27-114%
118-79-6	2,4,6-Tribromophenol	85%		19-152%
4165-60-0	Nitrobenzene-d5	62%		26-134%
321-60-8	2-Fluorobiphenyl	66%		39-124%
1718-51-0	Terphenyl-d14	67%		36-134%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: PCTP-75R(14-16)	
Lab Sample ID: JC86204-14	Date Sampled: 04/11/19
Matrix: SO - Soil	Date Received: 04/11/19
Method: SW846 8260C	Percent Solids: 79.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184651.D	1	04/20/19 20:25	PS	n/a	n/a	VY8010
Run #2							

Run #1	Initial Weight
Run #1	3.6 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	31.3	18	8.8	ug/kg	
71-43-2	Benzene	ND	0.88	0.66	ug/kg	
74-97-5	Bromochloromethane	ND	8.8	0.75	ug/kg	
75-27-4	Bromodichloromethane	ND	3.5	0.78	ug/kg	
75-25-2	Bromoform	ND	8.8	0.71	ug/kg	
74-83-9	Bromomethane	ND	8.8	1.7	ug/kg	
78-93-3	2-Butanone (MEK)	ND	18	6.6	ug/kg	
75-15-0	Carbon disulfide	ND	3.5	1.6	ug/kg	
56-23-5	Carbon tetrachloride ^a	ND	3.5	0.96	ug/kg	
108-90-7	Chlorobenzene	ND	3.5	0.62	ug/kg	
75-00-3	Chloroethane	ND	8.8	1.2	ug/kg	
67-66-3	Chloroform	ND	3.5	0.65	ug/kg	
74-87-3	Chloromethane ^a	ND	8.8	3.4	ug/kg	
110-82-7	Cyclohexane ^a	ND	3.5	0.71	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.5	1.5	ug/kg	
124-48-1	Dibromochloromethane	ND	3.5	0.59	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.8	0.57	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.8	0.53	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.8	0.63	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.8	0.60	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	8.8	1.1	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.8	0.68	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.8	0.82	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.8	1.2	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.8	1.7	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.8	1.2	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.5	0.71	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.5	0.62	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.5	0.57	ug/kg	
100-41-4	Ethylbenzene	ND	1.8	0.97	ug/kg	
76-13-1	Freon 113 ^a	ND	8.8	1.3	ug/kg	
591-78-6	2-Hexanone	ND	8.8	2.2	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-75R(14-16)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-14	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	79.2
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.5	1.2	ug/kg	
79-20-9	Methyl Acetate	ND	8.8	2.4	ug/kg	
108-87-2	Methylcyclohexane	ND	3.5	1.2	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.8	0.62	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	8.8	2.7	ug/kg	
75-09-2	Methylene chloride	ND	8.8	4.4	ug/kg	
100-42-5	Styrene	ND	3.5	1.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.5	0.68	ug/kg	
127-18-4	Tetrachloroethene	ND	3.5	0.81	ug/kg	
108-88-3	Toluene	ND	1.8	0.66	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	8.8	1.8	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	8.8	1.8	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.5	0.75	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.5	0.60	ug/kg	
79-01-6	Trichloroethene	ND	1.8	1.3	ug/kg	
75-69-4	Trichlorofluoromethane ^a	ND	8.8	1.2	ug/kg	
75-01-4	Vinyl chloride ^a	ND	3.5	0.82	ug/kg	
	m,p-Xylene	ND	1.8	1.3	ug/kg	
95-47-6	o-Xylene	ND	1.8	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.8	1.0	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		75-127%
17060-07-0	1,2-Dichloroethane-D4	101%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	100%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-75R(14-16)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-14	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	79.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153464.D	1	04/15/19 23:30	CC	04/14/19 12:30	OP19732	EM6559
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	31.3 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	81	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	25	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	34	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	72	ug/kg	
51-28-5	2,4-Dinitrophenol ^a	ND	200	150	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	200	43	ug/kg	
95-48-7	2-Methylphenol	ND	81	26	ug/kg	
	3&4-Methylphenol	ND	81	33	ug/kg	
88-75-5	2-Nitrophenol	ND	200	27	ug/kg	
100-02-7	4-Nitrophenol	ND	400	110	ug/kg	
87-86-5	Pentachlorophenol	ND	160	38	ug/kg	
108-95-2	Phenol	ND	81	21	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	27	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	30	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	24	ug/kg	
83-32-9	Acenaphthene	ND	40	14	ug/kg	
208-96-8	Acenaphthylene	ND	40	20	ug/kg	
98-86-2	Acetophenone	ND	200	8.7	ug/kg	
120-12-7	Anthracene	39.5	40	25	ug/kg	J
1912-24-9	Atrazine	ND	81	17	ug/kg	
56-55-3	Benzo(a)anthracene	71.7	40	11	ug/kg	
50-32-8	Benzo(a)pyrene	59.9	40	18	ug/kg	
205-99-2	Benzo(b)fluoranthene	77.4	40	18	ug/kg	
191-24-2	Benzo(g,h,i)perylene	41.7	40	20	ug/kg	
207-08-9	Benzo(k)fluoranthene	25.4	40	19	ug/kg	J
101-55-3	4-Bromophenyl phenyl ether	ND	81	16	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	81	9.8	ug/kg	
92-52-4	1,1'-Biphenyl	10.3	81	5.5	ug/kg	J
100-52-7	Benzaldehyde	ND	200	10	ug/kg	
91-58-7	2-Chloronaphthalene	ND	81	9.6	ug/kg	
106-47-8	4-Chloroaniline	ND	200	15	ug/kg	
86-74-8	Carbazole	16.6	81	5.8	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-75R(14-16)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-14	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	79.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	81	16	ug/kg	
218-01-9	Chrysene	104	40	13	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	81	8.6	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	81	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	81	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	81	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	40	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	40	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	81	34	ug/kg	
123-91-1	1,4-Dioxane	ND	40	27	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	40	18	ug/kg	
132-64-9	Dibenzofuran	ND	81	16	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	81	6.6	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	81	10	ug/kg	
84-66-2	Diethyl phthalate	ND	81	8.6	ug/kg	
131-11-3	Dimethyl phthalate	ND	81	7.2	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	81	9.4	ug/kg	
206-44-0	Fluoranthene	108	40	18	ug/kg	
86-73-7	Fluorene	ND	40	19	ug/kg	
118-74-1	Hexachlorobenzene	ND	81	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	40	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	400	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	20	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	52.8	40	19	ug/kg	
78-59-1	Isophorone	ND	81	8.6	ug/kg	
91-57-6	2-Methylnaphthalene	22.6	40	9.1	ug/kg	J
88-74-4	2-Nitroaniline	ND	200	9.5	ug/kg	
99-09-2	3-Nitroaniline	ND	200	10	ug/kg	
100-01-6	4-Nitroaniline	ND	200	10	ug/kg	
91-20-3	Naphthalene	29.7	40	11	ug/kg	J
98-95-3	Nitrobenzene	ND	81	16	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	81	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	15	ug/kg	
85-01-8	Phenanthrene	167	40	14	ug/kg	
129-00-0	Pyrene	118	40	13	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	63%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-75R(14-16) Lab Sample ID: JC86204-14 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/11/19 Date Received: 04/11/19 Percent Solids: 79.2
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	66%		27-114%
118-79-6	2,4,6-Tribromophenol	90%		19-152%
4165-60-0	Nitrobenzene-d5	71%		26-134%
321-60-8	2-Fluorobiphenyl	72%		39-124%
1718-51-0	Terphenyl-d14	75%		36-134%

(a) Associated CCV outside of control limits low.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

4.14
4

Report of Analysis

Client Sample ID: S-103(10-12)		
Lab Sample ID: JC86204-15		Date Sampled: 04/11/19
Matrix: SO - Soil		Date Received: 04/11/19
Method: SW846 8260C		Percent Solids: 77.3
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184652.D	1	04/20/19 20:54	PS	n/a	n/a	VY8010
Run #2							

Run #1	Initial Weight
Run #1	3.4 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	27.0	19	9.5	ug/kg	
71-43-2	Benzene	ND	0.95	0.72	ug/kg	
74-97-5	Bromochloromethane	ND	9.5	0.82	ug/kg	
75-27-4	Bromodichloromethane	ND	3.8	0.84	ug/kg	
75-25-2	Bromoform	ND	9.5	0.77	ug/kg	
74-83-9	Bromomethane	ND	9.5	1.9	ug/kg	
78-93-3	2-Butanone (MEK)	ND	19	7.1	ug/kg	
75-15-0	Carbon disulfide	ND	3.8	1.8	ug/kg	
56-23-5	Carbon tetrachloride ^a	ND	3.8	1.0	ug/kg	
108-90-7	Chlorobenzene	ND	3.8	0.67	ug/kg	
75-00-3	Chloroethane	ND	9.5	1.3	ug/kg	
67-66-3	Chloroform	ND	3.8	0.71	ug/kg	
74-87-3	Chloromethane ^a	ND	9.5	3.7	ug/kg	
110-82-7	Cyclohexane ^a	ND	3.8	0.77	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.8	1.6	ug/kg	
124-48-1	Dibromochloromethane	ND	3.8	0.64	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.9	0.62	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.9	0.58	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.9	0.68	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.9	0.65	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	9.5	1.2	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.9	0.73	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.9	0.89	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.9	1.2	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.9	1.8	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.9	1.3	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.8	0.77	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.8	0.67	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.8	0.62	ug/kg	
100-41-4	Ethylbenzene	ND	1.9	1.1	ug/kg	
76-13-1	Freon 113 ^a	ND	9.5	1.4	ug/kg	
591-78-6	2-Hexanone	ND	9.5	2.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-103(10-12)		Date Sampled: 04/11/19
Lab Sample ID: JC86204-15		Date Received: 04/11/19
Matrix: SO - Soil		Percent Solids: 77.3
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.8	1.3	ug/kg	
79-20-9	Methyl Acetate	ND	9.5	2.6	ug/kg	
108-87-2	Methylcyclohexane	ND	3.8	1.3	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.9	0.67	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	9.5	3.0	ug/kg	
75-09-2	Methylene chloride	ND	9.5	4.8	ug/kg	
100-42-5	Styrene	ND	3.8	1.1	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.8	0.74	ug/kg	
127-18-4	Tetrachloroethene	ND	3.8	0.88	ug/kg	
108-88-3	Toluene	ND	1.9	0.72	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	9.5	1.9	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	9.5	1.9	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.8	0.81	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.8	0.65	ug/kg	
79-01-6	Trichloroethene	ND	1.9	1.4	ug/kg	
75-69-4	Trichlorofluoromethane ^a	ND	9.5	1.3	ug/kg	
75-01-4	Vinyl chloride ^a	ND	3.8	0.89	ug/kg	
	m,p-Xylene	ND	1.9	1.4	ug/kg	
95-47-6	o-Xylene	ND	1.9	1.1	ug/kg	
1330-20-7	Xylene (total)	ND	1.9	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		75-127%
17060-07-0	1,2-Dichloroethane-D4	94%		75-130%
2037-26-5	Toluene-D8	105%		80-120%
460-00-4	4-Bromofluorobenzene	114%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.15
4

Report of Analysis

Client Sample ID:	S-103(10-12)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-15	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	77.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z136989.D	1	04/17/19 00:20	AR	04/14/19 14:00	OP19741	EZ6751
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	31.0 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	83	21	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	210	26	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	210	36	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	210	74	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	210	160	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	210	45	ug/kg	
95-48-7	2-Methylphenol	ND	83	27	ug/kg	
	3&4-Methylphenol	ND	83	34	ug/kg	
88-75-5	2-Nitrophenol	ND	210	28	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	420	110	ug/kg	
87-86-5	Pentachlorophenol	ND	170	39	ug/kg	
108-95-2	Phenol	ND	83	22	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	210	28	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	210	31	ug/kg	
88-06-2	2,4,6-Trichlorophenol ^a	ND	210	25	ug/kg	
83-32-9	Acenaphthene	25.8	42	14	ug/kg	J
208-96-8	Acenaphthylene	46.5	42	21	ug/kg	
98-86-2	Acetophenone	ND	210	9.0	ug/kg	
120-12-7	Anthracene	65.6	42	26	ug/kg	
1912-24-9	Atrazine ^a	ND	83	18	ug/kg	
56-55-3	Benzo(a)anthracene	258	42	12	ug/kg	
50-32-8	Benzo(a)pyrene	240	42	19	ug/kg	
205-99-2	Benzo(b)fluoranthene	339	42	18	ug/kg	
191-24-2	Benzo(g,h,i)perylene ^b	183	42	21	ug/kg	J
207-08-9	Benzo(k)fluoranthene	90.6	42	19	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	83	16	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	83	10	ug/kg	
92-52-4	1,1'-Biphenyl	13.8	83	5.7	ug/kg	J
100-52-7	Benzaldehyde	ND	210	10	ug/kg	
91-58-7	2-Chloronaphthalene	ND	83	9.9	ug/kg	
106-47-8	4-Chloroaniline	ND	210	15	ug/kg	
86-74-8	Carbazole	23.5	83	6.1	ug/kg	J

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-103(10-12)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-15	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	77.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	83	16	ug/kg	
218-01-9	Chrysene	310	42	13	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	83	8.9	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	83	18	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	83	15	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	83	14	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	42	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	42	21	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	83	35	ug/kg	
123-91-1	1,4-Dioxane	ND	42	28	ug/kg	
53-70-3	Dibenzo(a,h)anthracene ^b	62.4	42	18	ug/kg	J
132-64-9	Dibenzofuran	ND	83	17	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	83	6.8	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	83	10	ug/kg	
84-66-2	Diethyl phthalate	ND	83	8.9	ug/kg	
131-11-3	Dimethyl phthalate	ND	83	7.4	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	114	83	9.8	ug/kg	
206-44-0	Fluoranthene ^b	434	42	19	ug/kg	
86-73-7	Fluorene	42.2	42	19	ug/kg	
118-74-1	Hexachlorobenzene ^a	ND	83	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	42	17	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	420	17	ug/kg	
67-72-1	Hexachloroethane	ND	210	21	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene ^b	152	42	20	ug/kg	J
78-59-1	Isophorone	ND	83	8.9	ug/kg	
91-57-6	2-Methylnaphthalene	52.7	42	9.4	ug/kg	
88-74-4	2-Nitroaniline ^a	ND	210	9.8	ug/kg	
99-09-2	3-Nitroaniline	ND	210	10	ug/kg	
100-01-6	4-Nitroaniline	ND	210	11	ug/kg	
91-20-3	Naphthalene	353	42	12	ug/kg	
98-95-3	Nitrobenzene	ND	83	16	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	83	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	210	15	ug/kg	
85-01-8	Phenanthrene	281	42	14	ug/kg	
129-00-0	Pyrene	458	42	13	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	210	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	47%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-103(10-12) Lab Sample ID: JC86204-15 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/11/19 Date Received: 04/11/19 Percent Solids: 77.3
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	50%		27-114%
118-79-6	2,4,6-Tribromophenol	54%		19-152%
4165-60-0	Nitrobenzene-d5	63%		26-134%
321-60-8	2-Fluorobiphenyl	61%		39-124%
1718-51-0	Terphenyl-d14	75%		36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits high.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

4.15
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Report of Analysis

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Client Sample ID: S-103(13-15)	
Lab Sample ID: JC86204-16	Date Sampled: 04/11/19
Matrix: SO - Soil	Date Received: 04/11/19
Method: SW846 8260C	Percent Solids: 71.4
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184653.D	1	04/20/19 21:22	PS	n/a	n/a	VY8010
Run #2							

Run #1	Initial Weight
Run #1	3.7 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	25.5	19	9.5	ug/kg	
71-43-2	Benzene	ND	0.95	0.71	ug/kg	
74-97-5	Bromochloromethane	ND	9.5	0.81	ug/kg	
75-27-4	Bromodichloromethane	ND	3.8	0.84	ug/kg	
75-25-2	Bromoform	ND	9.5	0.76	ug/kg	
74-83-9	Bromomethane	ND	9.5	1.9	ug/kg	
78-93-3	2-Butanone (MEK)	ND	19	7.1	ug/kg	
75-15-0	Carbon disulfide	2.1	3.8	1.8	ug/kg	J
56-23-5	Carbon tetrachloride ^a	ND	3.8	1.0	ug/kg	
108-90-7	Chlorobenzene	ND	3.8	0.67	ug/kg	
75-00-3	Chloroethane	ND	9.5	1.3	ug/kg	
67-66-3	Chloroform	ND	3.8	0.70	ug/kg	
74-87-3	Chloromethane ^a	ND	9.5	3.7	ug/kg	
110-82-7	Cyclohexane ^a	ND	3.8	0.77	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.8	1.6	ug/kg	
124-48-1	Dibromochloromethane	ND	3.8	0.64	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.9	0.62	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.9	0.58	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.9	0.68	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.9	0.65	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	9.5	1.2	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.9	0.73	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.9	0.89	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.9	1.2	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.9	1.8	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.9	1.3	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.8	0.77	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.8	0.67	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.8	0.62	ug/kg	
100-41-4	Ethylbenzene	ND	1.9	1.0	ug/kg	
76-13-1	Freon 113 ^a	ND	9.5	1.4	ug/kg	
591-78-6	2-Hexanone	ND	9.5	2.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-103(13-15)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-16	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	71.4
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.8	1.3	ug/kg	
79-20-9	Methyl Acetate	ND	9.5	2.6	ug/kg	
108-87-2	Methylcyclohexane	ND	3.8	1.3	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.9	0.67	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	9.5	3.0	ug/kg	
75-09-2	Methylene chloride	ND	9.5	4.7	ug/kg	
100-42-5	Styrene	ND	3.8	1.1	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.8	0.74	ug/kg	
127-18-4	Tetrachloroethene	ND	3.8	0.87	ug/kg	
108-88-3	Toluene	ND	1.9	0.71	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	9.5	1.9	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	9.5	1.9	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.8	0.81	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.8	0.65	ug/kg	
79-01-6	Trichloroethene	ND	1.9	1.4	ug/kg	
75-69-4	Trichlorofluoromethane ^a	ND	9.5	1.3	ug/kg	
75-01-4	Vinyl chloride ^a	ND	3.8	0.89	ug/kg	
	m,p-Xylene	ND	1.9	1.4	ug/kg	
95-47-6	o-Xylene	ND	1.9	1.1	ug/kg	
1330-20-7	Xylene (total)	ND	1.9	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		75-127%
17060-07-0	1,2-Dichloroethane-D4	104%		75-130%
2037-26-5	Toluene-D8	96%		80-120%
460-00-4	4-Bromofluorobenzene	99%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-103(13-15)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-16	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	71.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z136990.D	1	04/17/19 00:48	AR	04/14/19 14:00	OP19741	EZ6751
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	92	23	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	230	28	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	230	39	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	230	81	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	230	170	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	230	49	ug/kg	
95-48-7	2-Methylphenol	ND	92	29	ug/kg	
	3&4-Methylphenol	ND	92	38	ug/kg	
88-75-5	2-Nitrophenol	ND	230	30	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	460	120	ug/kg	
87-86-5	Pentachlorophenol	ND	180	43	ug/kg	
108-95-2	Phenol	ND	92	24	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	230	30	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	230	34	ug/kg	
88-06-2	2,4,6-Trichlorophenol ^a	ND	230	27	ug/kg	
83-32-9	Acenaphthene	ND	46	16	ug/kg	
208-96-8	Acenaphthylene	ND	46	23	ug/kg	
98-86-2	Acetophenone	ND	230	9.8	ug/kg	
120-12-7	Anthracene	ND	46	28	ug/kg	
1912-24-9	Atrazine ^a	ND	92	20	ug/kg	
56-55-3	Benzo(a)anthracene	68.7	46	13	ug/kg	
50-32-8	Benzo(a)pyrene	67.9	46	21	ug/kg	
205-99-2	Benzo(b)fluoranthene	91.7	46	20	ug/kg	
191-24-2	Benzo(g,h,i)perylene ^b	70.9	46	23	ug/kg	J
207-08-9	Benzo(k)fluoranthene	28.8	46	21	ug/kg	J
101-55-3	4-Bromophenyl phenyl ether	ND	92	18	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	92	11	ug/kg	
92-52-4	1,1'-Biphenyl	ND	92	6.3	ug/kg	
100-52-7	Benzaldehyde	ND	230	11	ug/kg	
91-58-7	2-Chloronaphthalene	ND	92	11	ug/kg	
106-47-8	4-Chloroaniline	ND	230	16	ug/kg	
86-74-8	Carbazole	10.6	92	6.6	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-103(13-15)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-16	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	71.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	92	18	ug/kg	
218-01-9	Chrysene	74.6	46	14	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	92	9.8	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	92	20	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	92	16	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	92	15	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	46	14	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	46	23	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	92	38	ug/kg	
123-91-1	1,4-Dioxane	ND	46	30	ug/kg	
53-70-3	Dibenzo(a,h)anthracene ^b	20.2	46	20	ug/kg	J
132-64-9	Dibenzofuran	ND	92	19	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	92	7.5	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	92	11	ug/kg	
84-66-2	Diethyl phthalate	ND	92	9.7	ug/kg	
131-11-3	Dimethyl phthalate	ND	92	8.1	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	92	11	ug/kg	
206-44-0	Fluoranthene ^b	100	46	20	ug/kg	J
86-73-7	Fluorene	ND	46	21	ug/kg	
118-74-1	Hexachlorobenzene ^a	ND	92	12	ug/kg	
87-68-3	Hexachlorobutadiene	ND	46	18	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	460	18	ug/kg	
67-72-1	Hexachloroethane	ND	230	23	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene ^b	50.8	46	21	ug/kg	J
78-59-1	Isophorone	ND	92	9.8	ug/kg	
91-57-6	2-Methylnaphthalene	ND	46	10	ug/kg	
88-74-4	2-Nitroaniline ^a	ND	230	11	ug/kg	
99-09-2	3-Nitroaniline	ND	230	11	ug/kg	
100-01-6	4-Nitroaniline	ND	230	12	ug/kg	
91-20-3	Naphthalene	26.7	46	13	ug/kg	J
98-95-3	Nitrobenzene	ND	92	18	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	92	13	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	230	17	ug/kg	
85-01-8	Phenanthrene	89.7	46	15	ug/kg	
129-00-0	Pyrene	118	46	15	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	230	12	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	61%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-103(13-15) Lab Sample ID: JC86204-16 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/11/19 Date Received: 04/11/19 Percent Solids: 71.4
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	66%		27-114%
118-79-6	2,4,6-Tribromophenol	81%		19-152%
4165-60-0	Nitrobenzene-d5	81%		26-134%
321-60-8	2-Fluorobiphenyl	78%		39-124%
1718-51-0	Terphenyl-d14	95%		36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits high.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PSSTP-04R(1-2)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-17	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	86.1
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184654.D	1	04/20/19 21:50	PS	n/a	n/a	VY8010
Run #2							

Run #1	Initial Weight
Run #1	5.6 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	23.2	10	5.2	ug/kg	
71-43-2	Benzene	ND	0.52	0.39	ug/kg	
74-97-5	Bromochloromethane	ND	5.2	0.45	ug/kg	
75-27-4	Bromodichloromethane	ND	2.1	0.46	ug/kg	
75-25-2	Bromoform	ND	5.2	0.42	ug/kg	
74-83-9	Bromomethane	ND	5.2	1.0	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	3.9	ug/kg	
75-15-0	Carbon disulfide	ND	2.1	0.96	ug/kg	
56-23-5	Carbon tetrachloride ^a	ND	2.1	0.57	ug/kg	
108-90-7	Chlorobenzene	ND	2.1	0.37	ug/kg	
75-00-3	Chloroethane	ND	5.2	0.71	ug/kg	
67-66-3	Chloroform	ND	2.1	0.39	ug/kg	
74-87-3	Chloromethane ^a	ND	5.2	2.0	ug/kg	
110-82-7	Cyclohexane ^a	ND	2.1	0.42	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.1	0.87	ug/kg	
124-48-1	Dibromochloromethane	ND	2.1	0.35	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	0.34	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.32	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.37	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.36	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	5.2	0.66	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	0.40	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.49	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	0.68	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.99	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.69	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.1	0.42	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.1	0.37	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.1	0.34	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.57	ug/kg	
76-13-1	Freon 113 ^a	ND	5.2	0.79	ug/kg	
591-78-6	2-Hexanone	ND	5.2	1.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-04R(1-2)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-17	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	86.1
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.1	0.72	ug/kg	
79-20-9	Methyl Acetate	ND	5.2	1.4	ug/kg	
108-87-2	Methylcyclohexane	ND	2.1	0.73	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.37	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.2	1.6	ug/kg	
75-09-2	Methylene chloride	ND	5.2	2.6	ug/kg	
100-42-5	Styrene	ND	2.1	0.60	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.1	0.40	ug/kg	
127-18-4	Tetrachloroethene	ND	2.1	0.48	ug/kg	
108-88-3	Toluene	ND	1.0	0.39	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.2	1.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.2	1.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.1	0.44	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.1	0.35	ug/kg	
79-01-6	Trichloroethene	ND	1.0	0.79	ug/kg	
75-69-4	Trichlorofluoromethane ^a	ND	5.2	0.71	ug/kg	
75-01-4	Vinyl chloride ^a	ND	2.1	0.49	ug/kg	
	m,p-Xylene	ND	1.0	0.77	ug/kg	
95-47-6	o-Xylene	ND	1.0	0.60	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.60	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		75-127%
17060-07-0	1,2-Dichloroethane-D4	105%		75-130%
2037-26-5	Toluene-D8	96%		80-120%
460-00-4	4-Bromofluorobenzene	99%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PSSTP-04R(1-2)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-17	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	86.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z136994.D	1	04/17/19 02:39	AR	04/14/19 14:00	OP19741	EZ6751
Run #2	Z137127.D	5	04/19/19 21:15	AR	04/14/19 14:00	OP19741	EZ6755

Run #	Initial Weight	Final Volume
Run #1	31.0 g	1.0 ml
Run #2	31.0 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	75	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	32	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	190	67	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	190	40	ug/kg	
95-48-7	2-Methylphenol	ND	75	24	ug/kg	
	3&4-Methylphenol	ND	75	31	ug/kg	
88-75-5	2-Nitrophenol	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	370	100	ug/kg	
87-86-5	Pentachlorophenol	ND	150	35	ug/kg	
108-95-2	Phenol	ND	75	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	28	ug/kg	
88-06-2	2,4,6-Trichlorophenol ^a	ND	190	22	ug/kg	
83-32-9	Acenaphthene	348	37	13	ug/kg	
208-96-8	Acenaphthylene	229	37	19	ug/kg	
98-86-2	Acetophenone	ND	190	8.1	ug/kg	
120-12-7	Anthracene	871	37	23	ug/kg	
1912-24-9	Atrazine ^a	ND	75	16	ug/kg	
56-55-3	Benzo(a)anthracene	2790	37	11	ug/kg	
50-32-8	Benzo(a)pyrene	2370	37	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	2850	37	17	ug/kg	
191-24-2	Benzo(g,h,i)perylene ^b	1350	37	19	ug/kg	J
207-08-9	Benzo(k)fluoranthene	1010	37	17	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	75	14	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	75	9.1	ug/kg	
92-52-4	1,1'-Biphenyl	46.2	75	5.1	ug/kg	J
100-52-7	Benzaldehyde	ND	190	9.3	ug/kg	
91-58-7	2-Chloronaphthalene	ND	75	8.9	ug/kg	
106-47-8	4-Chloroaniline	ND	190	13	ug/kg	
86-74-8	Carbazole	344	75	5.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-04R(1-2)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-17	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	86.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	75	15	ug/kg	
218-01-9	Chrysene	2590	37	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	75	8.0	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	75	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	75	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	75	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	37	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	37	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	75	31	ug/kg	
123-91-1	1,4-Dioxane	ND	37	25	ug/kg	
53-70-3	Dibenzo(a,h)anthracene ^b	421	37	17	ug/kg	
132-64-9	Dibenzofuran	316	75	15	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	75	6.1	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	75	9.3	ug/kg	
84-66-2	Diethyl phthalate	ND	75	8.0	ug/kg	
131-11-3	Dimethyl phthalate	ND	75	6.7	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	75	8.8	ug/kg	
206-44-0	Fluoranthene	5450 ^c	190	84	ug/kg	D
86-73-7	Fluorene	472	37	17	ug/kg	
118-74-1	Hexachlorobenzene ^a	ND	75	9.5	ug/kg	
87-68-3	Hexachlorobutadiene	ND	37	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	370	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene ^b	1270	37	18	ug/kg	J
78-59-1	Isophorone	ND	75	8.0	ug/kg	
91-57-6	2-Methylnaphthalene	95.1	37	8.5	ug/kg	
88-74-4	2-Nitroaniline ^a	ND	190	8.8	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.4	ug/kg	
100-01-6	4-Nitroaniline	ND	190	9.7	ug/kg	
91-20-3	Naphthalene	160	37	11	ug/kg	
98-95-3	Nitrobenzene	ND	75	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	75	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	4190 ^c	190	63	ug/kg	D
129-00-0	Pyrene	4330 ^c	190	60	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.5	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	57%	47%	23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSSTP-04R(1-2)		Date Sampled: 04/11/19
Lab Sample ID: JC86204-17		Date Received: 04/11/19
Matrix: SO - Soil		Percent Solids: 86.1
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	61%	50%	27-114%
118-79-6	2,4,6-Tribromophenol	69%	53%	19-152%
4165-60-0	Nitrobenzene-d5	77%	70%	26-134%
321-60-8	2-Fluorobiphenyl	72%	71%	39-124%
1718-51-0	Terphenyl-d14	81%	64%	36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits high.
- (c) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: PSSTP-04R(1-2)	
Lab Sample ID: JC86204-17	Date Sampled: 04/11/19
Matrix: SO - Soil	Date Received: 04/11/19
Method: SW846 8081B SW846 3546	Percent Solids: 86.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1G152552.D	1	04/19/19 15:26	MH	04/19/19 09:50	OP19830	G1G4913
Run #2 ^a	6G64376.D	5	04/23/19 01:16	TL	04/19/19 09:50	OP19830	G6G1987

Run #	Initial Weight	Final Volume
Run #1	15.8 g	10.0 ml
Run #2	15.8 g	10.0 ml

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin ^b	15.2	0.74	0.61	ug/kg	JN
319-84-6	alpha-BHC	ND	0.74	0.60	ug/kg	
319-85-7	beta-BHC	ND	0.74	0.66	ug/kg	
319-86-8	delta-BHC	ND	0.74	0.71	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.74	0.54	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.74	0.59	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.74	0.33	ug/kg	
60-57-1	Dieldrin	17.6	0.74	0.51	ug/kg	
72-54-8	4,4'-DDD	ND	0.74	0.67	ug/kg	
72-55-9	4,4'-DDE	ND	0.74	0.64	ug/kg	
50-29-3	4,4'-DDT ^b	41.4	0.74	0.65	ug/kg	J
72-20-8	Endrin	ND	0.74	0.57	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.74	0.57	ug/kg	
7421-93-4	Endrin aldehyde ^b	17.9	0.74	0.42	ug/kg	JN
959-98-8	Endosulfan-I	ND	0.74	0.42	ug/kg	
33213-65-9	Endosulfan-II	ND	0.74	0.46	ug/kg	
76-44-8	Heptachlor	ND	0.74	0.63	ug/kg	
1024-57-3	Heptachlor epoxide ^b	11.1	0.74	0.52	ug/kg	JN
72-43-5	Methoxychlor	ND	1.5	0.58	ug/kg	
53494-70-5	Endrin ketone	ND	0.74	0.53	ug/kg	
8001-35-2	Toxaphene	ND	18	17	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	85%	82%	25-135%
877-09-8	Tetrachloro-m-xylene	82%	70%	25-135%
2051-24-3	Decachlorobiphenyl	124%	59%	10-156%
2051-24-3	Decachlorobiphenyl	538% ^c	411% ^c	10-156%

(a) Confirmation run.

(b) More than 40 % RPD for detected concentrations between the two GC columns.

(c) Outside control limits due to matrix interference.

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PSSTP-04R(1-2)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-17	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	86.1
Method:	SW846 8082A SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF189198.D	1	04/19/19 12:11	TR	04/19/19 09:50	OP19829	GEF6426
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	15.8 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	37	17	ug/kg	
11104-28-2	Aroclor 1221	ND	37	19	ug/kg	
11141-16-5	Aroclor 1232	ND	37	28	ug/kg	
53469-21-9	Aroclor 1242	ND	37	15	ug/kg	
12672-29-6	Aroclor 1248	ND	37	33	ug/kg	
11097-69-1	Aroclor 1254	1270	37	20	ug/kg	J
11096-82-5	Aroclor 1260	ND	37	16	ug/kg	
11100-14-4	Aroclor 1268	ND	37	16	ug/kg	
37324-23-5	Aroclor 1262	ND	37	24	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	117%		31-146%
877-09-8	Tetrachloro-m-xylene	102%		31-146%
2051-24-3	Decachlorobiphenyl	617% ^a		17-164%
2051-24-3	Decachlorobiphenyl	705% ^a		17-164%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Client Sample ID:	PSSTP-04R(7-8)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-18	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	80.9
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	I225637.D	1	04/23/19 13:25	TDN	n/a	n/a	VI9090
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	3.5 g	10.0 ml	1.0 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	190000	94000	ug/kg	
71-43-2	Benzene	16900	9400	7100	ug/kg	
74-97-5	Bromochloromethane	ND	94000	8100	ug/kg	
75-27-4	Bromodichloromethane	ND	38000	8300	ug/kg	
75-25-2	Bromoform	ND	94000	7600	ug/kg	
74-83-9	Bromomethane	ND	94000	19000	ug/kg	
78-93-3	2-Butanone (MEK)	ND	190000	70000	ug/kg	
75-15-0	Carbon disulfide	ND	38000	18000	ug/kg	
56-23-5	Carbon tetrachloride	ND	38000	10000	ug/kg	
108-90-7	Chlorobenzene	ND	38000	6700	ug/kg	
75-00-3	Chloroethane	ND	94000	13000	ug/kg	
67-66-3	Chloroform	ND	38000	7000	ug/kg	
74-87-3	Chloromethane	ND	94000	37000	ug/kg	
110-82-7	Cyclohexane	ND	38000	7600	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	38000	16000	ug/kg	
124-48-1	Dibromochloromethane	ND	38000	6400	ug/kg	
106-93-4	1,2-Dibromoethane ^b	ND	19000	6100	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	19000	5700	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	19000	6800	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	19000	6500	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	94000	12000	ug/kg	
75-34-3	1,1-Dichloroethane	ND	19000	7300	ug/kg	
107-06-2	1,2-Dichloroethane	ND	19000	8900	ug/kg	
75-35-4	1,1-Dichloroethene	ND	19000	12000	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	19000	18000	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	19000	13000	ug/kg	
78-87-5	1,2-Dichloropropane	ND	38000	7700	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	38000	6600	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	38000	6200	ug/kg	
100-41-4	Ethylbenzene	ND	19000	10000	ug/kg	
76-13-1	Freon 113	ND	94000	14000	ug/kg	
591-78-6	2-Hexanone	ND	94000	24000	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-04R(7-8)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-18	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	80.9
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	38000	13000	ug/kg	
79-20-9	Methyl Acetate	ND	94000	26000	ug/kg	
108-87-2	Methylcyclohexane	ND	38000	13000	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	19000	6600	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	94000	29000	ug/kg	
75-09-2	Methylene chloride	ND	94000	47000	ug/kg	
100-42-5	Styrene	ND	38000	11000	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	38000	7300	ug/kg	
127-18-4	Tetrachloroethene	ND	38000	8700	ug/kg	
108-88-3	Toluene	34500	19000	7100	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	94000	19000	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	94000	19000	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	38000	8000	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	38000	6400	ug/kg	
79-01-6	Trichloroethene	ND	19000	14000	ug/kg	
75-69-4	Trichlorofluoromethane	ND	94000	13000	ug/kg	
75-01-4	Vinyl chloride	ND	38000	8800	ug/kg	
	m,p-Xylene	73500	19000	14000	ug/kg	
95-47-6	o-Xylene	26500	19000	11000	ug/kg	
1330-20-7	Xylene (total)	100000	19000	11000	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		75-127%
17060-07-0	1,2-Dichloroethane-D4	97%		75-130%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	105%		79-127%

- (a) Diluted due to high concentration of non-target compound.
(b) This compound in BS is outside in house QC limits bias high.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSSTP-04R(7-8)	Date Sampled: 04/11/19
Lab Sample ID: JC86204-18	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 80.9
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	Z136996.D	5	04/17/19 03:35	AR	04/14/19 14:00	OP19741	EZ6751
Run #2	Z137128.D	50	04/19/19 21:43	AR	04/14/19 14:00	OP19741	EZ6755
Run #3	Z137112.D	1000	04/19/19 14:09	AR	04/14/19 14:00	OP19741	EZ6755

Run #	Initial Weight	Final Volume
Run #1	10.4 g	1.0 ml
Run #2	10.4 g	1.0 ml
Run #3	10.4 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	1200	290	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	3000	360	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	3000	510	ug/kg	
105-67-9	2,4-Dimethylphenol	58300	3000	1100	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	3000	2200	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	3000	640	ug/kg	
95-48-7	2-Methylphenol	52500 ^b	12000	3800	ug/kg	D
	3&4-Methylphenol	136000 ^b	12000	4900	ug/kg	D
88-75-5	2-Nitrophenol	ND	3000	390	ug/kg	
100-02-7	4-Nitrophenol ^c	ND	5900	1600	ug/kg	
87-86-5	Pentachlorophenol	ND	2400	560	ug/kg	
108-95-2	Phenol	69000 ^b	12000	3100	ug/kg	D
58-90-2	2,3,4,6-Tetrachlorophenol	ND	3000	390	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	3000	450	ug/kg	
88-06-2	2,4,6-Trichlorophenol ^c	ND	3000	350	ug/kg	
83-32-9	Acenaphthene	142000 ^b	5900	2100	ug/kg	D
208-96-8	Acenaphthylene	354000 ^b	5900	3000	ug/kg	D
98-86-2	Acetophenone	13300	3000	130	ug/kg	
120-12-7	Anthracene	883000 ^d	120000	73000	ug/kg	D
1912-24-9	Atrazine ^c	ND	1200	250	ug/kg	
56-55-3	Benzo(a)anthracene	819000 ^d	120000	34000	ug/kg	D
50-32-8	Benzo(a)pyrene	566000 ^d	120000	54000	ug/kg	D
205-99-2	Benzo(b)fluoranthene	723000 ^d	120000	53000	ug/kg	D
191-24-2	Benzo(g,h,i)perylene ^e	267000 ^b	5900	3000	ug/kg	DJ
207-08-9	Benzo(k)fluoranthene	261000 ^d	120000	56000	ug/kg	D
101-55-3	4-Bromophenyl phenyl ether	ND	1200	230	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	1200	150	ug/kg	
92-52-4	1,1'-Biphenyl	301000 ^b	12000	810	ug/kg	D
100-52-7	Benzaldehyde	ND	3000	150	ug/kg	
91-58-7	2-Chloronaphthalene	ND	1200	140	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	PSSTP-04R(7-8)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-18	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	80.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	3000	210	ug/kg	
86-74-8	Carbazole	573000 ^b	12000	860	ug/kg	D
105-60-2	Caprolactam ^c	ND	1200	230	ug/kg	
218-01-9	Chrysene	701000 ^d	120000	37000	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	1200	130	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	1200	260	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	1200	210	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	1200	190	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	590	180	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	590	300	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	1200	500	ug/kg	
123-91-1	1,4-Dioxane	ND	590	390	ug/kg	
53-70-3	Dibenzo(a,h)anthracene ^e	106000 ^b	5900	2600	ug/kg	DJ
132-64-9	Dibenzofuran	1220000 ^d	240000	48000	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	1200	97	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	1200	150	ug/kg	
84-66-2	Diethyl phthalate	ND	1200	130	ug/kg	
131-11-3	Dimethyl phthalate	ND	1200	110	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	1200	140	ug/kg	
206-44-0	Fluoranthene	2710000 ^d	120000	53000	ug/kg	D
86-73-7	Fluorene	2020000 ^d	120000	55000	ug/kg	D
118-74-1	Hexachlorobenzene ^c	ND	1200	150	ug/kg	
87-68-3	Hexachlorobutadiene	ND	590	240	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	5900	240	ug/kg	
67-72-1	Hexachloroethane	ND	3000	290	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene ^e	274000 ^b	5900	2800	ug/kg	DJ
78-59-1	Isophorone	ND	1200	130	ug/kg	
91-57-6	2-Methylnaphthalene	1780000 ^d	120000	27000	ug/kg	D
88-74-4	2-Nitroaniline ^c	ND	3000	140	ug/kg	
99-09-2	3-Nitroaniline	ND	3000	150	ug/kg	
100-01-6	4-Nitroaniline	ND	3000	150	ug/kg	
91-20-3	Naphthalene	9350000 ^d	120000	34000	ug/kg	D
98-95-3	Nitrobenzene	ND	1200	230	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	1200	170	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	3000	220	ug/kg	
85-01-8	Phenanthrene	4730000 ^d	120000	40000	ug/kg	D
129-00-0	Pyrene	1490000 ^d	120000	38000	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	3000	150	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-04R(7-8)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-18	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	80.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	64%	45%	0% ^f	23-115%
4165-62-2	Phenol-d5	87%	56%	0% ^f	27-114%
118-79-6	2,4,6-Tribromophenol	68%	40%	0% ^f	19-152%
4165-60-0	Nitrobenzene-d5	111%	78%	0% ^f	26-134%
321-60-8	2-Fluorobiphenyl	52%	69%	0% ^f	39-124%
1718-51-0	Terphenyl-d14	65%	81%	0% ^f	36-134%

(a) Dilution required due to matrix interference. Elevated detection limit due to low volume of sample extracted.

(b) Result is from Run# 2

(c) Associated CCV outside of control limits high, sample was ND.

(d) Result is from Run# 3

(e) Associated CCV outside of control limits high.

(f) Outside control limits due to dilution.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Client Sample ID:	PSSTP-04R(7-8)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-18	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	80.9
Method:	SW846 8081B SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G64384.D	1	04/23/19 04:12	TL	04/19/19 09:50	OP19830	G6G1987
Run #2 ^a	6G64386.D	5	04/23/19 05:18	TL	04/19/19 09:50	OP19830	G6G1987

Run #	Initial Weight	Final Volume
Run #1	5.0 g	10.0 ml
Run #2	5.0 g	10.0 ml

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	2.5	2.0	ug/kg	
319-84-6	alpha-BHC	ND	2.5	2.0	ug/kg	
319-85-7	beta-BHC	ND	2.5	2.2	ug/kg	
319-86-8	delta-BHC	ND	2.5	2.4	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	2.5	1.8	ug/kg	
5103-71-9	alpha-Chlordane	ND	2.5	2.0	ug/kg	
5103-74-2	gamma-Chlordane	ND	2.5	1.1	ug/kg	
60-57-1	Dieldrin	ND	2.5	1.7	ug/kg	
72-54-8	4,4'-DDD	ND	2.5	2.3	ug/kg	
72-55-9	4,4'-DDE ^b	12.7	2.5	2.2	ug/kg	JN
50-29-3	4,4'-DDT ^b	6.8	2.5	2.2	ug/kg	JN
72-20-8	Endrin	ND	2.5	1.9	ug/kg	
1031-07-8	Endosulfan sulfate	ND	2.5	1.9	ug/kg	
7421-93-4	Endrin aldehyde ^c	ND	2.5	1.4	ug/kg	UJ
959-98-8	Endosulfan-I	ND	2.5	1.4	ug/kg	
33213-65-9	Endosulfan-II	ND	2.5	1.5	ug/kg	
76-44-8	Heptachlor	ND	2.5	2.1	ug/kg	
1024-57-3	Heptachlor epoxide ^c	ND	2.5	1.7	ug/kg	UJ
72-43-5	Methoxychlor	ND	4.9	2.0	ug/kg	
53494-70-5	Endrin ketone	ND	2.5	1.8	ug/kg	
8001-35-2	Toxaphene	ND	62	58	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	20% ^d	309% ^e	25-135%
877-09-8	Tetrachloro-m-xylene	26%	417% ^e	25-135%
2051-24-3	Decachlorobiphenyl	10%	78%	10-156%
2051-24-3	Decachlorobiphenyl	218% ^e	319% ^e	10-156%

(a) Confirmation run.

(b) More than 40 % RPD for detected concentrations between the two GC columns.

(c) Associated CCV outside of control limits low.

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSSTP-04R(7-8)		Date Sampled: 04/11/19
Lab Sample ID: JC86204-18		Date Received: 04/11/19
Matrix: SO - Soil		Percent Solids: 80.9
Method: SW846 8081B SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

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Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
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- (d) Outside control limits due to matrix interference with the internal standard.
- (e) Outside control limits due to matrix interference.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

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Client Sample ID:	PSSTP-04R(7-8)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-18	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	80.9
Method:	SW846 8082A SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF189221.D	1	04/22/19 11:08	TR	04/19/19 09:50	OP19829	GEF6427
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	5.0 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016 ^a	ND	120	58	ug/kg	
11104-28-2	Aroclor 1221	ND	120	63	ug/kg	
11141-16-5	Aroclor 1232	ND	120	95	ug/kg	
53469-21-9	Aroclor 1242	ND	120	51	ug/kg	
12672-29-6	Aroclor 1248	ND	120	110	ug/kg	
11097-69-1	Aroclor 1254	ND	120	67	ug/kg	
11096-82-5	Aroclor 1260	ND	120	53	ug/kg	
11100-14-4	Aroclor 1268	ND	120	52	ug/kg	
37324-23-5	Aroclor 1262	ND	120	81	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	8971% ^b		31-146%
877-09-8	Tetrachloro-m-xylene	3956% ^b		31-146%
2051-24-3	Decachlorobiphenyl	675% ^b		17-164%
2051-24-3	Decachlorobiphenyl	3365% ^b		17-164%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PSSTP-04R(8-9)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-19	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	76.2
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	I225636.D	1	04/23/19 12:56	TDN	n/a	n/a	VI9090
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.5 g	10.0 ml	1.0 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	160000	81000	ug/kg	
71-43-2	Benzene	ND	8100	6100	ug/kg	
74-97-5	Bromochloromethane	ND	81000	6900	ug/kg	
75-27-4	Bromodichloromethane	ND	32000	7200	ug/kg	
75-25-2	Bromoform	ND	81000	6500	ug/kg	
74-83-9	Bromomethane	ND	81000	16000	ug/kg	
78-93-3	2-Butanone (MEK)	ND	160000	60000	ug/kg	
75-15-0	Carbon disulfide	ND	32000	15000	ug/kg	
56-23-5	Carbon tetrachloride	ND	32000	8900	ug/kg	
108-90-7	Chlorobenzene	ND	32000	5700	ug/kg	
75-00-3	Chloroethane	ND	81000	11000	ug/kg	
67-66-3	Chloroform	ND	32000	6000	ug/kg	
74-87-3	Chloromethane	ND	81000	32000	ug/kg	
110-82-7	Cyclohexane	ND	32000	6600	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	32000	13000	ug/kg	
124-48-1	Dibromochloromethane	ND	32000	5500	ug/kg	
106-93-4	1,2-Dibromoethane ^b	ND	16000	5200	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	16000	4900	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	16000	5800	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	16000	5600	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	81000	10000	ug/kg	
75-34-3	1,1-Dichloroethane	ND	16000	6200	ug/kg	
107-06-2	1,2-Dichloroethane	ND	16000	7600	ug/kg	
75-35-4	1,1-Dichloroethene	ND	16000	11000	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	16000	15000	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	16000	11000	ug/kg	
78-87-5	1,2-Dichloropropane	ND	32000	6600	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	32000	5700	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	32000	5300	ug/kg	
100-41-4	Ethylbenzene	ND	16000	8900	ug/kg	
76-13-1	Freon 113	ND	81000	12000	ug/kg	
591-78-6	2-Hexanone	ND	81000	21000	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-04R(8-9)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-19	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	76.2
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	32000	11000	ug/kg	
79-20-9	Methyl Acetate	ND	81000	22000	ug/kg	
108-87-2	Methylcyclohexane	ND	32000	11000	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	16000	5700	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	81000	25000	ug/kg	
75-09-2	Methylene chloride	ND	81000	40000	ug/kg	
100-42-5	Styrene	ND	32000	9300	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	32000	6300	ug/kg	
127-18-4	Tetrachloroethene	ND	32000	7500	ug/kg	
108-88-3	Toluene	ND	16000	6100	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	81000	16000	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	81000	16000	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	32000	6900	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	32000	5500	ug/kg	
79-01-6	Trichloroethene	ND	16000	12000	ug/kg	
75-69-4	Trichlorofluoromethane	ND	81000	11000	ug/kg	
75-01-4	Vinyl chloride	ND	32000	7600	ug/kg	
	m,p-Xylene	14300	16000	12000	ug/kg	J
95-47-6	o-Xylene	ND	16000	9400	ug/kg	
1330-20-7	Xylene (total)	14300	16000	9400	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		75-127%
17060-07-0	1,2-Dichloroethane-D4	96%		75-130%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	107%		79-127%

(a) Diluted due to high concentration of non-target compound.

(b) This compound in BS is outside in house QC limits bias high.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSSTP-04R(8-9)	Date Sampled: 04/11/19
Lab Sample ID: JC86204-19	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 76.2
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z136995.D	5	04/17/19 03:07	AR	04/14/19 14:00	OP19741	EZ6751
Run #2	Z137125.D	100	04/19/19 20:18	AR	04/14/19 14:00	OP19741	EZ6755
Run #3	Z137097.D	1000	04/19/19 02:54	AR	04/14/19 14:00	OP19741	EZ6754

Run #	Initial Weight	Final Volume
Run #1	31.0 g	1.0 ml
Run #2	31.0 g	1.0 ml
Run #3	31.0 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	420	100	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	1100	130	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	1100	180	ug/kg	
105-67-9	2,4-Dimethylphenol	2950	1100	380	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	1100	800	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	1100	230	ug/kg	
95-48-7	2-Methylphenol	3420	420	140	ug/kg	
	3&4-Methylphenol	2110	420	170	ug/kg	
88-75-5	2-Nitrophenol	ND	1100	140	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	2100	570	ug/kg	
87-86-5	Pentachlorophenol	ND	850	200	ug/kg	
108-95-2	Phenol	ND	420	110	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	1100	140	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	1100	160	ug/kg	
88-06-2	2,4,6-Trichlorophenol ^a	ND	1100	130	ug/kg	
83-32-9	Acenaphthene	23200 ^b	4200	1500	ug/kg	D
208-96-8	Acenaphthylene	95800 ^b	4200	2200	ug/kg	D
98-86-2	Acetophenone	677	1100	46	ug/kg	J
120-12-7	Anthracene	181000 ^b	4200	2600	ug/kg	D
1912-24-9	Atrazine ^a	ND	420	91	ug/kg	
56-55-3	Benzo(a)anthracene	168000 ^b	4200	1200	ug/kg	D
50-32-8	Benzo(a)pyrene	126000 ^b	4200	1900	ug/kg	D
205-99-2	Benzo(b)fluoranthene	165000 ^b	4200	1900	ug/kg	D
191-24-2	Benzo(g,h,i)perylene ^c	74900 ^b	4200	2100	ug/kg	DJ
207-08-9	Benzo(k)fluoranthene	60300 ^b	4200	2000	ug/kg	D
101-55-3	4-Bromophenyl phenyl ether	ND	420	82	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	420	52	ug/kg	
92-52-4	1,1'-Biphenyl	40100 ^b	8500	580	ug/kg	D
100-52-7	Benzaldehyde	ND	1100	52	ug/kg	
91-58-7	2-Chloronaphthalene	ND	420	50	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	PSSTP-04R(8-9)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-19	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	76.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	1100	76	ug/kg	
86-74-8	Carbazole	82500 ^b	8500	610	ug/kg	D
105-60-2	Caprolactam ^a	ND	420	84	ug/kg	
218-01-9	Chrysene	137000 ^b	4200	1300	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	420	45	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	420	91	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	420	76	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	420	69	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	210	66	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	210	110	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	420	180	ug/kg	
123-91-1	1,4-Dioxane	ND	210	140	ug/kg	
53-70-3	Dibenzo(a,h)anthracene ^c	19200 ^b	4200	1900	ug/kg	DJ
132-64-9	Dibenzofuran	196000 ^b	8500	1700	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	420	35	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	420	53	ug/kg	
84-66-2	Diethyl phthalate	ND	420	45	ug/kg	
131-11-3	Dimethyl phthalate	ND	420	38	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	420	50	ug/kg	
206-44-0	Fluoranthene ^c	587000 ^d	42000	19000	ug/kg	D
86-73-7	Fluorene	329000 ^b	4200	1900	ug/kg	D
118-74-1	Hexachlorobenzene ^a	ND	420	54	ug/kg	
87-68-3	Hexachlorobutadiene	ND	210	85	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	2100	84	ug/kg	
67-72-1	Hexachloroethane	ND	1100	100	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene ^c	67300 ^b	4200	2000	ug/kg	DJ
78-59-1	Isophorone	ND	420	45	ug/kg	
91-57-6	2-Methylnaphthalene	194000 ^b	4200	960	ug/kg	D
88-74-4	2-Nitroaniline ^a	ND	1100	50	ug/kg	
99-09-2	3-Nitroaniline	ND	1100	53	ug/kg	
100-01-6	4-Nitroaniline	ND	1100	55	ug/kg	
91-20-3	Naphthalene	869000 ^d	42000	12000	ug/kg	D
98-95-3	Nitrobenzene	ND	420	82	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	420	61	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	1100	77	ug/kg	
85-01-8	Phenanthrene	824000 ^d	42000	14000	ug/kg	D
129-00-0	Pyrene	369000 ^b	4200	1400	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	1100	54	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSSTP-04R(8-9)		Date Sampled: 04/11/19
Lab Sample ID: JC86204-19		Date Received: 04/11/19
Matrix: SO - Soil		Percent Solids: 76.2
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	64%	0% ^e	0% ^e	23-115%
4165-62-2	Phenol-d5	73%	0% ^e	0% ^e	27-114%
118-79-6	2,4,6-Tribromophenol	57%	0% ^e	0% ^e	19-152%
4165-60-0	Nitrobenzene-d5	81%	0% ^e	0% ^e	26-134%
321-60-8	2-Fluorobiphenyl	55%	0% ^e	0% ^e	39-124%
1718-51-0	Terphenyl-d14	60%	0% ^e	0% ^e	36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Result is from Run# 2
- (c) Associated CCV outside of control limits high.
- (d) Result is from Run# 3
- (e) Outside control limits due to dilution.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Client Sample ID: PSSTP-04R(8-9)	
Lab Sample ID: JC86204-19	Date Sampled: 04/11/19
Matrix: SO - Soil	Date Received: 04/11/19
Method: SW846 8081B SW846 3546	Percent Solids: 76.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G64388.D	1	04/23/19 06:25	TL	04/19/19 09:50	OP19830	G6G1987
Run #2 ^a	6G64390.D	5	04/23/19 07:32	TL	04/19/19 09:50	OP19830	G6G1987

Run #	Initial Weight	Final Volume
Run #1	15.2 g	10.0 ml
Run #2	15.2 g	10.0 ml

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.86	0.71	ug/kg	
319-84-6	alpha-BHC	ND	0.86	0.70	ug/kg	
319-85-7	beta-BHC	ND	0.86	0.78	ug/kg	
319-86-8	delta-BHC	ND	0.86	0.83	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.86	0.64	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.86	0.70	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.86	0.39	ug/kg	
60-57-1	Dieldrin	ND	0.86	0.59	ug/kg	
72-54-8	4,4'-DDD	ND	0.86	0.79	ug/kg	
72-55-9	4,4'-DDE	ND	0.86	0.76	ug/kg	
50-29-3	4,4'-DDT	0.97	0.86	0.76	ug/kg	
72-20-8	Endrin	ND	0.86	0.67	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.86	0.67	ug/kg	
7421-93-4	Endrin aldehyde ^b	ND	0.86	0.49	ug/kg	UJ
959-98-8	Endosulfan-I ^c	3.7	0.86	0.50	ug/kg	JN
33213-65-9	Endosulfan-II	ND	0.86	0.54	ug/kg	
76-44-8	Heptachlor	ND	0.86	0.74	ug/kg	
1024-57-3	Heptachlor epoxide ^b	ND	0.86	0.61	ug/kg	UJ
72-43-5	Methoxychlor	ND	1.7	0.69	ug/kg	
53494-70-5	Endrin ketone	ND	0.86	0.62	ug/kg	
8001-35-2	Toxaphene	ND	22	20	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	12% ^d	73% ^e	25-135%
877-09-8	Tetrachloro-m-xylene	36%	300% ^e	25-135%
2051-24-3	Decachlorobiphenyl	7% ^d	27%	10-156%
2051-24-3	Decachlorobiphenyl	33%	199% ^e	10-156%

(a) Confirmation run.

(b) Associated CCV outside of control limits low.

(c) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSSTP-04R(8-9)		Date Sampled: 04/11/19
Lab Sample ID: JC86204-19		Date Received: 04/11/19
Matrix: SO - Soil		Percent Solids: 76.2
Method: SW846 8081B SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

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Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
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- (d) Outside control limits due to matrix interference with the internal standard.
- (e) Outside control limits due to matrix interference.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

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Client Sample ID:	PSSTP-04R(8-9)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-19	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	76.2
Method:	SW846 8082A SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF189222.D	1	04/22/19 11:33	TR	04/19/19 09:50	OP19829	GEF6427
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	15.2 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016 ^a	ND	43	20	ug/kg	
11104-28-2	Aroclor 1221	ND	43	22	ug/kg	
11141-16-5	Aroclor 1232	ND	43	33	ug/kg	
53469-21-9	Aroclor 1242	ND	43	18	ug/kg	
12672-29-6	Aroclor 1248	ND	43	39	ug/kg	
11097-69-1	Aroclor 1254	ND	43	23	ug/kg	
11096-82-5	Aroclor 1260	ND	43	18	ug/kg	
11100-14-4	Aroclor 1268	ND	43	18	ug/kg	
37324-23-5	Aroclor 1262	ND	43	28	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	9750% ^b		31-146%
877-09-8	Tetrachloro-m-xylene	4880% ^b		31-146%
2051-24-3	Decachlorobiphenyl	1956% ^b		17-164%
2051-24-3	Decachlorobiphenyl	6362% ^b		17-164%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PSSTP-04R(16-17)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-20	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	81.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184677.D	1	04/22/19 17:40	PS	n/a	n/a	VY8011
Run #2							

Run #1	Initial Weight
Run #1	4.6 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	51.0	13	6.7	ug/kg	
71-43-2	Benzene	ND	0.67	0.50	ug/kg	
74-97-5	Bromochloromethane	ND	6.7	0.57	ug/kg	
75-27-4	Bromodichloromethane	ND	2.7	0.59	ug/kg	
75-25-2	Bromoform	ND	6.7	0.54	ug/kg	
74-83-9	Bromomethane	ND	6.7	1.3	ug/kg	
78-93-3	2-Butanone (MEK)	5.9	13	5.0	ug/kg	J
75-15-0	Carbon disulfide	2.5	2.7	1.2	ug/kg	J
56-23-5	Carbon tetrachloride	ND	2.7	0.74	ug/kg	
108-90-7	Chlorobenzene	ND	2.7	0.47	ug/kg	
75-00-3	Chloroethane	ND	6.7	0.92	ug/kg	
67-66-3	Chloroform	ND	2.7	0.50	ug/kg	
74-87-3	Chloromethane	ND	6.7	2.6	ug/kg	
110-82-7	Cyclohexane	ND	2.7	0.54	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.7	1.1	ug/kg	
124-48-1	Dibromochloromethane	ND	2.7	0.45	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.3	0.43	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.3	0.41	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.3	0.48	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.3	0.46	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.7	0.85	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.3	0.51	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.3	0.63	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.3	0.88	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.3	1.3	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.3	0.89	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.7	0.54	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.7	0.47	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.7	0.44	ug/kg	
100-41-4	Ethylbenzene	ND	1.3	0.74	ug/kg	
76-13-1	Freon 113	ND	6.7	1.0	ug/kg	
591-78-6	2-Hexanone	ND	6.7	1.7	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-04R(16-17)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-20	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	81.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.7	0.93	ug/kg	
79-20-9	Methyl Acetate	ND	6.7	1.9	ug/kg	
108-87-2	Methylcyclohexane	ND	2.7	0.95	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.3	0.47	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.7	2.1	ug/kg	
75-09-2	Methylene chloride	ND	6.7	3.3	ug/kg	
100-42-5	Styrene	ND	2.7	0.77	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.7	0.52	ug/kg	
127-18-4	Tetrachloroethene	ND	2.7	0.62	ug/kg	
108-88-3	Toluene	ND	1.3	0.50	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.7	1.3	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.7	1.3	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.7	0.57	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.7	0.46	ug/kg	
79-01-6	Trichloroethene	ND	1.3	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.7	0.91	ug/kg	
75-01-4	Vinyl chloride	ND	2.7	0.63	ug/kg	
	m,p-Xylene	ND	1.3	1.0	ug/kg	
95-47-6	o-Xylene	ND	1.3	0.78	ug/kg	
1330-20-7	Xylene (total)	ND	1.3	0.78	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	113%		75-127%
17060-07-0	1,2-Dichloroethane-D4	99%		75-130%
2037-26-5	Toluene-D8	89%		80-120%
460-00-4	4-Bromofluorobenzene	96%		79-127%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PSSTP-04R(16-17)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-20	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	81.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z136991.D	1	04/17/19 01:16	AR	04/14/19 14:00	OP19741	EZ6751
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	81	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	25	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	35	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	72	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	200	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	200	44	ug/kg	
95-48-7	2-Methylphenol	ND	81	26	ug/kg	
	3&4-Methylphenol	ND	81	33	ug/kg	
88-75-5	2-Nitrophenol	ND	200	27	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	410	110	ug/kg	
87-86-5	Pentachlorophenol	ND	160	38	ug/kg	
108-95-2	Phenol	ND	81	21	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	27	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	31	ug/kg	
88-06-2	2,4,6-Trichlorophenol ^a	ND	200	24	ug/kg	
83-32-9	Acenaphthene	67.9	41	14	ug/kg	
208-96-8	Acenaphthylene	35.9	41	21	ug/kg	J
98-86-2	Acetophenone	ND	200	8.8	ug/kg	
120-12-7	Anthracene	184	41	25	ug/kg	
1912-24-9	Atrazine ^a	ND	81	17	ug/kg	
56-55-3	Benzo(a)anthracene	489	41	12	ug/kg	
50-32-8	Benzo(a)pyrene	400	41	19	ug/kg	
205-99-2	Benzo(b)fluoranthene	450	41	18	ug/kg	
191-24-2	Benzo(g,h,i)perylene ^b	250	41	20	ug/kg	J
207-08-9	Benzo(k)fluoranthene	163	41	19	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	81	16	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	81	9.9	ug/kg	
92-52-4	1,1'-Biphenyl	14.0	81	5.6	ug/kg	J
100-52-7	Benzaldehyde	ND	200	10	ug/kg	
91-58-7	2-Chloronaphthalene	ND	81	9.7	ug/kg	
106-47-8	4-Chloroaniline	ND	200	15	ug/kg	
86-74-8	Carbazole	77.0	81	5.9	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-04R(16-17)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-20	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	81.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	81	16	ug/kg	
218-01-9	Chrysene	462	41	13	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	81	8.7	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	81	18	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	81	15	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	81	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	41	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	41	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	81	34	ug/kg	
123-91-1	1,4-Dioxane	ND	41	27	ug/kg	
53-70-3	Dibenzo(a,h)anthracene ^b	68.5	41	18	ug/kg	J
132-64-9	Dibenzofuran	67.1	81	17	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	81	6.6	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	81	10	ug/kg	
84-66-2	Diethyl phthalate	ND	81	8.7	ug/kg	
131-11-3	Dimethyl phthalate	ND	81	7.2	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	81	9.5	ug/kg	
206-44-0	Fluoranthene ^b	695	41	18	ug/kg	
86-73-7	Fluorene	112	41	19	ug/kg	
118-74-1	Hexachlorobenzene ^a	ND	81	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	41	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	410	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	20	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene ^b	219	41	19	ug/kg	J
78-59-1	Isophorone	ND	81	8.7	ug/kg	
91-57-6	2-Methylnaphthalene	55.7	41	9.2	ug/kg	
88-74-4	2-Nitroaniline ^a	ND	200	9.6	ug/kg	
99-09-2	3-Nitroaniline	ND	200	10	ug/kg	
100-01-6	4-Nitroaniline	ND	200	11	ug/kg	
91-20-3	Naphthalene	79.2	41	11	ug/kg	
98-95-3	Nitrobenzene	ND	81	16	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	81	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	15	ug/kg	
85-01-8	Phenanthrene	655	41	14	ug/kg	
129-00-0	Pyrene	781	41	13	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	57%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSSTP-04R(16-17) Lab Sample ID: JC86204-20 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/11/19 Date Received: 04/11/19 Percent Solids: 81.3
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	61%		27-114%
118-79-6	2,4,6-Tribromophenol	71%		19-152%
4165-60-0	Nitrobenzene-d5	77%		26-134%
321-60-8	2-Fluorobiphenyl	69%		39-124%
1718-51-0	Terphenyl-d14	82%		36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits high.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	PSSTP-04R(16-17)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-20	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	81.3
Method:	SW846 8081B SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G64381.D	1	04/23/19 02:47	TL	04/19/19 09:50	OP19830	G6G1987
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	16.7 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.74	0.61	ug/kg	
319-84-6	alpha-BHC	ND	0.74	0.60	ug/kg	
319-85-7	beta-BHC	ND	0.74	0.67	ug/kg	
319-86-8	delta-BHC	ND	0.74	0.71	ug/kg	
58-89-9	gamma-BHC (Lindane) ^a	0.71 ND	0.74	0.54	ug/kg	J U
5103-71-9	alpha-Chlordane	ND	0.74	0.59	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.74	0.33	ug/kg	
60-57-1	Dieldrin	ND	0.74	0.51	ug/kg	
72-54-8	4,4'-DDD	ND	0.74	0.68	ug/kg	
72-55-9	4,4'-DDE	ND	0.74	0.65	ug/kg	
50-29-3	4,4'-DDT	ND	0.74	0.65	ug/kg	
72-20-8	Endrin	ND	0.74	0.57	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.74	0.58	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.74	0.42	ug/kg	
959-98-8	Endosulfan-I	ND	0.74	0.42	ug/kg	
33213-65-9	Endosulfan-II	ND	0.74	0.46	ug/kg	
76-44-8	Heptachlor	ND	0.74	0.63	ug/kg	
1024-57-3	Heptachlor epoxide	ND	0.74	0.52	ug/kg	
72-43-5	Methoxychlor	ND	1.5	0.59	ug/kg	
53494-70-5	Endrin ketone	ND	0.74	0.53	ug/kg	
8001-35-2	Toxaphene	ND	18	17	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	64%		25-135%
877-09-8	Tetrachloro-m-xylene	56%		25-135%
2051-24-3	Decachlorobiphenyl	69%		10-156%
2051-24-3	Decachlorobiphenyl	111%		10-156%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PSSTP-04R(16-17)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-20	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	81.3
Method:	SW846 8082A SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF189223.D	1	04/22/19 11:58	TR	04/19/19 09:50	OP19829	GEF6427
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	16.2 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016 ^a	ND	38	18	ug/kg	
11104-28-2	Aroclor 1221	ND	38	19	ug/kg	
11141-16-5	Aroclor 1232	ND	38	29	ug/kg	
53469-21-9	Aroclor 1242	ND	38	16	ug/kg	
12672-29-6	Aroclor 1248	ND	38	34	ug/kg	
11097-69-1	Aroclor 1254	ND	38	20	ug/kg	
11096-82-5	Aroclor 1260	ND	38	16	ug/kg	
11100-14-4	Aroclor 1268	ND	38	16	ug/kg	
37324-23-5	Aroclor 1262	ND	38	25	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	66%		31-146%
877-09-8	Tetrachloro-m-xylene	82%		31-146%
2051-24-3	Decachlorobiphenyl	265% ^b		17-164%
2051-24-3	Decachlorobiphenyl	780% ^b		17-164%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: PCTP-28R(6-8)		Date Sampled: 04/11/19
Lab Sample ID: JC86204-21		Date Received: 04/11/19
Matrix: SO - Soil		Percent Solids: 87.3
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184656.D	1	04/20/19 22:47	PS	n/a	n/a	VY8010
Run #2							

Run #1	Initial Weight
Run #1	4.9 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	38.1	12	5.8	ug/kg	
71-43-2	Benzene	ND	0.58	0.44	ug/kg	
74-97-5	Bromochloromethane	ND	5.8	0.50	ug/kg	
75-27-4	Bromodichloromethane	ND	2.3	0.52	ug/kg	
75-25-2	Bromoform	ND	5.8	0.47	ug/kg	
74-83-9	Bromomethane	ND	5.8	1.2	ug/kg	
78-93-3	2-Butanone (MEK)	4.5	12	4.4	ug/kg	J
75-15-0	Carbon disulfide	6.8	2.3	1.1	ug/kg	
56-23-5	Carbon tetrachloride ^a	ND	2.3	0.64	ug/kg	
108-90-7	Chlorobenzene	ND	2.3	0.41	ug/kg	
75-00-3	Chloroethane	ND	5.8	0.80	ug/kg	
67-66-3	Chloroform	ND	2.3	0.43	ug/kg	
74-87-3	Chloromethane ^a	ND	5.8	2.3	ug/kg	
110-82-7	Cyclohexane ^a	ND	2.3	0.47	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.3	0.98	ug/kg	
124-48-1	Dibromochloromethane	ND	2.3	0.40	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.2	0.38	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.2	0.36	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.2	0.42	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.2	0.40	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	5.8	0.74	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.2	0.45	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.2	0.55	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.2	0.77	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.2	1.1	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.2	0.78	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.3	0.48	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.3	0.41	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.3	0.38	ug/kg	
100-41-4	Ethylbenzene	ND	1.2	0.65	ug/kg	
76-13-1	Freon 113 ^a	ND	5.8	0.89	ug/kg	
591-78-6	2-Hexanone	ND	5.8	1.5	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-28R(6-8)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-21	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	87.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.3	0.81	ug/kg	
79-20-9	Methyl Acetate	ND	5.8	1.6	ug/kg	
108-87-2	Methylcyclohexane	ND	2.3	0.83	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.2	0.41	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.8	1.8	ug/kg	
75-09-2	Methylene chloride	ND	5.8	2.9	ug/kg	
100-42-5	Styrene	ND	2.3	0.67	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.3	0.46	ug/kg	
127-18-4	Tetrachloroethene	ND	2.3	0.54	ug/kg	
108-88-3	Toluene	ND	1.2	0.44	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.8	1.2	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.8	1.2	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.3	0.50	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.3	0.40	ug/kg	
79-01-6	Trichloroethene	ND	1.2	0.89	ug/kg	
75-69-4	Trichlorofluoromethane ^a	ND	5.8	0.80	ug/kg	
75-01-4	Vinyl chloride ^a	ND	2.3	0.55	ug/kg	
	m,p-Xylene	ND	1.2	0.87	ug/kg	
95-47-6	o-Xylene	ND	1.2	0.68	ug/kg	
1330-20-7	Xylene (total)	ND	1.2	0.68	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	108%		75-127%
17060-07-0	1,2-Dichloroethane-D4	108%		75-130%
2037-26-5	Toluene-D8	94%		80-120%
460-00-4	4-Bromofluorobenzene	98%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 3

Client Sample ID: PCTP-28R(6-8)	
Lab Sample ID: JC86204-21	Date Sampled: 04/11/19
Matrix: SO - Soil	Date Received: 04/11/19
Method: SW846 8270D SW846 3546	Percent Solids: 87.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z136993.D	1	04/17/19 02:12	AR	04/14/19 14:00	OP19741	EZ6751
Run #2	Z137126.D	20	04/19/19 20:46	AR	04/14/19 14:00	OP19741	EZ6755

Run #	Initial Weight	Final Volume
Run #1	31.8 g	1.0 ml
Run #2	31.8 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	72	18	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	180	22	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	180	31	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	180	64	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	180	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	180	39	ug/kg	
95-48-7	2-Methylphenol	ND	72	23	ug/kg	
	3&4-Methylphenol	ND	72	30	ug/kg	
88-75-5	2-Nitrophenol	ND	180	24	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	360	96	ug/kg	
87-86-5	Pentachlorophenol	ND	140	34	ug/kg	
108-95-2	Phenol	ND	72	19	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	180	24	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	180	27	ug/kg	
88-06-2	2,4,6-Trichlorophenol ^a	ND	180	21	ug/kg	
83-32-9	Acenaphthene	700	36	12	ug/kg	
208-96-8	Acenaphthylene	1120	36	18	ug/kg	
98-86-2	Acetophenone	ND	180	7.7	ug/kg	
120-12-7	Anthracene	3550	36	22	ug/kg	
1912-24-9	Atrazine ^a	ND	72	15	ug/kg	
56-55-3	Benzo(a)anthracene	8110 ^b	720	200	ug/kg	D
50-32-8	Benzo(a)pyrene	6420 ^b	720	330	ug/kg	D
205-99-2	Benzo(b)fluoranthene	8610 ^b	720	320	ug/kg	D
191-24-2	Benzo(g,h,i)perylene ^c	3480 ^b	720	360	ug/kg	DJ
207-08-9	Benzo(k)fluoranthene	3310	36	17	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	72	14	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	72	8.8	ug/kg	
92-52-4	1,1'-Biphenyl	51.8	72	4.9	ug/kg	J
100-52-7	Benzaldehyde	ND	180	8.9	ug/kg	
91-58-7	2-Chloronaphthalene	ND	72	8.6	ug/kg	
106-47-8	4-Chloroaniline	ND	180	13	ug/kg	
86-74-8	Carbazole	1190	72	5.2	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-28R(6-8)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-21	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	87.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	72	14	ug/kg	
218-01-9	Chrysene	7190 ^b	720	230	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	72	7.7	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	72	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	72	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	72	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	36	11	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	36	18	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	72	30	ug/kg	
123-91-1	1,4-Dioxane	ND	36	24	ug/kg	
53-70-3	Dibenzo(a,h)anthracene ^c	1680	36	16	ug/kg	J
132-64-9	Dibenzofuran	774	72	15	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	72	5.9	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	72	9.0	ug/kg	
84-66-2	Diethyl phthalate	ND	72	7.7	ug/kg	
131-11-3	Dimethyl phthalate	ND	72	6.4	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	116	72	8.4	ug/kg	
206-44-0	Fluoranthene	22900 ^b	720	320	ug/kg	D
86-73-7	Fluorene	1940	36	17	ug/kg	
118-74-1	Hexachlorobenzene ^a	ND	72	9.1	ug/kg	
87-68-3	Hexachlorobutadiene	ND	36	14	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	360	14	ug/kg	
67-72-1	Hexachloroethane	ND	180	18	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene ^c	3380 ^b	720	340	ug/kg	DJ
78-59-1	Isophorone	ND	72	7.7	ug/kg	
91-57-6	2-Methylnaphthalene	122	36	8.1	ug/kg	
88-74-4	2-Nitroaniline ^a	ND	180	8.5	ug/kg	
99-09-2	3-Nitroaniline	ND	180	9.0	ug/kg	
100-01-6	4-Nitroaniline	ND	180	9.3	ug/kg	
91-20-3	Naphthalene	259	36	10	ug/kg	
98-95-3	Nitrobenzene	ND	72	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	72	10	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	180	13	ug/kg	
85-01-8	Phenanthrene	9390 ^b	720	240	ug/kg	D
129-00-0	Pyrene	14400 ^b	720	230	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	180	9.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	53%	39%	23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-28R(6-8)		Date Sampled: 04/11/19
Lab Sample ID: JC86204-21		Date Received: 04/11/19
Matrix: SO - Soil		Percent Solids: 87.3
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	57%	43%	27-114%
118-79-6	2,4,6-Tribromophenol	58%	39%	19-152%
4165-60-0	Nitrobenzene-d5	70%	66%	26-134%
321-60-8	2-Fluorobiphenyl	67%	60%	39-124%
1718-51-0	Terphenyl-d14	75%	63%	36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Result is from Run# 2
- (c) Associated CCV outside of control limits high.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: PCTP-28R(11-12)	
Lab Sample ID: JC86204-22	Date Sampled: 04/11/19
Matrix: SO - Soil	Date Received: 04/11/19
Method: SW846 8260C	Percent Solids: 73.4
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184657.D	1	04/20/19 23:16	PS	n/a	n/a	VY8010
Run #2							

Run #1	Initial Weight
Run #1	2.8 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	43.5	24	12	ug/kg	
71-43-2	Benzene	ND	1.2	0.92	ug/kg	
74-97-5	Bromochloromethane	ND	12	1.0	ug/kg	
75-27-4	Bromodichloromethane	ND	4.9	1.1	ug/kg	
75-25-2	Bromoform	ND	12	0.98	ug/kg	
74-83-9	Bromomethane	ND	12	2.4	ug/kg	
78-93-3	2-Butanone (MEK)	ND	24	9.1	ug/kg	
75-15-0	Carbon disulfide	3.5	4.9	2.3	ug/kg	J
56-23-5	Carbon tetrachloride ^a	ND	4.9	1.3	ug/kg	
108-90-7	Chlorobenzene	ND	4.9	0.86	ug/kg	
75-00-3	Chloroethane	ND	12	1.7	ug/kg	
67-66-3	Chloroform	ND	4.9	0.91	ug/kg	
74-87-3	Chloromethane ^a	ND	12	4.8	ug/kg	
110-82-7	Cyclohexane ^a	ND	4.9	0.99	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	4.9	2.0	ug/kg	
124-48-1	Dibromochloromethane	ND	4.9	0.82	ug/kg	
106-93-4	1,2-Dibromoethane	ND	2.4	0.79	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	2.4	0.74	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	2.4	0.87	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	2.4	0.84	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	12	1.5	ug/kg	
75-34-3	1,1-Dichloroethane	ND	2.4	0.94	ug/kg	
107-06-2	1,2-Dichloroethane	ND	2.4	1.1	ug/kg	
75-35-4	1,1-Dichloroethene	ND	2.4	1.6	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	2.4	2.3	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	2.4	1.6	ug/kg	
78-87-5	1,2-Dichloropropane	ND	4.9	0.99	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	4.9	0.86	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	4.9	0.80	ug/kg	
100-41-4	Ethylbenzene	ND	2.4	1.3	ug/kg	
76-13-1	Freon 113 ^a	ND	12	1.9	ug/kg	
591-78-6	2-Hexanone	ND	12	3.1	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-28R(11-12)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-22	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	73.4
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	4.9	1.7	ug/kg	
79-20-9	Methyl Acetate	ND	12	3.4	ug/kg	
108-87-2	Methylcyclohexane	ND	4.9	1.7	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	2.4	0.86	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	12	3.8	ug/kg	
75-09-2	Methylene chloride	ND	12	6.1	ug/kg	
100-42-5	Styrene	ND	4.9	1.4	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	4.9	0.95	ug/kg	
127-18-4	Tetrachloroethene	ND	4.9	1.1	ug/kg	
108-88-3	Toluene	ND	2.4	0.91	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	12	2.4	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	12	2.4	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	4.9	1.0	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	4.9	0.83	ug/kg	
79-01-6	Trichloroethene	ND	2.4	1.9	ug/kg	
75-69-4	Trichlorofluoromethane ^a	ND	12	1.7	ug/kg	
75-01-4	Vinyl chloride ^a	ND	4.9	1.1	ug/kg	
	m,p-Xylene	ND	2.4	1.8	ug/kg	
95-47-6	o-Xylene	ND	2.4	1.4	ug/kg	
1330-20-7	Xylene (total)	ND	2.4	1.4	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		75-127%
17060-07-0	1,2-Dichloroethane-D4	105%		75-130%
2037-26-5	Toluene-D8	97%		80-120%
460-00-4	4-Bromofluorobenzene	90%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-28R(11-12)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-22	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	73.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Z136992.D	1	04/17/19 01:44	AR	04/14/19 14:00	OP19741	EZ6751
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.8 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	88	22	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	220	27	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	220	38	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	220	79	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	220	170	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	220	47	ug/kg	
95-48-7	2-Methylphenol	ND	88	28	ug/kg	
	3&4-Methylphenol	ND	88	36	ug/kg	
88-75-5	2-Nitrophenol	ND	220	29	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	440	120	ug/kg	
87-86-5	Pentachlorophenol	ND	180	42	ug/kg	
108-95-2	Phenol	ND	88	23	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	220	29	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	220	33	ug/kg	
88-06-2	2,4,6-Trichlorophenol ^a	ND	220	26	ug/kg	
83-32-9	Acenaphthene	373	44	15	ug/kg	
208-96-8	Acenaphthylene	ND	44	22	ug/kg	
98-86-2	Acetophenone	ND	220	9.5	ug/kg	
120-12-7	Anthracene	ND	44	27	ug/kg	
1912-24-9	Atrazine ^a	ND	88	19	ug/kg	
56-55-3	Benzo(a)anthracene	36.2	44	13	ug/kg	J
50-32-8	Benzo(a)pyrene	ND	44	20	ug/kg	
205-99-2	Benzo(b)fluoranthene	25.0	44	20	ug/kg	J
191-24-2	Benzo(g,h,i)perylene ^a	ND	44	22	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	44	21	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	88	17	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	88	11	ug/kg	
92-52-4	1,1'-Biphenyl	152	88	6.1	ug/kg	
100-52-7	Benzaldehyde	ND	220	11	ug/kg	
91-58-7	2-Chloronaphthalene	ND	88	11	ug/kg	
106-47-8	4-Chloroaniline	ND	220	16	ug/kg	
86-74-8	Carbazole	ND	88	6.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-28R(11-12)	Date Sampled:	04/11/19
Lab Sample ID:	JC86204-22	Date Received:	04/11/19
Matrix:	SO - Soil	Percent Solids:	73.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam ^a	ND	88	17	ug/kg	
218-01-9	Chrysene	51.5	44	14	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	88	9.5	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	88	19	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	88	16	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	88	14	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	44	14	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	44	22	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	88	37	ug/kg	
123-91-1	1,4-Dioxane	ND	44	29	ug/kg	
53-70-3	Dibenzo(a,h)anthracene ^a	ND	44	20	ug/kg	
132-64-9	Dibenzofuran	ND	88	18	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	88	7.2	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	88	11	ug/kg	
84-66-2	Diethyl phthalate	ND	88	9.4	ug/kg	
131-11-3	Dimethyl phthalate	ND	88	7.9	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	88	10	ug/kg	
206-44-0	Fluoranthene ^b	60.7	44	20	ug/kg	J
86-73-7	Fluorene	ND	44	20	ug/kg	
118-74-1	Hexachlorobenzene ^a	ND	88	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	44	18	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	440	18	ug/kg	
67-72-1	Hexachloroethane	ND	220	22	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene ^a	ND	44	21	ug/kg	
78-59-1	Isophorone	ND	88	9.5	ug/kg	
91-57-6	2-Methylnaphthalene	318	44	10	ug/kg	
88-74-4	2-Nitroaniline ^a	ND	220	10	ug/kg	
99-09-2	3-Nitroaniline	ND	220	11	ug/kg	
100-01-6	4-Nitroaniline	ND	220	11	ug/kg	
91-20-3	Naphthalene	415	44	12	ug/kg	
98-95-3	Nitrobenzene	ND	88	17	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	88	13	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	220	16	ug/kg	
85-01-8	Phenanthrene	ND	44	15	ug/kg	
129-00-0	Pyrene	125	44	14	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	220	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	52%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-28R(11-12)		Date Sampled: 04/11/19
Lab Sample ID: JC86204-22		Date Received: 04/11/19
Matrix: SO - Soil		Percent Solids: 73.4
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	56%		27-114%
118-79-6	2,4,6-Tribromophenol	61%		19-152%
4165-60-0	Nitrobenzene-d5	83%		26-134%
321-60-8	2-Fluorobiphenyl	61%		39-124%
1718-51-0	Terphenyl-d14	73%		36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits high.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.22
4

Report of Analysis

Client Sample ID: PSSTP-01R(5-6)	Date Sampled: 04/10/19
Lab Sample ID: JC86204-1	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 81.8
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	10900	59	9.6	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Antimony	3.6	2.4	0.49	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Arsenic	4.1	2.4	0.33	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Barium	77.9	24	2.3	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Beryllium	0.56	0.24	0.095	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Cadmium	0.33 J	0.59	0.083	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Calcium	86800	3000	260	mg/kg	5	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁴
Chromium	28.4	1.2	0.44	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Cobalt	5.5 J	5.9	0.33	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Copper	33.3	3.0	1.0	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Iron	13900	59	23	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Lead	300	2.4	0.49	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Magnesium	5480	590	16	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Manganese	235	1.8	0.49	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Mercury	0.14	0.039	0.017	mg/kg	1	04/17/19	04/17/19	LL	SW846 7471B ² SW846 7471B ⁵
Nickel	13.7	4.8	0.42	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Potassium	1700	1200	38	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Selenium	0.77 U	2.4	0.77	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Silver	0.20 U	0.59	0.20	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Sodium	217 J	1200	92	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Thallium	0.69 U	1.2	0.69	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Vanadium	20.0	5.9	0.23	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Zinc	179	5.9	2.7	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴

- (1) Instrument QC Batch: MA46518
- (2) Instrument QC Batch: MA46520
- (3) Instrument QC Batch: MA46527
- (4) Prep QC Batch: MP14202
- (5) Prep QC Batch: MP14296

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.1
4

Report of Analysis

Client Sample ID: PSSTP-01R(5-6)	Date Sampled: 04/10/19
Lab Sample ID: JC86204-1	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 81.8
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.58	0.26	0.13	mg/kg	1	04/23/19 15:16 KI	SW846	9012B/LACHAT
Solids, Percent	81.8			%	1	04/16/19 16:30 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.1
4

Report of Analysis

Client Sample ID: PCTP-73R(0.0-0.5)	Date Sampled: 04/10/19
Lab Sample ID: JC86204-4	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 78.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	8940	62	9.9	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Antimony	1.4 J	2.5	0.51	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Arsenic	5.3	2.5	0.35	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Barium	83.1	25	2.3	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Beryllium	0.42	0.25	0.099	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Cadmium	1.2	0.62	0.086	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Calcium	26700	1200	110	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁴
Chromium	19.8	1.2	0.46	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Cobalt	5.4 J	6.2	0.35	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Copper	75.1	3.1	1.0	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Iron	14400	62	24	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Lead	248	2.5	0.51	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Magnesium	7550	620	17	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Manganese	200	1.8	0.51	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Mercury	0.48	0.042	0.018	mg/kg	1	04/17/19	04/17/19	LL	SW846 7471B ² SW846 7471B ⁵
Nickel	19.7	4.9	0.43	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Potassium	1230	1200	39	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Selenium	0.80 U	2.5	0.80	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Silver	0.21 U	0.62	0.21	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Sodium	187 J	1200	96	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Thallium	0.72 U	1.2	0.72	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Vanadium	37.0	6.2	0.23	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Zinc	234	6.2	2.8	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴

- (1) Instrument QC Batch: MA46518
- (2) Instrument QC Batch: MA46520
- (3) Instrument QC Batch: MA46527
- (4) Prep QC Batch: MP14202
- (5) Prep QC Batch: MP14296

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.4
 4

Report of Analysis

Client Sample ID: PCTP-73R(0.0-0.5)	Date Sampled: 04/10/19
Lab Sample ID: JC86204-4	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 78.3
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.45	0.26	0.13	mg/kg	1	04/23/19 15:20 KI	SW846	9012B/LACHAT
Solids, Percent	78.3			%	1	04/16/19 16:30 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.4
4

Report of Analysis

Client Sample ID: PCTP-75R(10-12)	Date Sampled: 04/11/19
Lab Sample ID: JC86204-13	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 71.8
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	1770	70	11	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Antimony	0.58 U	2.8	0.58	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Arsenic	7.7	2.8	0.39	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Barium	34.0	28	2.7	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Beryllium	0.37	0.28	0.11	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Cadmium	0.18 J	0.70	0.098	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Calcium	1510	700	62	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Chromium	4.1	1.4	0.52	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Cobalt	5.7 J	7.0	0.39	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Copper	16.0	3.5	1.2	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Iron	6180	70	27	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Lead	31.9	2.8	0.58	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Magnesium	307 J	700	19	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Manganese	23.9	2.1	0.58	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Mercury	0.043	0.034	0.015	mg/kg	1	04/17/19	04/17/19	LL	SW846 7471B ² SW846 7471B ⁴
Nickel	11.8	5.6	0.49	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Potassium	152 J	1400	45	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Selenium	1.5 J	2.8	0.91	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Silver	0.24 U	0.70	0.24	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Sodium	110 U	1400	110	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Thallium	0.82 U	1.4	0.82	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Vanadium	6.8 J	7.0	0.27	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Zinc	61.0	7.0	3.2	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³

- (1) Instrument QC Batch: MA46518
- (2) Instrument QC Batch: MA46520
- (3) Prep QC Batch: MP14202
- (4) Prep QC Batch: MP14296

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCTP-75R(10-12)	Date Sampled: 04/11/19
Lab Sample ID: JC86204-13	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 71.8
Project: National Grid, Philly Coke, Philadelphia, PA	

4.13
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.41	0.32	0.16	mg/kg	1	04/23/19 15:21 KI	SW846	9012B/LACHAT
Solids, Percent	71.8			%	1	04/16/19 16:30 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCTP-75R(14-16)	Date Sampled: 04/11/19
Lab Sample ID: JC86204-14	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 79.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	4450	61	9.8	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Antimony	0.50 U	2.4	0.50	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Arsenic ^a	11.5	4.9	0.68	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁵
Barium	119	24	2.3	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Beryllium	0.46	0.24	0.098	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Cadmium	0.085 J	0.61	0.085	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Calcium	2560	610	54	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Chromium	10.0	1.2	0.45	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Cobalt	9.9	6.1	0.34	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Copper ^a	27.7	6.1	2.0	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁵
Iron	32400	120	47	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁵
Lead	28.2	2.4	0.50	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Magnesium	363 J	610	17	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Manganese ^a	151	3.7	1.0	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁵
Mercury	0.020 J	0.036	0.016	mg/kg	1	04/17/19	04/17/19	LL	SW846 7471B ² SW846 7471B ⁶
Nickel	23.2	4.9	0.43	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Potassium	466 J	1200	39	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Selenium ^a	1.6 U	4.9	1.6	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁵
Silver ^a	0.44 J	1.2	0.41	mg/kg	2	04/15/19	04/18/19	GT	SW846 6010D ⁴ SW846 3050B ⁵
Sodium	193 J	1200	95	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Thallium ^a	1.4 U	2.4	1.4	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁵
Vanadium	14.8	6.1	0.23	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Zinc	51.3	6.1	2.8	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵

- (1) Instrument QC Batch: MA46518
- (2) Instrument QC Batch: MA46520
- (3) Instrument QC Batch: MA46527
- (4) Instrument QC Batch: MA46534
- (5) Prep QC Batch: MP14202
- (6) Prep QC Batch: MP14296

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCTP-75R(14-16)	Date Sampled: 04/11/19
Lab Sample ID: JC86204-14	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 79.2
Project: National Grid, Philly Coke, Philadelphia, PA	

4.14
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.32	0.26	0.13	mg/kg	1	04/23/19 15:23 KI	SW846	9012B/LACHAT
Solids, Percent	79.2			%	1	04/16/19 16:30 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PSSTP-04R(1-2)	Date Sampled: 04/11/19
Lab Sample ID: JC86204-17	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 86.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	13500	57	9.2	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Antimony	0.47 U	2.3	0.47	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Arsenic	5.8	2.3	0.32	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Barium	80.1	23	2.2	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Beryllium	0.64	0.23	0.091	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Cadmium	0.38 J	0.57	0.080	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Calcium	21200	570	50	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Chromium	23.8	1.1	0.42	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Cobalt	7.2	5.7	0.32	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Copper	49.3	2.8	0.95	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Iron	19700	57	22	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Lead	523	2.3	0.47	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Magnesium	9490	570	16	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Manganese	286	1.7	0.47	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Mercury	0.71	0.037	0.016	mg/kg	1	04/17/19	04/17/19	LL	SW846 7471B ² SW846 7471B ⁴
Nickel	14.9	4.5	0.40	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Potassium	1560	1100	36	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Selenium	0.74 U	2.3	0.74	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Silver	0.19 U	0.57	0.19	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Sodium	121 J	1100	88	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Thallium	0.66 U	1.1	0.66	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Vanadium	32.9	5.7	0.22	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³
Zinc	126	5.7	2.6	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ³

- (1) Instrument QC Batch: MA46518
- (2) Instrument QC Batch: MA46520
- (3) Prep QC Batch: MP14202
- (4) Prep QC Batch: MP14296

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PSSTP-04R(1-2)	Date Sampled: 04/11/19
Lab Sample ID: JC86204-17	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 86.1
Project: National Grid, Philly Coke, Philadelphia, PA	

4.17
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.23 J	0.25	0.12	mg/kg	1	04/23/19 15:24	KI	SW846 9012B/LACHAT
Solids, Percent	86.1			%	1	04/16/19 16:30	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PSSTP-04R(7-8)	Date Sampled: 04/11/19
Lab Sample ID: JC86204-18	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 80.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	1090	62	10	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Antimony	20.6	2.5	0.51	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Arsenic ^a	10.2 J	12	1.7	mg/kg	5	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁵
Barium	74.4	25	2.4	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Beryllium	0.099 U	0.25	0.099	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Cadmium	0.68	0.62	0.087	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Calcium	3650	620	55	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Chromium	791	1.2	0.46	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Cobalt	12.5	6.2	0.35	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Copper ^a	452	16	5.2	mg/kg	5	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁵
Iron	71400	310	120	mg/kg	5	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁵
Lead ^a	78.6	12	2.5	mg/kg	5	04/15/19	04/18/19	GT	SW846 6010D ⁴ SW846 3050B ⁵
Magnesium	218 J	620	17	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Manganese ^a	351	9.3	2.5	mg/kg	5	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁵
Mercury	0.79	0.036	0.016	mg/kg	1	04/17/19	04/17/19	LL	SW846 7471B ² SW846 7471B ⁶
Nickel	164	5.0	0.43	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Potassium	44.4 J	1200	39	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Selenium ^a	4.0 U	12	4.0	mg/kg	5	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁵
Silver ^a	1.1 U	3.1	1.1	mg/kg	5	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁵
Sodium	97 U	1200	97	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Thallium ^a	3.6 U	6.2	3.6	mg/kg	5	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁵
Vanadium	17.9	6.2	0.24	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Zinc	178	6.2	2.9	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵

- (1) Instrument QC Batch: MA46518
- (2) Instrument QC Batch: MA46520
- (3) Instrument QC Batch: MA46527
- (4) Instrument QC Batch: MA46534
- (5) Prep QC Batch: MP14202
- (6) Prep QC Batch: MP14296

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PSSTP-04R(7-8)	Date Sampled: 04/11/19
Lab Sample ID: JC86204-18	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 80.9
Project: National Grid, Philly Coke, Philadelphia, PA	

4.18
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	2.7	0.27	0.14	mg/kg	1	04/23/19 15:25	KI	SW846 9012B/LACHAT
Solids, Percent	80.9			%	1	04/16/19 16:30	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PSSTP-04R(8-9)	Date Sampled: 04/11/19
Lab Sample ID: JC86204-19	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 76.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	3230	68	11	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Antimony	1.4 J	2.7	0.55	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Arsenic ^a	19.7	5.4	0.76	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁴
Barium	134	27	2.6	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Beryllium	0.45	0.27	0.11	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Cadmium	0.54 J	0.68	0.095	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Calcium	4040	680	60	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Chromium	157	1.4	0.50	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Cobalt	5.3 J	6.8	0.38	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Copper ^a	129	6.8	2.3	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁴
Iron	28700	140	52	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁴
Lead	127	2.7	0.55	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Magnesium	645 J	680	18	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Manganese ^a	152	4.1	1.1	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁴
Mercury	1.9	0.21	0.092	mg/kg	5	04/17/19	04/17/19	LL	SW846 7471B ² SW846 7471B ⁵
Nickel	33.0	5.4	0.47	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Potassium	456 J	1400	43	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Selenium ^a	1.9 J	5.4	1.8	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁴
Silver ^a	0.46 U	1.4	0.46	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁴
Sodium	111 J	1400	110	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Thallium ^a	1.6 U	2.7	1.6	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁴
Vanadium	22.4	6.8	0.26	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Zinc	108	6.8	3.1	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴

- (1) Instrument QC Batch: MA46518
- (2) Instrument QC Batch: MA46520
- (3) Instrument QC Batch: MA46527
- (4) Prep QC Batch: MP14202
- (5) Prep QC Batch: MP14296

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PSSTP-04R(8-9)	Date Sampled: 04/11/19
Lab Sample ID: JC86204-19	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 76.2
Project: National Grid, Philly Coke, Philadelphia, PA	

4.19
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	14.7	0.28	0.14	mg/kg	1	04/23/19 15:27 KI	SW846	9012B/LACHAT
Solids, Percent	76.2			%	1	04/16/19 16:30 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PSSTP-04R(16-17)		Date Sampled: 04/11/19
Lab Sample ID: JC86204-20		Date Received: 04/11/19
Matrix: SO - Soil		Percent Solids: 81.3
Project: National Grid, Philly Coke, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	12600	64	10	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Antimony	3.5	2.6	0.52	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Arsenic ^a	29.7	13	1.8	mg/kg	5	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁵
Barium	70.8	26	2.4	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Beryllium	9.5	0.26	0.10	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Cadmium ^a	0.45 U	3.2	0.45	mg/kg	5	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁵
Calcium	2310	640	57	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Chromium	283	1.3	0.47	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Cobalt	65.2	6.4	0.36	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Copper ^a	219	16	5.4	mg/kg	5	04/15/19	04/18/19	GT	SW846 6010D ⁴ SW846 3050B ⁵
Iron	124000	320	120	mg/kg	5	04/15/19	04/18/19	GT	SW846 6010D ⁴ SW846 3050B ⁵
Lead ^a	457	13	2.6	mg/kg	5	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁵
Magnesium	741	640	17	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Manganese ^a	1120	9.6	2.6	mg/kg	5	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁵
Mercury	0.052	0.038	0.017	mg/kg	1	04/17/19	04/17/19	LL	SW846 7471B ² SW846 7471B ⁶
Nickel ^a	2480	26	2.2	mg/kg	5	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁵
Potassium	390 J	1300	41	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Selenium ^a	4.2 U	13	4.2	mg/kg	5	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁵
Silver ^a	1.1 U	3.2	1.1	mg/kg	5	04/15/19	04/18/19	GT	SW846 6010D ⁴ SW846 3050B ⁵
Sodium	150 J	1300	100	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Thallium ^a	3.7 U	6.4	3.7	mg/kg	5	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁵
Vanadium	40.4	6.4	0.24	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵
Zinc	228	6.4	2.9	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁵

- (1) Instrument QC Batch: MA46518
- (2) Instrument QC Batch: MA46520
- (3) Instrument QC Batch: MA46527
- (4) Instrument QC Batch: MA46534
- (5) Prep QC Batch: MP14202
- (6) Prep QC Batch: MP14296

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.20
4

Report of Analysis

Client Sample ID: PSSTP-04R(16-17)	Date Sampled: 04/11/19
Lab Sample ID: JC86204-20	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 81.3
Project: National Grid, Philly Coke, Philadelphia, PA	

4.20
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.59	0.28	0.14	mg/kg	1	04/23/19 15:28	KI	SW846 9012B/LACHAT
Solids, Percent	81.3			%	1	04/16/19 16:30	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCTP-28R(6-8)	Date Sampled: 04/11/19
Lab Sample ID: JC86204-21	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 87.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	12900	56	9.1	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Antimony	0.46 U	2.3	0.46	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Arsenic	5.7	2.3	0.32	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Barium	190	23	2.1	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Beryllium	1.2	0.23	0.090	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Cadmium	0.84	0.56	0.079	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Calcium	61000	2800	250	mg/kg	5	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁴
Chromium	38.4	1.1	0.42	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Cobalt	6.9	5.6	0.32	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Copper	66.1	2.8	0.95	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Iron	14800	56	22	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Lead	233	2.3	0.46	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Magnesium	10400	560	15	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Manganese	804	1.7	0.46	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Mercury	0.016 U	0.037	0.016	mg/kg	1	04/17/19	04/17/19	LL	SW846 7471B ² SW846 7471B ⁵
Nickel	14.0	4.5	0.39	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Potassium	1330	1100	36	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Selenium	0.79 J	2.3	0.73	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Silver	0.19 U	0.56	0.19	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Sodium	265 J	1100	88	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Thallium	0.65 U	1.1	0.65	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Vanadium	22.2	5.6	0.21	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Zinc	239	5.6	2.6	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴

- (1) Instrument QC Batch: MA46518
- (2) Instrument QC Batch: MA46520
- (3) Instrument QC Batch: MA46527
- (4) Prep QC Batch: MP14202
- (5) Prep QC Batch: MP14296

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCTP-28R(6-8)	Date Sampled: 04/11/19
Lab Sample ID: JC86204-21	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 87.3
Project: National Grid, Philly Coke, Philadelphia, PA	

4.21
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	2.4	0.24	0.12	mg/kg	1	04/23/19 15:29 KI	SW846	9012B/LACHAT
Solids, Percent	87.3			%	1	04/16/19 16:30 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCTP-28R(11-12)	Date Sampled: 04/11/19
Lab Sample ID: JC86204-22	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 73.4
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	3590	66	11	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Antimony	1.3 J	2.6	0.54	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Arsenic ^a	31.6	5.3	0.74	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁴
Barium	61.0	26	2.5	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Beryllium	0.37	0.26	0.11	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Cadmium	0.49 J	0.66	0.093	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Calcium	3440	660	58	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Chromium	6.5	1.3	0.49	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Cobalt	7.2	6.6	0.37	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Copper ^a	46.9	6.6	2.2	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁴
Iron	35800	130	51	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁴
Lead	92.0	2.6	0.54	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Magnesium	650 J	660	18	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Manganese ^a	157	4.0	1.1	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁴
Mercury	0.074	0.043	0.019	mg/kg	1	04/17/19	04/17/19	LL	SW846 7471B ² SW846 7471B ⁵
Nickel	24.6	5.3	0.46	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Potassium	356 J	1300	42	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Selenium ^a	1.7 U	5.3	1.7	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁴
Silver ^a	0.45 U	1.3	0.45	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁴
Sodium	140 J	1300	100	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Thallium ^a	1.5 U	2.6	1.5	mg/kg	2	04/15/19	04/17/19	ND	SW846 6010D ³ SW846 3050B ⁴
Vanadium	13.1	6.6	0.25	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴
Zinc	154	6.6	3.0	mg/kg	1	04/15/19	04/16/19	ND	SW846 6010D ¹ SW846 3050B ⁴

- (1) Instrument QC Batch: MA46518
- (2) Instrument QC Batch: MA46520
- (3) Instrument QC Batch: MA46527
- (4) Prep QC Batch: MP14202
- (5) Prep QC Batch: MP14296

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCTP-28R(11-12)	Date Sampled: 04/11/19
Lab Sample ID: JC86204-22	Date Received: 04/11/19
Matrix: SO - Soil	Percent Solids: 73.4
Project: National Grid, Philly Coke, Philadelphia, PA	

4.22
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.30	0.30	0.15	mg/kg	1	04/23/19 15:31 KI	SW846	9012B/LACHAT
Solids, Percent	73.4			%	1	04/16/19 16:30 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

National Grid

Philly Coke

DATA REVIEW

Philadelphia, Pennsylvania

Volatile Organic Compound (VOC), Semivolatile Organic Compounds (SVOC), Pesticides, PCBs, Metals,
and Miscellaneous Analyses

SDG # JC86337

Analyses Reported By:
SGS Laboratories
Dayton, New Jersey

Report #33340R
Review Level: Tier II
Project: 30004026 (B0036790.0001) 00006

DATA REVIEW REPORT

SUMMARY

This data review report summarizes the review of Sample Delivery Group (SDG) #JC86337 for samples collected in association with the National Grid Philly Coke site in Philadelphia, Pennsylvania. The review was conducted as a Tier II evaluation and included review of laboratory analytical data package completeness. Field documentation was not included in this review. Included with this assessment are the post-validation annotated sample result sheets, and chain of custody (COC). Analyses were performed on the following samples

SDG Number	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PEST/PCB	Metals	MISC
JC86337	PCTP-66R-HC (0-2) (04-04-2019)	JC86337-1	Soil	4/4/2019		X	X	X	X	X
	PCTP-66R-HC (2-4) (04-04-2019)	JC86337-2	Soil	4/4/2019		X	X	X	X	X
	PCTP-02R(4-6) (04-05-2019)	JC86337-3	Soil	4/5/2019		X	X		X	X
	PCTP-01R(5-7) (04-05-2019)	JC86337-4	Soil	4/5/2019		X	X		X	X
	PCSB-01R (14-16) (04-05-2019)	JC86337-5	Soil	4/5/2019		X	X		X	X
	PCSB-01R (18-20) (04-05-2019)	JC86337-6	Soil	4/5/2019		X	X		X	X
	S-138 (0.0-0.5) (04-05-2019)	JC86337-7	Soil	4/5/2019				PCB		
	S-138 (0.5-2.0) (04-05-2019)	JC86337-8	Soil	4/5/2019				PCB		

Notes:

1. PEST/PCB = Pesticides and polychlorinated biphenyls
2. SVOC = Semivolatile Organic Compounds
3. VOC = Volatile Organic Compound
4. MISC = Miscellaneous (total cyanide)

DATA REVIEW REPORT

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW REPORT

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260C, 8270D, 8081A and 8082A. Data were reviewed in accordance with the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540/R-2017-002, January 2017 and the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, EPA540/R-99/008, October 1999 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

DATA REVIEW REPORT

that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times/Preservation

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis (preserved) 7 days from collection to analysis (non-preserved)	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis (Samples stored in deionized water must be frozen or analyzed within 48 hours)	Cool to <6 °C.

Note:

s.u. Standard units

The samples were received eight days from collection. The samples collected and analyzed from the deionized water fraction were not received frozen.

The analyses that exceeded the holding are presented in the following table.

Sample Locations	Holding Time	Criteria
PCTP-66R-HC (0-2) (04-04-2019) PCTP-66R-HC (2-4) (04-04-2019) PCTP-02R(4-6) (04-05-2019) PCTP-01R(5-7) (04-05-2019) PCSB-01R (18-20) (04-05-2019)	8 days to freezing at laboratory (unpreserved deionized water fraction)	<48 hours

Sample results associated with sample locations analyzed by analytical method SW-846 8260 were qualified, as specified in the table below. All other holding times were met.

Criteria	Qualification	
	Detected Analytes	Non-detect Analytes
Analysis completed greater than two times holding time	J	R

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks

DATA REVIEW REPORT

containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
PCSB-01R (14-16)	1,2-Dichloroethane-d4	AC
	4-Bromofluorobenzene	> UL
	Dibromofluoromethane	AC
	Toluene-d8	AC

Notes:

UCL Upper control limit
AC Acceptable

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
	Detect	J
< LL but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

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A laboratory duplicate was performed in replacement of an MS/MSD for sample PCTP-02R(4-6).

All analytes associated with laboratory duplicate RPD were within the control limit, with the exception of the analytes presented in the following table.

Sample Location	Analytes	Laboratory RPD
PCTP-02R(4-6) (04-05-2019)	Acetone	116%

The criteria used to evaluate laboratory duplicate RPD are presented in the following table. In the case of a laboratory duplicate RPD deviation, the sample results are qualified. The qualifications are applied to the all sample results associated with this SDG.

Sample Concentration	Control Limit	Sample Result	Qualification
Parent sample and laboratory sample concentration >5 times detection limit	Soil 35%	Non-detect	UJ
		Detect	J
Parent sample and/or laboratory duplicate sample result \leq five times the RL and difference between samples >RL	Soil two times RL	Non-detect	UJ
		Detect	J

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS/LCSD analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery	LCSD Recovery
PCTP-66R-HC (2-4) (04-04-2019) PCSB-01R (14-16) (04-05-2019)	1,2-Dibromoethane	>UL	--

Note:

AC = Acceptable

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

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6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ). No volatile results required qualification due to calibration exceedances.

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X	X		
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Trip blanks	X				X
Laboratory Control Sample (LCS)		X	X		
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)		X		X	
Matrix Spike Duplicate(MSD)	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X	X		
Surrogate Spike Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

- %RSD Relative standard deviation
- %R Percent recovery
- RPD Relative percent difference
- %D Percent difference

DATA REVIEW REPORT

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

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Sample Locations	Compound	MS Recovery	MSD Recovery
PCTP-66R-HC (0-2) (04-04-2019)	Anthracene	<10%	<10%
	Benzo(g,h,i)perylene	AC	<10%
	Fluorene	AC	<10%
	Indeno(1,2,3-cd)pyrene	AC	<10%

Note:

AC Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Parent sample concentration > four times the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

The LCS/LCSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

Several samples were diluted to bring target compounds within linear range of the instrument. Sample results that were reported from a secondary dilution were qualified with a "D", indicating the result is diluted.

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8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

DATA REVIEW REPORT

PESTICIDE ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8081A	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. Herbicide analysis requires that one of the two pesticide surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
PCTP-66R-HC (0-2)	Tetrachloro-m-xylene	AC
PCTP-66R-HC (2-4)	Decachlorobiphenyl	> UL

Notes:

Upper control limit (UL)

Acceptable (AC)

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

DATA REVIEW REPORT

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
One surrogate exhibiting recovery outside the control limits but > 10%	Non-detect	No Action
	Detect	

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD analysis was not performed on a sample within this SDG.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 40% for water matrices and 70% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

7. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows for both the primary and confirmation columns. When dual column analysis is performed the percent difference (%D) of detected sample results must be less than 40%.

All detected compounds exhibited %D between the two columns within control limits.

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8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR PESTICIDES

Pesticides; SW-846 8081	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)	X				X
Matrix Spike Duplicate(MSD)	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X	X		
Column %D ≤ 40% (If dual column is performed for reporting-not confirmation)		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%RSD – relative standard deviation

%R - percent recovery

RPD - relative percent difference

%D – difference.

DATA REVIEW REPORT

POLYCHLORINATED BIPHENYLS (PCBs) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8082A	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. PCB analysis requires that one of the two PCB surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
PCTP-66R-HC (0-2) (04-04-2019) PCTP-66R-HC (2-4) (04-04-2019)	Tetrachloro-m-xylene	AC
S-138 (0.0-0.5) (04-05-2019) S-138 (0.5-2.0) (04-05-2019)	Decachlorobiphenyl	> UL

Notes:

Upper control limit (UL)

Lower control limit (LL)

Acceptable (AC)

DATA REVIEW REPORT

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
One surrogate exhibiting recovery outside the control limits but > 10%	Non-detect	No Action
	Detect	

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD was not performed on a sample within this SDG.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

7. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows for both the primary and confirmation columns. When dual column analysis is performed the relative percent difference (%RPD) of detected sample results must be less than 40%.

All detected compounds exhibited %D between the two columns within control limits.

DATA REVIEW REPORT

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR PCBs

PCBs; SW-846 8082A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X	X		
Column (%D) (If dual column is performed-not confirmation purposes only)		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	

%R - percent recovery

RPD - relative percent difference

%D – difference

DATA REVIEW REPORT

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6010D, 7471A, and 9012B. Data were reviewed in accordance with the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA 540/R-2017-001, January 2017; and the USEPA CLP National Functional Guidelines for Inorganic Data Review, EPA 540-R-01-008, July 2002 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6010D	Water	180 days from collection to analysis	Preserved to a pH of less than 2.
	Soil	180 days from collection to analysis	Cool to <6 °C.
SW-846 7471A	Soil	28 days from collection to analysis	Cool to <6 °C.
SW-846 7470A	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL and/or were non-detect. No qualification of the sample results was required.

3. Matrix Spike (MS)/Matrix Spike Duplicate(MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS/MSD recoveries were within control limits.

DATA REVIEW REPORT

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD analysis exhibited RPDs within the control limits.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR METAL

METALS; SW846 6010D/7471A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field Blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate (MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)	X				X
Total vs. Dissolved	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Cyanide by SW-846 9012	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of greater than 12.
	Soil		Cool to <6 °C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

The MS analysis exhibited recovery within control limits.

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

The laboratory duplicate analysis exhibited RPD within control limits.

DATA REVIEW REPORT

4. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis is not required for this analysis.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: EPA 9012	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Dilution Factor		X		X	
Moisture Content					X

Notes:

%R - percent recovery

RPD - relative percent difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: July 5, 2019

PEER REVIEW: Dennis Capria

DATE: July 22, 2019

CHAIN OF CUSTODY SAMPLE ANALYSIS DATA SHEETS



SGS LabLink@1039014 11:10 10-May-2019

Report of Analysis

Page 1 of 2

Client Sample ID: PCTP-66R-HC (0-2)	Date Sampled: 04/04/19
Lab Sample ID: JC86337-1	Date Received: 04/12/19
Matrix: SO - Soil	Percent Solids: 83.7
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	Y184543.D	1	04/17/19 11:30	PS	n/a	n/a	VY8006
Run #2							

Run #	Initial Weight
Run #1	3.1 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	19	9.6	ug/kg	R
71-43-2	Benzene	ND	0.96	0.73	ug/kg	
74-97-5	Bromochloromethane	ND	9.6	0.83	ug/kg	
75-27-4	Bromodichloromethane	ND	3.9	0.85	ug/kg	
75-25-2	Bromoform	ND	9.6	0.78	ug/kg	
74-83-9	Bromomethane	ND	9.6	1.9	ug/kg	
78-93-3	2-Butanone (MEK)	ND	19	7.2	ug/kg	
75-15-0	Carbon disulfide	ND	3.9	1.8	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.9	1.1	ug/kg	
108-90-7	Chlorobenzene	ND	3.9	0.68	ug/kg	
75-00-3	Chloroethane	ND	9.6	1.3	ug/kg	
67-66-3	Chloroform	ND	3.9	0.72	ug/kg	
74-87-3	Chloromethane	ND	9.6	3.8	ug/kg	
110-82-7	Cyclohexane	ND	3.9	0.78	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.9	1.6	ug/kg	
124-48-1	Dibromochloromethane	ND	3.9	0.65	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.9	0.63	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.9	0.59	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.9	0.69	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.9	0.66	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	9.6	1.2	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.9	0.74	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.9	0.91	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.9	1.3	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.9	1.8	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.9	1.3	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.9	0.78	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.9	0.68	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.9	0.63	ug/kg	
100-41-4	Ethylbenzene	ND	1.9	1.1	ug/kg	
76-13-1	Freon 113	ND	9.6	1.5	ug/kg	
591-78-6	2-Hexanone	ND	9.6	2.4	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-66R-HC (0-2)		Date Sampled: 04/04/19
Lab Sample ID: JC86337-1		Date Received: 04/12/19
Matrix: SO - Soil		Percent Solids: 83.7
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.9	1.3	ug/kg	R ↓
79-20-9	Methyl Acetate	ND	9.6	2.7	ug/kg	
108-87-2	Methylcyclohexane	ND	3.9	1.4	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.9	0.68	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	9.6	3.0	ug/kg	
75-09-2	Methylene chloride	ND	9.6	4.8	ug/kg	
100-42-5	Styrene	ND	3.9	1.1	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.9	0.75	ug/kg	
127-18-4	Tetrachloroethene	ND	3.9	0.89	ug/kg	
108-88-3	Toluene	ND	1.9	0.72	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	9.6	1.9	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	9.6	1.9	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.9	0.82	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.9	0.66	ug/kg	
79-01-6	Trichloroethene	ND	1.9	1.5	ug/kg	
75-69-4	Trichlorofluoromethane	ND	9.6	1.3	ug/kg	
75-01-4	Vinyl chloride	ND	3.9	0.90	ug/kg	
	m,p-Xylene	ND	1.9	1.4	ug/kg	
95-47-6	o-Xylene	ND	1.9	1.1	ug/kg	
1330-20-7	Xylene (total)	ND	1.9	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		75-127%
17060-07-0	1,2-Dichloroethane-D4	104%		75-130%
2037-26-5	Toluene-D8	94%		80-120%
460-00-4	4-Bromofluorobenzene	102%		79-127%

- (a) DI vials received unfrozen and out of hold time.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS LabLink@1039014 11:10 10-May-2019

Report of Analysis

Page 1 of 3

Client Sample ID: PCTP-66R-HC (0-2)	
Lab Sample ID: JC86337-1	Date Sampled: 04/04/19
Matrix: SO - Soil	Date Received: 04/12/19
Method: SW846 8270D SW846 3546	Percent Solids: 83.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58616.D	1	04/18/19 16:08	CC	04/16/19 18:25	OP19786	E5P2776
Run #2	5P58655.D	10	04/19/19 09:52	CB	04/16/19 18:25	OP19786	E5P2777

Run #	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2	30.1 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	79	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	24	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	34	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	71	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	200	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	200	42	ug/kg	
95-48-7	2-Methylphenol	ND	79	25	ug/kg	
	3&4-Methylphenol	ND	79	33	ug/kg	
88-75-5	2-Nitrophenol	ND	200	26	ug/kg	
100-02-7	4-Nitrophenol	ND	400	110	ug/kg	
87-86-5	Pentachlorophenol	ND	160	37	ug/kg	
108-95-2	Phenol	ND	79	21	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	26	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	30	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	24	ug/kg	
83-32-9	Acenaphthene	234	40	14	ug/kg	
208-96-8	Acenaphthylene	2900	40	20	ug/kg	
98-86-2	Acetophenone	ND	200	8.5	ug/kg	
120-12-7	Anthracene	5810 ^a	400	240	ug/kg	DJ
1912-24-9	Atrazine	ND	79	17	ug/kg	
56-55-3	Benzo(a)anthracene	8240 ^a	400	110	ug/kg	D
50-32-8	Benzo(a)pyrene	8360 ^a	400	180	ug/kg	D
205-99-2	Benzo(b)fluoranthene	10400 ^a	400	180	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	5360 ^a	400	200	ug/kg	DJ
207-08-9	Benzo(k)fluoranthene	4160 ^a	400	190	ug/kg	D
101-55-3	4-Bromophenyl phenyl ether	ND	79	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	79	9.7	ug/kg	
92-52-4	1,1'-Biphenyl	211	79	5.4	ug/kg	
100-52-7	Benzaldehyde	ND	200	9.8	ug/kg	
91-58-7	2-Chloronaphthalene	ND	79	9.4	ug/kg	
106-47-8	4-Chloroaniline	ND	200	14	ug/kg	
86-74-8	Carbazole	1590	79	5.8	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-66R-HC (0-2)	Date Sampled:	04/04/19
Lab Sample ID:	JC86337-1	Date Received:	04/12/19
Matrix:	SO - Soil	Percent Solids:	83.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	79	16	ug/kg	
218-01-9	Chrysene	8310 ^a	400	130	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	79	8.5	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	79	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	79	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	79	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	40	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	40	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	79	33	ug/kg	
123-91-1	1,4-Dioxane	ND	40	26	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	1660	40	18	ug/kg	
132-64-9	Dibenzofuran	1390	79	16	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	79	6.5	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	79	9.9	ug/kg	
84-66-2	Diethyl phthalate	ND	79	8.5	ug/kg	
131-11-3	Dimethyl phthalate	ND	79	7.1	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	149	79	9.3	ug/kg	
206-44-0	Fluoranthene	17300 ^a	400	180	ug/kg	D
86-73-7	Fluorene	2790	40	18	ug/kg	J
118-74-1	Hexachlorobenzene	ND	79	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	40	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	400	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	20	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	5970 ^a	400	190	ug/kg	DJ
78-59-1	Isophorone	ND	79	8.5	ug/kg	
91-57-6	2-Methylnaphthalene	502	40	9.0	ug/kg	
88-74-4	2-Nitroaniline	ND	200	9.4	ug/kg	
99-09-2	3-Nitroaniline	ND	200	9.9	ug/kg	
100-01-6	4-Nitroaniline	ND	200	10	ug/kg	
91-20-3	Naphthalene	643	40	11	ug/kg	
98-95-3	Nitrobenzene	ND	79	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	79	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	15	ug/kg	
85-01-8	Phenanthrene	15000 ^a	400	130	ug/kg	D
129-00-0	Pyrene	14600 ^a	400	130	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	44%	46%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-66R-HC (0-2) Lab Sample ID: JC86337-1 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/04/19 Date Received: 04/12/19 Percent Solids: 83.7
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	49%	48%	27-114%
118-79-6	2,4,6-Tribromophenol	55%	61%	19-152%
4165-60-0	Nitrobenzene-d5	53%	55%	26-134%
321-60-8	2-Fluorobiphenyl	61%	66%	39-124%
1718-51-0	Terphenyl-d14	61%	65%	36-134%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID: PCTP-66R-HC (0-2)	
Lab Sample ID: JC86337-1	Date Sampled: 04/04/19
Matrix: SO - Soil	Date Received: 04/12/19
Method: SW846 8081B SW846 3546	Percent Solids: 83.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G64317.D	1	04/18/19 14:23	TL	04/17/19 03:00	OP19789	G6G1984
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	15.3 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.78	0.64	ug/kg	
319-84-6	alpha-BHC	ND	0.78	0.63	ug/kg	
319-85-7	beta-BHC	ND	0.78	0.71	ug/kg	
319-86-8	delta-BHC	ND	0.78	0.75	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.78	0.58	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.78	0.63	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.78	0.35	ug/kg	
60-57-1	Dieldrin	ND	0.78	0.54	ug/kg	
72-54-8	4,4'-DDD	ND	0.78	0.72	ug/kg	
72-55-9	4,4'-DDE	3.0	0.78	0.68	ug/kg	
50-29-3	4,4'-DDT	11.3	0.78	0.69	ug/kg	
72-20-8	Endrin	ND	0.78	0.61	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.78	0.61	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.78	0.44	ug/kg	
959-98-8	Endosulfan-I	ND	0.78	0.45	ug/kg	
33213-65-9	Endosulfan-II	ND	0.78	0.49	ug/kg	
76-44-8	Heptachlor	ND	0.78	0.67	ug/kg	
1024-57-3	Heptachlor epoxide	ND	0.78	0.55	ug/kg	
72-43-5	Methoxychlor	ND	1.6	0.62	ug/kg	
53494-70-5	Endrin ketone	ND	0.78	0.56	ug/kg	
8001-35-2	Toxaphene	ND	20	18	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	49%		25-135%
877-09-8	Tetrachloro-m-xylene	39%		25-135%
2051-24-3	Decachlorobiphenyl	33%		10-156%
2051-24-3	Decachlorobiphenyl	173% ^a		10-156%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-66R-HC (0-2)	
Lab Sample ID: JC86337-1	Date Sampled: 04/04/19
Matrix: SO - Soil	Date Received: 04/12/19
Method: SW846 8082A SW846 3546	Percent Solids: 83.7
Project: National Grid, Philly Coke, Philadelphia, PA	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	XX2433923.D	5	04/18/19 13:15	SK	04/17/19 03:00	OP19788	GXX6659
Run #2							

	Initial Weight	Final Volume
Run #1	15.3 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	200	91	ug/kg	
11104-28-2	Aroclor 1221	ND	200	100	ug/kg	
11141-16-5	Aroclor 1232	ND	200	150	ug/kg	
53469-21-9	Aroclor 1242	ND	200	80	ug/kg	
12672-29-6	Aroclor 1248	ND	200	170	ug/kg	
11097-69-1	Aroclor 1254	ND	200	110	ug/kg	
11096-82-5	Aroclor 1260	369	200	83	ug/kg	
11100-14-4	Aroclor 1268	ND	200	82	ug/kg	
37324-23-5	Aroclor 1262	ND	200	130	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	51%		31-146%
877-09-8	Tetrachloro-m-xylene	60%		31-146%
2051-24-3	Decachlorobiphenyl	103%		17-164%
2051-24-3	Decachlorobiphenyl	254% ^b		17-164%

(a) Dilution required due to matrix interference.

(b) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-66R-HC (2-4)	Date Sampled: 04/04/19
Lab Sample ID: JC86337-2	Date Received: 04/12/19
Matrix: SO - Soil	Percent Solids: 95.0
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	I225496.D	1	04/17/19 18:33	TDN	n/a	n/a	VI9085
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.6 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	1200	590	ug/kg	R
71-43-2	Benzene	ND	59	44	ug/kg	
74-97-5	Bromochloromethane	ND	590	50	ug/kg	
75-27-4	Bromodichloromethane	ND	230	52	ug/kg	
75-25-2	Bromoform	ND	590	47	ug/kg	
74-83-9	Bromomethane	ND	590	120	ug/kg	
78-93-3	2-Butanone (MEK)	ND	1200	440	ug/kg	
75-15-0	Carbon disulfide	ND	230	110	ug/kg	
56-23-5	Carbon tetrachloride	ND	230	64	ug/kg	
108-90-7	Chlorobenzene	ND	230	41	ug/kg	
75-00-3	Chloroethane	ND	590	80	ug/kg	
67-66-3	Chloroform	ND	230	44	ug/kg	
74-87-3	Chloromethane	ND	590	230	ug/kg	
110-82-7	Cyclohexane	ND	230	48	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	230	98	ug/kg	
124-48-1	Dibromochloromethane	ND	230	40	ug/kg	
106-93-4	1,2-Dibromoethane ^b	ND	120	38	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	120	36	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	120	42	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	120	40	ug/kg	
75-71-8	Dichlorodifluoromethane ^c	ND	590	74	ug/kg	
75-34-3	1,1-Dichloroethane	ND	120	45	ug/kg	
107-06-2	1,2-Dichloroethane	ND	120	55	ug/kg	
75-35-4	1,1-Dichloroethene	ND	120	77	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	120	110	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	120	78	ug/kg	
78-87-5	1,2-Dichloropropane	ND	230	48	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	230	41	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	230	38	ug/kg	
100-41-4	Ethylbenzene	ND	120	65	ug/kg	
76-13-1	Freon 113	ND	590	89	ug/kg	
591-78-6	2-Hexanone	ND	590	150	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-66R-HC (2-4)		Date Sampled: 04/04/19
Lab Sample ID: JC86337-2		Date Received: 04/12/19
Matrix: SO - Soil		Percent Solids: 95.0
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	230	82	ug/kg	R ↓ J ↓ R ↓
79-20-9	Methyl Acetate	ND	590	160	ug/kg	
108-87-2	Methylcyclohexane	ND	230	83	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	120	41	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	590	180	ug/kg	
75-09-2	Methylene chloride	ND	590	290	ug/kg	
100-42-5	Styrene	ND	230	67	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	230	46	ug/kg	
127-18-4	Tetrachloroethene	ND	230	54	ug/kg	
108-88-3	Toluene	68.7	120	44	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	590	120	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	590	120	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	230	50	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	230	40	ug/kg	
79-01-6	Trichloroethene	ND	120	89	ug/kg	
75-69-4	Trichlorofluoromethane ^c	ND	590	80	ug/kg	
75-01-4	Vinyl chloride ^c	ND	230	55	ug/kg	
	m,p-Xylene	ND	120	87	ug/kg	
95-47-6	o-Xylene	ND	120	68	ug/kg	
1330-20-7	Xylene (total)	ND	120	68	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		75-127%
17060-07-0	1,2-Dichloroethane-D4	102%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	109%		79-127%

- (a) Diluted due to high concentration of non-target compound.
- (b) Associated CCV and BS outside of control limits high, sample was ND.
- (c) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

SGS LabLink@1039014 11:10 10-May-2019

Report of Analysis

Page 1 of 3

Client Sample ID: PCTP-66R-HC (2-4)	
Lab Sample ID: JC86337-2	Date Sampled: 04/04/19
Matrix: SO - Soil	Date Received: 04/12/19
Method: SW846 8270D SW846 3546	Percent Solids: 95.0
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58617.D	1	04/18/19 16:33	CC	04/16/19 18:25	OP19786	E5P2776
Run #2	5P58656.D	10	04/19/19 10:17	CB	04/16/19 18:25	OP19786	E5P2777

Run #	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2	30.6 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	69	17	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	170	21	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	170	29	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	170	61	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	170	130	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	170	37	ug/kg	
95-48-7	2-Methylphenol	ND	69	22	ug/kg	
	3&4-Methylphenol	ND	69	28	ug/kg	
88-75-5	2-Nitrophenol	ND	170	23	ug/kg	
100-02-7	4-Nitrophenol	ND	340	92	ug/kg	
87-86-5	Pentachlorophenol	ND	140	32	ug/kg	
108-95-2	Phenol	ND	69	18	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	170	23	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	170	26	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	170	21	ug/kg	
83-32-9	Acenaphthene	616	34	12	ug/kg	
208-96-8	Acenaphthylene	7040 ^a	340	170	ug/kg	D
98-86-2	Acetophenone	ND	170	7.4	ug/kg	
120-12-7	Anthracene	8170 ^a	340	210	ug/kg	D
1912-24-9	Atrazine	ND	69	15	ug/kg	
56-55-3	Benzo(a)anthracene	13000 ^a	340	97	ug/kg	D
50-32-8	Benzo(a)pyrene	12500 ^a	340	160	ug/kg	D
205-99-2	Benzo(b)fluoranthene	15300 ^a	340	150	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	8240 ^a	340	170	ug/kg	D
207-08-9	Benzo(k)fluoranthene	6320 ^a	340	160	ug/kg	D
101-55-3	4-Bromophenyl phenyl ether	ND	69	13	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	69	8.4	ug/kg	
92-52-4	1,1'-Biphenyl	677	69	4.7	ug/kg	
100-52-7	Benzaldehyde	ND	170	8.5	ug/kg	
91-58-7	2-Chloronaphthalene	ND	69	8.2	ug/kg	
106-47-8	4-Chloroaniline	ND	170	12	ug/kg	
86-74-8	Carbazole	2410	69	5.0	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-66R-HC (2-4)	Date Sampled:	04/04/19
Lab Sample ID:	JC86337-2	Date Received:	04/12/19
Matrix:	SO - Soil	Percent Solids:	95.0
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	69	14	ug/kg	
218-01-9	Chrysene	11300 ^a	340	110	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	69	7.4	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	69	15	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	69	12	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	69	11	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	34	11	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	34	17	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	69	29	ug/kg	
123-91-1	1,4-Dioxane	ND	34	23	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	2240	34	15	ug/kg	
132-64-9	Dibenzofuran	5280 ^a	690	140	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	69	5.6	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	69	8.6	ug/kg	
84-66-2	Diethyl phthalate	ND	69	7.3	ug/kg	
131-11-3	Dimethyl phthalate	ND	69	6.1	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	69	8.0	ug/kg	
206-44-0	Fluoranthene	28900 ^a	340	150	ug/kg	D
86-73-7	Fluorene	9190 ^a	340	160	ug/kg	D
118-74-1	Hexachlorobenzene	ND	69	8.7	ug/kg	
87-68-3	Hexachlorobutadiene	ND	34	14	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	340	14	ug/kg	
67-72-1	Hexachloroethane	ND	170	17	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	8580 ^a	340	160	ug/kg	D
78-59-1	Isophorone	ND	69	7.4	ug/kg	
91-57-6	2-Methylnaphthalene	1960	34	7.8	ug/kg	
88-74-4	2-Nitroaniline	ND	170	8.1	ug/kg	
99-09-2	3-Nitroaniline	ND	170	8.6	ug/kg	
100-01-6	4-Nitroaniline	ND	170	8.9	ug/kg	
91-20-3	Naphthalene	1760	34	9.7	ug/kg	
98-95-3	Nitrobenzene	ND	69	13	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	69	9.9	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	170	13	ug/kg	
85-01-8	Phenanthrene	29700 ^a	340	120	ug/kg	D
129-00-0	Pyrene	22500 ^a	340	110	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	170	8.7	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	63%	60%	23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-66R-HC (2-4) Lab Sample ID: JC86337-2 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/04/19 Date Received: 04/12/19 Percent Solids: 95.0
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	65%	56%	27-114%
118-79-6	2,4,6-Tribromophenol	71%	72%	19-152%
4165-60-0	Nitrobenzene-d5	65%	63%	26-134%
321-60-8	2-Fluorobiphenyl	74%	77%	39-124%
1718-51-0	Terphenyl-d14	73%	72%	36-134%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: PCTP-66R-HC (2-4)	
Lab Sample ID: JC86337-2	Date Sampled: 04/04/19
Matrix: SO - Soil	Date Received: 04/12/19
Method: SW846 8081B SW846 3546	Percent Solids: 95.0
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G64318.D	1	04/18/19 14:41	TL	04/17/19 03:00	OP19789	G6G1984
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	16.8 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.63	0.52	ug/kg	
319-84-6	alpha-BHC	ND	0.63	0.51	ug/kg	
319-85-7	beta-BHC	ND	0.63	0.57	ug/kg	
319-86-8	delta-BHC	ND	0.63	0.60	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.63	0.46	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.63	0.51	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.63	0.28	ug/kg	
60-57-1	Dieldrin	ND	0.63	0.43	ug/kg	
72-54-8	4,4'-DDD	ND	0.63	0.58	ug/kg	
72-55-9	4,4'-DDE	ND	0.63	0.55	ug/kg	
50-29-3	4,4'-DDT	ND	0.63	0.56	ug/kg	
72-20-8	Endrin	ND	0.63	0.49	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.63	0.49	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.63	0.36	ug/kg	
959-98-8	Endosulfan-I	ND	0.63	0.36	ug/kg	
33213-65-9	Endosulfan-II	ND	0.63	0.39	ug/kg	
76-44-8	Heptachlor	ND	0.63	0.54	ug/kg	
1024-57-3	Heptachlor epoxide	ND	0.63	0.44	ug/kg	
72-43-5	Methoxychlor	ND	1.3	0.50	ug/kg	
53494-70-5	Endrin ketone	ND	0.63	0.45	ug/kg	
8001-35-2	Toxaphene	ND	16	15	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	51%		25-135%
877-09-8	Tetrachloro-m-xylene	37%		25-135%
2051-24-3	Decachlorobiphenyl	36%		10-156%
2051-24-3	Decachlorobiphenyl	293% ^a		10-156%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-66R-HC (2-4)	
Lab Sample ID: JC86337-2	Date Sampled: 04/04/19
Matrix: SO - Soil	Date Received: 04/12/19
Method: SW846 8082A SW846 3546	Percent Solids: 95.0
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	XX2433924.D	5	04/18/19 13:34	SK	04/17/19 03:00	OP19788	GXX6659
Run #2							

Run #	Initial Weight	Final Volume
Run #1	16.8 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	160	73	ug/kg	
11104-28-2	Aroclor 1221	ND	160	80	ug/kg	
11141-16-5	Aroclor 1232	ND	160	120	ug/kg	
53469-21-9	Aroclor 1242	ND	160	64	ug/kg	
12672-29-6	Aroclor 1248	ND	160	140	ug/kg	
11097-69-1	Aroclor 1254	ND	160	84	ug/kg	
11096-82-5	Aroclor 1260	ND	160	67	ug/kg	
11100-14-4	Aroclor 1268	ND	160	66	ug/kg	
37324-23-5	Aroclor 1262	ND	160	100	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	49%		31-146%
877-09-8	Tetrachloro-m-xylene	79%		31-146%
2051-24-3	Decachlorobiphenyl	467% ^b		17-164%
2051-24-3	Decachlorobiphenyl	384% ^b		17-164%

(a) Dilution required due to matrix interference.

(b) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-02R(4-6)	Date Sampled: 04/05/19
Lab Sample ID: JC86337-3	Date Received: 04/12/19
Matrix: SO - Soil	Percent Solids: 89.9
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	Y184544.D	1	04/17/19 11:59	PS	n/a	n/a	VY8006
Run #2							

Run #	Initial Weight
Run #1	5.6 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	11.0	9.9	5.0	ug/kg	J
71-43-2	Benzene	ND	0.50	0.37	ug/kg	R
74-97-5	Bromochloromethane	ND	5.0	0.43	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	0.44	ug/kg	
75-25-2	Bromoform	ND	5.0	0.40	ug/kg	
74-83-9	Bromomethane	ND	5.0	0.99	ug/kg	
78-93-3	2-Butanone (MEK)	ND	9.9	3.7	ug/kg	
75-15-0	Carbon disulfide	ND	2.0	0.92	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	0.55	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	0.35	ug/kg	
75-00-3	Chloroethane	ND	5.0	0.68	ug/kg	
67-66-3	Chloroform	ND	2.0	0.37	ug/kg	
74-87-3	Chloromethane	ND	5.0	1.9	ug/kg	
110-82-7	Cyclohexane	ND	2.0	0.40	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.83	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	0.34	ug/kg	
106-93-4	1,2-Dibromoethane	ND	0.99	0.32	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.99	0.30	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.99	0.36	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.99	0.34	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	5.0	0.63	ug/kg	
75-34-3	1,1-Dichloroethane	ND	0.99	0.38	ug/kg	
107-06-2	1,2-Dichloroethane	ND	0.99	0.47	ug/kg	
75-35-4	1,1-Dichloroethene	ND	0.99	0.65	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.99	0.95	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.99	0.66	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.0	0.40	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	0.35	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	0.32	ug/kg	
100-41-4	Ethylbenzene	ND	0.99	0.55	ug/kg	
76-13-1	Freon 113	ND	5.0	0.76	ug/kg	
591-78-6	2-Hexanone	ND	5.0	1.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-02R(4-6)		Date Sampled: 04/05/19
Lab Sample ID: JC86337-3		Date Received: 04/12/19
Matrix: SO - Soil		Percent Solids: 89.9
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.0	0.69	ug/kg	R ↓
79-20-9	Methyl Acetate	ND	5.0	1.4	ug/kg	
108-87-2	Methylcyclohexane	ND	2.0	0.70	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.99	0.35	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	1.5	ug/kg	
75-09-2	Methylene chloride	ND	5.0	2.5	ug/kg	
100-42-5	Styrene	ND	2.0	0.57	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	0.39	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	0.46	ug/kg	
108-88-3	Toluene	ND	0.99	0.37	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.0	0.99	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.0	0.99	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	0.42	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	0.34	ug/kg	
79-01-6	Trichloroethene	ND	0.99	0.76	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.0	0.68	ug/kg	
75-01-4	Vinyl chloride	ND	2.0	0.47	ug/kg	
	m,p-Xylene	ND	0.99	0.74	ug/kg	
95-47-6	o-Xylene	ND	0.99	0.58	ug/kg	
1330-20-7	Xylene (total)	ND	0.99	0.58	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		75-127%
17060-07-0	1,2-Dichloroethane-D4	103%		75-130%
2037-26-5	Toluene-D8	94%		80-120%
460-00-4	4-Bromofluorobenzene	99%		79-127%

- (a) DI vials received unfrozen and out of hold time.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID: PCTP-02R(4-6)	
Lab Sample ID: JC86337-3	Date Sampled: 04/05/19
Matrix: SO - Soil	Date Received: 04/12/19
Method: SW846 8270D SW846 3546	Percent Solids: 89.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58580.D	1	04/18/19 00:21	CS	04/16/19 18:25	OP19786	E5P2775
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.5 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	73	18	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	180	22	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	180	31	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	180	65	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	180	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	180	39	ug/kg	
95-48-7	2-Methylphenol	ND	73	23	ug/kg	
	3&4-Methylphenol	ND	73	30	ug/kg	
88-75-5	2-Nitrophenol	ND	180	24	ug/kg	
100-02-7	4-Nitrophenol	ND	360	97	ug/kg	
87-86-5	Pentachlorophenol	ND	150	34	ug/kg	
108-95-2	Phenol	ND	73	19	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	180	24	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	180	27	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	180	22	ug/kg	
83-32-9	Acenaphthene	ND	36	13	ug/kg	
208-96-8	Acenaphthylene	ND	36	19	ug/kg	
98-86-2	Acetophenone	ND	180	7.8	ug/kg	
120-12-7	Anthracene	ND	36	22	ug/kg	
1912-24-9	Atrazine	ND	73	16	ug/kg	
56-55-3	Benzo(a)anthracene	ND	36	10	ug/kg	
50-32-8	Benzo(a)pyrene	ND	36	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	36	16	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	36	18	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	36	17	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	73	14	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	73	8.9	ug/kg	
92-52-4	1,1'-Biphenyl	ND	73	5.0	ug/kg	
100-52-7	Benzaldehyde	ND	180	9.0	ug/kg	
91-58-7	2-Chloronaphthalene	ND	73	8.7	ug/kg	
106-47-8	4-Chloroaniline	ND	180	13	ug/kg	
86-74-8	Carbazole	ND	73	5.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-02R(4-6)	Date Sampled:	04/05/19
Lab Sample ID:	JC86337-3	Date Received:	04/12/19
Matrix:	SO - Soil	Percent Solids:	89.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	73	14	ug/kg	
218-01-9	Chrysene	ND	36	11	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	73	7.8	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	73	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	73	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	73	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	36	11	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	36	18	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	73	30	ug/kg	
123-91-1	1,4-Dioxane	ND	36	24	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	36	16	ug/kg	
132-64-9	Dibenzofuran	ND	73	15	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	73	5.9	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	73	9.1	ug/kg	
84-66-2	Diethyl phthalate	ND	73	7.8	ug/kg	
131-11-3	Dimethyl phthalate	ND	73	6.5	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	73	8.5	ug/kg	
206-44-0	Fluoranthene	ND	36	16	ug/kg	
86-73-7	Fluorene	ND	36	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	73	9.2	ug/kg	
87-68-3	Hexachlorobutadiene	ND	36	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	360	15	ug/kg	
67-72-1	Hexachloroethane	ND	180	18	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	36	17	ug/kg	
78-59-1	Isophorone	ND	73	7.8	ug/kg	
91-57-6	2-Methylnaphthalene	ND	36	8.2	ug/kg	
88-74-4	2-Nitroaniline	ND	180	8.6	ug/kg	
99-09-2	3-Nitroaniline	ND	180	9.1	ug/kg	
100-01-6	4-Nitroaniline	ND	180	9.4	ug/kg	
91-20-3	Naphthalene	ND	36	10	ug/kg	
98-95-3	Nitrobenzene	ND	73	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	73	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	180	13	ug/kg	
85-01-8	Phenanthrene	ND	36	12	ug/kg	
129-00-0	Pyrene	ND	36	12	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	180	9.3	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	63%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-02R(4-6) Lab Sample ID: JC86337-3 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/05/19 Date Received: 04/12/19 Percent Solids: 89.9
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	66%		27-114%
118-79-6	2,4,6-Tribromophenol	65%		19-152%
4165-60-0	Nitrobenzene-d5	70%		26-134%
321-60-8	2-Fluorobiphenyl	72%		39-124%
1718-51-0	Terphenyl-d14	65%		36-134%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.3
4

Report of Analysis

Client Sample ID: PCTP-01R(5-7)	Date Sampled: 04/05/19
Lab Sample ID: JC86337-4	Date Received: 04/12/19
Matrix: SO - Soil	Percent Solids: 85.0
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	Y184545.D	1	04/17/19 12:27	PS	n/a	n/a	VY8006
Run #2							

Run #	Initial Weight
Run #1	3.7 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	142	16	7.9	ug/kg	J
71-43-2	Benzene	ND	0.79	0.60	ug/kg	R
74-97-5	Bromochloromethane	ND	7.9	0.68	ug/kg	J
75-27-4	Bromodichloromethane	ND	3.2	0.70	ug/kg	R
75-25-2	Bromoform	ND	7.9	0.64	ug/kg	J
74-83-9	Bromomethane	ND	7.9	1.6	ug/kg	R
78-93-3	2-Butanone (MEK)	17.9	16	5.9	ug/kg	J
75-15-0	Carbon disulfide	5.3	3.2	1.5	ug/kg	J
56-23-5	Carbon tetrachloride	ND	3.2	0.87	ug/kg	R
108-90-7	Chlorobenzene	ND	3.2	0.56	ug/kg	J
75-00-3	Chloroethane	ND	7.9	1.1	ug/kg	R
67-66-3	Chloroform	ND	3.2	0.59	ug/kg	J
74-87-3	Chloromethane	ND	7.9	3.1	ug/kg	R
110-82-7	Cyclohexane	ND	3.2	0.65	ug/kg	J
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.2	1.3	ug/kg	R
124-48-1	Dibromochloromethane	ND	3.2	0.54	ug/kg	J
106-93-4	1,2-Dibromoethane	ND	1.6	0.52	ug/kg	R
95-50-1	1,2-Dichlorobenzene	ND	1.6	0.48	ug/kg	J
541-73-1	1,3-Dichlorobenzene	ND	1.6	0.57	ug/kg	R
106-46-7	1,4-Dichlorobenzene	2.0	1.6	0.55	ug/kg	J
75-71-8	Dichlorodifluoromethane ^b	ND	7.9	1.0	ug/kg	R
75-34-3	1,1-Dichloroethane	ND	1.6	0.61	ug/kg	J
107-06-2	1,2-Dichloroethane	ND	1.6	0.75	ug/kg	R
75-35-4	1,1-Dichloroethene	ND	1.6	1.0	ug/kg	J
156-59-2	cis-1,2-Dichloroethene	ND	1.6	1.5	ug/kg	R
156-60-5	trans-1,2-Dichloroethene	ND	1.6	1.1	ug/kg	J
78-87-5	1,2-Dichloropropane	ND	3.2	0.65	ug/kg	R
10061-01-5	cis-1,3-Dichloropropene	ND	3.2	0.56	ug/kg	J
10061-02-6	trans-1,3-Dichloropropene	ND	3.2	0.52	ug/kg	R
100-41-4	Ethylbenzene	ND	1.6	0.88	ug/kg	J
76-13-1	Freon 113	ND	7.9	1.2	ug/kg	R
591-78-6	2-Hexanone	ND	7.9	2.0	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-01R(5-7)		Date Sampled: 04/05/19
Lab Sample ID: JC86337-4		Date Received: 04/12/19
Matrix: SO - Soil		Percent Solids: 85.0
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.2	1.1	ug/kg	R
79-20-9	Methyl Acetate	ND	7.9	2.2	ug/kg	
108-87-2	Methylcyclohexane	ND	3.2	1.1	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.6	0.56	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	7.9	2.5	ug/kg	
75-09-2	Methylene chloride	ND	7.9	4.0	ug/kg	
100-42-5	Styrene	ND	3.2	0.91	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.2	0.62	ug/kg	
127-18-4	Tetrachloroethene	ND	3.2	0.73	ug/kg	
108-88-3	Toluene	0.72	1.6	0.60	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	7.9	1.6	ug/kg	R
120-82-1	1,2,4-Trichlorobenzene	ND	7.9	1.6	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.2	0.68	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.2	0.54	ug/kg	
79-01-6	Trichloroethene	ND	1.6	1.2	ug/kg	
75-69-4	Trichlorofluoromethane	ND	7.9	1.1	ug/kg	
75-01-4	Vinyl chloride	ND	3.2	0.75	ug/kg	
	m,p-Xylene	ND	1.6	1.2	ug/kg	
95-47-6	o-Xylene	ND	1.6	0.93	ug/kg	
1330-20-7	Xylene (total)	ND	1.6	0.93	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		75-127%
17060-07-0	1,2-Dichloroethane-D4	103%		75-130%
2037-26-5	Toluene-D8	94%		80-120%
460-00-4	4-Bromofluorobenzene	99%		79-127%

- (a) DI vials received unfrozen and out of hold time.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 3

Client Sample ID: PCTP-01R(5-7)	
Lab Sample ID: JC86337-4	Date Sampled: 04/05/19
Matrix: SO - Soil	Date Received: 04/12/19
Method: SW846 8270D SW846 3546	Percent Solids: 85.0
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58618.D	1	04/18/19 16:58	CC	04/16/19 18:25	OP19786	E5P2776
Run #2	5P58657.D	5	04/19/19 10:42	CB	04/16/19 18:25	OP19786	E5P2777

Run #	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2	30.1 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	78	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	24	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	33	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	70	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	200	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	200	42	ug/kg	
95-48-7	2-Methylphenol	ND	78	25	ug/kg	
	3&4-Methylphenol	ND	78	32	ug/kg	
88-75-5	2-Nitrophenol	ND	200	26	ug/kg	
100-02-7	4-Nitrophenol	ND	390	100	ug/kg	
87-86-5	Pentachlorophenol	ND	160	37	ug/kg	
108-95-2	Phenol	ND	78	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	26	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	29	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	23	ug/kg	
83-32-9	Acenaphthene	1640	39	13	ug/kg	
208-96-8	Acenaphthylene	87.3	39	20	ug/kg	
98-86-2	Acetophenone	ND	200	8.4	ug/kg	
120-12-7	Anthracene	1730	39	24	ug/kg	
1912-24-9	Atrazine	ND	78	17	ug/kg	
56-55-3	Benzo(a)anthracene	4390 ^a	200	55	ug/kg	D
50-32-8	Benzo(a)pyrene	4610 ^a	200	89	ug/kg	D
205-99-2	Benzo(b)fluoranthene	5590 ^a	200	86	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	2660	39	20	ug/kg	
207-08-9	Benzo(k)fluoranthene	2140 ^a	200	91	ug/kg	D
101-55-3	4-Bromophenyl phenyl ether	ND	78	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	78	9.5	ug/kg	
92-52-4	1,1'-Biphenyl	52.6	78	5.4	ug/kg	J
100-52-7	Benzaldehyde	40.6	200	9.7	ug/kg	J
91-58-7	2-Chloronaphthalene	ND	78	9.3	ug/kg	
106-47-8	4-Chloroaniline	ND	200	14	ug/kg	
86-74-8	Carbazole	962	78	5.7	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-01R(5-7)	Date Sampled:	04/05/19
Lab Sample ID:	JC86337-4	Date Received:	04/12/19
Matrix:	SO - Soil	Percent Solids:	85.0
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	125	78	15	ug/kg	
218-01-9	Chrysene	4270 ^a	200	62	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	78	8.4	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	78	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	78	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	78	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	39	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	39	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	78	33	ug/kg	
123-91-1	1,4-Dioxane	ND	39	26	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	780	39	17	ug/kg	
132-64-9	Dibenzofuran	489	78	16	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	78	6.4	ug/kg	
117-84-0	Di-n-octyl phthalate	330	78	9.7	ug/kg	
84-66-2	Diethyl phthalate	ND	78	8.3	ug/kg	
131-11-3	Dimethyl phthalate	20.6	78	7.0	ug/kg	J
117-81-7	bis(2-Ethylhexyl)phthalate	185	78	9.1	ug/kg	
206-44-0	Fluoranthene	8810 ^a	200	87	ug/kg	D
86-73-7	Fluorene	1020	39	18	ug/kg	
118-74-1	Hexachlorobenzene	ND	78	9.9	ug/kg	
87-68-3	Hexachlorobutadiene	ND	39	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	390	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	2970	39	18	ug/kg	
78-59-1	Isophorone	ND	78	8.4	ug/kg	
91-57-6	2-Methylnaphthalene	142	39	8.8	ug/kg	
88-74-4	2-Nitroaniline	ND	200	9.2	ug/kg	
99-09-2	3-Nitroaniline	ND	200	9.8	ug/kg	
100-01-6	4-Nitroaniline	ND	200	10	ug/kg	
91-20-3	Naphthalene	266	39	11	ug/kg	
98-95-3	Nitrobenzene	ND	78	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	78	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	14	ug/kg	
85-01-8	Phenanthrene	6490 ^a	200	66	ug/kg	D
129-00-0	Pyrene	7250 ^a	200	63	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	9.9	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	68%	64%	23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-01R(5-7)		Date Sampled: 04/05/19
Lab Sample ID: JC86337-4		Date Received: 04/12/19
Matrix: SO - Soil		Percent Solids: 85.0
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	74%	67%	27-114%
118-79-6	2,4,6-Tribromophenol	50%	49%	19-152%
4165-60-0	Nitrobenzene-d5	73%	74%	26-134%
321-60-8	2-Fluorobiphenyl	77%	84%	39-124%
1718-51-0	Terphenyl-d14	69%	74%	36-134%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.4
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Report of Analysis

Page 1 of 2

Client Sample ID: PCSB-01R (14-16)	
Lab Sample ID: JC86337-5	Date Sampled: 04/05/19
Matrix: SO - Soil	Date Received: 04/12/19
Method: SW846 8260C	Percent Solids: 84.1
Project: National Grid, Philly Coke, Philadelphia, PA	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	I225497.D	1	04/17/19 19:02	TDN	n/a	n/a	VI9085
Run #2 ^b	I225511.D	1	04/18/19 11:08	TDN	n/a	n/a	VI9086

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.8 g	10.0 ml	100 ul
Run #2	5.8 g	10.0 ml	50.0 ul

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	1100	560	ug/kg	
71-43-2	Benzene	ND	56	42	ug/kg	
74-97-5	Bromochloromethane	ND	560	48	ug/kg	
75-27-4	Bromodichloromethane	ND	220	50	ug/kg	
75-25-2	Bromoform	ND	560	45	ug/kg	
74-83-9	Bromomethane	ND	560	110	ug/kg	
78-93-3	2-Butanone (MEK)	ND	1100	420	ug/kg	
75-15-0	Carbon disulfide	ND	220	100	ug/kg	
56-23-5	Carbon tetrachloride	ND	220	62	ug/kg	
108-90-7	Chlorobenzene	ND	220	40	ug/kg	
75-00-3	Chloroethane	ND	560	77	ug/kg	
67-66-3	Chloroform	ND	220	42	ug/kg	
74-87-3	Chloromethane	ND	560	220	ug/kg	
110-82-7	Cyclohexane	ND	220	45	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	220	94	ug/kg	
124-48-1	Dibromochloromethane	ND	220	38	ug/kg	
106-93-4	1,2-Dibromoethane ^c	ND	110	36	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	110	34	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	110	40	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	110	39	ug/kg	
75-71-8	Dichlorodifluoromethane ^d	ND	560	71	ug/kg	
75-34-3	1,1-Dichloroethane	ND	110	43	ug/kg	
107-06-2	1,2-Dichloroethane	ND	110	53	ug/kg	
75-35-4	1,1-Dichloroethene	ND	110	73	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	110	110	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	110	75	ug/kg	
78-87-5	1,2-Dichloropropane	ND	220	46	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	220	39	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	220	37	ug/kg	
100-41-4	Ethylbenzene	ND	110	62	ug/kg	
76-13-1	Freon 113	ND	560	85	ug/kg	
591-78-6	2-Hexanone	ND	560	140	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCSB-01R (14-16)	Date Sampled:	04/05/19
Lab Sample ID:	JC86337-5	Date Received:	04/12/19
Matrix:	SO - Soil	Percent Solids:	84.1
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	220	78	ug/kg	
79-20-9	Methyl Acetate	ND	560	160	ug/kg	
108-87-2	Methylcyclohexane	ND	220	79	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	110	39	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	560	170	ug/kg	
75-09-2	Methylene chloride	ND	560	280	ug/kg	
100-42-5	Styrene	ND	220	64	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	220	44	ug/kg	
127-18-4	Tetrachloroethene	ND	220	52	ug/kg	
108-88-3	Toluene	ND	110	42	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	560	110	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	560	110	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	220	48	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	220	38	ug/kg	
79-01-6	Trichloroethene	ND	110	85	ug/kg	
75-69-4	Trichlorofluoromethane ^d	ND	560	76	ug/kg	
75-01-4	Vinyl chloride ^d	ND	220	53	ug/kg	
	m,p-Xylene	ND	110	84	ug/kg	
95-47-6	o-Xylene	ND	110	65	ug/kg	
1330-20-7	Xylene (total)	ND	110	65	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%	101%	75-127%
17060-07-0	1,2-Dichloroethane-D4	99%	109%	75-130%
2037-26-5	Toluene-D8	112%	100%	80-120%
460-00-4	4-Bromofluorobenzene	174% ^e	142% ^e	79-127%

- (a) Diluted due to high concentration of non-target compound.
- (b) Confirmation run.
- (c) This compound in BS is outside in house QC limits bias high. Associated CCV outside of control limits high, sample was ND.
- (d) Associated CCV outside of control limits high, sample was ND.
- (e) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.5
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Report of Analysis

Client Sample ID: PCSB-01R (14-16)	
Lab Sample ID: JC86337-5	Date Sampled: 04/05/19
Matrix: SO - Soil	Date Received: 04/12/19
Method: SW846 8270D SW846 3546	Percent Solids: 84.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58581.D	1	04/18/19 00:45	CS	04/16/19 18:25	OP19786	E5P2775
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	31.4 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	76	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	32	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	190	67	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	190	41	ug/kg	
95-48-7	2-Methylphenol	ND	76	24	ug/kg	
	3&4-Methylphenol	ND	76	31	ug/kg	
88-75-5	2-Nitrophenol	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol	ND	380	100	ug/kg	
87-86-5	Pentachlorophenol	ND	150	36	ug/kg	
108-95-2	Phenol	ND	76	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	28	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	23	ug/kg	
83-32-9	Acenaphthene	ND	38	13	ug/kg	
208-96-8	Acenaphthylene	ND	38	19	ug/kg	
98-86-2	Acetophenone	ND	190	8.1	ug/kg	
120-12-7	Anthracene	41.4	38	23	ug/kg	
1912-24-9	Atrazine	ND	76	16	ug/kg	
56-55-3	Benzo(a)anthracene	60.4	38	11	ug/kg	
50-32-8	Benzo(a)pyrene	49.8	38	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	71.1	38	17	ug/kg	
191-24-2	Benzo(g,h,i)perylene	30.6	38	19	ug/kg	J
207-08-9	Benzo(k)fluoranthene	26.3	38	18	ug/kg	J
101-55-3	4-Bromophenyl phenyl ether	ND	76	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	76	9.2	ug/kg	
92-52-4	1,1'-Biphenyl	ND	76	5.2	ug/kg	
100-52-7	Benzaldehyde	ND	190	9.4	ug/kg	
91-58-7	2-Chloronaphthalene	ND	76	9.0	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	16.2	76	5.5	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCSB-01R (14-16)	Date Sampled:	04/05/19
Lab Sample ID:	JC86337-5	Date Received:	04/12/19
Matrix:	SO - Soil	Percent Solids:	84.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	76	15	ug/kg	
218-01-9	Chrysene	59.2	38	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	76	8.1	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	76	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	76	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	76	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	38	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	38	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	76	32	ug/kg	
123-91-1	1,4-Dioxane	ND	38	25	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	38	17	ug/kg	
132-64-9	Dibenzofuran	24.1	76	15	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	76	6.2	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	76	9.4	ug/kg	
84-66-2	Diethyl phthalate	ND	76	8.1	ug/kg	
131-11-3	Dimethyl phthalate	ND	76	6.7	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	76	8.9	ug/kg	
206-44-0	Fluoranthene	156	38	17	ug/kg	
86-73-7	Fluorene	21.6	38	17	ug/kg	J
118-74-1	Hexachlorobenzene	ND	76	9.6	ug/kg	
87-68-3	Hexachlorobutadiene	ND	38	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	380	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	31.0	38	18	ug/kg	J
78-59-1	Isophorone	ND	76	8.1	ug/kg	
91-57-6	2-Methylnaphthalene	ND	38	8.6	ug/kg	
88-74-4	2-Nitroaniline	ND	190	8.9	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.5	ug/kg	
100-01-6	4-Nitroaniline	ND	190	9.8	ug/kg	
91-20-3	Naphthalene	ND	38	11	ug/kg	
98-95-3	Nitrobenzene	ND	76	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	76	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	210	38	13	ug/kg	
129-00-0	Pyrene	130	38	12	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.6	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	67%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCSB-01R (14-16) Lab Sample ID: JC86337-5 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/05/19 Date Received: 04/12/19 Percent Solids: 84.1
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	64%		27-114%
118-79-6	2,4,6-Tribromophenol	63%		19-152%
4165-60-0	Nitrobenzene-d5	75%		26-134%
321-60-8	2-Fluorobiphenyl	72%		39-124%
1718-51-0	Terphenyl-d14	67%		36-134%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.5
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Report of Analysis

Client Sample ID: PCSB-01R (18-20)	Date Sampled: 04/05/19
Lab Sample ID: JC86337-6	Date Received: 04/12/19
Matrix: SO - Soil	Percent Solids: 89.1
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	Y184546.D	1	04/17/19 12:56	PS	n/a	n/a	VY8006
Run #2							

Run #	Initial Weight
Run #1	5.3 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	16.4	11	5.3	ug/kg	J
71-43-2	Benzene	ND	0.53	0.40	ug/kg	R
74-97-5	Bromochloromethane	ND	5.3	0.46	ug/kg	
75-27-4	Bromodichloromethane	ND	2.1	0.47	ug/kg	
75-25-2	Bromoform	ND	5.3	0.43	ug/kg	
74-83-9	Bromomethane	ND	5.3	1.1	ug/kg	
78-93-3	2-Butanone (MEK)	ND	11	4.0	ug/kg	
75-15-0	Carbon disulfide	ND	2.1	0.98	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.1	0.58	ug/kg	
108-90-7	Chlorobenzene	ND	2.1	0.37	ug/kg	
75-00-3	Chloroethane	ND	5.3	0.73	ug/kg	
67-66-3	Chloroform	ND	2.1	0.39	ug/kg	
74-87-3	Chloromethane	ND	5.3	2.1	ug/kg	
110-82-7	Cyclohexane	ND	2.1	0.43	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.1	0.89	ug/kg	
124-48-1	Dibromochloromethane	ND	2.1	0.36	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.1	0.34	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.1	0.32	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.1	0.38	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.1	0.36	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	5.3	0.67	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.1	0.41	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.1	0.50	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.1	0.69	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.1	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.1	0.71	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.1	0.43	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.1	0.37	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.1	0.35	ug/kg	
100-41-4	Ethylbenzene	ND	1.1	0.58	ug/kg	
76-13-1	Freon 113	ND	5.3	0.81	ug/kg	
591-78-6	2-Hexanone	ND	5.3	1.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCSB-01R (18-20)		Date Sampled: 04/05/19
Lab Sample ID: JC86337-6		Date Received: 04/12/19
Matrix: SO - Soil		Percent Solids: 89.1
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.1	0.74	ug/kg	R ↓
79-20-9	Methyl Acetate	ND	5.3	1.5	ug/kg	
108-87-2	Methylcyclohexane	ND	2.1	0.75	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.1	0.37	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.3	1.7	ug/kg	
75-09-2	Methylene chloride	ND	5.3	2.6	ug/kg	
100-42-5	Styrene	ND	2.1	0.61	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.1	0.41	ug/kg	
127-18-4	Tetrachloroethene	ND	2.1	0.49	ug/kg	
108-88-3	Toluene	ND	1.1	0.40	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.3	1.1	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.3	1.1	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.1	0.45	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.1	0.36	ug/kg	
79-01-6	Trichloroethene	ND	1.1	0.81	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.3	0.72	ug/kg	
75-01-4	Vinyl chloride	ND	2.1	0.50	ug/kg	
	m,p-Xylene	ND	1.1	0.79	ug/kg	
95-47-6	o-Xylene	ND	1.1	0.62	ug/kg	
1330-20-7	Xylene (total)	ND	1.1	0.62	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		75-127%
17060-07-0	1,2-Dichloroethane-D4	103%		75-130%
2037-26-5	Toluene-D8	93%		80-120%
460-00-4	4-Bromofluorobenzene	103%		79-127%

- (a) DI vials received unfrozen and out of hold time.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCSB-01R (18-20)	Date Sampled:	04/05/19
Lab Sample ID:	JC86337-6	Date Received:	04/12/19
Matrix:	SO - Soil	Percent Solids:	89.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58582.D	1	04/18/19 01:10	CS	04/16/19 18:25	OP19786	E5P2775
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	73	18	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	180	22	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	180	31	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	180	65	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	180	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	180	39	ug/kg	
95-48-7	2-Methylphenol	ND	73	23	ug/kg	
	3&4-Methylphenol	ND	73	30	ug/kg	
88-75-5	2-Nitrophenol	ND	180	24	ug/kg	
100-02-7	4-Nitrophenol	ND	370	98	ug/kg	
87-86-5	Pentachlorophenol	ND	150	34	ug/kg	
108-95-2	Phenol	ND	73	19	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	180	24	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	180	27	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	180	22	ug/kg	
83-32-9	Acenaphthene	ND	37	13	ug/kg	
208-96-8	Acenaphthylene	ND	37	19	ug/kg	
98-86-2	Acetophenone	ND	180	7.9	ug/kg	
120-12-7	Anthracene	ND	37	22	ug/kg	
1912-24-9	Atrazine	ND	73	16	ug/kg	
56-55-3	Benzo(a)anthracene	ND	37	10	ug/kg	
50-32-8	Benzo(a)pyrene	ND	37	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	37	16	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	37	18	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	37	17	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	73	14	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	73	8.9	ug/kg	
92-52-4	1,1'-Biphenyl	ND	73	5.0	ug/kg	
100-52-7	Benzaldehyde	ND	180	9.1	ug/kg	
91-58-7	2-Chloronaphthalene	ND	73	8.7	ug/kg	
106-47-8	4-Chloroaniline	ND	180	13	ug/kg	
86-74-8	Carbazole	ND	73	5.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCSB-01R (18-20)	Date Sampled:	04/05/19
Lab Sample ID:	JC86337-6	Date Received:	04/12/19
Matrix:	SO - Soil	Percent Solids:	89.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	73	14	ug/kg	
218-01-9	Chrysene	ND	37	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	73	7.8	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	73	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	73	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	73	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	37	11	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	37	18	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	73	31	ug/kg	
123-91-1	1,4-Dioxane	ND	37	24	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	37	16	ug/kg	
132-64-9	Dibenzofuran	ND	73	15	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	73	6.0	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	73	9.1	ug/kg	
84-66-2	Diethyl phthalate	ND	73	7.8	ug/kg	
131-11-3	Dimethyl phthalate	ND	73	6.5	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	73	8.6	ug/kg	
206-44-0	Fluoranthene	ND	37	16	ug/kg	
86-73-7	Fluorene	ND	37	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	73	9.3	ug/kg	
87-68-3	Hexachlorobutadiene	ND	37	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	370	15	ug/kg	
67-72-1	Hexachloroethane	ND	180	18	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	37	17	ug/kg	
78-59-1	Isophorone	ND	73	7.8	ug/kg	
91-57-6	2-Methylnaphthalene	ND	37	8.3	ug/kg	
88-74-4	2-Nitroaniline	ND	180	8.7	ug/kg	
99-09-2	3-Nitroaniline	ND	180	9.2	ug/kg	
100-01-6	4-Nitroaniline	ND	180	9.5	ug/kg	
91-20-3	Naphthalene	ND	37	10	ug/kg	
98-95-3	Nitrobenzene	ND	73	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	73	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	180	13	ug/kg	
85-01-8	Phenanthrene	ND	37	12	ug/kg	
129-00-0	Pyrene	ND	37	12	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	180	9.3	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	78%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCSB-01R (18-20) Lab Sample ID: JC86337-6 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/05/19 Date Received: 04/12/19 Percent Solids: 89.1
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	69%		27-114%
118-79-6	2,4,6-Tribromophenol	70%		19-152%
4165-60-0	Nitrobenzene-d5	73%		26-134%
321-60-8	2-Fluorobiphenyl	73%		39-124%
1718-51-0	Terphenyl-d14	70%		36-134%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-138 (0.0-0.5)	
Lab Sample ID: JC86337-7	Date Sampled: 04/05/19
Matrix: SO - Soil	Date Received: 04/12/19
Method: SW846 8082A SW846 3546	Percent Solids: 84.8
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF189209.D	1	04/19/19 18:13	TR	04/19/19 09:50	OP19829	GEF6426
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	16.4 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	36	17	ug/kg	
11104-28-2	Aroclor 1221	ND	36	18	ug/kg	
11141-16-5	Aroclor 1232	ND	36	28	ug/kg	
53469-21-9	Aroclor 1242	ND	36	15	ug/kg	
12672-29-6	Aroclor 1248	ND	36	32	ug/kg	
11097-69-1	Aroclor 1254	159	36	19	ug/kg	
11096-82-5	Aroclor 1260	ND	36	15	ug/kg	
11100-14-4	Aroclor 1268	ND	36	15	ug/kg	
37324-23-5	Aroclor 1262	ND	36	24	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	75%		31-146%
877-09-8	Tetrachloro-m-xylene	69%		31-146%
2051-24-3	Decachlorobiphenyl	83%		17-164%
2051-24-3	Decachlorobiphenyl	165% ^a		17-164%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-138 (0.5-2.0)	
Lab Sample ID: JC86337-8	Date Sampled: 04/05/19
Matrix: SO - Soil	Date Received: 04/12/19
Method: SW846 8082A SW846 3546	Percent Solids: 87.6
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	EF189210.D	1	04/19/19 18:38	TR	04/19/19 09:50	OP19829	GEF6426
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	16.7 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	34	16	ug/kg	
11104-28-2	Aroclor 1221	ND	34	17	ug/kg	
11141-16-5	Aroclor 1232	ND	34	26	ug/kg	
53469-21-9	Aroclor 1242	ND	34	14	ug/kg	
12672-29-6	Aroclor 1248	ND	34	30	ug/kg	
11097-69-1	Aroclor 1254	426	34	18	ug/kg	
11096-82-5	Aroclor 1260	ND	34	15	ug/kg	
11100-14-4	Aroclor 1268	ND	34	14	ug/kg	
37324-23-5	Aroclor 1262	ND	34	22	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	93%		31-146%
877-09-8	Tetrachloro-m-xylene	87%		31-146%
2051-24-3	Decachlorobiphenyl	124%		17-164%
2051-24-3	Decachlorobiphenyl	250% ^a		17-164%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-66R-HC (0-2)	Date Sampled: 04/04/19
Lab Sample ID: JC86337-1	Date Received: 04/12/19
Matrix: SO - Soil	Percent Solids: 83.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	6260	58	9.3	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Antimony	2.6	2.3	0.47	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Arsenic	35.7	2.3	0.32	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Barium	79.4	23	2.2	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Beryllium	0.68	0.23	0.092	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Cadmium	1.9	0.58	0.081	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Calcium	3170	580	51	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Chromium	19.8	1.2	0.43	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Cobalt	5.8	5.8	0.32	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Copper	127	2.9	0.97	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Iron	18900	58	22	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Lead	323	2.3	0.47	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Magnesium	1640	580	16	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Manganese	279	1.7	0.47	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Mercury	0.23	0.038	0.017	mg/kg	1	04/16/19	04/16/19	EAL	SW846 7471B ¹ SW846 7471B ⁴
Nickel	23.8	4.6	0.40	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Potassium	740 J	1200	37	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Selenium	0.75 U	2.3	0.75	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Silver	0.33 J	0.58	0.20	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Sodium	130 J	1200	90	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Thallium	0.67 U	1.2	0.67	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Vanadium	20.5	5.8	0.22	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Zinc	339	5.8	2.6	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³

- (1) Instrument QC Batch: MA46516
- (2) Instrument QC Batch: MA46525
- (3) Prep QC Batch: MP14249
- (4) Prep QC Batch: MP14256

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

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Report of Analysis

Client Sample ID: PCTP-66R-HC (0-2)	Date Sampled: 04/04/19
Lab Sample ID: JC86337-1	Date Received: 04/12/19
Matrix: SO - Soil	Percent Solids: 83.7
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.14 J	0.28	0.14	mg/kg	1	04/17/19 15:44	KI	SW846 9012B/LACHAT
Solids, Percent	83.7			%	1	04/16/19 16:30	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCTP-66R-HC (2-4)	Date Sampled: 04/04/19
Lab Sample ID: JC86337-2	Date Received: 04/12/19
Matrix: SO - Soil	Percent Solids: 95.0
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	4950	53	8.5	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Antimony	0.43 U	2.1	0.43	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Arsenic	4.2	2.1	0.30	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Barium	28.1	21	2.0	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Beryllium	0.44	0.21	0.084	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Cadmium	0.11 J	0.53	0.074	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Calcium	364 J	530	47	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Chromium	12.8	1.1	0.39	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Cobalt	6.0	5.3	0.30	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Copper	8.5	2.6	0.89	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Iron	13100	53	20	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Lead	25.8	2.1	0.43	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Magnesium	1140	530	14	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Manganese	203	1.6	0.43	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Mercury	0.046	0.032	0.014	mg/kg	1	04/16/19	04/16/19	EAL	SW846 7471B ¹ SW846 7471B ⁴
Nickel	8.4	4.2	0.37	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Potassium	982 J	1100	33	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Selenium	0.68 U	2.1	0.68	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Silver	0.18 U	0.53	0.18	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Sodium	82 U	1100	82	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Thallium	0.61 U	1.1	0.61	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Vanadium	13.4	5.3	0.20	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Zinc	47.3	5.3	2.4	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³

- (1) Instrument QC Batch: MA46516
- (2) Instrument QC Batch: MA46525
- (3) Prep QC Batch: MP14249
- (4) Prep QC Batch: MP14256

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.2
4

Report of Analysis

Client Sample ID: PCTP-66R-HC (2-4)	Date Sampled: 04/04/19
Lab Sample ID: JC86337-2	Date Received: 04/12/19
Matrix: SO - Soil	Percent Solids: 95.0
Project: National Grid, Philly Coke, Philadelphia, PA	

4.2
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.13 J	0.23	0.12	mg/kg	1	04/17/19 15:45	KI	SW846 9012B/LACHAT
Solids, Percent	95			%	1	04/16/19 16:30	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCTP-02R(4-6) Lab Sample ID: JC86337-3 Matrix: SO - Soil Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/05/19 Date Received: 04/12/19 Percent Solids: 89.9
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Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	9610	55	8.9	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Antimony	0.45 U	2.2	0.45	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Arsenic	2.7	2.2	0.31	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Barium	28.6	22	2.1	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Beryllium	0.31	0.22	0.089	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Cadmium	0.077 U	0.55	0.077	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Calcium	475 J	550	49	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Chromium	9.7	1.1	0.41	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Cobalt	3.6 J	5.5	0.31	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Copper	4.9	2.8	0.93	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Iron	9460	55	21	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Lead	6.3	2.2	0.45	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Magnesium	1230	550	15	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Manganese	112	1.7	0.45	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Mercury	0.16	0.031	0.014	mg/kg	1	04/16/19	04/16/19	EAL	SW846 7471B ¹ SW846 7471B ⁴
Nickel	9.2	4.4	0.39	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Potassium	798 J	1100	35	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Selenium	0.72 U	2.2	0.72	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Silver	0.19 U	0.55	0.19	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Sodium	86 U	1100	86	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Thallium	0.64 U	1.1	0.64	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Vanadium	10.2	5.5	0.21	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³
Zinc	28.9	5.5	2.5	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ³

(1) Instrument QC Batch: MA46516

(2) Instrument QC Batch: MA46525

(3) Prep QC Batch: MP14249

(4) Prep QC Batch: MP14256

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.3
4

Report of Analysis

Client Sample ID: PCTP-02R(4-6)	Date Sampled: 04/05/19
Lab Sample ID: JC86337-3	Date Received: 04/12/19
Matrix: SO - Soil	Percent Solids: 89.9
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.13 U	0.27	0.13	mg/kg	1	04/17/19 15:47	KI	SW846 9012B/LACHAT
Solids, Percent	89.9			%	1	04/16/19 16:30	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.3
4

Report of Analysis

Client Sample ID: PCTP-01R(5-7)	Date Sampled: 04/05/19
Lab Sample ID: JC86337-4	Date Received: 04/12/19
Matrix: SO - Soil	Percent Solids: 85.0
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	6460	60	9.6	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	1.3 J	2.4	0.49	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	4.7	2.4	0.33	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	125	24	2.3	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.32	0.24	0.096	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	0.84	0.60	0.084	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	47500	3000	260	mg/kg	5	04/16/19	04/18/19	ND	SW846 6010D ³ SW846 3050B ⁴
Chromium	15.1	1.2	0.44	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	4.0 J	6.0	0.33	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	19.9	3.0	1.0	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	19000	60	23	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	111	2.4	0.49	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	3730	600	16	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	187	1.8	0.49	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	0.014 U	0.031	0.014	mg/kg	1	04/16/19	04/16/19	EAL	SW846 7471B ¹ SW846 7471B ⁵
Nickel	13.7	4.8	0.42	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	1370	1200	38	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	0.78 U	2.4	0.78	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	0.25 J	0.60	0.20	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	158 J	1200	93	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	0.69 U	1.2	0.69	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	14.1	6.0	0.23	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	115	6.0	2.7	mg/kg	1	04/16/19	04/17/19	ND	SW846 6010D ² SW846 3050B ⁴

- (1) Instrument QC Batch: MA46516
- (2) Instrument QC Batch: MA46525
- (3) Instrument QC Batch: MA46535
- (4) Prep QC Batch: MP14249
- (5) Prep QC Batch: MP14256

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.4
4

Report of Analysis

Client Sample ID: PCTP-01R(5-7)		Date Sampled: 04/05/19
Lab Sample ID: JC86337-4		Date Received: 04/12/19
Matrix: SO - Soil		Percent Solids: 85.0
Project: National Grid, Philly Coke, Philadelphia, PA		

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.14 U	0.27	0.14	mg/kg	1	04/17/19 15:48	KI	SW846 9012B/LACHAT
Solids, Percent	85			%	1	04/16/19 16:30	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.4
4

Report of Analysis

Client Sample ID: PCSB-01R (14-16)	Date Sampled: 04/05/19
Lab Sample ID: JC86337-5	Date Received: 04/12/19
Matrix: SO - Soil	Percent Solids: 84.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	7220	61	9.9	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Antimony	0.50 U	2.5	0.50	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Arsenic	5.8	2.5	0.34	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Barium	22.5 J	25	2.3	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Beryllium	0.50	0.25	0.098	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Cadmium	0.086 U	0.61	0.086	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Calcium	238 J	610	54	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Chromium	15.5	1.2	0.45	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Cobalt	5.2 J	6.1	0.34	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Copper	7.6	3.1	1.0	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Iron	17200	61	24	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Lead	10.5	2.5	0.50	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Magnesium	1120	610	17	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Manganese	217	1.8	0.50	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Mercury	0.015 U	0.035	0.015	mg/kg	1	04/16/19	04/16/19 EAL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	8.3	4.9	0.43	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Potassium	832 J	1200	39	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Selenium	0.80 U	2.5	0.80	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Silver	0.21 U	0.61	0.21	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Sodium	96 U	1200	96	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Thallium	0.71 U	1.2	0.71	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Vanadium	19.1	6.1	0.23	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Zinc	32.5	6.1	2.8	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³

- (1) Instrument QC Batch: MA46516
- (2) Instrument QC Batch: MA46525
- (3) Prep QC Batch: MP14249
- (4) Prep QC Batch: MP14256

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.5
 4

Report of Analysis

Client Sample ID: PCSB-01R (14-16)	Date Sampled: 04/05/19
Lab Sample ID: JC86337-5	Date Received: 04/12/19
Matrix: SO - Soil	Percent Solids: 84.1
Project: National Grid, Philly Coke, Philadelphia, PA	

4.5
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.14 U	0.29	0.14	mg/kg	1	04/17/19 15:49	KI	SW846 9012B/LACHAT
Solids, Percent	84.1			%	1	04/16/19 16:30	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCSB-01R (18-20)	Date Sampled: 04/05/19
Lab Sample ID: JC86337-6	Date Received: 04/12/19
Matrix: SO - Soil	Percent Solids: 89.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	864	59	9.4	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Antimony	0.48 U	2.3	0.48	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Arsenic	1.7 J	2.3	0.33	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Barium	4.8 J	23	2.2	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Beryllium	0.094 U	0.23	0.094	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Cadmium	0.082 U	0.59	0.082	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Calcium	52 U	590	52	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Chromium	3.7	1.2	0.43	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Cobalt	0.56 J	5.9	0.33	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Copper	0.98 U	2.9	0.98	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Iron	1650	59	22	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Lead	2.1 J	2.3	0.48	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Magnesium	77.5 J	590	16	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Manganese	8.7	1.8	0.48	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Mercury	0.014 U	0.032	0.014	mg/kg	1	04/16/19	04/16/19 EAL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	0.76 J	4.7	0.41	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Potassium	113 J	1200	37	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Selenium	0.76 U	2.3	0.76	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Silver	0.20 U	0.59	0.20	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Sodium	91 U	1200	91	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Thallium	0.68 U	1.2	0.68	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Vanadium	3.8 J	5.9	0.22	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³
Zinc	3.9 J	5.9	2.7	mg/kg	1	04/16/19	04/18/19 ND	SW846 6010D ²	SW846 3050B ³

- (1) Instrument QC Batch: MA46516
- (2) Instrument QC Batch: MA46525
- (3) Prep QC Batch: MP14249
- (4) Prep QC Batch: MP14256

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCSB-01R (18-20)	Date Sampled: 04/05/19
Lab Sample ID: JC86337-6	Date Received: 04/12/19
Matrix: SO - Soil	Percent Solids: 89.1
Project: National Grid, Philly Coke, Philadelphia, PA	

4.6
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.13 U	0.27	0.13	mg/kg	1	04/17/19 15:54	KI	SW846 9012B/LACHAT
Solids, Percent	89.1			%	1	04/16/19 16:30	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

National Grid

Philly Coke

DATA REVIEW

Philadelphia, Pennsylvania

Volatile Organic Compound (VOC), Semivolatile Organic Compounds (SVOC), Metals, and Miscellaneous Analyses

SDG # JC86204

Analyses Reported By:
SGS Laboratories
Dayton, New Jersey

Report #33341R
Review Level: Tier II
Project: 30004026 (B0036790.0001) 00006

DATA REVIEW REPORT

SUMMARY

This data review report summarizes the review of Sample Delivery Group (SDG) # JC86204 for samples collected in association with the National Grid Philly Coke site in Philadelphia, Pennsylvania. The review was conducted as a Tier II evaluation and included review of laboratory analytical data package completeness. Field documentation was not included in this review. Included with this assessment are the post-validation annotated sample result sheets, and chain of custody (COC). Analyses were performed on the following samples

SDG Number	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PEST/PCB	Metals	MISC
JC86204	S-108(2-4) (04-15-2019)	JC86406-1	Soil	4/15/2019		X	X		X	X
	S-108(8-10) (04-15-2019)	JC86406-2	Soil	4/15/2019		X	X		X	X
	S-108(15-17) (04-15-2019)	JC86406-3	Soil	4/15/2019		X	X		X	X
	SO-DUP-0415 (04-15-2019)	JC86406-4	Soil	4/15/2019	S-108(2-4) (04-15-2019)	X	X		X	X
	PCTP-17R(5-6) (04-15-2019)	JC86406-5	Soil	4/15/2019		X	X		X	X
	PCTP-17R(7-9) (04-15-2019)	JC86406-6	Soil	4/15/2019		X	X		X	X
	PCTP-17R(9-11) (04-15-2019)	JC86406-7	Soil	4/15/2019		X	X		X	X
	PCTP-17R(18-20) (04-15-2019)	JC86406-8	Soil	4/15/2019		X	X		X	X
	PCTP-17R(24-25) (04-15-2019)	JC86406-9	Soil	4/15/2019		X	X		X	X
	S-114(2-4) (04-15-2019)	JC86406-10	Soil	4/15/2019		X	X		X	X
	S-114(8-10) (04-15-2019)	JC86406-11	Soil	4/15/2019		X	X		X	X
	S-114(14-15) (04-15-2019)	JC86406-12	Soil	4/15/2019		X	X		X	X
	S-114(23-25) (04-15-2019)	JC86406-13	Soil	4/15/2019		X	X		X	X
	S-109(2-4) (04-15-2019)	JC86406-14	Soil	4/15/2019		X	X		X	X
	S-109(8-10) (04-15-2019)	JC86406-15	Soil	4/15/2019		X	X		X	X

Notes:

1. PEST/PCB = Pesticides and polychlorinated biphenyls
2. SVOC = Semivolatile Organic Compounds
3. VOC = Volatile Organic Compound
4. MISC = Miscellaneous (total cyanide)

DATA REVIEW REPORT

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

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ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260C and 8270D. Data were reviewed in accordance with the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540/R-2017-002, January 2017 and the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, EPA540/R-99/008, October 1999 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

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that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

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VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times/Preservation

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis (preserved) 7 days from collection to analysis (non-preserved)	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis	Cool to <6 °C.

Note:

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
S-108(2-4) (04-15-2019)	1,2-Dichloroethane-d4	AC
	4-Bromofluorobenzene	> UL
	Dibromofluoromethane	AC
	Toluene-d8	AC

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Notes:

UL Upper control limit

AC Acceptable

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
	Detect	J
< LL but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS/LCSD analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery	LCSD Recovery
S-108(2-4) (04-15-2019) SO-DUP-0415 (04-15-2019) S-109(2-4) (04-15-2019) S-108(15-17) (04-15-2019) PCTP-17R(5-6) (04-15-2019) S-114(14-15) (04-15-2019)	1,2-Dibromoethane	>UL	--

Note:

AC = Acceptable

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The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
S-108(2-4) (04-15-2019)/ SO-DUP-0415 (04-15-2019)	Acetone	127	12.5 J	NC
	Benzene	1.7	2.0	AC
	Carbon disulfide	6.3	5.2	AC
	Methylcyclohexane	1.3 J	1.9 J	AC

Notes:

AC Acceptable
NC Not compliant

Acetone associated with sample locations S-108(2-4) (04-15-2019) and SO-DUP-0415 (04-15-2019) exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed analyte were qualified as estimated.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ). No volatile results required qualification due to calibration exceedances.

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Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Trip blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)		X		X	
Matrix Spike Duplicate(MSD)		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X	X		
Surrogate Spike Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

- %RSD Relative standard deviation
- %R Percent recovery
- RPD Relative percent difference
- %D Percent difference

DATA REVIEW REPORT

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

All compounds associated with the QA blanks exhibited a concentration less than the MDL, with the exception of the compounds listed in the following table. Sample results associated with QA blank contamination that were greater than the BAL resulted in the removal of the laboratory qualifier (B) from the data. Sample results less than the BAL associated with the following sample locations were qualified as listed in the following table.

Sample Locations	Analytes	Sample Result	Qualification
S-114(2-4)	1,1'-Biphenyl Carbazole	Detected sample results <RL and <BAL	"UB" at the RL

Note:

RL Reporting limit

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

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Sample Locations	Surrogate	Recovery
S-114(14-15)	Phenol-d6	AC
	2-Fluorophenol	AC
	2,4,6-Tribromophenol	AC
	Nitrobenzene-d5	>UL
	2-Fluorobiphenyl	AC
	Terphenyl-d14	AC

Notes:

AC Acceptable

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
	Detect	J
< LL but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
S-108(2-4)	2,4-Dinitrophenol	AC	<10%
	4,6-Dinitro-o-cresol	<10%	<10%
	Benzo(a)anthracene	AC	<10%

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Sample Locations	Compound	MS Recovery	MSD Recovery
	Benzo(a)pyrene	AC	<10%
	Benzo(b)fluoranthene	AC	<10%
	Chrysene	AC	<10%
	Pyrene	AC	<10%

Note:

AC Acceptable

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Parent sample concentration > four times the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

The LCS/LCSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
S-108(2-4) (04-15-2019)/ SO-DUP-0415 (04-15-2019)	1,1-Biphenyl	70.1 J	71.1 J	AC
	2-Methylnaphthalene	236	246	AC

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Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
	3-Methylphenol, 4-Methylphenol	102	117	AC
	Acenaphthene	129	106	AC
	Acenaphthylene	1730	1430	19.0%
	Acetophenone	22.8 J	190 U	AC
	Anthracene	1400	1200	15.4%
	Benz(a)anthracene	6470	5670	13.2%
	Benzo(a)pyrene	6750	6020	11.4%
	Benzo(b)fluoranthene	9740	8590	12.5%
	Benzo(g,h,i)perylene	2490	2110	16.5%
	Benzo(k)fluoranthene	3390	1910	55.8%
	Carbazole	358	271	27.7%
	Chrysene	7770	6710	14.6%
	Dibenz(a,h)anthracene	1230	1060	14.8%
	Dibenzofuran	267	242	AC
	Fluoranthene	8090	6690	18.9%
	Fluorene	243	192	AC
	Indeno(1,2,3-cd)pyrene	2730	2300	17.1%
	Naphthalene	968	1230	23.8%
	Phenanthrene	3410	2620	26.2%
	Phenol	92.2	122	27.8%
	Pyrene	7990	6700	17.6%

Notes:

AC Acceptable
 NC Not compliant

Benzo(k)fluoranthene associated with sample locations S-108(2-4) (04-15-2019) and SO-DUP-0415 (04-15-2019) exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed analyte were qualified as estimated.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

Several samples were diluted to bring target compounds within linear range of the instrument. Sample results that were reported from a secondary dilution were qualified with a "D", indicating the result is diluted.

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8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X	X		
B. Equipment blanks	X				X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

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INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6010D, 7471A, and 9012B. Data were reviewed in accordance with the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA 540/R-2017-001, January 2017; and the USEPA CLP National Functional Guidelines for Inorganic Data Review, EPA 540-R-01-008, July 2002 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

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METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6010D	Water	180 days from collection to analysis	Preserved to a pH of less than 2.
	Soil	180 days from collection to analysis	Cool to <6 °C.
SW-846 7471A	Soil	28 days from collection to analysis	Cool to <6 °C.
SW-846 7470A	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL and/or were non-detect. No qualification of the sample results was required.

3. Matrix Spike (MS)/Matrix Spike Duplicate(MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analyte present in the table below.

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Sample Location	Analyte	MS Recovery	MSD Recovery
S-109(2-4) (04-15-2019)	Mercury	18.8%	15.9%

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications are applied to all sample results associated with this SDG.

Control limit	Sample Result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery <30%	Non-detect	R
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD analysis exhibited RPDs within the control limits.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
S-108(2-4) (04-15-2019)/ SO-DUP-0415 (04-15-2019)	Aluminum	35000	9710	113.1%
	Arsenic	11.9	6.5	AC
	Barium	65.7	43.9	39.8%
	Beryllium	0.72	0.51	AC
	Cadmium	1.2 U	1.2	AC
	Calcium	2080	644	NC

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Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
	Chromium	51.6	14.6	111.8%
	Cobalt	5.8 U	7.4	AC
	Copper	13.5	13.2	2.2%
	Iron	38100	16600	78.6%
	Lead	13.9	32.1	NC
	Magnesium	1420	1950	31.5%
	Manganese	83.7	261	102.9%
	Nickel	13.4	11.9	11.9%
	Vanadium	66.6	20.1	107.3%
	Zinc	44.0	51.0	14.7%
	Mercury	0.037 U	0.31	NC

Notes:

AC Acceptable
NC Not compliant

Several analytes associated with sample locations S-108(2-4) (04-15-2019) and SO-DUP-0415 (04-15-2019) exhibited a field duplicate RPD greater than the control limit. The associated sample results from all sample locations for the analytes outside the control limits were qualified as estimated.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR METAL

METALS; SW846 6010D/7471A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field Blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate (MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X	X		
Total vs. Dissolved	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Cyanide by SW-846 9012	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of greater than 12.
	Soil		Cool to <6 °C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analyte present in the table below.

Sample Location	Analyte	MS Recovery	MSD Recovery
S-114(8-10) (04-15-2019)	Cyanide	35.4%	--

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications are applied to all sample results associated with this SDG except those that were associated with a passing MS recovery.

DATA REVIEW REPORT

Control limit	Sample Result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery <30%	Non-detect	R
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

The laboratory duplicate analysis exhibited RPD within control limits.

4. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis is not required for this analysis.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
S-108(2-4) (04-15-2019)/ SO-DUP-0415 (04-15-2019)	Cyanide	10.8	12.7	16.2%

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: EPA 9012	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Dilution Factor		X		X	
Moisture Content					X

Notes:

%R - percent recovery

RPD - relative percent difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: July 5, 2019

PEER REVIEW: Dennis Capria

DATE: July 22, 2019

CHAIN OF CUSTODY SAMPLE ANALYSIS DATA SHEETS





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SLL

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com/ehsusa

FED-EX Tracking #	Blank Order Copy #
SGS Quote #	SGS Job #
	AK-84119-130
	JL 26406

Client / Reporting Information		Project Information				Requested Analysis				Matrix Codes
Company Name: <u>Arceadis - US</u>		Project Name: <u>Philadelphia Core</u>				<div style="font-size: 2em; text-align: center;">V8260 TELL 20</div> <div style="font-size: 2em; text-align: center;">CN</div> <div style="font-size: 2em; text-align: center;">ABS2 to TLL 20</div> <div style="font-size: 2em; text-align: center;">MTAL</div>				DW - Drinking Water GW - Ground Water WW - Waste SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank
Street Address: <u>110 W Fayette St #300</u>		Street: <u>US 91 Rehman St</u>								
City: <u>Syracuse NY 13202</u>		City: <u>Philadelphia PA</u>								
Project Contact: <u>Craig Kelly Lawrence, Malya Bhargava</u>		Project #: <u>ED036740.0001</u>								
Phone #: <u>(315) 325-9743</u>		Client Purchase Order #: <u>ED036740.0001</u>								
Sampler(s) Name(s): <u>Even Greer (603) 825-2692</u>		Project Manager: <u>John Bussey</u>				Attention:				LAB USE ONLY

SGS Sample #	Field ID / Point of Collection	MECHID / Val #	Date	Time	Sampled by	Grab (G) / Composite (C)	Matrix	# of bottles	Number of preserved Bottles													
									HCl	HNO3	HNO3/HCl	HNO3/HA	HNO3/HA/MA	HNO3/HA/MA/PT	HA	MA	PT	PT/HA	PT/HA/MA	PT/HA/MA/PT		
1	S-108 (2-4)		4/18/19	1055	EG	G	SO	S						2					X	X	X	X
2	S-108 (8-10)		4/18/19	1105	EG	G	SO	S						2					X	X	X	X
3	S-108 (15-17)		4/18/19	1120	EG	G	SO	S						2					X	X	X	X
4	SO-OLP-0-1LS		4/18/19	-:-	EG	G	SO	S						2					X	X	X	X
5	PCTP-17R (5-6)		4/18/19	1215	EG	G	SO	S						2					X	X	X	X
6	PCTP-17R (7-9)		4/18/19	1220	EG	G	SO	S						2					X	X	X	X
7	PCTP-17R (9-11)		4/18/19	1230	EG	G	SO	S						2					X	X	X	X
8	PCTP-17R (18-20)		4/18/19	1245	EG	G	SO	S						2					X	X	X	X
9	PCTP-17R (24-25)		4/18/19	1305	EG	G	SO	S						2					X	X	X	X
10	S-114 (2-4)		4/18/19	1345	EG	G	SO	S						2					X	X	X	X
	S-114 (2-4) MS		4/18/19	1345	EG	G	SO	S						2					X	X	X	X
	S-114 (2-4) MSD		4/18/19	1345	EG	G	SO	S						2					X	X	X	X

Turn Around Time (Business Days)	Approved By (SGS PM) / Date:	Deliverable	Comments / Special Instructions
<input checked="" type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days <input type="checkbox"/> 2 Business Days <input type="checkbox"/> 1 Business Day <input type="checkbox"/> Other		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input checked="" type="checkbox"/> Full Tier 1 (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ DKQP	INITIAL ASSESSMENT <u>3B</u> LABEL VERIFICATION _____

Samplers/ Custody Chain to be documented below each time samples change possession, including courier delivery.

Ratified by:	Date / Time:	Received By:	Date / Time:	Received By:	Date / Time:
	4/18/19 16:30		4/18/19 17:33		

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EHS-AQAC-0023-02-FORM-Dayton - Standard COC.xlsx



CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL. 732-329-0200 FAX: 732-329-3489/3480
www.sgs.com/ehsus

FED-EX Tracking #
Bottle Order Control #
SGS Quote # JCL86406
SGS Job #

Client / Reporting Information, Project Information, Requested Analysis, Matrix Codes, Collection table, Turn Around Time, Deliverable, and Chain of Custody sections.

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EHS-QAC-0023-02-FORM-Dayton - Standard COC.docx

JC86406: Chain of Custody

Page 2 of 3



Report of Analysis

Client Sample ID: S-108(2-4)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-1	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 87.0
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I225721.D	1	04/25/19 18:39	TDN	n/a	n/a	VI9093
Run #2 ^a	3V44289.D	1	04/24/19 14:38	RS	n/a	n/a	V3V1778
Run #3 ^a	D264071.D	1	04/26/19 11:20	JTP	n/a	n/a	VD10644

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	3.6 g		
Run #2	3.8 g		
Run #3	3.6 g	10.0 ml	100 ul

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	127	16	8.0	ug/kg	J
71-43-2	Benzene	1.7	0.80	0.60	ug/kg	J
74-97-5	Bromochloromethane	ND	8.0	0.69	ug/kg	
75-27-4	Bromodichloromethane	ND	3.2	0.71	ug/kg	
75-25-2	Bromoform	ND	8.0	0.64	ug/kg	
74-83-9	Bromomethane	ND	8.0	1.6	ug/kg	
78-93-3	2-Butanone (MEK)	ND	16	6.0	ug/kg	
75-15-0	Carbon disulfide	6.3	3.2	1.5	ug/kg	J
56-23-5	Carbon tetrachloride	ND	3.2	0.88	ug/kg	
108-90-7	Chlorobenzene	ND	3.2	0.57	ug/kg	
75-00-3	Chloroethane	ND	8.0	1.1	ug/kg	
67-66-3	Chloroform	ND	3.2	0.59	ug/kg	
74-87-3	Chloromethane	ND	8.0	3.1	ug/kg	
110-82-7	Cyclohexane	ND	3.2	0.65	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.2	1.3	ug/kg	
124-48-1	Dibromochloromethane	ND	3.2	0.54	ug/kg	
106-93-4	1,2-Dibromoethane ^b	ND	1.6	0.52	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.6	0.49	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.6	0.57	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.6	0.55	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	8.0	1.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.6	0.61	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.6	0.75	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.6	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.6	1.5	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.6	1.1	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.2	0.65	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.2	0.56	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.2	0.52	ug/kg	
100-41-4	Ethylbenzene	ND	1.6	0.88	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	S-108(2-4)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-1	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	87.0
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
76-13-1	Freon 113	ND	8.0	1.2	ug/kg	
591-78-6	2-Hexanone	ND	8.0	2.0	ug/kg	
98-82-8	Isopropylbenzene	ND	3.2	1.1	ug/kg	
79-20-9	Methyl Acetate	ND	8.0	2.2	ug/kg	
108-87-2	Methylcyclohexane	1.3	3.2	1.1	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.6	0.56	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	8.0	2.5	ug/kg	
75-09-2	Methylene chloride	ND	8.0	4.0	ug/kg	
100-42-5	Styrene	ND	3.2	0.92	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.2	0.62	ug/kg	
127-18-4	Tetrachloroethene	ND	3.2	0.74	ug/kg	
108-88-3	Toluene	ND	1.6	0.60	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	8.0	1.6	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	8.0	1.6	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.2	0.68	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.2	0.55	ug/kg	
79-01-6	Trichloroethene	ND	1.6	1.2	ug/kg	
75-69-4	Trichlorofluoromethane	ND	8.0	1.1	ug/kg	
75-01-4	Vinyl chloride	ND	3.2	0.75	ug/kg	
	m,p-Xylene	ND	1.6	1.2	ug/kg	
95-47-6	o-Xylene	ND	1.6	0.93	ug/kg	
1330-20-7	Xylene (total)	ND	1.6	0.93	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
1868-53-7	Dibromofluoromethane	108%	107%	99%	75-127%
17060-07-0	1,2-Dichloroethane-D4	119%	114%	91%	75-130%
2037-26-5	Toluene-D8	112%	135% ^c	99%	80-120%
460-00-4	4-Bromofluorobenzene	133% ^c	145% ^c	94%	79-127%

(a) Confirmation run.

(b) This compound in BS is outside in house QC limits bias high.

(c) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

SGS LabLink@1039014 11:13 10-May-2019

Report of Analysis

Page 1 of 3

Client Sample ID: S-108(2-4)		
Lab Sample ID: JC86406-1		Date Sampled: 04/15/19
Matrix: SO - Soil		Date Received: 04/16/19
Method: SW846 8270D SW846 3546		Percent Solids: 87.0
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P86743.D	1	04/19/19 04:05	CB	04/17/19 18:45	OP19810	E2P3831
Run #2	2P86767.D	5	04/22/19 18:07	YC	04/17/19 18:45	OP19810	E2P3832

Run #	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2	30.0 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	77	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	33	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	190	68	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	140	ug/kg	R
534-52-1	4,6-Dinitro-o-cresol	ND	190	41	ug/kg	R
95-48-7	2-Methylphenol	ND	77	24	ug/kg	
	3&4-Methylphenol	102	77	31	ug/kg	
88-75-5	2-Nitrophenol	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol	ND	380	100	ug/kg	
87-86-5	Pentachlorophenol	ND	150	36	ug/kg	
108-95-2	Phenol	92.2	77	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	29	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	23	ug/kg	
83-32-9	Acenaphthene	129	38	13	ug/kg	
208-96-8	Acenaphthylene	1730	38	19	ug/kg	
98-86-2	Acetophenone	22.8	190	8.2	ug/kg	J
120-12-7	Anthracene	1400	38	23	ug/kg	
1912-24-9	Atrazine	ND	77	16	ug/kg	
56-55-3	Benzo(a)anthracene	6470 ^b	190	54	ug/kg	DJ
50-32-8	Benzo(a)pyrene	6750 ^b	190	87	ug/kg	DJ
205-99-2	Benzo(b)fluoranthene	9740 ^b	190	85	ug/kg	DJ
191-24-2	Benzo(g,h,i)perylene	2490	38	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	3390 ^b	190	89	ug/kg	DJ
101-55-3	4-Bromophenyl phenyl ether	ND	77	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	77	9.3	ug/kg	
92-52-4	1,1'-Biphenyl	70.1	77	5.2	ug/kg	J
100-52-7	Benzaldehyde	ND	190	9.5	ug/kg	
91-58-7	2-Chloronaphthalene	ND	77	9.1	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	358	77	5.6	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-108(2-4)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-1	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	87.0
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	77	15	ug/kg	
218-01-9	Chrysene	7770 ^b	190	60	ug/kg	DJ
111-91-1	bis(2-Chloroethoxy)methane	ND	77	8.2	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	77	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	77	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	77	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	38	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	38	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	77	32	ug/kg	
123-91-1	1,4-Dioxane	ND	38	25	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	1230	38	17	ug/kg	
132-64-9	Dibenzofuran	267	77	16	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	77	6.2	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	77	9.5	ug/kg	
84-66-2	Diethyl phthalate	ND	77	8.2	ug/kg	
131-11-3	Dimethyl phthalate	ND	77	6.8	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	77	9.0	ug/kg	
206-44-0	Fluoranthene	8090 ^b	190	85	ug/kg	D
86-73-7	Fluorene	243	38	18	ug/kg	
118-74-1	Hexachlorobenzene	ND	77	9.7	ug/kg	
87-68-3	Hexachlorobutadiene	ND	38	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	380	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	2730	38	18	ug/kg	
78-59-1	Isophorone	ND	77	8.2	ug/kg	
91-57-6	2-Methylnaphthalene	236	38	8.7	ug/kg	
88-74-4	2-Nitroaniline	ND	190	9.0	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.6	ug/kg	
100-01-6	4-Nitroaniline	ND	190	9.9	ug/kg	
91-20-3	Naphthalene	968	38	11	ug/kg	
98-95-3	Nitrobenzene	ND	77	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	77	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	3410	38	13	ug/kg	
129-00-0	Pyrene	7990 ^b	190	61	ug/kg	DJ
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.7	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	48%	58%	23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-108(2-4) Lab Sample ID: JC86406-1 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/15/19 Date Received: 04/16/19 Percent Solids: 87.0
---	--

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	56%	75%	27-114%
118-79-6	2,4,6-Tribromophenol	65%	48%	19-152%
4165-60-0	Nitrobenzene-d5	59%	77%	26-134%
321-60-8	2-Fluorobiphenyl	79%	86%	39-124%
1718-51-0	Terphenyl-d14	60%	70%	36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: S-108(8-10)		Date Sampled: 04/15/19
Lab Sample ID: JC86406-2		Date Received: 04/16/19
Matrix: SO - Soil		Percent Solids: 80.3
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V44290.D	1	04/24/19 15:04	RS	n/a	n/a	V3V1778
Run #2							

Run #1	Initial Weight
Run #1	8.9 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	32.4	7.0	3.5	ug/kg	
71-43-2	Benzene	3.4	0.35	0.26	ug/kg	
74-97-5	Bromochloromethane	ND	3.5	0.30	ug/kg	
75-27-4	Bromodichloromethane	ND	1.4	0.31	ug/kg	
75-25-2	Bromoform	ND	3.5	0.28	ug/kg	
74-83-9	Bromomethane	ND	3.5	0.70	ug/kg	
78-93-3	2-Butanone (MEK)	ND	7.0	2.6	ug/kg	
75-15-0	Carbon disulfide	1.4	1.4	0.65	ug/kg	
56-23-5	Carbon tetrachloride	ND	1.4	0.38	ug/kg	
108-90-7	Chlorobenzene	ND	1.4	0.25	ug/kg	
75-00-3	Chloroethane	ND	3.5	0.48	ug/kg	
67-66-3	Chloroform	ND	1.4	0.26	ug/kg	
74-87-3	Chloromethane	ND	3.5	1.4	ug/kg	
110-82-7	Cyclohexane ^a	ND	1.4	0.28	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.4	0.58	ug/kg	
124-48-1	Dibromochloromethane	ND	1.4	0.24	ug/kg	
106-93-4	1,2-Dibromoethane	ND	0.70	0.23	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.70	0.21	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.70	0.25	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.70	0.24	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	3.5	0.44	ug/kg	
75-34-3	1,1-Dichloroethane	ND	0.70	0.27	ug/kg	
107-06-2	1,2-Dichloroethane	ND	0.70	0.33	ug/kg	
75-35-4	1,1-Dichloroethene	ND	0.70	0.46	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.70	0.67	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.70	0.47	ug/kg	
78-87-5	1,2-Dichloropropane	ND	1.4	0.28	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	1.4	0.25	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	1.4	0.23	ug/kg	
100-41-4	Ethylbenzene	ND	0.70	0.39	ug/kg	
76-13-1	Freon 113	ND	3.5	0.53	ug/kg	
591-78-6	2-Hexanone	ND	3.5	0.89	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-108(8-10)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-2	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	80.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.4	0.49	ug/kg	
79-20-9	Methyl Acetate	ND	3.5	0.97	ug/kg	
108-87-2	Methylcyclohexane ^a	ND	1.4	0.49	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.70	0.25	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	3.5	1.1	ug/kg	
75-09-2	Methylene chloride	ND	3.5	1.7	ug/kg	
100-42-5	Styrene	ND	1.4	0.40	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.4	0.27	ug/kg	
127-18-4	Tetrachloroethene	ND	1.4	0.32	ug/kg	
108-88-3	Toluene	0.32	0.70	0.26	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	3.5	0.70	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	3.5	0.70	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	1.4	0.30	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	1.4	0.24	ug/kg	
79-01-6	Trichloroethene	ND	0.70	0.53	ug/kg	
75-69-4	Trichlorofluoromethane	ND	3.5	0.48	ug/kg	
75-01-4	Vinyl chloride	ND	1.4	0.33	ug/kg	
	m,p-Xylene	ND	0.70	0.52	ug/kg	
95-47-6	o-Xylene	ND	0.70	0.41	ug/kg	
1330-20-7	Xylene (total)	ND	0.70	0.41	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		75-127%
17060-07-0	1,2-Dichloroethane-D4	105%		75-130%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	99%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-108(8-10)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-2	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	80.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P86739.D	1	04/19/19 02:38	CB	04/17/19 18:45	OP19810	E2P3831
Run #2							

Run #	Initial Weight	Final Volume
Run #1	31.4 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	79	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	24	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	34	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	121	200	71	ug/kg	J
51-28-5	2,4-Dinitrophenol	ND	200	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	200	42	ug/kg	
95-48-7	2-Methylphenol	194	79	25	ug/kg	
	3&4-Methylphenol	945	79	33	ug/kg	
88-75-5	2-Nitrophenol	ND	200	26	ug/kg	
100-02-7	4-Nitrophenol	ND	400	110	ug/kg	
87-86-5	Pentachlorophenol	ND	160	37	ug/kg	
108-95-2	Phenol	1370	79	21	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	26	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	30	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	24	ug/kg	
83-32-9	Acenaphthene	1040	40	14	ug/kg	
208-96-8	Acenaphthylene	185	40	20	ug/kg	
98-86-2	Acetophenone	ND	200	8.5	ug/kg	
120-12-7	Anthracene	573	40	24	ug/kg	
1912-24-9	Atrazine	ND	79	17	ug/kg	
56-55-3	Benzo(a)anthracene	168	40	11	ug/kg	
50-32-8	Benzo(a)pyrene	151	40	18	ug/kg	
205-99-2	Benzo(b)fluoranthene	192	40	18	ug/kg	
191-24-2	Benzo(g,h,i)perylene	105	40	20	ug/kg	
207-08-9	Benzo(k)fluoranthene	63.2	40	19	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	79	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	79	9.7	ug/kg	
92-52-4	1,1'-Biphenyl	93.9	79	5.4	ug/kg	
100-52-7	Benzaldehyde	ND	200	9.8	ug/kg	
91-58-7	2-Chloronaphthalene	ND	79	9.4	ug/kg	
106-47-8	4-Chloroaniline	ND	200	14	ug/kg	
86-74-8	Carbazole	671	79	5.8	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-108(8-10)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-2	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	80.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	79	16	ug/kg	
218-01-9	Chrysene	199	40	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	79	8.5	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	79	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	79	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	79	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	40	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	40	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	79	33	ug/kg	
123-91-1	1,4-Dioxane	ND	40	26	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	25.5	40	18	ug/kg	J
132-64-9	Dibenzofuran	357	79	16	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	79	6.5	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	79	9.9	ug/kg	
84-66-2	Diethyl phthalate	ND	79	8.4	ug/kg	
131-11-3	Dimethyl phthalate	ND	79	7.1	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	79	9.3	ug/kg	
206-44-0	Fluoranthene	414	40	18	ug/kg	
86-73-7	Fluorene	589	40	18	ug/kg	
118-74-1	Hexachlorobenzene	ND	79	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	40	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	400	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	20	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	84.0	40	19	ug/kg	
78-59-1	Isophorone	ND	79	8.5	ug/kg	
91-57-6	2-Methylnaphthalene	295	40	9.0	ug/kg	
88-74-4	2-Nitroaniline	ND	200	9.4	ug/kg	
99-09-2	3-Nitroaniline	ND	200	9.9	ug/kg	
100-01-6	4-Nitroaniline	ND	200	10	ug/kg	
91-20-3	Naphthalene	3820	40	11	ug/kg	
98-95-3	Nitrobenzene	ND	79	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	79	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	15	ug/kg	
85-01-8	Phenanthrene	576	40	13	ug/kg	
129-00-0	Pyrene	447	40	13	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	51%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-108(8-10) Lab Sample ID: JC86406-2 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/15/19 Date Received: 04/16/19 Percent Solids: 80.3
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	64%		27-114%
118-79-6	2,4,6-Tribromophenol	60%		19-152%
4165-60-0	Nitrobenzene-d5	65%		26-134%
321-60-8	2-Fluorobiphenyl	74%		39-124%
1718-51-0	Terphenyl-d14	65%		36-134%

(a) Associated CCV outside of control limits high.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-108(15-17)	
Lab Sample ID: JC86406-3	Date Sampled: 04/15/19
Matrix: SO - Soil	Date Received: 04/16/19
Method: SW846 8260C	Percent Solids: 56.8
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D264076.D	1	04/26/19 14:03	JTP	n/a	n/a	VD10644
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	3.8 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	2700	1300	ug/kg	
71-43-2	Benzene	196	130	100	ug/kg	
74-97-5	Bromochloromethane	ND	1300	120	ug/kg	
75-27-4	Bromodichloromethane	ND	540	120	ug/kg	
75-25-2	Bromoform	ND	1300	110	ug/kg	
74-83-9	Bromomethane	ND	1300	270	ug/kg	
78-93-3	2-Butanone (MEK)	ND	2700	1000	ug/kg	
75-15-0	Carbon disulfide	51000	540	250	ug/kg	
56-23-5	Carbon tetrachloride	ND	540	150	ug/kg	
108-90-7	Chlorobenzene	ND	540	95	ug/kg	
75-00-3	Chloroethane	ND	1300	190	ug/kg	
67-66-3	Chloroform	ND	540	100	ug/kg	
74-87-3	Chloromethane	ND	1300	530	ug/kg	
110-82-7	Cyclohexane	ND	540	110	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	540	230	ug/kg	
124-48-1	Dibromochloromethane	ND	540	91	ug/kg	
106-93-4	1,2-Dibromoethane	ND	270	88	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	270	82	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	270	97	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	270	93	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	1300	170	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	270	100	ug/kg	
107-06-2	1,2-Dichloroethane ^b	ND	270	130	ug/kg	UJ
75-35-4	1,1-Dichloroethene	ND	270	180	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	270	260	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	270	180	ug/kg	
78-87-5	1,2-Dichloropropane	ND	540	110	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	540	95	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	540	88	ug/kg	
100-41-4	Ethylbenzene	3100	270	150	ug/kg	
76-13-1	Freon 113	ND	1300	210	ug/kg	
591-78-6	2-Hexanone	ND	1300	340	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-108(15-17)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-3	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	56.8
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	2410	540	190	ug/kg	
79-20-9	Methyl Acetate	3140	1300	370	ug/kg	
108-87-2	Methylcyclohexane	466	540	190	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	270	95	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	1300	420	ug/kg	
75-09-2	Methylene chloride	ND	1300	670	ug/kg	
100-42-5	Styrene	ND	540	160	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	540	110	ug/kg	
127-18-4	Tetrachloroethene	ND	540	120	ug/kg	
108-88-3	Toluene	1250	270	100	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	1300	270	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	1300	270	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	540	110	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	540	92	ug/kg	
79-01-6	Trichloroethene	ND	270	210	ug/kg	
75-69-4	Trichlorofluoromethane	ND	1300	180	ug/kg	
75-01-4	Vinyl chloride	ND	540	130	ug/kg	
	m,p-Xylene	2990	270	200	ug/kg	
95-47-6	o-Xylene	3880	270	160	ug/kg	
1330-20-7	Xylene (total)	6870	270	160	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		75-127%
17060-07-0	1,2-Dichloroethane-D4	90%		75-130%
2037-26-5	Toluene-D8	97%		80-120%
460-00-4	4-Bromofluorobenzene	94%		79-127%

(a) Diluted due to high concentration of non-target compound.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-108(15-17)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-3	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	56.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P86746.D	1	04/19/19 05:11	CB	04/17/19 18:45	OP19810	E2P3831
Run #2	Z137269.D	100	04/25/19 22:03	AR	04/17/19 18:45	OP19810	EZ6762

Run #	Initial Weight	Final Volume
Run #1	30.8 g	1.0 ml
Run #2	30.8 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	110	28	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	290	35	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	290	49	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	290	100	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	290	210	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	290	61	ug/kg	
95-48-7	2-Methylphenol	37.3	110	37	ug/kg	J
	3&4-Methylphenol	339	110	47	ug/kg	
88-75-5	2-Nitrophenol	ND	290	38	ug/kg	
100-02-7	4-Nitrophenol	ND	570	150	ug/kg	
87-86-5	Pentachlorophenol	ND	230	54	ug/kg	
108-95-2	Phenol	132	110	30	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	290	38	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	290	43	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	290	34	ug/kg	
83-32-9	Acenaphthene	93500 ^b	5700	2000	ug/kg	D
208-96-8	Acenaphthylene	1930	57	29	ug/kg	
98-86-2	Acetophenone	ND	290	12	ug/kg	
120-12-7	Anthracene	49600 ^b	5700	3500	ug/kg	D
1912-24-9	Atrazine	ND	110	24	ug/kg	
56-55-3	Benzo(a)anthracene	18400 ^b	5700	1600	ug/kg	D
50-32-8	Benzo(a)pyrene	10800 ^b	5700	2600	ug/kg	D
205-99-2	Benzo(b)fluoranthene	10800 ^b	5700	2500	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	1530	57	29	ug/kg	
207-08-9	Benzo(k)fluoranthene	1700	57	27	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	110	22	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	110	14	ug/kg	
92-52-4	1,1'-Biphenyl	19100 ^b	11000	780	ug/kg	D
100-52-7	Benzaldehyde	ND	290	14	ug/kg	
91-58-7	2-Chloronaphthalene	ND	110	14	ug/kg	
106-47-8	4-Chloroaniline	ND	290	21	ug/kg	
86-74-8	Carbazole	12100 ^b	11000	830	ug/kg	D

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-108(15-17)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-3	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	56.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	110	23	ug/kg	
218-01-9	Chrysene	19400 ^b	5700	1800	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	110	12	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	110	25	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	110	21	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	110	19	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	57	18	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	57	29	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	110	48	ug/kg	
123-91-1	1,4-Dioxane	ND	57	38	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	552	57	25	ug/kg	
132-64-9	Dibenzofuran	53000 ^b	11000	2300	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	110	9.3	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	110	14	ug/kg	
84-66-2	Diethyl phthalate	ND	110	12	ug/kg	
131-11-3	Dimethyl phthalate	ND	110	10	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	110	13	ug/kg	
206-44-0	Fluoranthene	77200 ^b	5700	2500	ug/kg	D
86-73-7	Fluorene	81200 ^b	5700	2600	ug/kg	D
118-74-1	Hexachlorobenzene	ND	110	14	ug/kg	
87-68-3	Hexachlorobutadiene	ND	57	23	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	570	23	ug/kg	
67-72-1	Hexachloroethane	ND	290	28	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1420	57	27	ug/kg	
78-59-1	Isophorone	ND	110	12	ug/kg	
91-57-6	2-Methylnaphthalene	140000 ^b	5700	1300	ug/kg	D
88-74-4	2-Nitroaniline	ND	290	13	ug/kg	
99-09-2	3-Nitroaniline	ND	290	14	ug/kg	
100-01-6	4-Nitroaniline	ND	290	15	ug/kg	
91-20-3	Naphthalene	325000 ^b	5700	1600	ug/kg	D
98-95-3	Nitrobenzene	ND	110	22	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	110	17	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	290	21	ug/kg	
85-01-8	Phenanthrene	223000 ^b	5700	1900	ug/kg	D
129-00-0	Pyrene	61100 ^b	5700	1800	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	290	15	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	50%	0% ^c	23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-108(15-17) Lab Sample ID: JC86406-3 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/15/19 Date Received: 04/16/19 Percent Solids: 56.8
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	48%	0% ^c	27-114%
118-79-6	2,4,6-Tribromophenol	85%	0% ^c	19-152%
4165-60-0	Nitrobenzene-d5	104%	0% ^c	26-134%
321-60-8	2-Fluorobiphenyl	69%	0% ^c	39-124%
1718-51-0	Terphenyl-d14	59%	0% ^c	36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Result is from Run# 2
- (c) Outside control limits due to dilution.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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4

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Report of Analysis

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Client Sample ID:	SO-DUP-0415	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-4	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	87.6
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I225722.D	1	04/25/19 19:08	TDN	n/a	n/a	VI9093
Run #2							

	Initial Weight
Run #1	3.7 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	12.5	15	7.7	ug/kg	J
71-43-2	Benzene	2.0	0.77	0.58	ug/kg	
74-97-5	Bromochloromethane	ND	7.7	0.66	ug/kg	
75-27-4	Bromodichloromethane	ND	3.1	0.68	ug/kg	
75-25-2	Bromoform	ND	7.7	0.62	ug/kg	
74-83-9	Bromomethane	ND	7.7	1.5	ug/kg	
78-93-3	2-Butanone (MEK)	ND	15	5.8	ug/kg	
75-15-0	Carbon disulfide	5.2	3.1	1.4	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.1	0.85	ug/kg	
108-90-7	Chlorobenzene	ND	3.1	0.55	ug/kg	
75-00-3	Chloroethane	ND	7.7	1.1	ug/kg	
67-66-3	Chloroform	ND	3.1	0.57	ug/kg	
74-87-3	Chloromethane	ND	7.7	3.0	ug/kg	
110-82-7	Cyclohexane	ND	3.1	0.63	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.1	1.3	ug/kg	
124-48-1	Dibromochloromethane	ND	3.1	0.52	ug/kg	
106-93-4	1,2-Dibromoethane ^a	ND	1.5	0.50	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.5	0.47	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.5	0.55	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.5	0.53	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	7.7	0.98	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.5	0.59	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.5	0.73	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.5	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.5	1.5	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.5	1.0	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.1	0.63	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.1	0.54	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.1	0.50	ug/kg	
100-41-4	Ethylbenzene	ND	1.5	0.85	ug/kg	
76-13-1	Freon 113	ND	7.7	1.2	ug/kg	
591-78-6	2-Hexanone	ND	7.7	2.0	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SO-DUP-0415	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-4	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	87.6
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.1	1.1	ug/kg	
79-20-9	Methyl Acetate	ND	7.7	2.1	ug/kg	
108-87-2	Methylcyclohexane	1.9	3.1	1.1	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.5	0.54	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	7.7	2.4	ug/kg	
75-09-2	Methylene chloride	ND	7.7	3.9	ug/kg	
100-42-5	Styrene	ND	3.1	0.89	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.1	0.60	ug/kg	
127-18-4	Tetrachloroethene	ND	3.1	0.71	ug/kg	
108-88-3	Toluene	ND	1.5	0.58	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	7.7	1.5	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	7.7	1.5	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.1	0.66	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.1	0.53	ug/kg	
79-01-6	Trichloroethene	ND	1.5	1.2	ug/kg	
75-69-4	Trichlorofluoromethane	ND	7.7	1.1	ug/kg	
75-01-4	Vinyl chloride	ND	3.1	0.72	ug/kg	
	m,p-Xylene	ND	1.5	1.2	ug/kg	
95-47-6	o-Xylene	ND	1.5	0.90	ug/kg	
1330-20-7	Xylene (total)	ND	1.5	0.90	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	108%		75-127%
17060-07-0	1,2-Dichloroethane-D4	116%		75-130%
2037-26-5	Toluene-D8	105%		80-120%
460-00-4	4-Bromofluorobenzene	123%		79-127%

(a) This compound in BS is outside in house QC limits bias high.

ND = Not detected MDL = Method Detection Limit
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 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	SO-DUP-0415	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-4	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	87.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P86747.D	1	04/19/19 05:33	CB	04/17/19 18:45	OP19810	E2P3831
Run #2	2P86768.D	5	04/22/19 18:29	YC	04/17/19 18:45	OP19810	E2P3832

Run #	Initial Weight	Final Volume
Run #1	30.8 g	1.0 ml
Run #2	30.8 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	74	18	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	32	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	190	66	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	190	40	ug/kg	
95-48-7	2-Methylphenol	ND	74	24	ug/kg	
	3&4-Methylphenol	117	74	30	ug/kg	
88-75-5	2-Nitrophenol	ND	190	24	ug/kg	
100-02-7	4-Nitrophenol	ND	370	99	ug/kg	
87-86-5	Pentachlorophenol	ND	150	35	ug/kg	
108-95-2	Phenol	122	74	19	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	28	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	22	ug/kg	
83-32-9	Acenaphthene	106	37	13	ug/kg	
208-96-8	Acenaphthylene	1430	37	19	ug/kg	
98-86-2	Acetophenone	ND	190	8.0	ug/kg	
120-12-7	Anthracene	1200	37	23	ug/kg	
1912-24-9	Atrazine	ND	74	16	ug/kg	
56-55-3	Benzo(a)anthracene	5670 ^b	190	52	ug/kg	D
50-32-8	Benzo(a)pyrene	6020 ^b	190	84	ug/kg	D
205-99-2	Benzo(b)fluoranthene	8590 ^b	190	82	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	2110	37	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	1910	37	17	ug/kg	J
101-55-3	4-Bromophenyl phenyl ether	ND	74	14	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	74	9.0	ug/kg	
92-52-4	1,1'-Biphenyl	71.1	74	5.1	ug/kg	J
100-52-7	Benzaldehyde	ND	190	9.2	ug/kg	
91-58-7	2-Chloronaphthalene	ND	74	8.8	ug/kg	
106-47-8	4-Chloroaniline	ND	190	13	ug/kg	
86-74-8	Carbazole	271	74	5.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SO-DUP-0415	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-4	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	87.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	74	15	ug/kg	
218-01-9	Chrysene	6710 ^b	190	58	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	74	7.9	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	74	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	74	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	74	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	37	11	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	37	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	74	31	ug/kg	
123-91-1	1,4-Dioxane	ND	37	24	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	1060	37	16	ug/kg	
132-64-9	Dibenzofuran	242	74	15	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	74	6.0	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	74	9.2	ug/kg	
84-66-2	Diethyl phthalate	ND	74	7.9	ug/kg	
131-11-3	Dimethyl phthalate	ND	74	6.6	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	74	8.7	ug/kg	
206-44-0	Fluoranthene	6690 ^b	190	83	ug/kg	D
86-73-7	Fluorene	192	37	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	74	9.4	ug/kg	
87-68-3	Hexachlorobutadiene	ND	37	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	370	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	18	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	2300	37	17	ug/kg	
78-59-1	Isophorone	ND	74	7.9	ug/kg	
91-57-6	2-Methylnaphthalene	246	37	8.4	ug/kg	
88-74-4	2-Nitroaniline	ND	190	8.7	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.3	ug/kg	
100-01-6	4-Nitroaniline	ND	190	9.6	ug/kg	
91-20-3	Naphthalene	1230	37	10	ug/kg	
98-95-3	Nitrobenzene	ND	74	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	74	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	2620	37	12	ug/kg	
129-00-0	Pyrene	6700 ^b	190	59	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.4	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	43%	54%	23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SO-DUP-0415		Date Sampled: 04/15/19
Lab Sample ID: JC86406-4		Date Received: 04/16/19
Matrix: SO - Soil		Percent Solids: 87.6
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	50%	66%	27-114%
118-79-6	2,4,6-Tribromophenol	55%	45%	19-152%
4165-60-0	Nitrobenzene-d5	56%	72%	26-134%
321-60-8	2-Fluorobiphenyl	72%	76%	39-124%
1718-51-0	Terphenyl-d14	51%	63%	36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: PCTP-17R(5-6)	
Lab Sample ID: JC86406-5	Date Sampled: 04/15/19
Matrix: SO - Soil	Date Received: 04/16/19
Method: SW846 8260C	Percent Solids: 87.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D264077.D	1	04/26/19 14:32	JTP	n/a	n/a	VD10644
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	3.8 g	10.0 ml	20.0 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	7900	3900	ug/kg	
71-43-2	Benzene	1230	390	300	ug/kg	
74-97-5	Bromochloromethane	ND	3900	340	ug/kg	
75-27-4	Bromodichloromethane	ND	1600	350	ug/kg	
75-25-2	Bromoform	ND	3900	320	ug/kg	
74-83-9	Bromomethane	ND	3900	780	ug/kg	
78-93-3	2-Butanone (MEK)	ND	7900	2900	ug/kg	
75-15-0	Carbon disulfide	ND	1600	730	ug/kg	
56-23-5	Carbon tetrachloride	ND	1600	430	ug/kg	
108-90-7	Chlorobenzene	ND	1600	280	ug/kg	
75-00-3	Chloroethane	ND	3900	540	ug/kg	
67-66-3	Chloroform	ND	1600	290	ug/kg	
74-87-3	Chloromethane	ND	3900	1500	ug/kg	
110-82-7	Cyclohexane	ND	1600	320	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1600	660	ug/kg	
124-48-1	Dibromochloromethane	ND	1600	270	ug/kg	
106-93-4	1,2-Dibromoethane ^b	ND	790	260	ug/kg	UJ
95-50-1	1,2-Dichlorobenzene	ND	790	240	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	790	280	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	790	270	ug/kg	
75-71-8	Dichlorodifluoromethane ^c	ND	3900	500	ug/kg	
75-34-3	1,1-Dichloroethane	ND	790	300	ug/kg	
107-06-2	1,2-Dichloroethane ^c	ND	790	370	ug/kg	
75-35-4	1,1-Dichloroethene	ND	790	520	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	790	750	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	790	520	ug/kg	
78-87-5	1,2-Dichloropropane	ND	1600	320	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	1600	280	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	1600	260	ug/kg	
100-41-4	Ethylbenzene	ND	790	430	ug/kg	
76-13-1	Freon 113	ND	3900	600	ug/kg	
591-78-6	2-Hexanone	ND	3900	1000	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-17R(5-6)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-5	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	87.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1600	550	ug/kg	
79-20-9	Methyl Acetate	ND	3900	1100	ug/kg	
108-87-2	Methylcyclohexane	ND	1600	560	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	790	280	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	3900	1200	ug/kg	
75-09-2	Methylene chloride	ND	3900	2000	ug/kg	
100-42-5	Styrene	ND	1600	450	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1600	310	ug/kg	
127-18-4	Tetrachloroethene	ND	1600	360	ug/kg	
108-88-3	Toluene	1650	790	300	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	3900	790	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	3900	790	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	1600	330	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	1600	270	ug/kg	
79-01-6	Trichloroethene	ND	790	600	ug/kg	
75-69-4	Trichlorofluoromethane	ND	3900	530	ug/kg	
75-01-4	Vinyl chloride	ND	1600	370	ug/kg	
	m,p-Xylene	3880	790	590	ug/kg	
95-47-6	o-Xylene	1740	790	460	ug/kg	
1330-20-7	Xylene (total)	5620	790	460	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		75-127%
17060-07-0	1,2-Dichloroethane-D4	87%		75-130%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	93%		79-127%

- (a) Diluted due to high concentration of non-target compound.
 (b) This compound in BS is outside in house QC limits bias high.
 (c) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-17R(5-6)	
Lab Sample ID: JC86406-5	Date Sampled: 04/15/19
Matrix: SO - Soil	Date Received: 04/16/19
Method: SW846 8270D SW846 3546	Percent Solids: 87.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P86748.D	1	04/19/19 05:54	CB	04/17/19 18:45	OP19810	E2P3831
Run #2	Z137310.D	5	04/26/19 21:07	AR	04/17/19 18:45	OP19810	EZ6764
Run #3	Z137270.D	100	04/25/19 22:31	AR	04/17/19 18:45	OP19810	EZ6762

Run #	Initial Weight	Final Volume
Run #1	31.4 g	1.0 ml
Run #2	31.4 g	1.0 ml
Run #3	31.4 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	73	18	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	180	22	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	180	31	ug/kg	
105-67-9	2,4-Dimethylphenol	2270 ^a	910	320	ug/kg	D
51-28-5	2,4-Dinitrophenol	ND	180	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	180	39	ug/kg	
95-48-7	2-Methylphenol	1650	73	23	ug/kg	
	3&4-Methylphenol	4700 ^a	360	150	ug/kg	D
88-75-5	2-Nitrophenol	ND	180	24	ug/kg	
100-02-7	4-Nitrophenol	ND	360	97	ug/kg	
87-86-5	Pentachlorophenol	ND	150	34	ug/kg	
108-95-2	Phenol	2790	73	19	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	180	24	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	180	27	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	180	22	ug/kg	
83-32-9	Acenaphthene	4550 ^a	180	63	ug/kg	D
208-96-8	Acenaphthylene	29600 ^b	3600	1800	ug/kg	D
98-86-2	Acetophenone	ND	180	7.8	ug/kg	
120-12-7	Anthracene	67800 ^b	3600	2200	ug/kg	D
1912-24-9	Atrazine	ND	73	16	ug/kg	
56-55-3	Benzo(a)anthracene	57200 ^b	3600	1000	ug/kg	D
50-32-8	Benzo(a)pyrene	41100 ^b	3600	1700	ug/kg	D
205-99-2	Benzo(b)fluoranthene	49000 ^b	3600	1600	ug/kg	D
191-24-2	Benzo(g,h,i)perylene ^c	20500 ^b	3600	1800	ug/kg	D
207-08-9	Benzo(k)fluoranthene	18900 ^b	3600	1700	ug/kg	D
101-55-3	4-Bromophenyl phenyl ether	ND	73	14	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	73	8.9	ug/kg	
92-52-4	1,1'-Biphenyl	8640 ^a	360	25	ug/kg	D
100-52-7	Benzaldehyde	ND	180	9.0	ug/kg	
91-58-7	2-Chloronaphthalene	ND	73	8.6	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	PCTP-17R(5-6)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-5	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	87.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	180	13	ug/kg	
86-74-8	Carbazole	28800 ^b	7300	530	ug/kg	D
105-60-2	Caprolactam	ND	73	14	ug/kg	
218-01-9	Chrysene	48000 ^b	3600	1100	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	73	7.8	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	73	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	73	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	73	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	36	11	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	36	18	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	73	30	ug/kg	
123-91-1	1,4-Dioxane	ND	36	24	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	6990 ^a	180	80	ug/kg	D
132-64-9	Dibenzofuran	49900 ^b	7300	1500	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	73	5.9	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	73	9.0	ug/kg	
84-66-2	Diethyl phthalate	ND	73	7.7	ug/kg	
131-11-3	Dimethyl phthalate	ND	73	6.5	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	73	8.5	ug/kg	
206-44-0	Fluoranthene	138000 ^b	3600	1600	ug/kg	D
86-73-7	Fluorene	77200 ^b	3600	1700	ug/kg	D
118-74-1	Hexachlorobenzene	ND	73	9.2	ug/kg	
87-68-3	Hexachlorobutadiene	ND	36	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	360	14	ug/kg	
67-72-1	Hexachloroethane	ND	180	18	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene ^c	22000 ^b	3600	1700	ug/kg	D
78-59-1	Isophorone	ND	73	7.8	ug/kg	
91-57-6	2-Methylnaphthalene	56200 ^b	3600	820	ug/kg	D
88-74-4	2-Nitroaniline	ND	180	8.6	ug/kg	
99-09-2	3-Nitroaniline	ND	180	9.1	ug/kg	
100-01-6	4-Nitroaniline	ND	180	9.4	ug/kg	
91-20-3	Naphthalene	146000 ^b	3600	1000	ug/kg	D
98-95-3	Nitrobenzene	ND	73	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	73	10	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	180	13	ug/kg	
85-01-8	Phenanthrene	219000 ^b	3600	1200	ug/kg	D
129-00-0	Pyrene	95600 ^b	3600	1200	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	180	9.2	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-17R(5-6)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-5	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 87.7
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	47%	53%	0% ^d	23-115%
4165-62-2	Phenol-d5	53%	49%	0% ^d	27-114%
118-79-6	2,4,6-Tribromophenol	68%	45%	0% ^d	19-152%
4165-60-0	Nitrobenzene-d5	89%	53%	0% ^d	26-134%
321-60-8	2-Fluorobiphenyl	51%	53%	0% ^d	39-124%
1718-51-0	Terphenyl-d14	61%	56%	0% ^d	36-134%

- (a) Result is from Run# 2
- (b) Result is from Run# 3
- (c) Associated CCV outside of control limits high.
- (d) Outside control limits due to dilution.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PCTP-17R(7-9)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-6	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	89.1
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V44292.D	1	04/24/19 15:56	RS	n/a	n/a	V3V1778
Run #2							

Run #1	Initial Weight
Run #1	6.6 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	40.7	8.5	4.3	ug/kg	
71-43-2	Benzene	ND	0.43	0.32	ug/kg	
74-97-5	Bromochloromethane	ND	4.3	0.37	ug/kg	
75-27-4	Bromodichloromethane	ND	1.7	0.38	ug/kg	
75-25-2	Bromoform	ND	4.3	0.34	ug/kg	
74-83-9	Bromomethane	ND	4.3	0.85	ug/kg	
78-93-3	2-Butanone (MEK)	3.3	8.5	3.2	ug/kg	J
75-15-0	Carbon disulfide	ND	1.7	0.79	ug/kg	
56-23-5	Carbon tetrachloride	ND	1.7	0.47	ug/kg	
108-90-7	Chlorobenzene	ND	1.7	0.30	ug/kg	
75-00-3	Chloroethane	ND	4.3	0.58	ug/kg	
67-66-3	Chloroform	ND	1.7	0.32	ug/kg	
74-87-3	Chloromethane	ND	4.3	1.7	ug/kg	
110-82-7	Cyclohexane ^a	ND	1.7	0.35	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.7	0.71	ug/kg	
124-48-1	Dibromochloromethane	ND	1.7	0.29	ug/kg	
106-93-4	1,2-Dibromoethane	ND	0.85	0.28	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.85	0.26	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.85	0.31	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.85	0.29	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	4.3	0.54	ug/kg	
75-34-3	1,1-Dichloroethane	ND	0.85	0.33	ug/kg	
107-06-2	1,2-Dichloroethane	ND	0.85	0.40	ug/kg	
75-35-4	1,1-Dichloroethene	ND	0.85	0.56	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.85	0.81	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.85	0.57	ug/kg	
78-87-5	1,2-Dichloropropane	ND	1.7	0.35	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	1.7	0.30	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	1.7	0.28	ug/kg	
100-41-4	Ethylbenzene	ND	0.85	0.47	ug/kg	
76-13-1	Freon 113	ND	4.3	0.65	ug/kg	
591-78-6	2-Hexanone	ND	4.3	1.1	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-17R(7-9)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-6	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	89.1
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.7	0.59	ug/kg	
79-20-9	Methyl Acetate	ND	4.3	1.2	ug/kg	
108-87-2	Methylcyclohexane ^a	ND	1.7	0.60	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.85	0.30	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	4.3	1.3	ug/kg	
75-09-2	Methylene chloride	ND	4.3	2.1	ug/kg	
100-42-5	Styrene	ND	1.7	0.49	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.7	0.33	ug/kg	
127-18-4	Tetrachloroethene	ND	1.7	0.39	ug/kg	
108-88-3	Toluene	ND	0.85	0.32	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	4.3	0.85	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	4.3	0.85	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	1.7	0.36	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	1.7	0.29	ug/kg	
79-01-6	Trichloroethene	ND	0.85	0.65	ug/kg	
75-69-4	Trichlorofluoromethane	ND	4.3	0.58	ug/kg	
75-01-4	Vinyl chloride	ND	1.7	0.40	ug/kg	
	m,p-Xylene	ND	0.85	0.63	ug/kg	
95-47-6	o-Xylene	ND	0.85	0.50	ug/kg	
1330-20-7	Xylene (total)	ND	0.85	0.50	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		75-127%
17060-07-0	1,2-Dichloroethane-D4	104%		75-130%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	102%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 3

Client Sample ID:	PCTP-17R(7-9)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-6	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	89.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P86733.D	1	04/19/19 00:27	CB	04/17/19 18:45	OP19810	E2P3831
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	31.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	72	18	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	180	22	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	180	31	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	180	64	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	180	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	180	38	ug/kg	
95-48-7	2-Methylphenol	ND	72	23	ug/kg	
	3&4-Methylphenol	ND	72	30	ug/kg	
88-75-5	2-Nitrophenol	ND	180	24	ug/kg	
100-02-7	4-Nitrophenol	ND	360	96	ug/kg	
87-86-5	Pentachlorophenol	ND	140	34	ug/kg	
108-95-2	Phenol	ND	72	19	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	180	24	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	180	27	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	180	21	ug/kg	
83-32-9	Acenaphthene	ND	36	12	ug/kg	
208-96-8	Acenaphthylene	ND	36	18	ug/kg	
98-86-2	Acetophenone	ND	180	7.7	ug/kg	
120-12-7	Anthracene	ND	36	22	ug/kg	
1912-24-9	Atrazine	ND	72	15	ug/kg	
56-55-3	Benzo(a)anthracene	26.4	36	10	ug/kg	J
50-32-8	Benzo(a)pyrene	28.0	36	16	ug/kg	J
205-99-2	Benzo(b)fluoranthene	34.1	36	16	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	20.3	36	18	ug/kg	J
207-08-9	Benzo(k)fluoranthene	ND	36	17	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	72	14	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	72	8.8	ug/kg	
92-52-4	1,1'-Biphenyl	5.4	72	4.9	ug/kg	J
100-52-7	Benzaldehyde	ND	180	8.9	ug/kg	
91-58-7	2-Chloronaphthalene	ND	72	8.6	ug/kg	
106-47-8	4-Chloroaniline	ND	180	13	ug/kg	
86-74-8	Carbazole	7.9	72	5.2	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-17R(7-9)	
Lab Sample ID: JC86406-6	Date Sampled: 04/15/19
Matrix: SO - Soil	Date Received: 04/16/19
Method: SW846 8270D SW846 3546	Percent Solids: 89.1
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	72	14	ug/kg	
218-01-9	Chrysene	27.6	36	11	ug/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	72	7.7	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	72	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	72	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	72	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	36	11	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	36	18	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	72	30	ug/kg	
123-91-1	1,4-Dioxane	ND	36	24	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	36	16	ug/kg	
132-64-9	Dibenzofuran	ND	72	15	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	72	5.9	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	72	9.0	ug/kg	
84-66-2	Diethyl phthalate	ND	72	7.7	ug/kg	
131-11-3	Dimethyl phthalate	ND	72	6.4	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	72	8.4	ug/kg	
206-44-0	Fluoranthene	36.2	36	16	ug/kg	
86-73-7	Fluorene	ND	36	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	72	9.1	ug/kg	
87-68-3	Hexachlorobutadiene	ND	36	14	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	360	14	ug/kg	
67-72-1	Hexachloroethane	ND	180	18	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	36	17	ug/kg	
78-59-1	Isophorone	ND	72	7.7	ug/kg	
91-57-6	2-Methylnaphthalene	14.5	36	8.1	ug/kg	J
88-74-4	2-Nitroaniline	ND	180	8.5	ug/kg	
99-09-2	3-Nitroaniline	ND	180	9.0	ug/kg	
100-01-6	4-Nitroaniline	ND	180	9.3	ug/kg	
91-20-3	Naphthalene	38.0	36	10	ug/kg	
98-95-3	Nitrobenzene	ND	72	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	72	10	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	180	13	ug/kg	
85-01-8	Phenanthrene	63.0	36	12	ug/kg	
129-00-0	Pyrene	30.2	36	12	ug/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	180	9.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	58%		23-115%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: PCTP-17R(7-9)	
Lab Sample ID: JC86406-6	Date Sampled: 04/15/19
Matrix: SO - Soil	Date Received: 04/16/19
Method: SW846 8270D SW846 3546	Percent Solids: 89.1
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	67%		27-114%
118-79-6	2,4,6-Tribromophenol	62%		19-152%
4165-60-0	Nitrobenzene-d5	75%		26-134%
321-60-8	2-Fluorobiphenyl	76%		39-124%
1718-51-0	Terphenyl-d14	63%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Client Sample ID: PCTP-17R(9-11)	
Lab Sample ID: JC86406-7	Date Sampled: 04/15/19
Matrix: SO - Soil	Date Received: 04/16/19
Method: SW846 8260C	Percent Solids: 58.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184763.D	1	04/26/19 12:22	EH	n/a	n/a	VY8016
Run #2							

Run #1	Initial Weight
Run #1	4.5 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	119	19	9.5	ug/kg	
71-43-2	Benzene	1.9	0.95	0.72	ug/kg	
74-97-5	Bromochloromethane	ND	9.5	0.82	ug/kg	
75-27-4	Bromodichloromethane	ND	3.8	0.84	ug/kg	
75-25-2	Bromoform	ND	9.5	0.77	ug/kg	
74-83-9	Bromomethane	ND	9.5	1.9	ug/kg	
78-93-3	2-Butanone (MEK)	15.7	19	7.1	ug/kg	J
75-15-0	Carbon disulfide	4.8	3.8	1.8	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.8	1.0	ug/kg	
108-90-7	Chlorobenzene	ND	3.8	0.67	ug/kg	
75-00-3	Chloroethane	ND	9.5	1.3	ug/kg	
67-66-3	Chloroform	ND	3.8	0.71	ug/kg	
74-87-3	Chloromethane	ND	9.5	3.7	ug/kg	
110-82-7	Cyclohexane	ND	3.8	0.77	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.8	1.6	ug/kg	
124-48-1	Dibromochloromethane	ND	3.8	0.64	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.9	0.62	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.9	0.58	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.9	0.68	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.9	0.65	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	9.5	1.2	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.9	0.73	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.9	0.89	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.9	1.2	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.9	1.8	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.9	1.3	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.8	0.77	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.8	0.67	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.8	0.62	ug/kg	
100-41-4	Ethylbenzene	ND	1.9	1.0	ug/kg	
76-13-1	Freon 113 ^a	ND	9.5	1.4	ug/kg	
591-78-6	2-Hexanone	ND	9.5	2.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-17R(9-11)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-7	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	58.5
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.8	1.3	ug/kg	
79-20-9	Methyl Acetate	ND	9.5	2.6	ug/kg	
108-87-2	Methylcyclohexane	1.3	3.8	1.3	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.9	0.67	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	9.5	3.0	ug/kg	
75-09-2	Methylene chloride	ND	9.5	4.7	ug/kg	
100-42-5	Styrene	ND	3.8	1.1	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane ^b	ND	3.8	0.74	ug/kg	UJ
127-18-4	Tetrachloroethene	ND	3.8	0.88	ug/kg	
108-88-3	Toluene	ND	1.9	0.71	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	9.5	1.9	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	9.5	1.9	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.8	0.81	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.8	0.65	ug/kg	
79-01-6	Trichloroethene	ND	1.9	1.4	ug/kg	
75-69-4	Trichlorofluoromethane	ND	9.5	1.3	ug/kg	
75-01-4	Vinyl chloride	ND	3.8	0.89	ug/kg	
	m,p-Xylene	ND	1.9	1.4	ug/kg	
95-47-6	o-Xylene	ND	1.9	1.1	ug/kg	
1330-20-7	Xylene (total)	ND	1.9	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	115%		75-127%
17060-07-0	1,2-Dichloroethane-D4	101%		75-130%
2037-26-5	Toluene-D8	87%		80-120%
460-00-4	4-Bromofluorobenzene	98%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: PCTP-17R(9-11)	
Lab Sample ID: JC86406-7	Date Sampled: 04/15/19
Matrix: SO - Soil	Date Received: 04/16/19
Method: SW846 8270D SW846 3546	Percent Solids: 58.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P86740.D	1	04/19/19 03:00	CB	04/17/19 18:45	OP19810	E2P3831
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	110	28	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	280	35	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	280	49	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	145	280	100	ug/kg	J
51-28-5	2,4-Dinitrophenol	ND	280	210	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	280	61	ug/kg	
95-48-7	2-Methylphenol	215	110	36	ug/kg	
	3&4-Methylphenol	664	110	47	ug/kg	
88-75-5	2-Nitrophenol	ND	280	38	ug/kg	
100-02-7	4-Nitrophenol	ND	570	150	ug/kg	
87-86-5	Pentachlorophenol	ND	230	54	ug/kg	
108-95-2	Phenol	540	110	30	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	280	38	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	280	43	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	280	34	ug/kg	
83-32-9	Acenaphthene	239	57	20	ug/kg	
208-96-8	Acenaphthylene	102	57	29	ug/kg	
98-86-2	Acetophenone	ND	280	12	ug/kg	
120-12-7	Anthracene	721	57	35	ug/kg	
1912-24-9	Atrazine	ND	110	24	ug/kg	
56-55-3	Benzo(a)anthracene	409	57	16	ug/kg	
50-32-8	Benzo(a)pyrene	449	57	26	ug/kg	
205-99-2	Benzo(b)fluoranthene	505	57	25	ug/kg	
191-24-2	Benzo(g,h,i)perylene	289	57	28	ug/kg	
207-08-9	Benzo(k)fluoranthene	206	57	27	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	110	22	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	110	14	ug/kg	
92-52-4	1,1'-Biphenyl	61.7	110	7.8	ug/kg	J
100-52-7	Benzaldehyde	55.6	280	14	ug/kg	J
91-58-7	2-Chloronaphthalene	ND	110	14	ug/kg	
106-47-8	4-Chloroaniline	ND	280	21	ug/kg	
86-74-8	Carbazole	113	110	8.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-17R(9-11)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-7	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	58.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	110	23	ug/kg	
218-01-9	Chrysene	527	57	18	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	110	12	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	110	25	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	110	20	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	110	18	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	57	18	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	57	29	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	110	48	ug/kg	
123-91-1	1,4-Dioxane	ND	57	38	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	67.7	57	25	ug/kg	
132-64-9	Dibenzofuran	158	110	23	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	110	9.3	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	110	14	ug/kg	
84-66-2	Diethyl phthalate	ND	110	12	ug/kg	
131-11-3	Dimethyl phthalate	ND	110	10	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	110	13	ug/kg	
206-44-0	Fluoranthene	767	57	25	ug/kg	
86-73-7	Fluorene	190	57	26	ug/kg	
118-74-1	Hexachlorobenzene	ND	110	14	ug/kg	
87-68-3	Hexachlorobutadiene	ND	57	23	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	570	23	ug/kg	
67-72-1	Hexachloroethane	ND	280	28	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	247	57	27	ug/kg	
78-59-1	Isophorone	ND	110	12	ug/kg	
91-57-6	2-Methylnaphthalene	205	57	13	ug/kg	
88-74-4	2-Nitroaniline	ND	280	13	ug/kg	
99-09-2	3-Nitroaniline	ND	280	14	ug/kg	
100-01-6	4-Nitroaniline	ND	280	15	ug/kg	
91-20-3	Naphthalene	652	57	16	ug/kg	
98-95-3	Nitrobenzene	ND	110	22	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	110	16	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	280	21	ug/kg	
85-01-8	Phenanthrene	1010	57	19	ug/kg	
129-00-0	Pyrene	807	57	18	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	280	14	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	46%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-17R(9-11)	
Lab Sample ID: JC86406-7	Date Sampled: 04/15/19
Matrix: SO - Soil	Date Received: 04/16/19
Method: SW846 8270D SW846 3546	Percent Solids: 58.5
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	56%		27-114%
118-79-6	2,4,6-Tribromophenol	57%		19-152%
4165-60-0	Nitrobenzene-d5	64%		26-134%
321-60-8	2-Fluorobiphenyl	72%		39-124%
1718-51-0	Terphenyl-d14	62%		36-134%

(a) Associated CCV outside of control limits high.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.7
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Report of Analysis

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Client Sample ID: PCTP-17R(18-20)	
Lab Sample ID: JC86406-8	Date Sampled: 04/15/19
Matrix: SO - Soil	Date Received: 04/16/19
Method: SW846 8260C	Percent Solids: 52.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D264060.D	1	04/25/19 18:55	TDN	n/a	n/a	VD10643
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.2 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^b	ND	2700	1400	ug/kg	
71-43-2	Benzene	ND	140	100	ug/kg	
74-97-5	Bromochloromethane	ND	1400	120	ug/kg	
75-27-4	Bromodichloromethane	ND	550	120	ug/kg	
75-25-2	Bromoform	ND	1400	110	ug/kg	
74-83-9	Bromomethane	ND	1400	270	ug/kg	
78-93-3	2-Butanone (MEK)	ND	2700	1000	ug/kg	
75-15-0	Carbon disulfide	7250	550	250	ug/kg	
56-23-5	Carbon tetrachloride	ND	550	150	ug/kg	
108-90-7	Chlorobenzene	ND	550	97	ug/kg	
75-00-3	Chloroethane	ND	1400	190	ug/kg	
67-66-3	Chloroform	ND	550	100	ug/kg	
74-87-3	Chloromethane	ND	1400	540	ug/kg	
110-82-7	Cyclohexane	ND	550	110	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	550	230	ug/kg	
124-48-1	Dibromochloromethane	ND	550	93	ug/kg	
106-93-4	1,2-Dibromoethane	ND	270	89	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	270	84	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	270	99	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	270	94	ug/kg	
75-71-8	Dichlorodifluoromethane ^c	ND	1400	170	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	270	110	ug/kg	
107-06-2	1,2-Dichloroethane ^c	ND	270	130	ug/kg	UJ
75-35-4	1,1-Dichloroethene	ND	270	180	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	270	260	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	270	180	ug/kg	
78-87-5	1,2-Dichloropropane	ND	550	110	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	550	97	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	550	90	ug/kg	
100-41-4	Ethylbenzene	ND	270	150	ug/kg	
76-13-1	Freon 113	ND	1400	210	ug/kg	
591-78-6	2-Hexanone	ND	1400	350	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-17R(18-20)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-8	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	52.1
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	353	550	190	ug/kg	J
79-20-9	Methyl Acetate	2900	1400	380	ug/kg	
108-87-2	Methylcyclohexane	1210	550	190	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	270	97	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	1400	430	ug/kg	
75-09-2	Methylene chloride	ND	1400	690	ug/kg	
100-42-5	Styrene	ND	550	160	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	550	110	ug/kg	
127-18-4	Tetrachloroethene	ND	550	130	ug/kg	
108-88-3	Toluene	1070	270	100	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	1400	270	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	1400	270	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	550	120	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	550	94	ug/kg	
79-01-6	Trichloroethene	ND	270	210	ug/kg	
75-69-4	Trichlorofluoromethane	ND	1400	190	ug/kg	
75-01-4	Vinyl chloride	ND	550	130	ug/kg	
	m,p-Xylene	248	270	200	ug/kg	J
95-47-6	o-Xylene	173	270	160	ug/kg	J
1330-20-7	Xylene (total)	421	270	160	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		75-127%
17060-07-0	1,2-Dichloroethane-D4	90%		75-130%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	101%		79-127%

- (a) Diluted due to high concentration of non-target compound.
 (b) Associated CCV outside of control limits high, sample was ND.
 (c) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Client Sample ID:	PCTP-17R(18-20)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-8	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	52.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P86741.D	1	04/19/19 03:22	CB	04/17/19 18:45	OP19810	E2P3831
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	31.8 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	120	30	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	300	37	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	300	51	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	300	110	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	300	230	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	300	65	ug/kg	
95-48-7	2-Methylphenol	ND	120	39	ug/kg	
	3&4-Methylphenol	319	120	50	ug/kg	
88-75-5	2-Nitrophenol	ND	300	40	ug/kg	
100-02-7	4-Nitrophenol	ND	600	160	ug/kg	
87-86-5	Pentachlorophenol	ND	240	57	ug/kg	
108-95-2	Phenol	ND	120	32	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	300	40	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	300	45	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	300	36	ug/kg	
83-32-9	Acenaphthene	1760	60	21	ug/kg	
208-96-8	Acenaphthylene	237	60	31	ug/kg	
98-86-2	Acetophenone	ND	300	13	ug/kg	
120-12-7	Anthracene	919	60	37	ug/kg	
1912-24-9	Atrazine	ND	120	26	ug/kg	
56-55-3	Benzo(a)anthracene	884	60	17	ug/kg	
50-32-8	Benzo(a)pyrene	799	60	27	ug/kg	
205-99-2	Benzo(b)fluoranthene	809	60	27	ug/kg	
191-24-2	Benzo(g,h,i)perylene	354	60	30	ug/kg	
207-08-9	Benzo(k)fluoranthene	259	60	28	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	120	23	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	120	15	ug/kg	
92-52-4	1,1'-Biphenyl	79.3	120	8.3	ug/kg	J
100-52-7	Benzaldehyde	ND	300	15	ug/kg	
91-58-7	2-Chloronaphthalene	ND	120	14	ug/kg	
106-47-8	4-Chloroaniline	ND	300	22	ug/kg	
86-74-8	Carbazole	42.0	120	8.8	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-17R(18-20)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-8	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	52.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	120	24	ug/kg	
218-01-9	Chrysene	1250	60	19	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	120	13	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	120	26	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	120	22	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	120	20	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	60	19	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	60	30	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	120	50	ug/kg	
123-91-1	1,4-Dioxane	ND	60	40	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	97.6	60	27	ug/kg	
132-64-9	Dibenzofuran	197	120	25	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	120	9.8	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	120	15	ug/kg	
84-66-2	Diethyl phthalate	ND	120	13	ug/kg	
131-11-3	Dimethyl phthalate	ND	120	11	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	120	14	ug/kg	
206-44-0	Fluoranthene	2190	60	27	ug/kg	
86-73-7	Fluorene	ND	60	28	ug/kg	
118-74-1	Hexachlorobenzene	ND	120	15	ug/kg	
87-68-3	Hexachlorobutadiene	ND	60	24	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	600	24	ug/kg	
67-72-1	Hexachloroethane	ND	300	30	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	269	60	28	ug/kg	
78-59-1	Isophorone	ND	120	13	ug/kg	
91-57-6	2-Methylnaphthalene	467	60	14	ug/kg	
88-74-4	2-Nitroaniline	ND	300	14	ug/kg	
99-09-2	3-Nitroaniline	ND	300	15	ug/kg	
100-01-6	4-Nitroaniline	ND	300	16	ug/kg	
91-20-3	Naphthalene	991	60	17	ug/kg	
98-95-3	Nitrobenzene	ND	120	23	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	120	17	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	300	22	ug/kg	
85-01-8	Phenanthrene	4230	60	20	ug/kg	
129-00-0	Pyrene	2390	60	19	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	300	15	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	56%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-17R(18-20) Lab Sample ID: JC86406-8 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/15/19 Date Received: 04/16/19 Percent Solids: 52.1
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	64%		27-114%
118-79-6	2,4,6-Tribromophenol	68%		19-152%
4165-60-0	Nitrobenzene-d5	79%		26-134%
321-60-8	2-Fluorobiphenyl	81%		39-124%
1718-51-0	Terphenyl-d14	72%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

4.8
4

Report of Analysis

Client Sample ID:	PCTP-17R(24-25)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-9	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	52.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184762.D	1	04/26/19 11:53	EH	n/a	n/a	VY8016
Run #2							

	Initial Weight
Run #1	3.2 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	495	30	15	ug/kg	
71-43-2	Benzene	ND	1.5	1.1	ug/kg	
74-97-5	Bromochloromethane	ND	15	1.3	ug/kg	
75-27-4	Bromodichloromethane	ND	5.9	1.3	ug/kg	
75-25-2	Bromoform	ND	15	1.2	ug/kg	
74-83-9	Bromomethane	ND	15	3.0	ug/kg	
78-93-3	2-Butanone (MEK)	117	30	11	ug/kg	
75-15-0	Carbon disulfide	5.0	5.9	2.8	ug/kg	J
56-23-5	Carbon tetrachloride	ND	5.9	1.6	ug/kg	
108-90-7	Chlorobenzene	ND	5.9	1.0	ug/kg	
75-00-3	Chloroethane	ND	15	2.0	ug/kg	
67-66-3	Chloroform	ND	5.9	1.1	ug/kg	
74-87-3	Chloromethane	ND	15	5.8	ug/kg	
110-82-7	Cyclohexane	ND	5.9	1.2	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	5.9	2.5	ug/kg	
124-48-1	Dibromochloromethane	ND	5.9	1.0	ug/kg	
106-93-4	1,2-Dibromoethane	ND	3.0	0.96	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	3.0	0.90	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	3.0	1.1	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	3.0	1.0	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	15	1.9	ug/kg	
75-34-3	1,1-Dichloroethane	ND	3.0	1.1	ug/kg	
107-06-2	1,2-Dichloroethane	ND	3.0	1.4	ug/kg	
75-35-4	1,1-Dichloroethene	ND	3.0	1.9	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	3.0	2.8	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	3.0	2.0	ug/kg	
78-87-5	1,2-Dichloropropane	ND	5.9	1.2	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	5.9	1.0	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	5.9	0.97	ug/kg	
100-41-4	Ethylbenzene	ND	3.0	1.6	ug/kg	
76-13-1	Freon 113 ^a	ND	15	2.3	ug/kg	
591-78-6	2-Hexanone	ND	15	3.8	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-17R(24-25)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-9	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	52.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	5.9	2.1	ug/kg	
79-20-9	Methyl Acetate	ND	15	4.1	ug/kg	
108-87-2	Methylcyclohexane	5.3	5.9	2.1	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	3.0	1.0	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	15	4.6	ug/kg	
75-09-2	Methylene chloride	ND	15	7.4	ug/kg	
100-42-5	Styrene	ND	5.9	1.7	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane ^b	ND	5.9	1.2	ug/kg	UJ
127-18-4	Tetrachloroethene	ND	5.9	1.4	ug/kg	
108-88-3	Toluene	ND	3.0	1.1	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	15	3.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	15	3.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	5.9	1.3	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	5.9	1.0	ug/kg	
79-01-6	Trichloroethene	ND	3.0	2.3	ug/kg	
75-69-4	Trichlorofluoromethane	ND	15	2.0	ug/kg	
75-01-4	Vinyl chloride	ND	5.9	1.4	ug/kg	
	m,p-Xylene	ND	3.0	2.2	ug/kg	
95-47-6	o-Xylene	ND	3.0	1.7	ug/kg	
1330-20-7	Xylene (total)	ND	3.0	1.7	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	115%		75-127%
17060-07-0	1,2-Dichloroethane-D4	102%		75-130%
2037-26-5	Toluene-D8	87%		80-120%
460-00-4	4-Bromofluorobenzene	98%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 3

Client Sample ID:	PCTP-17R(24-25)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-9	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	52.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P86734.D	1	04/19/19 00:48	CB	04/17/19 18:45	OP19810	E2P3831
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	130	31	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	320	39	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	320	54	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	320	110	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	320	240	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	320	68	ug/kg	
95-48-7	2-Methylphenol	ND	130	40	ug/kg	
	3&4-Methylphenol	ND	130	52	ug/kg	
88-75-5	2-Nitrophenol	ND	320	42	ug/kg	
100-02-7	4-Nitrophenol	ND	630	170	ug/kg	
87-86-5	Pentachlorophenol	ND	250	59	ug/kg	
108-95-2	Phenol	ND	130	33	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	320	42	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	320	47	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	320	38	ug/kg	
83-32-9	Acenaphthene	105	63	22	ug/kg	
208-96-8	Acenaphthylene	ND	63	32	ug/kg	
98-86-2	Acetophenone	ND	320	14	ug/kg	
120-12-7	Anthracene	55.9	63	39	ug/kg	J
1912-24-9	Atrazine	ND	130	27	ug/kg	
56-55-3	Benzo(a)anthracene	31.4	63	18	ug/kg	J
50-32-8	Benzo(a)pyrene	ND	63	29	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	63	28	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	63	32	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	63	30	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	130	24	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	130	15	ug/kg	
92-52-4	1,1'-Biphenyl	17.0	130	8.7	ug/kg	J
100-52-7	Benzaldehyde	ND	320	16	ug/kg	
91-58-7	2-Chloronaphthalene	ND	130	15	ug/kg	
106-47-8	4-Chloroaniline	ND	320	23	ug/kg	
86-74-8	Carbazole	21.8	130	9.2	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-17R(24-25)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-9	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	52.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	130	25	ug/kg	
218-01-9	Chrysene	31.4	63	20	ug/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	130	14	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	130	27	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	130	23	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	130	20	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	63	20	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	63	32	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	130	53	ug/kg	
123-91-1	1,4-Dioxane	ND	63	42	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	63	28	ug/kg	
132-64-9	Dibenzofuran	41.7	130	26	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	130	10	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	130	16	ug/kg	
84-66-2	Diethyl phthalate	ND	130	13	ug/kg	
131-11-3	Dimethyl phthalate	ND	130	11	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	130	15	ug/kg	
206-44-0	Fluoranthene	67.1	63	28	ug/kg	
86-73-7	Fluorene	76.2	63	29	ug/kg	
118-74-1	Hexachlorobenzene	ND	130	16	ug/kg	
87-68-3	Hexachlorobutadiene	ND	63	25	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	630	25	ug/kg	
67-72-1	Hexachloroethane	ND	320	31	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	63	30	ug/kg	
78-59-1	Isophorone	ND	130	14	ug/kg	
91-57-6	2-Methylnaphthalene	74.2	63	14	ug/kg	
88-74-4	2-Nitroaniline	ND	320	15	ug/kg	
99-09-2	3-Nitroaniline	ND	320	16	ug/kg	
100-01-6	4-Nitroaniline	ND	320	16	ug/kg	
91-20-3	Naphthalene	149	63	18	ug/kg	
98-95-3	Nitrobenzene	ND	130	24	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	130	18	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	320	23	ug/kg	
85-01-8	Phenanthrene	232	63	21	ug/kg	
129-00-0	Pyrene	68.0	63	20	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	320	16	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	60%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-17R(24-25) Lab Sample ID: JC86406-9 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/15/19 Date Received: 04/16/19 Percent Solids: 52.7
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	69%		27-114%
118-79-6	2,4,6-Tribromophenol	55%		19-152%
4165-60-0	Nitrobenzene-d5	80%		26-134%
321-60-8	2-Fluorobiphenyl	80%		39-124%
1718-51-0	Terphenyl-d14	71%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

4.9
4

Report of Analysis

Client Sample ID: S-114(2-4)		
Lab Sample ID: JC86406-10		Date Sampled: 04/15/19
Matrix: SO - Soil		Date Received: 04/16/19
Method: SW846 8260C		Percent Solids: 83.0
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V44288.D	1	04/24/19 14:12	RS	n/a	n/a	V3V1778
Run #2							

Run #1	Initial Weight
Run #1	5.1 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	28.1	12	5.9	ug/kg	
71-43-2	Benzene	ND	0.59	0.45	ug/kg	
74-97-5	Bromochloromethane	ND	5.9	0.51	ug/kg	
75-27-4	Bromodichloromethane	ND	2.4	0.52	ug/kg	
75-25-2	Bromoform	ND	5.9	0.48	ug/kg	
74-83-9	Bromomethane	ND	5.9	1.2	ug/kg	
78-93-3	2-Butanone (MEK)	ND	12	4.4	ug/kg	
75-15-0	Carbon disulfide	ND	2.4	1.1	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.4	0.65	ug/kg	
108-90-7	Chlorobenzene	ND	2.4	0.42	ug/kg	
75-00-3	Chloroethane	ND	5.9	0.81	ug/kg	
67-66-3	Chloroform	ND	2.4	0.44	ug/kg	
74-87-3	Chloromethane	ND	5.9	2.3	ug/kg	
110-82-7	Cyclohexane ^a	ND	2.4	0.48	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.4	0.99	ug/kg	
124-48-1	Dibromochloromethane	ND	2.4	0.40	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.2	0.38	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.2	0.36	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.2	0.42	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.2	0.41	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.9	0.75	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.2	0.45	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.2	0.56	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.2	0.77	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.2	1.1	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.2	0.79	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.4	0.48	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.4	0.42	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.4	0.39	ug/kg	
100-41-4	Ethylbenzene	ND	1.2	0.65	ug/kg	
76-13-1	Freon 113	ND	5.9	0.90	ug/kg	
591-78-6	2-Hexanone	ND	5.9	1.5	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-114(2-4)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-10	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	83.0
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.4	0.82	ug/kg	
79-20-9	Methyl Acetate	ND	5.9	1.6	ug/kg	
108-87-2	Methylcyclohexane ^a	ND	2.4	0.84	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.2	0.42	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.9	1.8	ug/kg	
75-09-2	Methylene chloride	ND	5.9	3.0	ug/kg	
100-42-5	Styrene	ND	2.4	0.68	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.4	0.46	ug/kg	
127-18-4	Tetrachloroethene	ND	2.4	0.55	ug/kg	
108-88-3	Toluene	ND	1.2	0.44	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.9	1.2	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.9	1.2	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.4	0.50	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.4	0.40	ug/kg	
79-01-6	Trichloroethene	ND	1.2	0.90	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.9	0.80	ug/kg	
75-01-4	Vinyl chloride	ND	2.4	0.55	ug/kg	
	m,p-Xylene	ND	1.2	0.88	ug/kg	
95-47-6	o-Xylene	ND	1.2	0.69	ug/kg	
1330-20-7	Xylene (total)	ND	1.2	0.69	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		75-127%
17060-07-0	1,2-Dichloroethane-D4	104%		75-130%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	105%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-114(2-4)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-10	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	83.0
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153649.D	1	04/21/19 08:16	CB	04/19/19 07:45	OP19854	EM6566
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	31.8 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	76	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	32	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	190	67	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol ^a	ND	190	41	ug/kg	
95-48-7	2-Methylphenol	ND	76	24	ug/kg	
	3&4-Methylphenol	ND	76	31	ug/kg	
88-75-5	2-Nitrophenol	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol	ND	380	100	ug/kg	
87-86-5	Pentachlorophenol ^a	ND	150	36	ug/kg	
108-95-2	Phenol	ND	76	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	28	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	23	ug/kg	
83-32-9	Acenaphthene	52.7	38	13	ug/kg	
208-96-8	Acenaphthylene	46.6	38	19	ug/kg	
98-86-2	Acetophenone	ND	190	8.1	ug/kg	
120-12-7	Anthracene	205	38	23	ug/kg	
1912-24-9	Atrazine	ND	76	16	ug/kg	
56-55-3	Benzo(a)anthracene	549	38	11	ug/kg	
50-32-8	Benzo(a)pyrene	565	38	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	664	38	17	ug/kg	
191-24-2	Benzo(g,h,i)perylene	351	38	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	228	38	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	76	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	76	9.2	ug/kg	
92-52-4	1,1'-Biphenyl	76	76	5.2	ug/kg	JB UB
100-52-7	Benzaldehyde	ND	190	9.4	ug/kg	
91-58-7	2-Chloronaphthalene	ND	76	9.0	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	76	76	5.5	ug/kg	JB UB

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-114(2-4)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-10	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	83.0
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	76	15	ug/kg	
218-01-9	Chrysene	544	38	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	76	8.1	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	76	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	76	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	76	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	38	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	38	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	76	32	ug/kg	
123-91-1	1,4-Dioxane ^b	ND	38	25	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	78.6	38	17	ug/kg	
132-64-9	Dibenzofuran	25.8	76	15	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	76	6.2	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	76	9.4	ug/kg	
84-66-2	Diethyl phthalate	ND	76	8.1	ug/kg	
131-11-3	Dimethyl phthalate	ND	76	6.7	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	76	8.9	ug/kg	
206-44-0	Fluoranthene	1190	38	17	ug/kg	
86-73-7	Fluorene	58.0	38	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	76	9.6	ug/kg	
87-68-3	Hexachlorobutadiene	ND	38	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^a	ND	380	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	341	38	18	ug/kg	
78-59-1	Isophorone	ND	76	8.1	ug/kg	
91-57-6	2-Methylnaphthalene	10.9	38	8.6	ug/kg	J
88-74-4	2-Nitroaniline	ND	190	8.9	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.5	ug/kg	
100-01-6	4-Nitroaniline	ND	190	9.8	ug/kg	
91-20-3	Naphthalene	19.7	38	11	ug/kg	J
98-95-3	Nitrobenzene	ND	76	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	76	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	827	38	13	ug/kg	
129-00-0	Pyrene	1080	38	12	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.6	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	38%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-114(2-4)	
Lab Sample ID: JC86406-10	Date Sampled: 04/15/19
Matrix: SO - Soil	Date Received: 04/16/19
Method: SW846 8270D SW846 3546	Percent Solids: 83.0
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	37%		27-114%
118-79-6	2,4,6-Tribromophenol	65%		19-152%
4165-60-0	Nitrobenzene-d5	45%		26-134%
321-60-8	2-Fluorobiphenyl	51%		39-124%
1718-51-0	Terphenyl-d14	50%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-114(8-10)		Date Sampled: 04/15/19
Lab Sample ID: JC86406-11		Date Received: 04/16/19
Matrix: SO - Soil		Percent Solids: 67.3
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V44295.D	1	04/24/19 17:13	RS	n/a	n/a	V3V1778
Run #2							

Run #1	Initial Weight
Run #1	5.2 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	70.3	14	7.1	ug/kg	
71-43-2	Benzene	ND	0.71	0.54	ug/kg	
74-97-5	Bromochloromethane	ND	7.1	0.61	ug/kg	
75-27-4	Bromodichloromethane	ND	2.9	0.63	ug/kg	
75-25-2	Bromoform	ND	7.1	0.58	ug/kg	
74-83-9	Bromomethane	ND	7.1	1.4	ug/kg	
78-93-3	2-Butanone (MEK)	13.7	14	5.3	ug/kg	J
75-15-0	Carbon disulfide	ND	2.9	1.3	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.9	0.79	ug/kg	
108-90-7	Chlorobenzene	ND	2.9	0.51	ug/kg	
75-00-3	Chloroethane	ND	7.1	0.98	ug/kg	
67-66-3	Chloroform	ND	2.9	0.53	ug/kg	
74-87-3	Chloromethane	ND	7.1	2.8	ug/kg	
110-82-7	Cyclohexane ^a	ND	2.9	0.58	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.9	1.2	ug/kg	
124-48-1	Dibromochloromethane	ND	2.9	0.48	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.4	0.46	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.4	0.44	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.4	0.51	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.4	0.49	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	7.1	0.91	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.4	0.55	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.4	0.67	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.4	0.94	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.4	1.4	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.4	0.95	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.9	0.58	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.9	0.50	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.9	0.47	ug/kg	
100-41-4	Ethylbenzene	ND	1.4	0.79	ug/kg	
76-13-1	Freon 113	ND	7.1	1.1	ug/kg	
591-78-6	2-Hexanone	ND	7.1	1.8	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-114(8-10)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-11	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	67.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.9	1.0	ug/kg	
79-20-9	Methyl Acetate	ND	7.1	2.0	ug/kg	
108-87-2	Methylcyclohexane ^a	ND	2.9	1.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.4	0.50	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	7.1	2.2	ug/kg	
75-09-2	Methylene chloride	ND	7.1	3.6	ug/kg	
100-42-5	Styrene	ND	2.9	0.82	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.9	0.56	ug/kg	
127-18-4	Tetrachloroethene	ND	2.9	0.66	ug/kg	
108-88-3	Toluene	ND	1.4	0.54	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	7.1	1.4	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	7.1	1.4	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.9	0.61	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.9	0.49	ug/kg	
79-01-6	Trichloroethene	ND	1.4	1.1	ug/kg	
75-69-4	Trichlorofluoromethane	ND	7.1	0.97	ug/kg	
75-01-4	Vinyl chloride	ND	2.9	0.67	ug/kg	
	m,p-Xylene	ND	1.4	1.1	ug/kg	
95-47-6	o-Xylene	ND	1.4	0.83	ug/kg	
1330-20-7	Xylene (total)	ND	1.4	0.83	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%		75-127%
17060-07-0	1,2-Dichloroethane-D4	105%		75-130%
2037-26-5	Toluene-D8	97%		80-120%
460-00-4	4-Bromofluorobenzene	99%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-114(8-10)		
Lab Sample ID: JC86406-11		Date Sampled: 04/15/19
Matrix: SO - Soil		Date Received: 04/16/19
Method: SW846 8270D SW846 3546		Percent Solids: 67.3
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P86749.D	1	04/19/19 06:16	CB	04/17/19 18:45	OP19810	E2P3831
Run #2	Z137309.D	20	04/26/19 20:39	AR	04/17/19 18:45	OP19810	EZ6764

Run #	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2	30.7 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	97	24	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	240	30	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	240	41	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	240	86	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	240	180	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	240	52	ug/kg	
95-48-7	2-Methylphenol	ND	97	31	ug/kg	
	3&4-Methylphenol	152	97	40	ug/kg	
88-75-5	2-Nitrophenol	ND	240	32	ug/kg	
100-02-7	4-Nitrophenol	ND	480	130	ug/kg	
87-86-5	Pentachlorophenol	ND	190	45	ug/kg	
108-95-2	Phenol	ND	97	25	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	240	32	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	240	36	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	240	29	ug/kg	
83-32-9	Acenaphthene	17200 ^b	970	330	ug/kg	D
208-96-8	Acenaphthylene	10500 ^b	970	490	ug/kg	D
98-86-2	Acetophenone	ND	240	10	ug/kg	
120-12-7	Anthracene	23200 ^b	970	590	ug/kg	D
1912-24-9	Atrazine	ND	97	21	ug/kg	
56-55-3	Benzo(a)anthracene	25900 ^b	970	270	ug/kg	D
50-32-8	Benzo(a)pyrene	23700 ^b	970	440	ug/kg	D
205-99-2	Benzo(b)fluoranthene	24900 ^b	970	430	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	13600 ^b	970	480	ug/kg	D
207-08-9	Benzo(k)fluoranthene	9920 ^b	970	450	ug/kg	D
101-55-3	4-Bromophenyl phenyl ether	ND	97	19	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	97	12	ug/kg	
92-52-4	1,1'-Biphenyl	525	97	6.6	ug/kg	
100-52-7	Benzaldehyde	ND	240	12	ug/kg	
91-58-7	2-Chloronaphthalene	ND	97	12	ug/kg	
106-47-8	4-Chloroaniline	ND	240	17	ug/kg	
86-74-8	Carbazole	6910 ^b	1900	140	ug/kg	D

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-114(8-10)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-11	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	67.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	97	19	ug/kg	
218-01-9	Chrysene	22500 ^b	970	300	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	97	10	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	97	21	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	97	17	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	97	16	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	48	15	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	48	24	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	97	40	ug/kg	
123-91-1	1,4-Dioxane	ND	48	32	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	2280	48	21	ug/kg	
132-64-9	Dibenzofuran	13600 ^b	1900	390	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	97	7.9	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	97	12	ug/kg	
84-66-2	Diethyl phthalate	ND	97	10	ug/kg	
131-11-3	Dimethyl phthalate	ND	97	8.6	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	97	11	ug/kg	
206-44-0	Fluoranthene	72700 ^b	970	430	ug/kg	D
86-73-7	Fluorene	24700 ^b	970	440	ug/kg	D
118-74-1	Hexachlorobenzene	ND	97	12	ug/kg	
87-68-3	Hexachlorobutadiene	ND	48	19	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	480	19	ug/kg	
67-72-1	Hexachloroethane	ND	240	24	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	14800 ^b	970	450	ug/kg	D
78-59-1	Isophorone	ND	97	10	ug/kg	
91-57-6	2-Methylnaphthalene	327	48	11	ug/kg	
88-74-4	2-Nitroaniline	ND	240	11	ug/kg	
99-09-2	3-Nitroaniline	ND	240	12	ug/kg	
100-01-6	4-Nitroaniline	ND	240	13	ug/kg	
91-20-3	Naphthalene	1180	48	14	ug/kg	
98-95-3	Nitrobenzene	ND	97	19	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	97	14	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	240	18	ug/kg	
85-01-8	Phenanthrene	39700 ^b	970	330	ug/kg	D
129-00-0	Pyrene	56400 ^b	970	310	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	240	12	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	49%	44%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-114(8-10)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-11	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 67.3
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	51%	53%	27-114%
118-79-6	2,4,6-Tribromophenol	72%	0% ^c	19-152%
4165-60-0	Nitrobenzene-d5	62%	58%	26-134%
321-60-8	2-Fluorobiphenyl	71%	71%	39-124%
1718-51-0	Terphenyl-d14	56%	79%	36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Result is from Run# 2

(c) Outside control limits due to dilution.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-114(14-15)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-12	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	72.1
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D264078.D	1	04/26/19 15:01	JTP	n/a	n/a	VD10644
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	3.2 g	10.0 ml	10.0 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	24000	12000	ug/kg	
71-43-2	Benzene	20800	1200	890	ug/kg	
74-97-5	Bromochloromethane	ND	12000	1000	ug/kg	
75-27-4	Bromodichloromethane	ND	4700	1000	ug/kg	
75-25-2	Bromoform	ND	12000	950	ug/kg	
74-83-9	Bromomethane	ND	12000	2400	ug/kg	
78-93-3	2-Butanone (MEK)	ND	24000	8800	ug/kg	
75-15-0	Carbon disulfide	5260	4700	2200	ug/kg	
56-23-5	Carbon tetrachloride	ND	4700	1300	ug/kg	
108-90-7	Chlorobenzene	ND	4700	840	ug/kg	
75-00-3	Chloroethane	ND	12000	1600	ug/kg	
67-66-3	Chloroform	ND	4700	880	ug/kg	
74-87-3	Chloromethane	ND	12000	4600	ug/kg	
110-82-7	Cyclohexane	ND	4700	960	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	4700	2000	ug/kg	
124-48-1	Dibromochloromethane	ND	4700	800	ug/kg	
106-93-4	1,2-Dibromoethane ^b	ND	2400	770	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	2400	720	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	2400	850	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	2400	810	ug/kg	
75-71-8	Dichlorodifluoromethane ^c	ND	12000	1500	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	2400	910	ug/kg	
107-06-2	1,2-Dichloroethane ^c	ND	2400	1100	ug/kg	UJ
75-35-4	1,1-Dichloroethene	ND	2400	1500	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	2400	2300	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	2400	1600	ug/kg	
78-87-5	1,2-Dichloropropane	ND	4700	960	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	4700	830	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	4700	770	ug/kg	
100-41-4	Ethylbenzene	1950	2400	1300	ug/kg	J
76-13-1	Freon 113	ND	12000	1800	ug/kg	
591-78-6	2-Hexanone	ND	12000	3000	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-114(14-15)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-12	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	72.1
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	4700	1600	ug/kg	
79-20-9	Methyl Acetate	ND	12000	3300	ug/kg	
108-87-2	Methylcyclohexane	ND	4700	1700	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	2400	830	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	12000	3700	ug/kg	
75-09-2	Methylene chloride	ND	12000	5900	ug/kg	
100-42-5	Styrene	5570	4700	1400	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	4700	920	ug/kg	
127-18-4	Tetrachloroethene	ND	4700	1100	ug/kg	
108-88-3	Toluene	26600	2400	890	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	12000	2400	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	12000	2400	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	4700	1000	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	4700	810	ug/kg	
79-01-6	Trichloroethene	ND	2400	1800	ug/kg	
75-69-4	Trichlorofluoromethane	ND	12000	1600	ug/kg	
75-01-4	Vinyl chloride	ND	4700	1100	ug/kg	
	m,p-Xylene	37000	2400	1800	ug/kg	
95-47-6	o-Xylene	12400	2400	1400	ug/kg	
1330-20-7	Xylene (total)	49400	2400	1400	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		75-127%
17060-07-0	1,2-Dichloroethane-D4	90%		75-130%
2037-26-5	Toluene-D8	97%		80-120%
460-00-4	4-Bromofluorobenzene	92%		79-127%

- (a) Diluted due to high concentration of non-target compound.
 (b) This compound in BS is outside in house QC limits bias high.
 (c) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-114(14-15)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-12	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	72.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	2P86776.D	10	04/22/19 21:22	YC	04/17/19 18:45	OP19810	E2P3832
Run #2	2P86919.D	100	04/27/19 08:16	CS	04/17/19 18:45	OP19810	E2P3839
Run #3	2P86913.D	1000	04/27/19 06:09	CS	04/17/19 18:45	OP19810	E2P3839

Run #	Initial Weight	Final Volume
Run #1	32.0 g	1.0 ml
Run #2	32.0 g	1.0 ml
Run #3	32.0 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	870	210	ug/kg	
59-50-7	4-Chloro-3-methyl phenol ^b	ND	2200	270	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	2200	370	ug/kg	
105-67-9	2,4-Dimethylphenol ^c	10700	2200	770	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	2200	1600	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	2200	460	ug/kg	
95-48-7	2-Methylphenol	818	870	280	ug/kg	J
	3&4-Methylphenol	1750	870	360	ug/kg	
88-75-5	2-Nitrophenol	ND	2200	290	ug/kg	
100-02-7	4-Nitrophenol	ND	4300	1200	ug/kg	
87-86-5	Pentachlorophenol	ND	1700	410	ug/kg	
108-95-2	Phenol	771	870	230	ug/kg	J
58-90-2	2,3,4,6-Tetrachlorophenol	ND	2200	290	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	2200	320	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	2200	260	ug/kg	
83-32-9	Acenaphthene	253000 ^d	4300	1500	ug/kg	D
208-96-8	Acenaphthylene	425000 ^d	4300	2200	ug/kg	D
98-86-2	Acetophenone	ND	2200	93	ug/kg	
120-12-7	Anthracene	580000 ^e	43000	27000	ug/kg	D
1912-24-9	Atrazine	ND	870	190	ug/kg	
56-55-3	Benzo(a)anthracene	428000 ^e	43000	12000	ug/kg	D
50-32-8	Benzo(a)pyrene	396000 ^d	4300	2000	ug/kg	D
205-99-2	Benzo(b)fluoranthene	430000 ^e	43000	19000	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	188000 ^d	4300	2200	ug/kg	D
207-08-9	Benzo(k)fluoranthene	172000 ^e	43000	20000	ug/kg	D
101-55-3	4-Bromophenyl phenyl ether	ND	870	170	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	870	110	ug/kg	
92-52-4	1,1'-Biphenyl	132000 ^d	8700	590	ug/kg	D
100-52-7	Benzaldehyde	ND	2200	110	ug/kg	
91-58-7	2-Chloronaphthalene	ND	870	100	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-114(14-15)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-12	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	72.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	2200	160	ug/kg	
86-74-8	Carbazole	277000 ^d	8700	630	ug/kg	D
105-60-2	Caprolactam	ND	870	170	ug/kg	
218-01-9	Chrysene	435000 ^e	43000	14000	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	870	93	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	870	190	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	870	160	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	870	140	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	430	130	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	430	220	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	870	360	ug/kg	
123-91-1	1,4-Dioxane	ND	430	290	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	61300 ^d	4300	1900	ug/kg	D
132-64-9	Dibenzofuran	546000 ^e	87000	18000	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	870	71	ug/kg	
117-84-0	Di-n-octyl phthalate ^b	ND	870	110	ug/kg	
84-66-2	Diethyl phthalate	ND	870	92	ug/kg	
131-11-3	Dimethyl phthalate	ND	870	77	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate ^b	ND	870	100	ug/kg	
206-44-0	Fluoranthene	1210000 ^e	43000	19000	ug/kg	D
86-73-7	Fluorene	821000 ^e	43000	20000	ug/kg	D
118-74-1	Hexachlorobenzene	ND	870	110	ug/kg	
87-68-3	Hexachlorobutadiene	ND	430	170	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	4300	170	ug/kg	
67-72-1	Hexachloroethane	ND	2200	210	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	180000 ^d	4300	2000	ug/kg	D
78-59-1	Isophorone	ND	870	93	ug/kg	
91-57-6	2-Methylnaphthalene	499000 ^e	43000	9800	ug/kg	D
88-74-4	2-Nitroaniline	ND	2200	100	ug/kg	
99-09-2	3-Nitroaniline	ND	2200	110	ug/kg	
100-01-6	4-Nitroaniline	ND	2200	110	ug/kg	
91-20-3	Naphthalene	3010000 ^e	43000	12000	ug/kg	D
98-95-3	Nitrobenzene	ND	870	170	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	870	130	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	2200	160	ug/kg	
85-01-8	Phenanthrene	2340000 ^e	43000	15000	ug/kg	D
129-00-0	Pyrene	859000 ^e	43000	14000	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	2200	110	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-114(14-15)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-12	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 72.1
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	51%	27%	0% ^f	23-115%
4165-62-2	Phenol-d5	66%	35%	0% ^f	27-114%
118-79-6	2,4,6-Tribromophenol	112%	42%	0% ^f	19-152%
4165-60-0	Nitrobenzene-d5	198% ^g	61%	0% ^f	26-134%
321-60-8	2-Fluorobiphenyl	62%	70%	0% ^f	39-124%
1718-51-0	Terphenyl-d14	70%	61%	0% ^f	36-134%

- (a) Dilution required due to viscosity of the extract matrix.
 (b) Associated CCV outside of control limits high, sample was ND.
 (c) Associated CCV outside of control limits high. Estimated value, due to corresponding internal standard failing low.
 (d) Result is from Run# 2
 (e) Result is from Run# 3
 (f) Outside control limits due to dilution.
 (g) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-114(23-25)	
Lab Sample ID: JC86406-13	Date Sampled: 04/15/19
Matrix: SO - Soil	Date Received: 04/16/19
Method: SW846 8260C	Percent Solids: 59.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184769.D	1	04/26/19 15:13	EH	n/a	n/a	VY8016
Run #2							

Run #1	Initial Weight
Run #1	4.9 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	213	17	8.6	ug/kg	
71-43-2	Benzene	0.84	0.86	0.65	ug/kg	J
74-97-5	Bromochloromethane	ND	8.6	0.74	ug/kg	
75-27-4	Bromodichloromethane	ND	3.4	0.76	ug/kg	
75-25-2	Bromoform	ND	8.6	0.69	ug/kg	
74-83-9	Bromomethane	ND	8.6	1.7	ug/kg	
78-93-3	2-Butanone (MEK)	62.6	17	6.4	ug/kg	
75-15-0	Carbon disulfide	5.6	3.4	1.6	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.4	0.95	ug/kg	
108-90-7	Chlorobenzene	ND	3.4	0.61	ug/kg	
75-00-3	Chloroethane	ND	8.6	1.2	ug/kg	
67-66-3	Chloroform	ND	3.4	0.64	ug/kg	
74-87-3	Chloromethane	ND	8.6	3.4	ug/kg	
110-82-7	Cyclohexane	ND	3.4	0.70	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.4	1.4	ug/kg	
124-48-1	Dibromochloromethane	ND	3.4	0.58	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.7	0.56	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.7	0.53	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.7	0.62	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.7	0.59	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	8.6	1.1	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.7	0.66	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.7	0.81	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.7	1.1	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.7	1.6	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.7	1.1	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.4	0.70	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.4	0.61	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.4	0.56	ug/kg	
100-41-4	Ethylbenzene	ND	1.7	0.95	ug/kg	
76-13-1	Freon 113 ^a	ND	8.6	1.3	ug/kg	
591-78-6	2-Hexanone	ND	8.6	2.2	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-114(23-25)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-13	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	59.2
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	2.5	3.4	1.2	ug/kg	J
79-20-9	Methyl Acetate	ND	8.6	2.4	ug/kg	
108-87-2	Methylcyclohexane	2.3	3.4	1.2	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.7	0.61	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	8.6	2.7	ug/kg	
75-09-2	Methylene chloride	ND	8.6	4.3	ug/kg	
100-42-5	Styrene	ND	3.4	0.99	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane ^b	ND	3.4	0.67	ug/kg	UU
127-18-4	Tetrachloroethene	ND	3.4	0.80	ug/kg	
108-88-3	Toluene	1.5	1.7	0.65	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	8.6	1.7	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	8.6	1.7	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.4	0.73	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.4	0.59	ug/kg	
79-01-6	Trichloroethene	ND	1.7	1.3	ug/kg	
75-69-4	Trichlorofluoromethane	ND	8.6	1.2	ug/kg	
75-01-4	Vinyl chloride	ND	3.4	0.81	ug/kg	
	m,p-Xylene	ND	1.7	1.3	ug/kg	
95-47-6	o-Xylene	1.3	1.7	1.0	ug/kg	J
1330-20-7	Xylene (total)	1.3	1.7	1.0	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	120%		75-127%
17060-07-0	1,2-Dichloroethane-D4	100%		75-130%
2037-26-5	Toluene-D8	87%		80-120%
460-00-4	4-Bromofluorobenzene	97%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Client Sample ID: S-114(23-25)		
Lab Sample ID: JC86406-13		Date Sampled: 04/15/19
Matrix: SO - Soil		Date Received: 04/16/19
Method: SW846 8270D SW846 3546		Percent Solids: 59.2
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P86735.D	1	04/19/19 01:10	CB	04/17/19 18:45	OP19810	E2P3831
Run #2							

Run #	Initial Weight	Final Volume
Run #1	31.4 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	110	27	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	270	33	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	270	46	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	270	96	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	270	200	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	270	58	ug/kg	
95-48-7	2-Methylphenol	ND	110	34	ug/kg	
	3&4-Methylphenol	909	110	44	ug/kg	
88-75-5	2-Nitrophenol	ND	270	36	ug/kg	
100-02-7	4-Nitrophenol	ND	540	140	ug/kg	
87-86-5	Pentachlorophenol	ND	220	51	ug/kg	
108-95-2	Phenol	223	110	28	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	270	36	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	270	40	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	270	32	ug/kg	
83-32-9	Acenaphthene	ND	54	19	ug/kg	
208-96-8	Acenaphthylene	ND	54	27	ug/kg	
98-86-2	Acetophenone	ND	270	12	ug/kg	
120-12-7	Anthracene	ND	54	33	ug/kg	
1912-24-9	Atrazine	ND	110	23	ug/kg	
56-55-3	Benzo(a)anthracene	15.9	54	15	ug/kg	J
50-32-8	Benzo(a)pyrene	ND	54	24	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	54	24	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	54	27	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	54	25	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	110	21	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	110	13	ug/kg	
92-52-4	1,1'-Biphenyl	ND	110	7.4	ug/kg	
100-52-7	Benzaldehyde	103	270	13	ug/kg	J
91-58-7	2-Chloronaphthalene	ND	110	13	ug/kg	
106-47-8	4-Chloroaniline	ND	270	19	ug/kg	
86-74-8	Carbazole	ND	110	7.8	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-114(23-25)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-13	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	59.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	110	21	ug/kg	
218-01-9	Chrysene	ND	54	17	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	110	12	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	110	23	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	110	19	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	110	17	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	54	17	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	54	27	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	110	45	ug/kg	
123-91-1	1,4-Dioxane	ND	54	36	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	54	24	ug/kg	
132-64-9	Dibenzofuran	ND	110	22	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	110	8.8	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	110	13	ug/kg	
84-66-2	Diethyl phthalate	ND	110	11	ug/kg	
131-11-3	Dimethyl phthalate	ND	110	9.6	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	110	13	ug/kg	
206-44-0	Fluoranthene	27.2	54	24	ug/kg	J
86-73-7	Fluorene	32.5	54	25	ug/kg	J
118-74-1	Hexachlorobenzene	ND	110	14	ug/kg	
87-68-3	Hexachlorobutadiene	ND	54	22	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	540	21	ug/kg	
67-72-1	Hexachloroethane	ND	270	27	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	54	25	ug/kg	
78-59-1	Isophorone	ND	110	12	ug/kg	
91-57-6	2-Methylnaphthalene	23.4	54	12	ug/kg	J
88-74-4	2-Nitroaniline	ND	270	13	ug/kg	
99-09-2	3-Nitroaniline	ND	270	13	ug/kg	
100-01-6	4-Nitroaniline	ND	270	14	ug/kg	
91-20-3	Naphthalene	136	54	15	ug/kg	
98-95-3	Nitrobenzene	ND	110	21	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	110	16	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	270	20	ug/kg	
85-01-8	Phenanthrene	65.8	54	18	ug/kg	
129-00-0	Pyrene	22.8	54	17	ug/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	270	14	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	65%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-114(23-25) Lab Sample ID: JC86406-13 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/15/19 Date Received: 04/16/19 Percent Solids: 59.2
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	76%		27-114%
118-79-6	2,4,6-Tribromophenol	62%		19-152%
4165-60-0	Nitrobenzene-d5	90%		26-134%
321-60-8	2-Fluorobiphenyl	93%		39-124%
1718-51-0	Terphenyl-d14	89%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.13
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SGS LabLink@1039014 11:13 10-May-2019

Report of Analysis

Page 1 of 2

Client Sample ID: S-109(2-4)	
Lab Sample ID: JC86406-14	Date Sampled: 04/15/19
Matrix: SO - Soil	Date Received: 04/16/19
Method: SW846 8260C	Percent Solids: 88.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I225723.D	1	04/25/19 19:37	TDN	n/a	n/a	VI9093
Run #2 ^a	3V44294.D	1	04/24/19 16:47	RS	n/a	n/a	V3V1778
Run #3 ^a	D264075.D	1	04/26/19 13:34	JTP	n/a	n/a	VD10644

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	3.0 g		
Run #2	2.9 g		
Run #3	3.6 g	10.0 ml	100 ul

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	37.9	19	9.5	ug/kg	
71-43-2	Benzene	0.86	0.95	0.71	ug/kg	J
74-97-5	Bromochloromethane	ND	9.5	0.81	ug/kg	
75-27-4	Bromodichloromethane	ND	3.8	0.84	ug/kg	
75-25-2	Bromoform	ND	9.5	0.76	ug/kg	
74-83-9	Bromomethane	ND	9.5	1.9	ug/kg	
78-93-3	2-Butanone (MEK)	ND	19	7.1	ug/kg	
75-15-0	Carbon disulfide	4.9	3.8	1.8	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.8	1.0	ug/kg	
108-90-7	Chlorobenzene	ND	3.8	0.67	ug/kg	
75-00-3	Chloroethane	ND	9.5	1.3	ug/kg	
67-66-3	Chloroform	ND	3.8	0.70	ug/kg	
74-87-3	Chloromethane	ND	9.5	3.7	ug/kg	
110-82-7	Cyclohexane	ND	3.8	0.77	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.8	1.6	ug/kg	
124-48-1	Dibromochloromethane	ND	3.8	0.64	ug/kg	
106-93-4	1,2-Dibromoethane ^b	ND	1.9	0.61	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.9	0.58	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.9	0.68	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.9	0.65	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	9.5	1.2	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.9	0.73	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.9	0.89	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.9	1.2	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.9	1.8	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.9	1.3	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.8	0.77	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.8	0.67	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.8	0.62	ug/kg	
100-41-4	Ethylbenzene	ND	1.9	1.0	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-109(2-4)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-14	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	88.1
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
76-13-1	Freon 113	ND	9.5	1.4	ug/kg	
591-78-6	2-Hexanone	ND	9.5	2.4	ug/kg	
98-82-8	Isopropylbenzene	ND	3.8	1.3	ug/kg	
79-20-9	Methyl Acetate	ND	9.5	2.6	ug/kg	
108-87-2	Methylcyclohexane	1.6	3.8	1.3	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.9	0.67	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	9.5	3.0	ug/kg	
75-09-2	Methylene chloride	ND	9.5	4.7	ug/kg	
100-42-5	Styrene	ND	3.8	1.1	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.8	0.74	ug/kg	
127-18-4	Tetrachloroethene	ND	3.8	0.87	ug/kg	
108-88-3	Toluene	ND	1.9	0.71	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	9.5	1.9	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	9.5	1.9	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.8	0.81	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.8	0.65	ug/kg	
79-01-6	Trichloroethene	ND	1.9	1.4	ug/kg	
75-69-4	Trichlorofluoromethane	ND	9.5	1.3	ug/kg	
75-01-4	Vinyl chloride	ND	3.8	0.89	ug/kg	
	m,p-Xylene	ND	1.9	1.4	ug/kg	
95-47-6	o-Xylene	ND	1.9	1.1	ug/kg	
1330-20-7	Xylene (total)	ND	1.9	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
1868-53-7	Dibromofluoromethane	109%	104%	98%	75-127%
17060-07-0	1,2-Dichloroethane-D4	119%	108%	89%	75-130%
2037-26-5	Toluene-D8	109%	126% ^c	98%	80-120%
460-00-4	4-Bromofluorobenzene	126%	132% ^c	89%	79-127%

(a) Confirmation run.

(b) This compound in BS is outside in house QC limits bias high.

(c) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-109(2-4)		Date Sampled: 04/15/19
Lab Sample ID: JC86406-14		Date Received: 04/16/19
Matrix: SO - Soil		Percent Solids: 88.1
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P86750.D	1	04/19/19 06:37	CB	04/17/19 18:45	OP19810	E2P3831
Run #2	Z137272.D	20	04/25/19 23:27	AR	04/17/19 18:45	OP19810	EZ6762
Run #3	Z137308.D	50	04/26/19 20:10	AR	04/17/19 18:45	OP19810	EZ6764

Run #	Initial Weight	Final Volume
Run #1	30.3 g	1.0 ml
Run #2	30.3 g	1.0 ml
Run #3	30.3 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	75	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	32	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	77.2	190	67	ug/kg	J
51-28-5	2,4-Dinitrophenol	ND	190	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	190	40	ug/kg	
95-48-7	2-Methylphenol	133	75	24	ug/kg	
	3&4-Methylphenol	538	75	31	ug/kg	
88-75-5	2-Nitrophenol	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol	ND	370	100	ug/kg	
87-86-5	Pentachlorophenol	ND	150	35	ug/kg	
108-95-2	Phenol	635	75	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	28	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	22	ug/kg	
83-32-9	Acenaphthene	427	37	13	ug/kg	
208-96-8	Acenaphthylene	10900 ^b	750	380	ug/kg	D
98-86-2	Acetophenone	ND	190	8.1	ug/kg	
120-12-7	Anthracene	13400 ^b	750	460	ug/kg	D
1912-24-9	Atrazine	ND	75	16	ug/kg	
56-55-3	Benzo(a)anthracene	40500 ^b	750	210	ug/kg	D
50-32-8	Benzo(a)pyrene	36300 ^b	750	340	ug/kg	D
205-99-2	Benzo(b)fluoranthene	49000 ^b	750	330	ug/kg	D
191-24-2	Benzo(g,h,i)perylene ^a	22000 ^b	750	370	ug/kg	D
207-08-9	Benzo(k)fluoranthene	21100 ^b	750	350	ug/kg	D
101-55-3	4-Bromophenyl phenyl ether	ND	75	14	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	75	9.1	ug/kg	
92-52-4	1,1'-Biphenyl	438	75	5.1	ug/kg	
100-52-7	Benzaldehyde	ND	190	9.3	ug/kg	
91-58-7	2-Chloronaphthalene	ND	75	8.9	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.14
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Report of Analysis

Client Sample ID:	S-109(2-4)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-14	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	88.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	190	13	ug/kg	
86-74-8	Carbazole	3160	75	5.4	ug/kg	
105-60-2	Caprolactam	ND	75	15	ug/kg	
218-01-9	Chrysene	39700 ^b	750	240	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	75	8.0	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	75	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	75	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	75	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	37	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	37	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	75	31	ug/kg	
123-91-1	1,4-Dioxane	ND	37	25	ug/kg	
53-70-3	Dibenzo(a,h)anthracene ^a	5350 ^b	750	330	ug/kg	D
132-64-9	Dibenzofuran	4190 ^b	1500	300	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	75	6.1	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	75	9.3	ug/kg	
84-66-2	Diethyl phthalate	ND	75	8.0	ug/kg	
131-11-3	Dimethyl phthalate	ND	75	6.7	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	75	8.8	ug/kg	
206-44-0	Fluoranthene	73200 ^c	1900	840	ug/kg	D
86-73-7	Fluorene	6440 ^b	750	340	ug/kg	D
118-74-1	Hexachlorobenzene	ND	75	9.5	ug/kg	
87-68-3	Hexachlorobutadiene	ND	37	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	370	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene ^a	23400 ^b	750	350	ug/kg	D
78-59-1	Isophorone	ND	75	8.0	ug/kg	
91-57-6	2-Methylnaphthalene	1200	37	8.5	ug/kg	
88-74-4	2-Nitroaniline	ND	190	8.8	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.4	ug/kg	
100-01-6	4-Nitroaniline	ND	190	9.7	ug/kg	
91-20-3	Naphthalene	1910	37	11	ug/kg	
98-95-3	Nitrobenzene	ND	75	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	75	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	46500 ^b	750	250	ug/kg	D
129-00-0	Pyrene	69000 ^b	750	240	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.5	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-109(2-4)		Date Sampled: 04/15/19
Lab Sample ID: JC86406-14		Date Received: 04/16/19
Matrix: SO - Soil		Percent Solids: 88.1
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	48%	52%	0% ^d	23-115%
4165-62-2	Phenol-d5	57%	59%	0% ^d	27-114%
118-79-6	2,4,6-Tribromophenol	73%	53%	0% ^d	19-152%
4165-60-0	Nitrobenzene-d5	61%	62%	0% ^d	26-134%
321-60-8	2-Fluorobiphenyl	80%	78%	60%	39-124%
1718-51-0	Terphenyl-d14	72%	86%	72%	36-134%

- (a) Associated CCV outside of control limits high.
- (b) Result is from Run# 2
- (c) Result is from Run# 3
- (d) Outside control limits due to dilution.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.14
4

Report of Analysis

Client Sample ID: S-109(8-10)		Date Sampled: 04/15/19
Lab Sample ID: JC86406-15		Date Received: 04/16/19
Matrix: SO - Soil		Percent Solids: 81.2
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	Y184768.D	1	04/26/19 14:45	EH	n/a	n/a	VY8016

Run #1	Initial Weight
Run #2	3.8 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	138	16	8.1	ug/kg	
71-43-2	Benzene	3.5	0.81	0.61	ug/kg	
74-97-5	Bromochloromethane	ND	8.1	0.70	ug/kg	
75-27-4	Bromodichloromethane	ND	3.2	0.72	ug/kg	
75-25-2	Bromoform	ND	8.1	0.65	ug/kg	
74-83-9	Bromomethane	ND	8.1	1.6	ug/kg	
78-93-3	2-Butanone (MEK)	ND	16	6.1	ug/kg	
75-15-0	Carbon disulfide	4.1	3.2	1.5	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.2	0.89	ug/kg	
108-90-7	Chlorobenzene	ND	3.2	0.57	ug/kg	
75-00-3	Chloroethane	ND	8.1	1.1	ug/kg	
67-66-3	Chloroform	ND	3.2	0.60	ug/kg	
74-87-3	Chloromethane	ND	8.1	3.2	ug/kg	
110-82-7	Cyclohexane	ND	3.2	0.66	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.2	1.4	ug/kg	
124-48-1	Dibromochloromethane	ND	3.2	0.55	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.6	0.53	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.6	0.49	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.6	0.58	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.6	0.56	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	8.1	1.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.6	0.62	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.6	0.76	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.6	1.1	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.6	1.6	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.6	1.1	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.2	0.66	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.2	0.57	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.2	0.53	ug/kg	
100-41-4	Ethylbenzene	ND	1.6	0.89	ug/kg	
76-13-1	Freon 113 ^a	ND	8.1	1.2	ug/kg	
591-78-6	2-Hexanone	ND	8.1	2.1	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-109(8-10)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-15	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	81.2
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.2	1.1	ug/kg	
79-20-9	Methyl Acetate	ND	8.1	2.3	ug/kg	
108-87-2	Methylcyclohexane	ND	3.2	1.1	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.6	0.57	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	8.1	2.5	ug/kg	
75-09-2	Methylene chloride	ND	8.1	4.1	ug/kg	
100-42-5	Styrene	ND	3.2	0.93	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane ^b	ND	3.2	0.63	ug/kg	UJ
127-18-4	Tetrachloroethene	ND	3.2	0.75	ug/kg	
108-88-3	Toluene	ND	1.6	0.61	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	8.1	1.6	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	8.1	1.6	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.2	0.69	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.2	0.55	ug/kg	
79-01-6	Trichloroethene	ND	1.6	1.2	ug/kg	
75-69-4	Trichlorofluoromethane	ND	8.1	1.1	ug/kg	
75-01-4	Vinyl chloride	ND	3.2	0.76	ug/kg	
	m,p-Xylene	ND	1.6	1.2	ug/kg	
95-47-6	o-Xylene	ND	1.6	0.94	ug/kg	
1330-20-7	Xylene (total)	ND	1.6	0.94	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		75-127%
17060-07-0	1,2-Dichloroethane-D4	92%		75-130%
2037-26-5	Toluene-D8	90%		80-120%
460-00-4	4-Bromofluorobenzene	94%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-109(8-10)		Date Sampled: 04/15/19
Lab Sample ID: JC86406-15		Date Received: 04/16/19
Matrix: SO - Soil		Percent Solids: 81.2
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P86773.D	1	04/22/19 20:17	YC	04/17/19 18:45	OP19810	E2P3832
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	31.9 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	77	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol ^a	ND	190	24	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	33	ug/kg	
105-67-9	2,4-Dimethylphenol ^b	71.3	190	69	ug/kg	J
51-28-5	2,4-Dinitrophenol	ND	190	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	190	41	ug/kg	
95-48-7	2-Methylphenol	122	77	25	ug/kg	
	3&4-Methylphenol	378	77	32	ug/kg	
88-75-5	2-Nitrophenol	ND	190	26	ug/kg	
100-02-7	4-Nitrophenol	ND	390	100	ug/kg	
87-86-5	Pentachlorophenol	ND	150	36	ug/kg	
108-95-2	Phenol	299	77	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	26	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	29	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	23	ug/kg	
83-32-9	Acenaphthene	324	39	13	ug/kg	
208-96-8	Acenaphthylene	488	39	20	ug/kg	
98-86-2	Acetophenone	11.1	190	8.3	ug/kg	J
120-12-7	Anthracene	636	39	24	ug/kg	
1912-24-9	Atrazine	ND	77	17	ug/kg	
56-55-3	Benzo(a)anthracene	1600	39	11	ug/kg	
50-32-8	Benzo(a)pyrene	1720	39	18	ug/kg	
205-99-2	Benzo(b)fluoranthene	2270	39	17	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1260	39	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	772	39	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	77	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	77	9.4	ug/kg	
92-52-4	1,1'-Biphenyl	75.9	77	5.3	ug/kg	J
100-52-7	Benzaldehyde	ND	190	9.6	ug/kg	
91-58-7	2-Chloronaphthalene	ND	77	9.2	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	163	77	5.6	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-109(8-10)	Date Sampled:	04/15/19
Lab Sample ID:	JC86406-15	Date Received:	04/16/19
Matrix:	SO - Soil	Percent Solids:	81.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	77	15	ug/kg	
218-01-9	Chrysene	1830	39	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	77	8.3	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	77	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	77	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	77	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	39	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	39	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	77	32	ug/kg	
123-91-1	1,4-Dioxane	ND	39	26	ug/kg	
53-70-3	Dibenzo(a,h)anthracene ^b	415	39	17	ug/kg	J
132-64-9	Dibenzofuran	371	77	16	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	77	6.3	ug/kg	
117-84-0	Di-n-octyl phthalate ^a	ND	77	9.6	ug/kg	
84-66-2	Diethyl phthalate	ND	77	8.2	ug/kg	
131-11-3	Dimethyl phthalate	ND	77	6.9	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate ^a	ND	77	9.0	ug/kg	
206-44-0	Fluoranthene	3040	39	17	ug/kg	
86-73-7	Fluorene	314	39	18	ug/kg	
118-74-1	Hexachlorobenzene	ND	77	9.8	ug/kg	
87-68-3	Hexachlorobutadiene	ND	39	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	390	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene ^b	1110	39	18	ug/kg	J
78-59-1	Isophorone	ND	77	8.3	ug/kg	
91-57-6	2-Methylnaphthalene	194	39	8.7	ug/kg	
88-74-4	2-Nitroaniline	ND	190	9.1	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.7	ug/kg	
100-01-6	4-Nitroaniline	ND	190	10	ug/kg	
91-20-3	Naphthalene	1060	39	11	ug/kg	
98-95-3	Nitrobenzene	ND	77	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	77	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	1820	39	13	ug/kg	
129-00-0	Pyrene	2320	39	12	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.8	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	57%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-109(8-10) Lab Sample ID: JC86406-15 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/15/19 Date Received: 04/16/19 Percent Solids: 81.2
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	70%		27-114%
118-79-6	2,4,6-Tribromophenol	67%		19-152%
4165-60-0	Nitrobenzene-d5	76%		26-134%
321-60-8	2-Fluorobiphenyl	85%		39-124%
1718-51-0	Terphenyl-d14	75%		36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits high.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

4.15
4

Report of Analysis

Client Sample ID: S-108(2-4)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-1	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 87.0
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	35000 J	120	19	mg/kg	2	04/19/19	04/24/19 GT	SW846 6010D ⁴	SW846 3050B ⁶
Antimony	0.48 U	2.3	0.48	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁶
Arsenic ^a	11.9	4.6	0.65	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁶
Barium	65.7	23	2.2	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁶
Beryllium	0.72	0.23	0.093	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁶
Cadmium ^a	0.16 U	1.2	0.16	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁶
Calcium	2080 J	580	51	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁶
Chromium	51.6 J	1.2	0.43	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁶
Cobalt	5.0 J	5.8	0.33	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁶
Copper ^a	13.5	5.8	2.0	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁶
Iron	38100 J	120	45	mg/kg	2	04/19/19	04/24/19 GT	SW846 6010D ⁴	SW846 3050B ⁶
Lead ^a	13.9 J	4.6	0.95	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁶
Magnesium	1420	580	16	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁶
Manganese ^a	83.7 J	3.5	0.95	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁶
Mercury	0.023 J	0.037	0.016	mg/kg	1	04/17/19	04/17/19 LL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	13.4	4.6	0.41	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁶
Potassium	1190 J	1200	37	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁶
Selenium ^a	1.5 U	4.6	1.5	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁶
Silver ^a	0.39 U	1.2	0.39	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁶
Sodium	126 J	1200	90	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁶
Thallium ^a	1.3 U	2.3	1.3	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁶
Vanadium	66.6 J	5.8	0.22	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁶
Zinc	44.0	5.8	2.7	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁶

- (1) Instrument QC Batch: MA46522
- (2) Instrument QC Batch: MA46556
- (3) Instrument QC Batch: MA46568
- (4) Instrument QC Batch: MA46578
- (5) Prep QC Batch: MP14302
- (6) Prep QC Batch: MP14400

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.1
4

Report of Analysis

Client Sample ID: S-108(2-4)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-1	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 87.0
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	10.8 J	0.26	0.13	mg/kg	1	04/25/19 15:23 KI	SW846	9012B/LACHAT
Solids, Percent	87			%	1	04/18/19 15:55 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.1
4

Report of Analysis

Client Sample ID: S-108(8-10)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-2	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 80.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	23000 J	62	9.9	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Antimony	0.51 U	2.5	0.51	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Arsenic ^a	9.0	4.9	0.69	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁵
Barium	75.9	25	2.3	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Beryllium	0.75	0.25	0.099	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Cadmium	0.099 J	0.62	0.086	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Calcium	1300 J	620	54	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Chromium	32.9 J	1.2	0.46	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Cobalt	7.6	6.2	0.35	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Copper ^a	14.1	6.2	2.1	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁵
Iron	27900 J	120	47	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁵
Lead ^a	38.1 J	4.9	1.0	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁵
Magnesium	2290	620	17	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Manganese ^a	201 J	3.7	1.0	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁵
Mercury	2.6 J	0.20	0.086	mg/kg	5	04/17/19	04/17/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	15.1	4.9	0.43	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Potassium	1440	1200	39	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Selenium ^a	1.6 U	4.9	1.6	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁵
Silver ^a	0.42 U	1.2	0.42	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁵
Sodium	96 U	1200	96	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Thallium ^a	1.4 U	2.5	1.4	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁵
Vanadium	46.1 J	6.2	0.23	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Zinc	63.4	6.2	2.8	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46522
- (2) Instrument QC Batch: MA46556
- (3) Instrument QC Batch: MA46568
- (4) Prep QC Batch: MP14302
- (5) Prep QC Batch: MP14400

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.2
4

Report of Analysis

Client Sample ID: S-108(8-10)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-2	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 80.3
Project: National Grid, Philly Coke, Philadelphia, PA	

4.2
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	3.3 J	0.28	0.14	mg/kg	1	04/25/19 15:24 KI	SW846	9012B/LACHAT
Solids, Percent	80.3			%	1	04/18/19 15:55 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-108(15-17) Lab Sample ID: JC86406-3 Matrix: SO - Soil Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/15/19 Date Received: 04/16/19 Percent Solids: 56.8
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Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	11600 J	85	14	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	0.70 U	3.4	0.70	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	6.1	3.4	0.48	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	46.6	34	3.2	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.53	0.34	0.14	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	0.15 J	0.85	0.12	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	714 J	850	75	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	19.6 J	1.7	0.63	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	4.9 J	8.5	0.48	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	12.6	4.3	1.4	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	17900 J	85	33	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	45.4 J	3.4	0.70	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	2060	850	23	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	156 J	2.6	0.70	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	1.7 J	0.10	0.045	mg/kg	2	04/17/19	04/17/19	LL	SW846 7471B ¹ SW846 7471B ³
Nickel	11.7	6.8	0.60	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	961 J	1700	54	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	1.1 U	3.4	1.1	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	0.29 U	0.85	0.29	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	130 U	1700	130	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	0.99 U	1.7	0.99	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	24.8 J	8.5	0.32	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	55.1	8.5	3.9	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴

(1) Instrument QC Batch: MA46522

(2) Instrument QC Batch: MA46556

(3) Prep QC Batch: MP14302

(4) Prep QC Batch: MP14400

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.3
4

Report of Analysis

Client Sample ID: S-108(15-17)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-3	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 56.8
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	9.6 J	0.41	0.20	mg/kg	1	04/25/19 15:26 KI	SW846	9012B/LACHAT
Solids, Percent	56.8			%	1	04/18/19 15:55 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.3
4

Report of Analysis

Client Sample ID: SO-DUP-0415		Date Sampled: 04/15/19
Lab Sample ID: JC86406-4		Date Received: 04/16/19
Matrix: SO - Soil		Percent Solids: 87.6
Project: National Grid, Philly Coke, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	9710 J	57	9.2	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	0.47 U	2.3	0.47	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	6.5	2.3	0.32	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	43.9	23	2.2	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.51	0.23	0.091	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	1.2	0.57	0.080	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	644 J	570	50	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	14.6 J	1.1	0.42	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	7.4	5.7	0.32	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	13.2	2.9	0.96	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	16600 J	57	22	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	32.1 J	2.3	0.47	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	1950	570	16	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	261 J	1.7	0.47	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	0.31 J	0.035	0.016	mg/kg	1	04/17/19	04/17/19	LL	SW846 7471B ¹ SW846 7471B ³
Nickel	11.9	4.6	0.40	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	1070 J	1100	36	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	0.74 U	2.3	0.74	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	0.19 U	0.57	0.19	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	139 J	1100	89	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	0.66 U	1.1	0.66	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	20.1 J	5.7	0.22	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	51.0	5.7	2.6	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴

(1) Instrument QC Batch: MA46522

(2) Instrument QC Batch: MA46556

(3) Prep QC Batch: MP14302

(4) Prep QC Batch: MP14400

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: SO-DUP-0415	Date Sampled: 04/15/19
Lab Sample ID: JC86406-4	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 87.6
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	12.7 J	0.26	0.13	mg/kg	1	04/25/19 15:27 KI	SW846	9012B/LACHAT
Solids, Percent	87.6			%	1	04/18/19 15:55 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.4
4

Report of Analysis

Client Sample ID: PCTP-17R(5-6)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-5	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 87.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	7830 J	57	9.2	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Antimony	0.47 U	2.3	0.47	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Arsenic ^a	5.8	4.6	0.64	mg/kg	2	04/19/19	04/23/19	ND SW846 6010D ³	SW846 3050B ⁵
Barium	23.5	23	2.2	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Beryllium	0.31	0.23	0.091	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Cadmium ^a	0.16 U	1.1	0.16	mg/kg	2	04/19/19	04/23/19	ND SW846 6010D ³	SW846 3050B ⁵
Calcium	176 J	570	50	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Chromium	17.3 J	1.1	0.42	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Cobalt	4.2 J	5.7	0.32	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Copper ^a	19.3	5.7	1.9	mg/kg	2	04/19/19	04/23/19	ND SW846 6010D ³	SW846 3050B ⁵
Iron	33600 J	110	44	mg/kg	2	04/19/19	04/23/19	ND SW846 6010D ³	SW846 3050B ⁵
Lead ^a	6.6 J	4.6	0.94	mg/kg	2	04/19/19	04/23/19	ND SW846 6010D ³	SW846 3050B ⁵
Magnesium	1720	570	16	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Manganese ^a	102 J	3.4	0.94	mg/kg	2	04/19/19	04/23/19	ND SW846 6010D ³	SW846 3050B ⁵
Mercury	0.46 J	0.036	0.016	mg/kg	1	04/17/19	04/17/19	LL SW846 7471B ¹	SW846 7471B ⁴
Nickel	20.3	4.6	0.40	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Potassium	813 J	1100	36	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Selenium ^a	1.5 U	4.6	1.5	mg/kg	2	04/19/19	04/23/19	ND SW846 6010D ³	SW846 3050B ⁵
Silver ^a	0.39 U	1.1	0.39	mg/kg	2	04/19/19	04/23/19	ND SW846 6010D ³	SW846 3050B ⁵
Sodium	89 U	1100	89	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Thallium ^a	1.3 U	2.3	1.3	mg/kg	2	04/19/19	04/23/19	ND SW846 6010D ³	SW846 3050B ⁵
Vanadium	19.8 J	5.7	0.22	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Zinc	28.0	5.7	2.6	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46522
- (2) Instrument QC Batch: MA46556
- (3) Instrument QC Batch: MA46568
- (4) Prep QC Batch: MP14302
- (5) Prep QC Batch: MP14400

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.5
 4

Report of Analysis

Client Sample ID: PCTP-17R(5-6)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-5	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 87.7
Project: National Grid, Philly Coke, Philadelphia, PA	

4.5
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	8.3 J	0.25	0.13	mg/kg	1	04/25/19 15:28 KI	SW846	9012B/LACHAT
Solids, Percent	87.7			%	1	04/18/19 15:55 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCTP-17R(7-9)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-6	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 89.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	17400 J	56	9.0	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Antimony ^a	0.92 U	4.5	0.92	mg/kg	2	04/19/19	04/23/19	ND SW846 6010D ³	SW846 3050B ⁵
Arsenic ^a	2.9 J	4.5	0.63	mg/kg	2	04/19/19	04/23/19	ND SW846 6010D ³	SW846 3050B ⁵
Barium	120	22	2.1	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Beryllium ^a	0.80	0.45	0.18	mg/kg	2	04/19/19	04/23/19	ND SW846 6010D ³	SW846 3050B ⁵
Cadmium	0.079 U	0.56	0.079	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Calcium	1950 J	560	50	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Chromium	27.3 J	1.1	0.42	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Cobalt ^a	11.7	11	0.63	mg/kg	2	04/19/19	04/23/19	ND SW846 6010D ³	SW846 3050B ⁵
Copper ^a	16.6	5.6	1.9	mg/kg	2	04/19/19	04/23/19	ND SW846 6010D ³	SW846 3050B ⁵
Iron	23600 J	110	43	mg/kg	2	04/19/19	04/23/19	ND SW846 6010D ³	SW846 3050B ⁵
Lead ^a	9.1 J	4.5	0.92	mg/kg	2	04/19/19	04/23/19	ND SW846 6010D ³	SW846 3050B ⁵
Magnesium	10600	560	15	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Manganese ^a	427 J	3.4	0.92	mg/kg	2	04/19/19	04/23/19	ND SW846 6010D ³	SW846 3050B ⁵
Mercury	0.038 J	0.033	0.014	mg/kg	1	04/17/19	04/17/19	LL SW846 7471B ¹	SW846 7471B ⁴
Nickel	25.4	4.5	0.39	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Potassium	9760	1100	36	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Selenium ^a	1.5 U	4.5	1.5	mg/kg	2	04/19/19	04/23/19	ND SW846 6010D ³	SW846 3050B ⁵
Silver ^a	0.61 J	1.1	0.38	mg/kg	2	04/19/19	04/23/19	ND SW846 6010D ³	SW846 3050B ⁵
Sodium	272 J	1100	87	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Thallium ^a	1.3 U	2.2	1.3	mg/kg	2	04/19/19	04/23/19	ND SW846 6010D ³	SW846 3050B ⁵
Vanadium	33.2 J	5.6	0.21	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵
Zinc	73.8	5.6	2.6	mg/kg	1	04/19/19	04/22/19	ND SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46522
- (2) Instrument QC Batch: MA46556
- (3) Instrument QC Batch: MA46568
- (4) Prep QC Batch: MP14302
- (5) Prep QC Batch: MP14400

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.6
 4

Report of Analysis

Client Sample ID: PCTP-17R(7-9)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-6	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 89.1
Project: National Grid, Philly Coke, Philadelphia, PA	

4.6
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.58 J	0.24	0.12	mg/kg	1	04/25/19 15:30 KI	SW846	9012B/LACHAT
Solids, Percent	89.1			%	1	04/18/19 15:55 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCTP-17R(9-11)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-7	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 58.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	12100 J	89	14	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.73 U	3.6	0.73	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic	7.5	3.6	0.50	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Barium	62.4	36	3.4	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.71	0.36	0.14	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.18 J	0.89	0.12	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	1250 J	890	79	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	22.2 J	1.8	0.66	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	9.2	8.9	0.50	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Copper	27.9	4.5	1.5	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Iron	23000 J	89	34	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Lead	40.9 J	3.6	0.73	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Magnesium	3190	890	24	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Manganese	374 J	2.7	0.73	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Mercury	3.0 J	0.28	0.12	mg/kg	5	04/17/19	04/17/19 LL	SW846 7471B ¹	SW846 7471B ³
Nickel	17.2	7.1	0.62	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	1320 J	1800	57	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	1.2 U	3.6	1.2	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Silver	0.30 U	0.89	0.30	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Sodium	409 J	1800	140	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Thallium	1.0 U	1.8	1.0	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Vanadium	26.2 J	8.9	0.34	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	111	8.9	4.1	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴

(1) Instrument QC Batch: MA46522

(2) Instrument QC Batch: MA46556

(3) Prep QC Batch: MP14302

(4) Prep QC Batch: MP14400

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.7
4

Report of Analysis

Client Sample ID: PCTP-17R(9-11)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-7	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 58.5
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	9.5 J	0.43	0.21	mg/kg	1	04/25/19 15:31 KI	SW846	9012B/LACHAT
Solids, Percent	58.5			%	1	04/18/19 15:55 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.7
4

Report of Analysis

Client Sample ID: PCTP-17R(18-20)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-8	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 52.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	14400 J	92	15	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	0.76 U	3.7	0.76	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	14.6	3.7	0.52	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	312	37	3.5	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.61	0.37	0.15	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	0.87 J	0.92	0.13	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	2910 J	920	82	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	32.5 J	1.8	0.68	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	7.2 J	9.2	0.52	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	288	4.6	1.6	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	27800 J	92	35	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	697 J	3.7	0.76	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	2530	920	25	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	204 J	2.8	0.76	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	1.3 J	0.056	0.024	mg/kg	1	04/17/19	04/17/19	LL	SW846 7471B ¹ SW846 7471B ³
Nickel	22.7	7.4	0.65	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	1170 J	1800	59	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	1.2 U	3.7	1.2	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	0.66 J	0.92	0.31	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	589 J	1800	140	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	1.1 U	1.8	1.1	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	70.6 J	9.2	0.35	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	448	9.2	4.2	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴

(1) Instrument QC Batch: MA46522

(2) Instrument QC Batch: MA46556

(3) Prep QC Batch: MP14302

(4) Prep QC Batch: MP14400

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.8
4

Report of Analysis

Client Sample ID: PCTP-17R(18-20)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-8	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 52.1
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	3.0	J	0.41	mg/kg	1	04/25/19 15:32 KI	SW846	9012B/LACHAT
Solids, Percent	52.1			%	1	04/18/19 15:55 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCTP-17R(24-25)		Date Sampled: 04/15/19
Lab Sample ID: JC86406-9		Date Received: 04/16/19
Matrix: SO - Soil		Percent Solids: 52.7
Project: National Grid, Philly Coke, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	11800 J	92	15	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	0.76 U	3.7	0.76	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	7.6	3.7	0.52	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	41.7	37	3.5	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.68	0.37	0.15	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	0.13 U	0.92	0.13	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	1060 J	920	81	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	18.9 J	1.8	0.68	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	12.3	9.2	0.52	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	16.6	4.6	1.5	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	22600 J	92	35	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	18.3 J	3.7	0.76	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	3180	920	25	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	493 J	2.8	0.76	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	0.057 J	0.056	0.024	mg/kg	1	04/17/19	04/17/19	LL	SW846 7471B ¹ SW846 7471B ³
Nickel	18.5	7.4	0.64	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	1410 J	1800	59	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	1.2 U	3.7	1.2	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	0.31 U	0.92	0.31	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	140 U	1800	140	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	1.1 U	1.8	1.1	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	24.4 J	9.2	0.35	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	57.6	9.2	4.2	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴

(1) Instrument QC Batch: MA46522

(2) Instrument QC Batch: MA46556

(3) Prep QC Batch: MP14302

(4) Prep QC Batch: MP14400

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.9
4

Report of Analysis

Client Sample ID: PCTP-17R(24-25)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-9	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 52.7
Project: National Grid, Philly Coke, Philadelphia, PA	

4.9
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.5 J	0.41	0.20	mg/kg	1	04/25/19 15:37 KI	SW846	9012B/LACHAT
Solids, Percent	52.7			%	1	04/18/19 15:55 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-114(2-4)		Date Sampled: 04/15/19
Lab Sample ID: JC86406-10		Date Received: 04/16/19
Matrix: SO - Soil		Percent Solids: 83.0
Project: National Grid, Philly Coke, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	12200 J	57	9.2	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	0.47 U	2.3	0.47	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	7.0	2.3	0.32	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	76.0	23	2.2	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.75	0.23	0.092	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	0.18 J	0.57	0.080	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	6050 J	570	51	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	21.4 J	1.1	0.42	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	5.0 J	5.7	0.32	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	18.1	2.9	0.96	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	15700 J	57	22	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	193 J	2.3	0.47	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	2330	570	16	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	160 J	1.7	0.47	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	0.57 J	0.038	0.017	mg/kg	1	04/17/19	04/17/19	LL	SW846 7471B ¹ SW846 7471B ³
Nickel	10.6	4.6	0.40	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	1210	1100	36	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	1.2 J	2.3	0.75	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	0.20 U	0.57	0.20	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	98.2 J	1100	89	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	0.67 U	1.1	0.67	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	25.0 J	5.7	0.22	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	80.7	5.7	2.6	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴

(1) Instrument QC Batch: MA46522

(2) Instrument QC Batch: MA46556

(3) Prep QC Batch: MP14302

(4) Prep QC Batch: MP14400

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.10
4

Report of Analysis

Client Sample ID: S-114(2-4)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-10	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 83.0
Project: National Grid, Philly Coke, Philadelphia, PA	

4.10
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.14 U	0.29	0.14	mg/kg	1	04/25/19 15:12 KI	SW846	9012B/LACHAT
Solids, Percent	83			%	1	04/18/19 15:55 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-114(8-10)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-11	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 67.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	11700 J	76	12	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Antimony	0.62 U	3.0	0.62	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Arsenic	6.9	3.0	0.42	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Barium	42.0	30	2.9	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Beryllium	0.59	0.30	0.12	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Cadmium	0.11 U	0.76	0.11	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Calcium	645 J	760	67	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Chromium ^a	19.5 J	1.5	0.56	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁵
Cobalt	8.2	7.6	0.42	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Copper	13.8	3.8	1.3	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Iron	20000	76	29	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Lead	14.8 J	3.0	0.62	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Magnesium	2430	760	21	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Manganese ^a	335 J	2.3	0.62	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁵
Mercury	0.81 J	0.047	0.021	mg/kg	1	04/17/19	04/17/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	14.7	6.1	0.53	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Potassium	1090 J	1500	48	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Selenium	0.99 U	3.0	0.99	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Silver	0.26 U	0.76	0.26	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Sodium	120 U	1500	120	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Thallium	0.88 U	1.5	0.88	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Vanadium	24.6 J	7.6	0.29	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵
Zinc	45.1	7.6	3.5	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46522
- (2) Instrument QC Batch: MA46556
- (3) Instrument QC Batch: MA46568
- (4) Prep QC Batch: MP14302
- (5) Prep QC Batch: MP14400

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-114(8-10)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-11	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 67.3
Project: National Grid, Philly Coke, Philadelphia, PA	

4.11
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.59	J	0.37	0.19	mg/kg	1	04/25/19 15:13 KI	SW846 9012B/LACHAT
Solids, Percent	67.3				%	1	04/18/19 15:55 BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-114(14-15)		Date Sampled: 04/15/19
Lab Sample ID: JC86406-12		Date Received: 04/16/19
Matrix: SO - Soil		Percent Solids: 72.1
Project: National Grid, Philly Coke, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	10800 J	69	11	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	0.56 U	2.7	0.56	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	7.0	2.7	0.38	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	24.7 J	27	2.6	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.55	0.27	0.11	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	0.096 U	0.69	0.096	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	178 J	690	61	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	16.8 J	1.4	0.51	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	9.1	6.9	0.38	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	13.2	3.4	1.2	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	21100 J	69	26	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	9.2 J	2.7	0.56	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	2150	690	19	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	150 J	2.1	0.56	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	1.7 J	0.20	0.088	mg/kg	5	04/17/19	04/17/19	LL	SW846 7471B ¹ SW846 7471B ³
Nickel	14.7	5.5	0.48	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	954 J	1400	44	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	0.89 U	2.7	0.89	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	0.23 U	0.69	0.23	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	162 J	1400	110	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	0.80 U	1.4	0.80	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	21.9 J	6.9	0.26	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	38.4	6.9	3.2	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴

(1) Instrument QC Batch: MA46522

(2) Instrument QC Batch: MA46556

(3) Prep QC Batch: MP14302

(4) Prep QC Batch: MP14400

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.12
4

Report of Analysis

Client Sample ID: S-114(14-15)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-12	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 72.1
Project: National Grid, Philly Coke, Philadelphia, PA	

4.12
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	12.1 J	0.30	0.15	mg/kg	1	04/25/19 15:15 KI	SW846	9012B/LACHAT
Solids, Percent	72.1			%	1	04/18/19 15:55 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-114(23-25)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-13	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 59.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	14700 J	89	14	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	0.73 U	3.6	0.73	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	8.3	3.6	0.50	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	45.6	36	3.4	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.69	0.36	0.14	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	0.12 U	0.89	0.12	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	3380 J	890	79	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	27.5 J	1.8	0.66	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	9.7	8.9	0.50	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	16.9	4.4	1.5	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	26700 J	89	34	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	14.3 J	3.6	0.73	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	3360	890	24	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	259 J	2.7	0.73	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	0.029 J	0.055	0.024	mg/kg	1	04/17/19	04/17/19	LL	SW846 7471B ¹ SW846 7471B ³
Nickel	19.7	7.1	0.62	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	1460 J	1800	57	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	1.2 U	3.6	1.2	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	0.30 U	0.89	0.30	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	201 J	1800	140	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	1.0 U	1.8	1.0	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	30.8 J	8.9	0.34	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	55.6	8.9	4.1	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ⁴

(1) Instrument QC Batch: MA46522

(2) Instrument QC Batch: MA46556

(3) Prep QC Batch: MP14302

(4) Prep QC Batch: MP14400

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.13
4

Report of Analysis

Client Sample ID: S-114(23-25)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-13	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 59.2
Project: National Grid, Philly Coke, Philadelphia, PA	

4.13
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	4.6	J	0.41	mg/kg	1	04/25/19 15:16 KI	SW846	9012B/LACHAT
Solids, Percent	59.2			%	1	04/18/19 15:55 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-109(2-4)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-14	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 88.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	8650 J	57	9.1	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.47 U	2.3	0.47	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic	5.3	2.3	0.32	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Barium	33.8	23	2.2	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.50	0.23	0.091	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.079 U	0.57	0.079	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	792 J	570	50	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	13.9 J	1.1	0.42	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	3.6 J	5.7	0.32	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Copper	8.9	2.8	0.95	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Iron	12700 J	57	22	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Lead	23.3 J	2.3	0.47	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Magnesium	1330	570	16	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Manganese	91.5 J	1.7	0.47	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Mercury	0.13 J	0.037	0.016	mg/kg	1	04/17/19	04/17/19 LL	SW846 7471B ¹	SW846 7471B ³
Nickel	8.1	4.5	0.40	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	540 J	1100	36	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	0.74 U	2.3	0.74	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Silver	0.19 U	0.57	0.19	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Sodium	157 J	1100	88	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Thallium	0.66 U	1.1	0.66	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Vanadium	16.6 J	5.7	0.22	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	31.2	5.7	2.6	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46522
- (2) Instrument QC Batch: MA46556
- (3) Prep QC Batch: MP14302
- (4) Prep QC Batch: MP14400

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-109(2-4)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-14	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 88.1
Project: National Grid, Philly Coke, Philadelphia, PA	

4.14
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	5.5 J	0.28	0.14	mg/kg	1	04/25/19 15:20 KI	SW846	9012B/LACHAT
Solids, Percent	88.1			%	1	04/18/19 15:55 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-109(8-10)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-15	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 81.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	11400 J	62	10	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.51 U	2.5	0.51	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic	11.0	2.5	0.35	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Barium	126	25	2.4	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	1.8	0.25	0.10	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	1.1	0.62	0.087	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	24300 J	620	55	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	44.5 J	1.2	0.46	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	8.9	6.2	0.35	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Copper	75.6	3.1	1.0	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Iron	19900 J	62	24	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Lead	147 J	2.5	0.51	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Magnesium	5920	620	17	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Manganese	359 J	1.9	0.51	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Mercury	0.19 J	0.037	0.016	mg/kg	1	04/17/19	04/17/19 LL	SW846 7471B ¹	SW846 7471B ³
Nickel	19.4	5.0	0.44	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	1150 J	1200	40	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	2.0 J	2.5	0.81	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Silver	0.21 U	0.62	0.21	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Sodium	722 J	1200	97	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Thallium	0.72 U	1.2	0.72	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Vanadium	25.8 J	6.2	0.24	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	335	6.2	2.9	mg/kg	1	04/19/19	04/22/19 ND	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46522
- (2) Instrument QC Batch: MA46556
- (3) Prep QC Batch: MP14302
- (4) Prep QC Batch: MP14400

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-109(8-10)	Date Sampled: 04/15/19
Lab Sample ID: JC86406-15	Date Received: 04/16/19
Matrix: SO - Soil	Percent Solids: 81.2
Project: National Grid, Philly Coke, Philadelphia, PA	

4.15
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	17.5 J	0.32	0.16	mg/kg	1	04/25/19 15:22 KI	SW846	9012B/LACHAT
Solids, Percent	81.2			%	1	04/18/19 15:55 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

National Grid

Philly Coke

DATA REVIEW

Philadelphia, Pennsylvania

Volatile Organic Compound (VOC), Semivolatile Organic Compounds (SVOC), Pesticides, PCBs, Metals,
and Miscellaneous Analyses

SDG # JC86553

Analyses Reported By:
SGS Laboratories
Dayton, New Jersey

Report #33342R
Review Level: Tier II
Project: 30004026 (B0036790.0001) 00006

DATA REVIEW REPORT

SUMMARY

This data review report summarizes the review of Sample Delivery Group (SDG) # JC86553 for samples collected in association with the National Grid Philly Coke site in Philadelphia, Pennsylvania. The review was conducted as a Tier II evaluation and included review of laboratory analytical data package completeness. Field documentation was not included in this review. Included with this assessment are the post-validation annotated sample result sheets, and chain of custody (COC). Analyses were performed on the following samples

SDG Number	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PEST/ PCB	Metals	MISC
JC86553	S-116(4-6) (04-16-2019)	JC86553-1	Soil	4/16/2019		X	X		X	X
	S-115(4-6) (04-16-2019)	JC86553-2	Soil	4/16/2019		X	X		X	X
	SO-DUP-0416 (04-16-2019)	JC86553-3	Soil	4/16/2019	S-115(4-6) (04-16-2019)	X	X		X	X
	S-117(4-6) (04-16-2019)	JC86553-4	Soil	4/16/2019		X	X		X	X
	TP-15R(5-7) (04-16-2019)	JC86553-5	Soil	4/16/2019		X	X		X	X
	TP-15R(16.5-12.5) (04-16-2019)	JC86553-6	Soil	4/16/2019		X	X		X	X
	S-118(4-6) (04-16-2019)	JC86553-7	Soil	4/16/2019		X	X		X	X
	PCTP-49R(8-10) (04-16-2019)	JC86553-8	Soil	4/16/2019		X	X		X	X
	PCTP-49R(10-11) (04-16-2019)	JC86553-9	Soil	4/16/2019		X	X		X	X
	PSSTP-10R(1-2) (04-16-2019)	JC86553-10	Soil	4/16/2019		X	X	X	X	X
	PSSTP-10R(8-9) (04-16-2019)	JC86553-11	Soil	4/16/2019		X	X	X	X	X
	S-130(2-4) (04-17-2019)	JC86553-12	Soil	4/17/2019		X	X		X	X
	S-130(7-8) (04-17-2019)	JC86553-13	Soil	4/17/2019		X	X		X	X
	S-130(10-12) (04-17-2019)	JC86553-14	Soil	4/17/2019		X	X		X	X
	S-130(13-15) (04-17-2019)	JC86553-15	Soil	4/17/2019		X	X		X	X
	S-126(7-9) (04-17-2019)	JC86553-16	Soil	4/17/2019		X	X		X	X
	S-126(13-15) (04-17-2019)	JC86553-17	Soil	4/17/2019		X	X		X	X
	S-127(2-4) (04-17-2019)	JC86553-18	Soil	4/17/2019		X	X		X	X
	SO-DUP-0417 (04-17-2019)	JC86553-19	Soil	4/17/2019	S-127(2-4) (04-17-2019)	X	X		X	X
	S-127(6-8) (04-17-2019)	JC86553-20	Soil	4/17/2019		X	X		X	X
	S-127(13-15) (04-17-2019)	JC86553-21	Soil	4/17/2019		X	X		X	X
	SB-131(2-4) (04-17-2019)	JC86553-22	Soil	4/17/2019		X	X		X	X

DATA REVIEW REPORT

SDG Number	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PEST/PCB	Metals	MISC
	S-131(7-9) (04-17-2019)	JC86553-23	Soil	4/17/2019		X	X		X	X
	S-132(2-4) (04-17-2019)	JC86553-24	Soil	4/17/2019		X	X		X	X
	S-132(8-10) (04-17-2019)	JC86553-25	Soil	4/17/2019		X	X		X	X
	S-133(2-4) (04-17-2019)	JC86553-26	Soil	4/17/2019		X	X		X	X
	S-133(7-9) (04-17-2019)	JC86553-27	Soil	4/17/2019		X	X		X	X
	S-133(13-15) (04-17-2019)	JC86553-28	Soil	4/17/2019		X	X		X	X

Notes:

1. PEST/PCB = Pesticides and polychlorinated biphenyls
2. SVOC = Semivolatile Organic Compounds
3. VOC = Volatile Organic Compound
4. MISC = Miscellaneous (total cyanide)

DATA REVIEW REPORT

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW REPORT

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260C, 8270D, 8081A, and 8082A. Data were reviewed in accordance with the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540/R-2017-002, January 2017 and the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, EPA540/R-99/008, October 1999 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

DATA REVIEW REPORT

that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times/Preservation

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis (preserved) 7 days from collection to analysis (non-preserved)	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis	Cool to <6 °C.

Note:

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
S-115(4-6) (04-16-2019) SO-DUP-0416 (04-16-2019)	1,2-Dichloroethane-d4	AC
	4-Bromofluorobenzene	> UL
S-117(4-6) (04-16-2019)	Dibromofluoromethane	AC
	Toluene-d8	AC

DATA REVIEW REPORT

Notes:

UCL Upper control limit

AC Acceptable

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
	Detect	J
< LL but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
S-131(7-9) (04-17-2019)	Carbon disulfide	<LL but >10%	--
S-116(4-6) (04-16-2019)	Numerous compounds	<LL but >10%	<LL but >10%

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J

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Control Limit	Sample Result	Qualification
< 10%	Non-detect	R
	Detect	J
Parent sample concentration > four times the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

Sample locations associated with MS/MSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

Sample Locations	Compound
S-116(4-6) (04-16-2019)	Numerous compounds

The criteria used to evaluate the RPD between the MS/MSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS/LCSD analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery	LCSD Recovery
TP-15R(5-7) (04-16-2019) PCTP-49R(10-11) (04-16-2019) S-130(10-12) (04-17-2019) S-127(2-4) (04-17-2019) SO-DUP-0417 (04-17-2019)	1,2-Dibromoethane	>UL	AC

Note:

AC = Acceptable

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

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Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
S-115(4-6) (04-16-2019)/ SO-DUP-0416 (04-16-2019)	Acetone	14.3 J	38.8	AC
	Benzene	7.9	11.2	AC
	Carbon Disulfide	1.8 J	1.6 J	AC
	Cyclohexane	0.84 J	3.3 U	AC
	Methylcyclohexane	1.5 J	1.6 J	AC
S-127(2-4) (04-17-2019)/ SO-DUP-0417 (04-17-2019)	Benzene	134	365	92.6%
	m&p-Xylenes	434	912	71.0%
	o-Xylene	198	383	63.7%
	Toluene	143	360	86.3%
	Total Xylenes	632	1300	69.2%

Notes:

AC Acceptable
NC Not compliant

Several analytes associated with sample locations S-127(2-4) (04-17-2019) and SO-DUP-0417 (04-17-2019) exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed analyte were qualified as estimated.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra. All identified compounds met the specified criteria.

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8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

The laboratory narrative indicates internal standard deviations. These deviations are normally not evaluated in a tier II data review. Internal standard performance criteria ensure that the GC/MS sensitivity and response are stable during every sample analysis. The criteria require the internal standard compounds associated with the VOC exhibit area counts that are not greater than two times (+100%) or less than one-half (-50%) of the area counts of the associated continuing calibration standard.

Sample locations associated with internal standards exhibiting responses outside of the control limits are presented in the following table.

Sample Locations	Internal Standard	Response
S-117(4-6) (04-16-2019)	Chlorobenzene-D5	< LL but > 25%
	1,4-Dichlorobenzene-d4	<25%
SO-DUP-0416 (04-16-2019)	1,4-Dichlorobenzene-d4	<25%
S-115(4-6) (04-16-2019)	1,4-Dichlorobenzene-d4	< LL but > 25%

Note:

AC Acceptable

The criteria used to evaluate the internal standard responses are presented in the following table. In the case of an internal standard deviation, the compounds quantitated under the deviant internal standard are qualified as documented in the table below.

Control limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No action
	Detect	J
< the lower control limit (LL) but > 25%	Non-detect	UJ
	Detect	J
< 25%	Non-detect	R
	Detect	J

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Trip blanks	X				X
Laboratory Control Sample (LCS)		X	X		
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)		X	X		
Matrix Spike Duplicate(MSD)		X	X		
MS/MSD Precision (RPD)		X	X		
Field/Lab Duplicate (RPD)		X	X		
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

- %RSD Relative standard deviation
- %R Percent recovery
- RPD Relative percent difference
- %D Percent difference

DATA REVIEW REPORT

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

All compounds associated with the QA blanks exhibited a concentration less than the MDL, with the exception of the compounds listed in the following table. Sample results associated with QA blank contamination that were greater than the BAL resulted in the removal of the laboratory qualifier (B) of data. Sample results less than the BAL associated with the following sample locations were qualified as listed in the following table.

Sample Locations	Analytes	Sample Result	Qualification
S-126(7-9) (04-17-2019) S-132(8-10) (04-17-2019)	1,1'-Biphenyl Carbazole	Detected sample results <RL and <BAL	"UB" at the RL
S-126(13-15) (04-17-2019) S-133(7-9) (04-17-2019) S-133(13-15) (04-17-2019)	1,1'-Biphenyl		

Note:

RL Reporting limit

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

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Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
TP-15R(5-7)	Phenol-d6	AC
	2-Fluorophenol	AC
	2,4,6-Tribromophenol	AC
	Nitrobenzene-d5	>UL
	2-Fluorobiphenyl	AC
	Terphenyl-d14	AC
S-127(2-4) (initial dilution)	Phenol-d6	AC
	2-Fluorophenol	AC
	2,4,6-Tribromophenol	AC
	Nitrobenzene-d5	AC
	2-Fluorobiphenyl	<LL but >10%
	Terphenyl-d14	<LL but >10%
S-133(2-4)	Phenol-d6	AC
	2-Fluorophenol	AC
	2,4,6-Tribromophenol	AC
	Nitrobenzene-d5	AC
	2-Fluorobiphenyl	<LL but >10%
	Terphenyl-d14	AC

Notes:

AC Acceptable

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
	Detect	J
< LL but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

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4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited recoveries within the control limits

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

The LCS/LCSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
S-115(4-6) (04-16-2019)/ SO-DUP-0416 (04-16-2019)	1,1-Biphenyl	61.2 J	71.4 J	15.3 %
	2-Methylnaphthalene	279	303	8.2 %
	2-Methylphenol	40.5 J	43.5 J	AC
	3&4-Methylphenol	112	124	AC
	Acenaphthene	179	231	25.3 %
	Acenaphthylene	309	329	6.2 %
	Anthracene	597	838	33.5 %
	Benz(a)anthracene	2120	3380	45.8 %
	Benzo(a)pyrene	2560	4860	61.9 %
	Benzo(b)fluoranthene	3160	6130	63.9 %
	Benzo(g,h,i)perylene	1760	3060	53.9 %
	Benzo(k)fluoranthene	1040	1680	47.0 %
	Carbazole	281	484	NC

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Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
	Chrysene	2260	3700	48.3 %
	Dibenz(a,h)anthracene	504	844	50.4 %
	Dibenzofuran	208	209	AC
	Fluoranthene	3190	5290	49.5 %
	Fluorene	268	293	8.9 %
	Indeno(1,2,3-cd)pyrene	1880	3260	53.6 %
	Naphthalene	1880	1940	3.1 %
	Phenanthrene	2170	2950	30.4 %
	Phenol	200	194	AC
	Pyrene	2890	4930	52.1 %
S-127(2-4) (04-17-2019)/ SO-DUP-0417 (04-17-2019)	1,1-Biphenyl	9320	14700	44.7 %
	2,4-Dimethylphenol	997	1930	63.7 %
	2-Methylnaphthalene	41100	64300	44.0 %
	2-Methylphenol	573	1180	69.2 %
	3&4-Methylphenol	1160	2390	69.2 %
	Acenaphthene	4140	7150	53.3 %
	Acenaphthylene	12200	19900	47.9 %
	Acetophenone	95.4 J	194 J	AC
	Anthracene	54800	90800	49.4 %
	Benz(a)anthracene	45300	75200	49.6 %
	Benzo(a)pyrene	37600	60900	47.3 %
	Benzo(b)fluoranthene	46100	74400	46.9 %
	Benzo(g,h,i)perylene	18700	31000	49.4 %
	Benzo(k)fluoranthene	15700	29400	60.7 %
	Carbazole	27500	43300	44.6 %
	Chrysene	39300	64600	48.7 %
	Dibenz(a,h)anthracene	5740	11000	62.8 %
	Dibenzofuran	46600	73000	44.1 %
	Fluoranthene	130000	211000	47.5 %
	Fluorene	64300	103000	46.2 %
Indeno(1,2,3-cd)pyrene	19600	32200	48.6 %	

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Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
	Naphthalene	168000	278000	49.3 %
	Phenanthrene	216000	350000	47.3 %
	Phenol	338	720	NC
	Pyrene	82800	137000	49.3 %

Notes:

AC Acceptable
NC Not compliant

Several analytes associated with sample locations S-115(4-6) (04-16-2019), SO-DUP-0416 (04-16-2019), S-127(2-4) (04-17-2019), and SO-DUP-0417 (04-17-2019) exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed analyte were qualified as estimated.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

Several samples were diluted to bring target compounds within linear range of the instrument. Sample results that were reported from a secondary dilution were qualified with a "D", indicating the result is diluted.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X	X		
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X	X		
Surrogate Spike Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

DATA REVIEW REPORT

PESTICIDE ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8081A	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. Herbicide analysis requires that one of the two pesticide surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

An MS/MSD was not performed on a sample within this SDG.

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5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 40% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

7. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows for both the primary and confirmation columns. When dual column analysis is performed the percent difference (%D) of detected sample results must be less than 40%.

Sample locations associated with %D analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	%D
PSSTP-10R(8-9)	4,4'-DDE	84.2%

The criteria used to evaluate the %D are presented in the following table. In the case of a %D deviation, the sample results are qualified as documented in the table below.

Control Limit (%D)	Qualification
>40% to 70%	J
>70% to 100%	JN
>100% ¹	R
>100% to 200% (Interference detected) ²	J or JN
>50% (pesticide) sample results less than the RL)	U

When the pesticide sample results are less than the RL and the %D greater than 50% the sample result are raised to the RL and reported as non-detect.

Notes:

1: If the pattern is confirmed sample results will be qualified as estimated (J). If pattern exhibits interference or if the pesticide cannot be positively determined due to weathering the sample results will be qualified as tentative identification estimate (JN).

2: If interference is detected in either column the sample results will be qualified as tentative identification estimate (JN).

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8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR PESTICIDES

Pesticides; SW-846 8081	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)	X				X
Matrix Spike Duplicate(MSD)	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X		X	
Column %D \leq 40% (If dual column is performed for reporting-not confirmation)		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%RSD – relative standard deviation

%R - percent recovery

RPD - relative percent difference

%D – difference.

DATA REVIEW REPORT

POLYCHLORINATED BIPHENYLS (PCBs) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8082A	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. PCB analysis requires that one of the two PCB surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD was not performed on a sample within this SDG.

DATA REVIEW REPORT

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

7. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows for both the primary and confirmation columns. When dual column analysis is performed the relative percent difference (%RPD) of detected sample results must be less than 40%.

No Aroclors were detected in the samples within this SDG.

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR PCBs

PCBs; SW-846 8082A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X		X	
Column (%D) (If dual column is performed-not confirmation purposes only)		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

%R - percent recovery

RPD - relative percent difference

%D – difference

DATA REVIEW REPORT

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6010D, 7471A, and 9012B. Data were reviewed in accordance with the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA 540/R-2017-001, January 2017; and the USEPA CLP National Functional Guidelines for Inorganic Data Review, EPA 540-R-01-008, July 2002 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6010D	Water	180 days from collection to analysis	Preserved to a pH of less than 2.
	Soil	180 days from collection to analysis	Cool to <6 °C.
SW-846 7471A	Soil	28 days from collection to analysis	Cool to <6 °C.
SW-846 7470A	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL and/or were non-detect. No qualification of the sample results was required.

3. Matrix Spike (MS)/Matrix Spike Duplicate(MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analyte present in the table below.

DATA REVIEW REPORT

Sample Location	Analyte	MS Recovery	MSD Recovery
S-116(4-6) (04-16-2019)	Aluminum	215.9%	206.8%
	Antimony	63.9%	64.1%
	Manganese	130.3%	131.8%
	Zinc	169.8%	110.1%
S-133(2-4) (04-17-2019)	Mercury	25.2%	76.6%

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications for all metals except mercury are applied to all sample results associated with this SDG. The qualification of Mercury is applied to all samples except S-116(4-6) (04-16-2019).

Control limit	Sample Result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery <30%	Non-detect	R
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD analysis exhibited RPDs within the control limits.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
S-115(4-6) (04-16-2019)/	Aluminum	2250	1750	25.0 %

DATA REVIEW REPORT

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
SO-DUP-0416 (04-16-2019)	Arsenic	21.6	16.8	25.0 %
	Barium	72.1	49.4	AC
	Beryllium	0.61	0.45	AC
	Calcium	1770	3880	NC
	Chromium	90.2	25.4	112.1 %
	Copper	135	98.5	31.2 %
	Iron	32200	25900	21.6 %
	Lead	162	108	40.0 %
	Magnesium	640 U	1820	AC
	Manganese	211	280	28.1 %
	Mercury	0.22	0.14	AC
	Nickel	24	19.2	22.2 %
	Vanadium	11.1	10.4	AC
	Zinc	183	115	45.6 %
S-127(2-4) (04-17-2019)/ SO-DUP-0417 (04-17-2019)	Aluminum	9820	11600	16.6 %
	Arsenic	9.7	7.9	AC
	Barium	121	176	37.0 %
	Beryllium	0.82	0.90	AC
	Calcium	14800	19700	28.4 %
	Chromium	22	24.9	12.3 %
	Copper	37.6	47.7	23.6 %
	Iron	25700	21800	16.4 %
	Lead	417	454	8.4 %
	Magnesium	7300	9260	23.6 %
	Manganese	624	1080	53.5 %
	Nickel	14.4	15.6	7.9 %
	Potassium	1440	1600	10.5 %
	Vanadium	24.2	36.3	39.9 %
Zinc	208	180	14.4 %	

Notes:

AC Acceptable
 NC Not compliant

DATA REVIEW REPORT

Calcium and chromium associated with sample locations S-115(4-6) (04-16-2019) and SO-DUP-0416 (04-16-2019), and manganese associated with S-127(2-4) (04-17-2019) and SO-DUP-0417 (04-17-2019) exhibited a field duplicate RPD greater than the control limit. The associated sample results from all sample locations for the listed analytes were qualified as estimated.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR METAL

METALS; SW846 6010D/7471A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field Blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate (MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X	X		
Total vs. Dissolved	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Cyanide by SW-846 9012	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of greater than 12.
	Soil		Cool to <6 °C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analyte present in the table below.

Sample Location	Analyte	MS Recovery
S-127(6-8) (04-17-2019)	Cyanide	37.2%

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications for all metals except mercury are

DATA REVIEW REPORT

applied to all sample results associated with this SDG except S-116(4-6) (04-16-2019), which exhibited a passing MS recovery.

Control limit	Sample Result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery <30%	Non-detect	R
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

The laboratory duplicate analysis exhibited RPD within control limits.

4. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
S-115(4-6) (04-16-2019)/ SO-DUP-0416 (04-16-2019)	Cyanide	18.3	21.2	14.6%
S-127(2-4) (04-17-2019)/ SO-DUP-0417 (04-17-2019)	Cyanide	1.1	0.63	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

DATA REVIEW REPORT

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: EPA 9012	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Dilution Factor		X		X	
Moisture Content					X

Notes:

%R - percent recovery

RPD - relative percent difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: July 17, 2019

PEER REVIEW: Dennis Capria

DATE: July 22, 2019

CHAIN OF CUSTODY SAMPLE ANALYSIS DATA SHEETS





2011 SLL

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
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TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com/enhsusa

FED-EX Tracking #
Bottle/Bag Control # KR-041219-171
SGS Quote # JC 86553
SGS Job #

Client / Reporting Information		Project Information		Requested Analysis										Matrix Codes		
Company Name: ARCADIS-US		Project Name: Philadelphia PA												DW - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank		
Street Address: 11000 Kynette St #300		Street: 4500 Richmond St														
City: Buffalo NY		City: Philadelphia PA														
State: NY		State: PA														
Zip: 13202		Zip: 19104														
Project Contact: Greg Healy		Project #: 80036740.0001														
E-mail: Lawrence.Halpern@arcadis.com		Client Purchase Order #: 60036740.0001														
Phone #: 315-335-9493		Phone #: 60036740.0001														
Sample(s) Name(s): Extraction (P2) 305-2642		Project Manager: John Bussel														
Attention: John Bussel																
SGS Sample #	Field ID / Point of Collection	MED/HD/VIAT #	Date	Time	Collected by	Grav (ID Comp) (C)	Matrix	# of bottles	HCl	NO ₃	NO ₂	NO ₃ -NO ₂	NO ₃ -NO ₂ -NH ₄	NO ₃ -NO ₂ -NH ₄ -P	PHOSPH	LAB USE ONLY
1	S-116(4-6)		4/16/19	0835	EG	G	SO	5								CFR
	S-116(4-6)MS		4/16/19	0835	EG	G	SO	5								14L2
	S-116(4-6)MSD		4/16/19	0835	EG	G	SO	5								
2	S-115(4-6)		4/16/19	0915	EG	G	SO	5								NEK
3	So-DUP-DHLL		4/16/19	--	EG	G	SO	5								4095
4	S-117(2-4)		4/16/19	1000	EG	G	SO	5								4096
5	TP-15R(5-7)		4/16/19	1040	EG	G	SO	5								
6	TP-15R(16.5-125)		4/16/19	1050	EG	G	SO	5								
7	S-118(4-6)		4/16/19	1125	EG	G	SO	5								
8	PCTP-49R(8-10)		4/16/19	1250	EG	G	SO	5								
9	PCTP-49R(10-11)		4/16/19	1305	EG	G	SO	5								
10	PSTP-10R(1-2)		4/16/19	1345	EG	G	SO	6								
Turn Around Time (Business Days)		Approved By (SGS PM) / Date:		Deliverable										Comments / Special Instructions		
<input type="checkbox"/> 10 Business Days <input checked="" type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days <input type="checkbox"/> 2 Business Days <input type="checkbox"/> 1 Business Day <input type="checkbox"/> Other _____		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input checked="" type="checkbox"/> Full Tier I (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ DKQP		<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format												
All data available via Lablink		* Approval needed for 1-3 Business Day TAT		Commercial "A" = Results only; Commercial "B" = Results + QC Summary Commercial "C" = Results + QC Summary + Partial Raw data										http://www.sgs.com/en/terms-and-conditions		
Samples Custody must be documented below each time samples change possession, including courier delivery.																
1	Received by: <i>[Signature]</i>	Date / Time: 4/17/19 9:16:25	Received by: <i>[Signature]</i>	Date / Time: 4/17/19 17:40	Received by: <i>[Signature]</i>	Date / Time: 4/17/19 17:40	Received by: <i>[Signature]</i>	Date / Time: 4/17/19 17:40	Received by: <i>[Signature]</i>	Date / Time: 4/17/19 17:40	Received by: <i>[Signature]</i>	Date / Time: 4/17/19 17:40	Received by: <i>[Signature]</i>	Date / Time: 4/17/19 17:40	Received by: <i>[Signature]</i>	Date / Time: 4/17/19 17:40
2	Relinquished by:	Date / Time:	Received by:	Date / Time:	Relinquished by:	Date / Time:	Received by:	Date / Time:	Relinquished by:	Date / Time:	Received by:	Date / Time:	Relinquished by:	Date / Time:	Received by:	Date / Time:
3	Relinquished by:	Date / Time:	Received by:	Date / Time:	Relinquished by:	Date / Time:	Received by:	Date / Time:	Relinquished by:	Date / Time:	Received by:	Date / Time:	Relinquished by:	Date / Time:	Received by:	Date / Time:
4	Relinquished by:	Date / Time:	Received by:	Date / Time:	Relinquished by:	Date / Time:	Received by:	Date / Time:	Relinquished by:	Date / Time:	Received by:	Date / Time:	Relinquished by:	Date / Time:	Received by:	Date / Time:
5	Relinquished by:	Date / Time:	Received by:	Date / Time:	Relinquished by:	Date / Time:	Received by:	Date / Time:	Relinquished by:	Date / Time:	Received by:	Date / Time:	Relinquished by:	Date / Time:	Received by:	Date / Time:
Custody Seal # <input type="checkbox"/> Intact <input type="checkbox"/> Preserved where applicable <input type="checkbox"/> On Ice <input type="checkbox"/> Therm. ID: 1.4.22-20																

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5

EHS-A-QAC-0023-02-FORM Dayton - Standard COC.xlsx



CHAIN OF CUSTODY

SGS North America Inc. - Dayton
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Form containing Client/Reporting Information, Project Information, Requested Analysis, Matrix Codes, and a table of samples with columns for Sample #, Field ID, Date, Time, Matrix, # of bottles, and various analysis results.

5.1
5





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FED-EX Tracking #
Bottle Order Control #
SGS Quote # JC86553
SGS Job #

Client / Reporting Information, Project Information, Requested Analysis, Matrix Codes, Turn Around Time, Deliverable, Comments / Special Instructions, Chain of Custody table, and Signature section.

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SGS LabLink@1039014 11:14 10-May-2019

Report of Analysis

Page 1 of 2

Client Sample ID: S-116(4-6)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-1	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 81.5
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	3C151395.D	1	04/24/19 22:23	PS	n/a	n/a	V3C6807

Run #1	Initial Weight
Run #2	4.0 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	53.1	15	7.7	ug/kg	J
71-43-2	Benzene	ND	0.77	0.58	ug/kg	UJ
74-97-5	Bromochloromethane	ND	7.7	0.66	ug/kg	
75-27-4	Bromodichloromethane	ND	3.1	0.68	ug/kg	
75-25-2	Bromoform	ND	7.7	0.62	ug/kg	
74-83-9	Bromomethane ^a	ND	7.7	1.5	ug/kg	
78-93-3	2-Butanone (MEK)	ND	15	5.8	ug/kg	
75-15-0	Carbon disulfide	ND	3.1	1.4	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.1	0.85	ug/kg	
108-90-7	Chlorobenzene	ND	3.1	0.55	ug/kg	
75-00-3	Chloroethane	ND	7.7	1.1	ug/kg	
67-66-3	Chloroform	ND	3.1	0.57	ug/kg	
74-87-3	Chloromethane	ND	7.7	3.0	ug/kg	
110-82-7	Cyclohexane	ND	3.1	0.63	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.1	1.3	ug/kg	
124-48-1	Dibromochloromethane	ND	3.1	0.52	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.5	0.50	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.5	0.47	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.5	0.55	ug/kg	UJ
106-46-7	1,4-Dichlorobenzene	ND	1.5	0.53	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	7.7	0.98	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.5	0.59	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.5	0.73	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.5	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.5	1.5	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.5	1.0	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.1	0.63	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.1	0.54	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.1	0.51	ug/kg	
100-41-4	Ethylbenzene	ND	1.5	0.85	ug/kg	
76-13-1	Freon 113	ND	7.7	1.2	ug/kg	
591-78-6	2-Hexanone	ND	7.7	2.0	ug/kg	J

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-116(4-6) Lab Sample ID: JC86553-1 Matrix: SO - Soil Method: SW846 8260C Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/16/19 Date Received: 04/17/19 Percent Solids: 81.5
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VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.1	1.1	ug/kg	UJ
79-20-9	Methyl Acetate	ND	7.7	2.1	ug/kg	UJ
108-87-2	Methylcyclohexane	ND	3.1	1.1	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.5	0.54	ug/kg	UJ
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	7.7	2.4	ug/kg	UJ
75-09-2	Methylene chloride	ND	7.7	3.9	ug/kg	UJ
100-42-5	Styrene	ND	3.1	0.89	ug/kg	UJ
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.1	0.60	ug/kg	
127-18-4	Tetrachloroethene	ND	3.1	0.71	ug/kg	UJ
108-88-3	Toluene	ND	1.5	0.58	ug/kg	UJ
87-61-6	1,2,3-Trichlorobenzene	ND	7.7	1.5	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	7.7	1.5	ug/kg	UJ
71-55-6	1,1,1-Trichloroethane	ND	3.1	0.66	ug/kg	↓ UJ ↓
79-00-5	1,1,2-Trichloroethane	ND	3.1	0.53	ug/kg	
79-01-6	Trichloroethene	ND	1.5	1.2	ug/kg	
75-69-4	Trichlorofluoromethane	ND	7.7	1.1	ug/kg	
75-01-4	Vinyl chloride	ND	3.1	0.72	ug/kg	
	m,p-Xylene	ND	1.5	1.2	ug/kg	
95-47-6	o-Xylene	ND	1.5	0.90	ug/kg	
1330-20-7	Xylene (total)	ND	1.5	0.90	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		75-127%
17060-07-0	1,2-Dichloroethane-D4	99%		75-130%
2037-26-5	Toluene-D8	111%		80-120%
460-00-4	4-Bromofluorobenzene	124%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-116(4-6)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-1	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	81.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58719.D	1	04/22/19 06:12	CB	04/19/19 07:45	OP19847	E5P2780
Run #2	5P58740.D	5	04/22/19 16:12	YC	04/19/19 07:45	OP19847	E5P2781

Run #	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2	30.0 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	82	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	25	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	35	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	73	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	200	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	200	44	ug/kg	
95-48-7	2-Methylphenol	ND	82	26	ug/kg	
	3&4-Methylphenol	ND	82	34	ug/kg	
88-75-5	2-Nitrophenol	ND	200	27	ug/kg	
100-02-7	4-Nitrophenol	ND	410	110	ug/kg	
87-86-5	Pentachlorophenol	ND	160	38	ug/kg	
108-95-2	Phenol	ND	82	21	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	27	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	31	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	24	ug/kg	
83-32-9	Acenaphthene	869	41	14	ug/kg	
208-96-8	Acenaphthylene	895	41	21	ug/kg	
98-86-2	Acetophenone	ND	200	8.8	ug/kg	
120-12-7	Anthracene	1840	41	25	ug/kg	
1912-24-9	Atrazine	ND	82	18	ug/kg	
56-55-3	Benzo(a)anthracene	3820	41	12	ug/kg	
50-32-8	Benzo(a)pyrene	5110 ^a	200	93	ug/kg	D
205-99-2	Benzo(b)fluoranthene	6640 ^a	200	90	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	2810	41	20	ug/kg	
207-08-9	Benzo(k)fluoranthene	1900 ^a	200	96	ug/kg	D
101-55-3	4-Bromophenyl phenyl ether	ND	82	16	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	82	10	ug/kg	
92-52-4	1,1'-Biphenyl	113	82	5.6	ug/kg	
100-52-7	Benzaldehyde	ND	200	10	ug/kg	
91-58-7	2-Chloronaphthalene	ND	82	9.7	ug/kg	
106-47-8	4-Chloroaniline	ND	200	15	ug/kg	
86-74-8	Carbazole	704	82	5.9	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-116(4-6)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-1	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	81.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	82	16	ug/kg	
218-01-9	Chrysene	3960	41	13	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	82	8.8	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	82	18	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	82	15	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	82	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	41	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	41	21	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	82	34	ug/kg	
123-91-1	1,4-Dioxane	ND	41	27	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	951	41	18	ug/kg	
132-64-9	Dibenzofuran	905	82	17	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	82	6.7	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	82	10	ug/kg	
84-66-2	Diethyl phthalate	ND	82	8.7	ug/kg	
131-11-3	Dimethyl phthalate	ND	82	7.3	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	82	9.6	ug/kg	
206-44-0	Fluoranthene	8360 ^a	200	91	ug/kg	D
86-73-7	Fluorene	1840	41	19	ug/kg	
118-74-1	Hexachlorobenzene	ND	82	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	41	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	410	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	20	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	3050	41	19	ug/kg	
78-59-1	Isophorone	ND	82	8.8	ug/kg	
91-57-6	2-Methylnaphthalene	274	41	9.2	ug/kg	
88-74-4	2-Nitroaniline	ND	200	9.7	ug/kg	
99-09-2	3-Nitroaniline	ND	200	10	ug/kg	
100-01-6	4-Nitroaniline	ND	200	11	ug/kg	
91-20-3	Naphthalene	1150	41	12	ug/kg	
98-95-3	Nitrobenzene	ND	82	16	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	82	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	15	ug/kg	
85-01-8	Phenanthrene	6590 ^a	200	69	ug/kg	D
129-00-0	Pyrene	6780 ^a	200	65	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	54%	62%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-116(4-6) Lab Sample ID: JC86553-1 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/16/19 Date Received: 04/17/19 Percent Solids: 81.5
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	55%	60%	27-114%
118-79-6	2,4,6-Tribromophenol	59%	64%	19-152%
4165-60-0	Nitrobenzene-d5	60%	65%	26-134%
321-60-8	2-Fluorobiphenyl	64%	72%	39-124%
1718-51-0	Terphenyl-d14	58%	64%	36-134%

(a) Result is from Run# 2

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-115(4-6)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-2	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 81.6
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151396.D	1	04/24/19 22:46	PS	n/a	n/a	V3C6807
Run #2 ^a	3C151437.D	1	04/25/19 16:27	PS	n/a	n/a	V3C6808

Run #	Initial Weight
Run #1	3.6 g
Run #2	3.1 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	14.3	17	8.5	ug/kg	J
71-43-2	Benzene	7.9	0.85	0.64	ug/kg	J
74-97-5	Bromochloromethane	ND	8.5	0.73	ug/kg	
75-27-4	Bromodichloromethane	ND	3.4	0.76	ug/kg	
75-25-2	Bromoform	ND	8.5	0.69	ug/kg	
74-83-9	Bromomethane ^b	ND	8.5	1.7	ug/kg	UJ
78-93-3	2-Butanone (MEK)	ND	17	6.4	ug/kg	
75-15-0	Carbon disulfide	1.8	3.4	1.6	ug/kg	J
56-23-5	Carbon tetrachloride	ND	3.4	0.94	ug/kg	
108-90-7	Chlorobenzene	ND	3.4	0.60	ug/kg	
75-00-3	Chloroethane	ND	8.5	1.2	ug/kg	
67-66-3	Chloroform	ND	3.4	0.63	ug/kg	
74-87-3	Chloromethane	ND	8.5	3.3	ug/kg	
110-82-7	Cyclohexane	0.84	3.4	0.69	ug/kg	J
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.4	1.4	ug/kg	UJ
124-48-1	Dibromochloromethane	ND	3.4	0.58	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.7	0.55	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.7	0.52	ug/kg	UJ
541-73-1	1,3-Dichlorobenzene	ND	1.7	0.61	ug/kg	UJ
106-46-7	1,4-Dichlorobenzene	ND	1.7	0.59	ug/kg	UJ
75-71-8	Dichlorodifluoromethane	ND	8.5	1.1	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.7	0.66	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.7	0.80	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.7	1.1	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.7	1.6	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.7	1.1	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.4	0.69	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.4	0.60	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.4	0.56	ug/kg	
100-41-4	Ethylbenzene	ND	1.7	0.94	ug/kg	
76-13-1	Freon 113	ND	8.5	1.3	ug/kg	
591-78-6	2-Hexanone	ND	8.5	2.2	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-115(4-6)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-2	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	81.6
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.4	1.2	ug/kg	
79-20-9	Methyl Acetate	ND	8.5	2.4	ug/kg	
108-87-2	Methylcyclohexane	1.5	3.4	1.2	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.7	0.60	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	8.5	2.7	ug/kg	
75-09-2	Methylene chloride	ND	8.5	4.3	ug/kg	
100-42-5	Styrene	ND	3.4	0.98	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.4	0.67	ug/kg	UJ
127-18-4	Tetrachloroethene	ND	3.4	0.79	ug/kg	
108-88-3	Toluene	ND	1.7	0.64	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	8.5	1.7	ug/kg	UJ
120-82-1	1,2,4-Trichlorobenzene	ND	8.5	1.7	ug/kg	UJ
71-55-6	1,1,1-Trichloroethane	ND	3.4	0.73	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.4	0.58	ug/kg	
79-01-6	Trichloroethene	ND	1.7	1.3	ug/kg	
75-69-4	Trichlorofluoromethane	ND	8.5	1.2	ug/kg	
75-01-4	Vinyl chloride	ND	3.4	0.80	ug/kg	
	m,p-Xylene	ND	1.7	1.3	ug/kg	
95-47-6	o-Xylene	ND	1.7	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.7	1.0	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%	98%	75-127%
17060-07-0	1,2-Dichloroethane-D4	98%	98%	75-130%
2037-26-5	Toluene-D8	123% ^c	132% ^c	80-120%
460-00-4	4-Bromofluorobenzene	156% ^c	157% ^c	79-127%

- (a) Confirmation run.
 (b) Associated CCV outside of control limits low.
 (c) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-115(4-6)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-2	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	81.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	5P58722.D	1	04/22/19 07:18	CB	04/19/19 07:45	OP19847	E5P2780

Run #1	Initial Weight	Final Volume
Run #2	31.4 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	78	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	24	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	33	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	69	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	200	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	200	42	ug/kg	
95-48-7	2-Methylphenol	40.5	78	25	ug/kg	J
	3&4-Methylphenol	112	78	32	ug/kg	
88-75-5	2-Nitrophenol	ND	200	26	ug/kg	
100-02-7	4-Nitrophenol	ND	390	100	ug/kg	
87-86-5	Pentachlorophenol	ND	160	37	ug/kg	
108-95-2	Phenol	200	78	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	26	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	29	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	23	ug/kg	
83-32-9	Acenaphthene	179	39	13	ug/kg	
208-96-8	Acenaphthylene	309	39	20	ug/kg	
98-86-2	Acetophenone	ND	200	8.4	ug/kg	
120-12-7	Anthracene	597	39	24	ug/kg	
1912-24-9	Atrazine	ND	78	17	ug/kg	
56-55-3	Benzo(a)anthracene	2120	39	11	ug/kg	
50-32-8	Benzo(a)pyrene	2560	39	18	ug/kg	J
205-99-2	Benzo(b)fluoranthene	3160	39	17	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	1760	39	20	ug/kg	J
207-08-9	Benzo(k)fluoranthene	1040	39	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	78	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	78	9.5	ug/kg	
92-52-4	1,1'-Biphenyl	61.2	78	5.3	ug/kg	J
100-52-7	Benzaldehyde	ND	200	9.7	ug/kg	
91-58-7	2-Chloronaphthalene	ND	78	9.3	ug/kg	
106-47-8	4-Chloroaniline	ND	200	14	ug/kg	
86-74-8	Carbazole	281	78	5.7	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-115(4-6)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-2	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	81.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	78	15	ug/kg	
218-01-9	Chrysene	2260	39	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	78	8.4	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	78	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	78	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	78	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	39	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	39	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	78	33	ug/kg	
123-91-1	1,4-Dioxane	ND	39	26	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	504	39	17	ug/kg	J
132-64-9	Dibenzofuran	208	78	16	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	78	6.4	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	78	9.7	ug/kg	
84-66-2	Diethyl phthalate	ND	78	8.3	ug/kg	
131-11-3	Dimethyl phthalate	ND	78	6.9	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	78	9.1	ug/kg	
206-44-0	Fluoranthene	3190	39	17	ug/kg	
86-73-7	Fluorene	268	39	18	ug/kg	
118-74-1	Hexachlorobenzene	ND	78	9.9	ug/kg	
87-68-3	Hexachlorobutadiene	ND	39	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	390	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1880	39	18	ug/kg	J
78-59-1	Isophorone	ND	78	8.4	ug/kg	
91-57-6	2-Methylnaphthalene	279	39	8.8	ug/kg	
88-74-4	2-Nitroaniline	ND	200	9.2	ug/kg	
99-09-2	3-Nitroaniline	ND	200	9.8	ug/kg	
100-01-6	4-Nitroaniline	ND	200	10	ug/kg	
91-20-3	Naphthalene	1880	39	11	ug/kg	
98-95-3	Nitrobenzene	ND	78	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	78	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	14	ug/kg	
85-01-8	Phenanthrene	2170	39	13	ug/kg	
129-00-0	Pyrene	2890	39	12	ug/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	9.9	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	55%		23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-115(4-6)	
Lab Sample ID: JC86553-2	Date Sampled: 04/16/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8270D SW846 3546	Percent Solids: 81.6
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	54%		27-114%
118-79-6	2,4,6-Tribromophenol	55%		19-152%
4165-60-0	Nitrobenzene-d5	62%		26-134%
321-60-8	2-Fluorobiphenyl	61%		39-124%
1718-51-0	Terphenyl-d14	55%		36-134%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.2
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Report of Analysis

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Client Sample ID:	SO-DUP-0416	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-3	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	81.4
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151397.D	1	04/24/19 23:09	PS	n/a	n/a	V3C6807
Run #2 ^a	3C151438.D	1	04/25/19 16:50	PS	n/a	n/a	V3C6808

Run #	Initial Weight
Run #1	3.7 g
Run #2	4.3 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	38.8	16	8.2	ug/kg	
71-43-2	Benzene	11.2	0.82	0.62	ug/kg	
74-97-5	Bromochloromethane	ND	8.2	0.71	ug/kg	
75-27-4	Bromodichloromethane	ND	3.3	0.73	ug/kg	
75-25-2	Bromoform	ND	8.2	0.66	ug/kg	
74-83-9	Bromomethane ^b	ND	8.2	1.6	ug/kg	UJ
78-93-3	2-Butanone (MEK)	ND	16	6.1	ug/kg	
75-15-0	Carbon disulfide	1.6	3.3	1.5	ug/kg	J
56-23-5	Carbon tetrachloride	ND	3.3	0.90	ug/kg	
108-90-7	Chlorobenzene	ND	3.3	0.58	ug/kg	
75-00-3	Chloroethane	ND	8.2	1.1	ug/kg	
67-66-3	Chloroform	ND	3.3	0.61	ug/kg	
74-87-3	Chloromethane	ND	8.2	3.2	ug/kg	
110-82-7	Cyclohexane	ND	3.3	0.67	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.3	1.4	ug/kg	UJ
124-48-1	Dibromochloromethane	ND	3.3	0.56	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.6	0.53	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.6	0.50	ug/kg	UJ
541-73-1	1,3-Dichlorobenzene	ND	1.6	0.59	ug/kg	UJ
106-46-7	1,4-Dichlorobenzene	ND	1.6	0.56	ug/kg	UJ
75-71-8	Dichlorodifluoromethane	ND	8.2	1.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.6	0.63	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.6	0.77	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.6	1.1	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.6	1.6	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.6	1.1	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.3	0.67	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.3	0.58	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.3	0.54	ug/kg	
100-41-4	Ethylbenzene	ND	1.6	0.91	ug/kg	
76-13-1	Freon 113	ND	8.2	1.3	ug/kg	
591-78-6	2-Hexanone	ND	8.2	2.1	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SO-DUP-0416	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-3	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	81.4
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.3	1.1	ug/kg	
79-20-9	Methyl Acetate	ND	8.2	2.3	ug/kg	
108-87-2	Methylcyclohexane	1.6	3.3	1.2	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.6	0.58	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	8.2	2.6	ug/kg	
75-09-2	Methylene chloride	ND	8.2	4.1	ug/kg	
100-42-5	Styrene	ND	3.3	0.94	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.3	0.64	ug/kg	UJ
127-18-4	Tetrachloroethene	ND	3.3	0.76	ug/kg	
108-88-3	Toluene	ND	1.6	0.62	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	8.2	1.6	ug/kg	UJ
120-82-1	1,2,4-Trichlorobenzene	ND	8.2	1.6	ug/kg	UJ
71-55-6	1,1,1-Trichloroethane	ND	3.3	0.70	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.3	0.56	ug/kg	
79-01-6	Trichloroethene	ND	1.6	1.3	ug/kg	
75-69-4	Trichlorofluoromethane	ND	8.2	1.1	ug/kg	
75-01-4	Vinyl chloride	ND	3.3	0.77	ug/kg	
	m,p-Xylene	ND	1.6	1.2	ug/kg	
95-47-6	o-Xylene	ND	1.6	0.96	ug/kg	
1330-20-7	Xylene (total)	ND	1.6	0.96	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%	97%	75-127%
17060-07-0	1,2-Dichloroethane-D4	97%	95%	75-130%
2037-26-5	Toluene-D8	133% ^c	150% ^c	80-120%
460-00-4	4-Bromofluorobenzene	170% ^c	185% ^c	79-127%

- (a) Confirmation run.
 (b) Associated CCV outside of control limits low.
 (c) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	SO-DUP-0416	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-3	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	81.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58723.D	1	04/22/19 07:40	CB	04/19/19 07:45	OP19847	E5P2780
Run #2	5P58736.D	2	04/22/19 14:41	YC	04/19/19 07:45	OP19847	E5P2781

Run #	Initial Weight	Final Volume
Run #1	31.7 g	1.0 ml
Run #2	31.7 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	78	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	24	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	33	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	190	69	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	190	41	ug/kg	
95-48-7	2-Methylphenol	43.5	78	25	ug/kg	J
	3&4-Methylphenol	124	78	32	ug/kg	
88-75-5	2-Nitrophenol	ND	190	26	ug/kg	
100-02-7	4-Nitrophenol	ND	390	100	ug/kg	
87-86-5	Pentachlorophenol	ND	160	36	ug/kg	
108-95-2	Phenol	194	78	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	26	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	29	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	23	ug/kg	
83-32-9	Acenaphthene	231	39	13	ug/kg	
208-96-8	Acenaphthylene	329	39	20	ug/kg	
98-86-2	Acetophenone	ND	190	8.3	ug/kg	
120-12-7	Anthracene	838	39	24	ug/kg	
1912-24-9	Atrazine	ND	78	17	ug/kg	
56-55-3	Benzo(a)anthracene	3380	39	11	ug/kg	
50-32-8	Benzo(a)pyrene	4860 ^a	78	35	ug/kg	D J
205-99-2	Benzo(b)fluoranthene	6130 ^a	78	34	ug/kg	D J
191-24-2	Benzo(g,h,i)perylene	3060	39	19	ug/kg	J
207-08-9	Benzo(k)fluoranthene	1680 ^a	78	36	ug/kg	D
101-55-3	4-Bromophenyl phenyl ether	ND	78	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	78	9.5	ug/kg	
92-52-4	1,1'-Biphenyl	71.4	78	5.3	ug/kg	J
100-52-7	Benzaldehyde	ND	190	9.6	ug/kg	
91-58-7	2-Chloronaphthalene	ND	78	9.2	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	484	78	5.6	ug/kg	J

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SO-DUP-0416	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-3	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	81.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	78	15	ug/kg	
218-01-9	Chrysene	3700	39	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	78	8.3	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	78	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	78	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	78	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	39	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	39	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	78	32	ug/kg	
123-91-1	1,4-Dioxane	ND	39	26	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	844	39	17	ug/kg	J
132-64-9	Dibenzofuran	209	78	16	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	78	6.3	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	78	9.6	ug/kg	
84-66-2	Diethyl phthalate	ND	78	8.3	ug/kg	
131-11-3	Dimethyl phthalate	ND	78	6.9	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	78	9.1	ug/kg	
206-44-0	Fluoranthene	5290 ^a	78	35	ug/kg	D
86-73-7	Fluorene	293	39	18	ug/kg	
118-74-1	Hexachlorobenzene	ND	78	9.8	ug/kg	
87-68-3	Hexachlorobutadiene	ND	39	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	390	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	3260	39	18	ug/kg	J
78-59-1	Isophorone	ND	78	8.3	ug/kg	
91-57-6	2-Methylnaphthalene	303	39	8.8	ug/kg	
88-74-4	2-Nitroaniline	ND	190	9.1	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.7	ug/kg	
100-01-6	4-Nitroaniline	ND	190	10	ug/kg	
91-20-3	Naphthalene	1940	39	11	ug/kg	
98-95-3	Nitrobenzene	ND	78	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	78	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	2950	39	13	ug/kg	
129-00-0	Pyrene	4930 ^a	78	25	ug/kg	D J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.8	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	49%	51%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SO-DUP-0416 Lab Sample ID: JC86553-3 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/16/19 Date Received: 04/17/19 Percent Solids: 81.4
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	50%	55%	27-114%
118-79-6	2,4,6-Tribromophenol	55%	55%	19-152%
4165-60-0	Nitrobenzene-d5	57%	61%	26-134%
321-60-8	2-Fluorobiphenyl	61%	64%	39-124%
1718-51-0	Terphenyl-d14	54%	60%	36-134%

(a) Result is from Run# 2

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

4.3
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Report of Analysis

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Client Sample ID: S-117(4-6)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-4	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 80.3
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151398.D	1	04/24/19 23:33	PS	n/a	n/a	V3C6807
Run #2 ^a	3C151439.D	1	04/25/19 17:14	PS	n/a	n/a	V3C6808

Run #	Initial Weight
Run #1	4.5 g
Run #2	4.5 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	27.4	14	6.9	ug/kg	J
71-43-2	Benzene	ND	0.69	0.52	ug/kg	
74-97-5	Bromochloromethane	ND	6.9	0.59	ug/kg	
75-27-4	Bromodichloromethane	ND	2.7	0.61	ug/kg	
75-25-2	Bromoform	ND	6.9	0.55	ug/kg	
74-83-9	Bromomethane ^b	ND	6.9	1.4	ug/kg	UJ
78-93-3	2-Butanone (MEK)	ND	14	5.1	ug/kg	
75-15-0	Carbon disulfide	ND	2.7	1.3	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.7	0.76	ug/kg	
108-90-7	Chlorobenzene	ND	2.7	0.49	ug/kg	UJ
75-00-3	Chloroethane	ND	6.9	0.94	ug/kg	
67-66-3	Chloroform	ND	2.7	0.51	ug/kg	
74-87-3	Chloromethane	ND	6.9	2.7	ug/kg	
110-82-7	Cyclohexane	0.62	2.7	0.56	ug/kg	J
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.7	1.1	ug/kg	R
124-48-1	Dibromochloromethane	ND	2.7	0.46	ug/kg	UJ
106-93-4	1,2-Dibromoethane	ND	1.4	0.45	ug/kg	UJ
95-50-1	1,2-Dichlorobenzene	ND	1.4	0.42	ug/kg	R
541-73-1	1,3-Dichlorobenzene	ND	1.4	0.40	ug/kg	R
106-46-7	1,4-Dichlorobenzene	ND	1.4	0.47	ug/kg	R
75-71-8	Dichlorodifluoromethane	ND	6.9	0.87	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.4	0.53	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.4	0.65	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.4	0.90	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.4	1.3	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.4	0.92	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.7	0.56	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.7	0.48	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.7	0.45	ug/kg	
100-41-4	Ethylbenzene	ND	1.4	0.76	ug/kg	UJ
76-13-1	Freon 113	ND	6.9	1.0	ug/kg	
591-78-6	2-Hexanone	ND	6.9	1.7	ug/kg	UJ

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-117(4-6)	
Lab Sample ID: JC86553-4	Date Sampled: 04/16/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8260C	Percent Solids: 80.3
Project: National Grid, Philly Coke, Philadelphia, PA	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.7	0.96	ug/kg	UJ
79-20-9	Methyl Acetate	ND	6.9	1.9	ug/kg	
108-87-2	Methylcyclohexane	1.4	2.7	0.97	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.4	0.48	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.9	2.1	ug/kg	
75-09-2	Methylene chloride	ND	6.9	3.4	ug/kg	
100-42-5	Styrene	ND	2.7	0.79	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.7	0.54	ug/kg	R
127-18-4	Tetrachloroethene	ND	2.7	0.64	ug/kg	UJ
108-88-3	Toluene	ND	1.4	0.52	ug/kg	UJ
87-61-6	1,2,3-Trichlorobenzene	ND	6.9	1.4	ug/kg	R
120-82-1	1,2,4-Trichlorobenzene	ND	6.9	1.4	ug/kg	R
71-55-6	1,1,1-Trichloroethane	ND	2.7	0.59	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.7	0.47	ug/kg	UJ
79-01-6	Trichloroethene	ND	1.4	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.9	0.94	ug/kg	
75-01-4	Vinyl chloride	ND	2.7	0.64	ug/kg	
	m,p-Xylene	ND	1.4	1.0	ug/kg	UJ
95-47-6	o-Xylene	ND	1.4	0.80	ug/kg	UJ
1330-20-7	Xylene (total)	ND	1.4	0.80	ug/kg	UJ

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%	116%	75-127%
17060-07-0	1,2-Dichloroethane-D4	98%	113%	75-130%
2037-26-5	Toluene-D8	129% ^c	196% ^c	80-120%
460-00-4	4-Bromofluorobenzene	155% ^c	193% ^c	79-127%

- (a) Confirmation run.
- (b) Associated CCV outside of control limits low.
- (c) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-117(4-6)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-4	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	80.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58724.D	1	04/22/19 08:02	CB	04/19/19 07:45	OP19847	E5P2780
Run #2	5P58741.D	5	04/22/19 16:35	YC	04/19/19 07:45	OP19847	E5P2781

Run #1	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2	30.6 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	81	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	25	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	35	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	72	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	200	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	200	44	ug/kg	
95-48-7	2-Methylphenol	ND	81	26	ug/kg	
	3&4-Methylphenol	ND	81	33	ug/kg	
88-75-5	2-Nitrophenol	ND	200	27	ug/kg	
100-02-7	4-Nitrophenol	ND	410	110	ug/kg	
87-86-5	Pentachlorophenol	ND	160	38	ug/kg	
108-95-2	Phenol	84.8	81	21	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	27	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	30	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	24	ug/kg	
83-32-9	Acenaphthene	370	41	14	ug/kg	
208-96-8	Acenaphthylene	161	41	21	ug/kg	
98-86-2	Acetophenone	ND	200	8.7	ug/kg	
120-12-7	Anthracene	761	41	25	ug/kg	
1912-24-9	Atrazine	ND	81	17	ug/kg	
56-55-3	Benzo(a)anthracene	6070 ^a	200	58	ug/kg	D
50-32-8	Benzo(a)pyrene	8330 ^a	200	93	ug/kg	
205-99-2	Benzo(b)fluoranthene	9840 ^a	200	90	ug/kg	
191-24-2	Benzo(g,h,i)perylene	5520 ^a	200	100	ug/kg	
207-08-9	Benzo(k)fluoranthene	3740 ^a	200	95	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	81	16	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	81	9.9	ug/kg	
92-52-4	1,1'-Biphenyl	67.2	81	5.6	ug/kg	J
100-52-7	Benzaldehyde	ND	200	10	ug/kg	
91-58-7	2-Chloronaphthalene	ND	81	9.7	ug/kg	
106-47-8	4-Chloroaniline	ND	200	15	ug/kg	
86-74-8	Carbazole	644	81	5.9	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-117(4-6)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-4	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	80.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	81	16	ug/kg	
218-01-9	Chrysene	6590 ^a	200	64	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	81	8.7	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	81	18	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	81	15	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	81	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	41	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	41	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	81	34	ug/kg	
123-91-1	1,4-Dioxane	ND	41	27	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	1580	41	18	ug/kg	
132-64-9	Dibenzofuran	196	81	17	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	81	6.6	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	81	10	ug/kg	
84-66-2	Diethyl phthalate	ND	81	8.7	ug/kg	
131-11-3	Dimethyl phthalate	ND	81	7.2	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	81	9.5	ug/kg	
206-44-0	Fluoranthene	8510 ^a	200	91	ug/kg	D
86-73-7	Fluorene	249	41	19	ug/kg	
118-74-1	Hexachlorobenzene	ND	81	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	41	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	410	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	20	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	6060 ^a	200	95	ug/kg	D
78-59-1	Isophorone	ND	81	8.7	ug/kg	
91-57-6	2-Methylnaphthalene	305	41	9.2	ug/kg	
88-74-4	2-Nitroaniline	ND	200	9.6	ug/kg	
99-09-2	3-Nitroaniline	ND	200	10	ug/kg	
100-01-6	4-Nitroaniline	ND	200	11	ug/kg	
91-20-3	Naphthalene	765	41	11	ug/kg	
98-95-3	Nitrobenzene	ND	81	16	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	81	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	15	ug/kg	
85-01-8	Phenanthrene	2790	41	14	ug/kg	
129-00-0	Pyrene	7550 ^a	200	65	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	48%	52%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-117(4-6) Lab Sample ID: JC86553-4 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/16/19 Date Received: 04/17/19 Percent Solids: 80.3
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	48%	57%	27-114%
118-79-6	2,4,6-Tribromophenol	54%	56%	19-152%
4165-60-0	Nitrobenzene-d5	53%	59%	26-134%
321-60-8	2-Fluorobiphenyl	59%	67%	39-124%
1718-51-0	Terphenyl-d14	53%	62%	36-134%

(a) Result is from Run# 2

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

4.4
4

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Report of Analysis

Page 1 of 2

Client Sample ID:	TP-15R(5-7)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-5	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	81.2
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	I225557.D	1	04/19/19 17:56	TDN	n/a	n/a	VI9087
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	3.1 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	2100	1100	ug/kg	
71-43-2	Benzene	4180	110	79	ug/kg	
74-97-5	Bromochloromethane	ND	1100	90	ug/kg	
75-27-4	Bromodichloromethane	ND	420	93	ug/kg	
75-25-2	Bromoform	ND	1100	85	ug/kg	
74-83-9	Bromomethane	ND	1100	210	ug/kg	
78-93-3	2-Butanone (MEK)	ND	2100	790	ug/kg	
75-15-0	Carbon disulfide	ND	420	200	ug/kg	
56-23-5	Carbon tetrachloride	ND	420	120	ug/kg	
108-90-7	Chlorobenzene	ND	420	74	ug/kg	
75-00-3	Chloroethane	ND	1100	140	ug/kg	
67-66-3	Chloroform	ND	420	78	ug/kg	
74-87-3	Chloromethane	ND	1100	410	ug/kg	
110-82-7	Cyclohexane	305	420	85	ug/kg	J
96-12-8	1,2-Dibromo-3-chloropropane	ND	420	180	ug/kg	
124-48-1	Dibromochloromethane	ND	420	71	ug/kg	
106-93-4	1,2-Dibromoethane ^b	ND	210	68	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	210	64	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	210	75	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	210	72	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	1100	130	ug/kg	
75-34-3	1,1-Dichloroethane	ND	210	81	ug/kg	
107-06-2	1,2-Dichloroethane	ND	210	99	ug/kg	
75-35-4	1,1-Dichloroethene	ND	210	140	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	210	200	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	210	140	ug/kg	
78-87-5	1,2-Dichloropropane	ND	420	86	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	420	74	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	420	69	ug/kg	
100-41-4	Ethylbenzene	ND	210	120	ug/kg	
76-13-1	Freon 113	ND	1100	160	ug/kg	
591-78-6	2-Hexanone	ND	1100	270	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TP-15R(5-7)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-5	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	81.2
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	420	150	ug/kg	
79-20-9	Methyl Acetate	ND	1100	290	ug/kg	
108-87-2	Methylcyclohexane	895	420	150	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	210	74	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	1100	330	ug/kg	
75-09-2	Methylene chloride	ND	1100	530	ug/kg	
100-42-5	Styrene	ND	420	120	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	420	82	ug/kg	
127-18-4	Tetrachloroethene	ND	420	97	ug/kg	
108-88-3	Toluene	505	210	79	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	1100	210	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	1100	210	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	420	90	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	420	72	ug/kg	
79-01-6	Trichloroethene	ND	210	160	ug/kg	
75-69-4	Trichlorofluoromethane	ND	1100	140	ug/kg	
75-01-4	Vinyl chloride	ND	420	99	ug/kg	
	m,p-Xylene	509	210	160	ug/kg	
95-47-6	o-Xylene	312	210	120	ug/kg	
1330-20-7	Xylene (total)	821	210	120	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		75-127%
17060-07-0	1,2-Dichloroethane-D4	111%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	109%		79-127%

- (a) Diluted due to high concentration of non-target compound.
(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TP-15R(5-7)	
Lab Sample ID: JC86553-5	Date Sampled: 04/16/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8270D SW846 3546	Percent Solids: 81.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58725.D	1	04/22/19 08:25	CB	04/19/19 07:45	OP19847	E5P2780
Run #2	5P58743.D	10	04/22/19 17:20	YC	04/19/19 07:45	OP19847	E5P2781
Run #3	5P58745.D	50	04/22/19 18:05	YC	04/19/19 07:45	OP19847	E5P2781

Run #	Initial Weight	Final Volume
Run #1	15.6 g	1.0 ml
Run #2	15.6 g	1.0 ml
Run #3	15.6 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	160	39	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	390	48	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	390	67	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	495	390	140	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	390	300	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	390	84	ug/kg	
95-48-7	2-Methylphenol	233	160	50	ug/kg	
	3&4-Methylphenol	635	160	65	ug/kg	
88-75-5	2-Nitrophenol	ND	390	52	ug/kg	
100-02-7	4-Nitrophenol	ND	790	210	ug/kg	
87-86-5	Pentachlorophenol	ND	320	74	ug/kg	
108-95-2	Phenol	682	160	41	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	390	52	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	390	59	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	390	47	ug/kg	
83-32-9	Acenaphthene	59000 ^b	790	270	ug/kg	D
208-96-8	Acenaphthylene	23700 ^b	790	400	ug/kg	D
98-86-2	Acetophenone	ND	390	17	ug/kg	
120-12-7	Anthracene	53000 ^b	790	480	ug/kg	D
1912-24-9	Atrazine	ND	160	34	ug/kg	
56-55-3	Benzo(a)anthracene	67400 ^b	790	220	ug/kg	D
50-32-8	Benzo(a)pyrene	61500 ^b	790	360	ug/kg	
205-99-2	Benzo(b)fluoranthene	73600 ^b	790	350	ug/kg	
191-24-2	Benzo(g,h,i)perylene	36400 ^b	790	390	ug/kg	
207-08-9	Benzo(k)fluoranthene	23500 ^b	790	370	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	160	30	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	160	19	ug/kg	
92-52-4	1,1'-Biphenyl	13300 ^b	1600	110	ug/kg	
100-52-7	Benzaldehyde	ND	390	20	ug/kg	
91-58-7	2-Chloronaphthalene	ND	160	19	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.5
4

Report of Analysis

Client Sample ID:	TP-15R(5-7)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-5	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	81.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	390	28	ug/kg	
86-74-8	Carbazole	28100 ^b	1600	110	ug/kg	D
105-60-2	Caprolactam	ND	160	31	ug/kg	
218-01-9	Chrysene	57300 ^b	790	250	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	160	17	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	160	34	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	160	28	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	160	26	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	79	24	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	79	40	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	160	66	ug/kg	
123-91-1	1,4-Dioxane	ND	79	52	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	11400 ^b	790	350	ug/kg	D
132-64-9	Dibenzofuran	56000 ^b	1600	320	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	160	13	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	160	20	ug/kg	
84-66-2	Diethyl phthalate	ND	160	17	ug/kg	
131-11-3	Dimethyl phthalate	ND	160	14	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	160	18	ug/kg	
206-44-0	Fluoranthene	198000 ^c	3900	1800	ug/kg	D
86-73-7	Fluorene	105000 ^c	3900	1800	ug/kg	D
118-74-1	Hexachlorobenzene	ND	160	20	ug/kg	
87-68-3	Hexachlorobutadiene	ND	79	32	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	790	31	ug/kg	
67-72-1	Hexachloroethane	ND	390	39	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	40500 ^b	790	370	ug/kg	D
78-59-1	Isophorone	ND	160	17	ug/kg	
91-57-6	2-Methylnaphthalene	33200 ^b	790	180	ug/kg	D
88-74-4	2-Nitroaniline	ND	390	19	ug/kg	
99-09-2	3-Nitroaniline	ND	390	20	ug/kg	
100-01-6	4-Nitroaniline	ND	390	20	ug/kg	
91-20-3	Naphthalene	255000 ^c	3900	1100	ug/kg	D
98-95-3	Nitrobenzene	ND	160	30	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	160	23	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	390	29	ug/kg	
85-01-8	Phenanthrene	275000 ^c	3900	1300	ug/kg	D
129-00-0	Pyrene	136000 ^c	3900	1300	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	390	20	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TP-15R(5-7)	
Lab Sample ID: JC86553-5	Date Sampled: 04/16/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8270D SW846 3546	Percent Solids: 81.2
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	111%	55%	65%	23-115%
4165-62-2	Phenol-d5	111%	64%	67%	27-114%
118-79-6	2,4,6-Tribromophenol	130%	61%	67%	19-152%
4165-60-0	Nitrobenzene-d5	138% ^d	75%	71%	26-134%
321-60-8	2-Fluorobiphenyl	113%	79%	73%	39-124%
1718-51-0	Terphenyl-d14	123%	73%	74%	36-134%

(a) Estimated value, due to corresponding internal standard failing low.

(b) Result is from Run# 2

(c) Result is from Run# 3

(d) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TP-15R(16.5-12.5)	
Lab Sample ID: JC86553-6	Date Sampled: 04/16/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8260C	Percent Solids: 74.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151399.D	1	04/24/19 23:56	PS	n/a	n/a	V3C6807
Run #2							

Run #1	Initial Weight
Run #1	5.5 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	19.1	12	6.1	ug/kg	
71-43-2	Benzene	ND	0.61	0.46	ug/kg	
74-97-5	Bromochloromethane	ND	6.1	0.53	ug/kg	
75-27-4	Bromodichloromethane	ND	2.5	0.54	ug/kg	
75-25-2	Bromoform	ND	6.1	0.49	ug/kg	
74-83-9	Bromomethane ^a	ND	6.1	1.2	ug/kg	UJ
78-93-3	2-Butanone (MEK)	ND	12	4.6	ug/kg	
75-15-0	Carbon disulfide	ND	2.5	1.1	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.5	0.67	ug/kg	
108-90-7	Chlorobenzene	ND	2.5	0.43	ug/kg	
75-00-3	Chloroethane	ND	6.1	0.84	ug/kg	
67-66-3	Chloroform	ND	2.5	0.46	ug/kg	
74-87-3	Chloromethane	ND	6.1	2.4	ug/kg	
110-82-7	Cyclohexane	ND	2.5	0.50	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.5	1.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.5	0.41	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.2	0.40	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.2	0.37	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.2	0.44	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.2	0.42	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.1	0.78	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.2	0.47	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.2	0.58	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.2	0.80	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.2	1.2	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.2	0.82	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.5	0.50	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.5	0.43	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.5	0.40	ug/kg	
100-41-4	Ethylbenzene	ND	1.2	0.68	ug/kg	
76-13-1	Freon 113	ND	6.1	0.93	ug/kg	
591-78-6	2-Hexanone	ND	6.1	1.6	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TP-15R(16.5-12.5)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-6	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	74.5
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.5	0.86	ug/kg	
79-20-9	Methyl Acetate	ND	6.1	1.7	ug/kg	
108-87-2	Methylcyclohexane	ND	2.5	0.87	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.2	0.43	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.1	1.9	ug/kg	
75-09-2	Methylene chloride	ND	6.1	3.1	ug/kg	
100-42-5	Styrene	ND	2.5	0.71	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.5	0.48	ug/kg	
127-18-4	Tetrachloroethene	ND	2.5	0.57	ug/kg	
108-88-3	Toluene	ND	1.2	0.46	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.1	1.2	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.1	1.2	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.5	0.52	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.5	0.42	ug/kg	
79-01-6	Trichloroethene	ND	1.2	0.93	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.1	0.84	ug/kg	
75-01-4	Vinyl chloride	ND	2.5	0.58	ug/kg	
	m,p-Xylene	ND	1.2	0.92	ug/kg	
95-47-6	o-Xylene	ND	1.2	0.72	ug/kg	
1330-20-7	Xylene (total)	ND	1.2	0.72	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		75-127%
17060-07-0	1,2-Dichloroethane-D4	101%		75-130%
2037-26-5	Toluene-D8	107%		80-120%
460-00-4	4-Bromofluorobenzene	114%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TP-15R(16.5-12.5)	
Lab Sample ID: JC86553-6	Date Sampled: 04/16/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8270D SW846 3546	Percent Solids: 74.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	5P59068.D	2	04/30/19 16:04	CC	04/19/19 07:45	OP19847	E5P2792
Run #2							

Run #	Initial Weight	Final Volume
Run #1	31.8 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	170	42	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	420	52	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	420	72	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	420	150	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	420	320	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	420	90	ug/kg	
95-48-7	2-Methylphenol	ND	170	54	ug/kg	
	3&4-Methylphenol	ND	170	69	ug/kg	
88-75-5	2-Nitrophenol	ND	420	56	ug/kg	
100-02-7	4-Nitrophenol	ND	840	230	ug/kg	
87-86-5	Pentachlorophenol	ND	340	79	ug/kg	
108-95-2	Phenol	ND	170	44	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	420	56	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	420	63	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	420	50	ug/kg	
83-32-9	Acenaphthene	148	84	29	ug/kg	
208-96-8	Acenaphthylene	46.9	84	43	ug/kg	J
98-86-2	Acetophenone	ND	420	18	ug/kg	
120-12-7	Anthracene	202	84	52	ug/kg	
1912-24-9	Atrazine	ND	170	36	ug/kg	
56-55-3	Benzo(a)anthracene	446	84	24	ug/kg	
50-32-8	Benzo(a)pyrene	482	84	38	ug/kg	
205-99-2	Benzo(b)fluoranthene	574	84	37	ug/kg	
191-24-2	Benzo(g,h,i)perylene	270	84	42	ug/kg	
207-08-9	Benzo(k)fluoranthene	201	84	39	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	170	33	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	170	21	ug/kg	
92-52-4	1,1'-Biphenyl	18.0	170	12	ug/kg	J
100-52-7	Benzaldehyde	ND	420	21	ug/kg	
91-58-7	2-Chloronaphthalene	ND	170	20	ug/kg	
106-47-8	4-Chloroaniline	ND	420	30	ug/kg	
86-74-8	Carbazole	105	170	12	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TP-15R(16.5-12.5)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-6	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	74.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	170	33	ug/kg	
218-01-9	Chrysene	429	84	27	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	170	18	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	170	36	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	170	30	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	170	27	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	84	26	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	84	42	ug/kg	
91-94-1	3,3'-Dichlorobenzidine ^b	ND	170	70	ug/kg	UJ
123-91-1	1,4-Dioxane	ND	84	56	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	81.1	84	37	ug/kg	J
132-64-9	Dibenzofuran	69.5	170	34	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	170	14	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	170	21	ug/kg	
84-66-2	Diethyl phthalate	ND	170	18	ug/kg	
131-11-3	Dimethyl phthalate	ND	170	15	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	170	20	ug/kg	
206-44-0	Fluoranthene	732	84	38	ug/kg	
86-73-7	Fluorene	122	84	39	ug/kg	
118-74-1	Hexachlorobenzene	ND	170	21	ug/kg	
87-68-3	Hexachlorobutadiene	ND	84	34	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	840	34	ug/kg	
67-72-1	Hexachloroethane	ND	420	42	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	298	84	40	ug/kg	
78-59-1	Isophorone	ND	170	18	ug/kg	
91-57-6	2-Methylnaphthalene	42.1	84	19	ug/kg	J
88-74-4	2-Nitroaniline	ND	420	20	ug/kg	
99-09-2	3-Nitroaniline	ND	420	21	ug/kg	
100-01-6	4-Nitroaniline	ND	420	22	ug/kg	
91-20-3	Naphthalene	316	84	24	ug/kg	
98-95-3	Nitrobenzene	ND	170	33	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	170	24	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	420	31	ug/kg	
85-01-8	Phenanthrene	688	84	28	ug/kg	
129-00-0	Pyrene	778	84	27	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	420	21	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	67%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TP-15R(16.5-12.5)		Date Sampled: 04/16/19
Lab Sample ID: JC86553-6		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 74.5
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	70%		27-114%
118-79-6	2,4,6-Tribromophenol	63%		19-152%
4165-60-0	Nitrobenzene-d5	77%		26-134%
321-60-8	2-Fluorobiphenyl	77%		39-124%
1718-51-0	Terphenyl-d14	74%		36-134%

- (a) Dilution required due to matrix interference.
- (b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.6
4

Report of Analysis

Client Sample ID: S-118(4-6)		
Lab Sample ID: JC86553-7		Date Sampled: 04/16/19
Matrix: SO - Soil		Date Received: 04/17/19
Method: SW846 8260C		Percent Solids: 87.3
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	3C151403.D	1	04/25/19 01:28	PS	n/a	n/a	V3C6807

Run #1	Initial Weight
Run #2	3.5 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	36.6	16	8.2	ug/kg	
71-43-2	Benzene	2.4	0.82	0.62	ug/kg	
74-97-5	Bromochloromethane	ND	8.2	0.70	ug/kg	
75-27-4	Bromodichloromethane	ND	3.3	0.72	ug/kg	
75-25-2	Bromoform	ND	8.2	0.66	ug/kg	
74-83-9	Bromomethane ^a	ND	8.2	1.6	ug/kg	UJ
78-93-3	2-Butanone (MEK)	ND	16	6.1	ug/kg	
75-15-0	Carbon disulfide	4.2	3.3	1.5	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.3	0.90	ug/kg	
108-90-7	Chlorobenzene	ND	3.3	0.58	ug/kg	
75-00-3	Chloroethane	ND	8.2	1.1	ug/kg	
67-66-3	Chloroform	ND	3.3	0.61	ug/kg	
74-87-3	Chloromethane	ND	8.2	3.2	ug/kg	
110-82-7	Cyclohexane	1.1	3.3	0.66	ug/kg	J
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.3	1.4	ug/kg	
124-48-1	Dibromochloromethane	ND	3.3	0.55	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.6	0.53	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.6	0.50	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.6	0.59	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.6	0.56	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	8.2	1.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.6	0.63	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.6	0.77	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.6	1.1	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.6	1.6	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.6	1.1	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.3	0.66	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.3	0.57	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.3	0.53	ug/kg	
100-41-4	Ethylbenzene	ND	1.6	0.90	ug/kg	
76-13-1	Freon 113	ND	8.2	1.2	ug/kg	
591-78-6	2-Hexanone	ND	8.2	2.1	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-118(4-6)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-7	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	87.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.3	1.1	ug/kg	
79-20-9	Methyl Acetate	ND	8.2	2.3	ug/kg	
108-87-2	Methylcyclohexane	2.1	3.3	1.2	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.6	0.57	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	8.2	2.5	ug/kg	
75-09-2	Methylene chloride	ND	8.2	4.1	ug/kg	
100-42-5	Styrene	ND	3.3	0.94	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.3	0.64	ug/kg	
127-18-4	Tetrachloroethene	ND	3.3	0.75	ug/kg	
108-88-3	Toluene	0.90	1.6	0.61	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	8.2	1.6	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	8.2	1.6	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.3	0.70	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.3	0.56	ug/kg	
79-01-6	Trichloroethene	ND	1.6	1.2	ug/kg	
75-69-4	Trichlorofluoromethane	ND	8.2	1.1	ug/kg	
75-01-4	Vinyl chloride	ND	3.3	0.77	ug/kg	
	m,p-Xylene	ND	1.6	1.2	ug/kg	
95-47-6	o-Xylene	ND	1.6	0.95	ug/kg	
1330-20-7	Xylene (total)	ND	1.6	0.95	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		75-127%
17060-07-0	1,2-Dichloroethane-D4	101%		75-130%
2037-26-5	Toluene-D8	105%		80-120%
460-00-4	4-Bromofluorobenzene	110%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-118(4-6)	
Lab Sample ID: JC86553-7	Date Sampled: 04/16/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8270D SW846 3546	Percent Solids: 87.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58726.D	1	04/22/19 08:47	CB	04/19/19 07:45	OP19847	E5P2780
Run #2	5P58744.D	10	04/22/19 17:42	YC	04/19/19 07:45	OP19847	E5P2781
Run #3	5P58746.D	50	04/22/19 18:28	YC	04/19/19 07:45	OP19847	E5P2781

Run #	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2	30.0 g	1.0 ml
Run #3	30.0 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	76	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	33	ug/kg	
105-67-9	2,4-Dimethylphenol	77.3	190	68	ug/kg	J
51-28-5	2,4-Dinitrophenol	ND	190	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	190	41	ug/kg	
95-48-7	2-Methylphenol	49.4	76	24	ug/kg	J
	3&4-Methylphenol	181	76	31	ug/kg	
88-75-5	2-Nitrophenol	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol	ND	380	100	ug/kg	
87-86-5	Pentachlorophenol	ND	150	36	ug/kg	
108-95-2	Phenol	214	76	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	29	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	23	ug/kg	
83-32-9	Acenaphthene	3230	38	13	ug/kg	
208-96-8	Acenaphthylene	20500 ^a	380	190	ug/kg	D
98-86-2	Acetophenone	ND	190	8.2	ug/kg	
120-12-7	Anthracene	28100 ^a	380	230	ug/kg	D
1912-24-9	Atrazine	ND	76	16	ug/kg	
56-55-3	Benzo(a)anthracene	48600 ^b	1900	540	ug/kg	D
50-32-8	Benzo(a)pyrene	37200 ^a	380	170	ug/kg	
205-99-2	Benzo(b)fluoranthene	55700 ^b	1900	840	ug/kg	
191-24-2	Benzo(g,h,i)perylene	23400 ^a	380	190	ug/kg	
207-08-9	Benzo(k)fluoranthene	18300 ^b	1900	890	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	76	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	76	9.3	ug/kg	
92-52-4	1,1'-Biphenyl	1570	76	5.2	ug/kg	
100-52-7	Benzaldehyde	ND	190	9.5	ug/kg	
91-58-7	2-Chloronaphthalene	ND	76	9.1	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.7
4

Report of Analysis

Client Sample ID:	S-118(4-6)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-7	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	87.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	9670 ^a	760	55	ug/kg	D
105-60-2	Caprolactam	ND	76	15	ug/kg	
218-01-9	Chrysene	42400 ^b	1900	600	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	76	8.2	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	76	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	76	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	76	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	38	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	38	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	76	32	ug/kg	
123-91-1	1,4-Dioxane	ND	38	25	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	7500 ^a	380	170	ug/kg	D
132-64-9	Dibenzofuran	14400 ^a	760	160	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	76	6.2	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	76	9.5	ug/kg	
84-66-2	Diethyl phthalate	ND	76	8.1	ug/kg	
131-11-3	Dimethyl phthalate	ND	76	6.8	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	76	8.9	ug/kg	
206-44-0	Fluoranthene	120000 ^b	1900	850	ug/kg	D
86-73-7	Fluorene	29100 ^a	380	180	ug/kg	D
118-74-1	Hexachlorobenzene	ND	76	9.7	ug/kg	
87-68-3	Hexachlorobutadiene	ND	38	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	380	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	26300 ^a	380	180	ug/kg	D
78-59-1	Isophorone	ND	76	8.2	ug/kg	
91-57-6	2-Methylnaphthalene	2440	38	8.6	ug/kg	
88-74-4	2-Nitroaniline	ND	190	9.0	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.5	ug/kg	
100-01-6	4-Nitroaniline	ND	190	9.9	ug/kg	
91-20-3	Naphthalene	6590 ^a	380	110	ug/kg	D
98-95-3	Nitrobenzene	ND	76	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	76	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	107000 ^b	1900	640	ug/kg	D
129-00-0	Pyrene	83400 ^b	1900	610	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.7	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-118(4-6)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-7	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 87.3
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	58%	49%	51%	23-115%
4165-62-2	Phenol-d5	61%	57%	57%	27-114%
118-79-6	2,4,6-Tribromophenol	65%	52%	0% ^c	19-152%
4165-60-0	Nitrobenzene-d5	64%	60%	60%	26-134%
321-60-8	2-Fluorobiphenyl	65%	74%	69%	39-124%
1718-51-0	Terphenyl-d14	62%	69%	65%	36-134%

- (a) Result is from Run# 2
 (b) Result is from Run# 3
 (c) Outside control limits due to dilution.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-49R(8-10)		
Lab Sample ID: JC86553-8		Date Sampled: 04/16/19
Matrix: SO - Soil		Date Received: 04/17/19
Method: SW846 8260C		Percent Solids: 79.6
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151404.D	1	04/25/19 01:52	PS	n/a	n/a	V3C6807
Run #2							

Run #1	Initial Weight
Run #1	5.8 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	28.0	11	5.4	ug/kg	
71-43-2	Benzene	3.4	0.54	0.41	ug/kg	
74-97-5	Bromochloromethane	ND	5.4	0.46	ug/kg	
75-27-4	Bromodichloromethane	ND	2.2	0.48	ug/kg	
75-25-2	Bromoform	ND	5.4	0.44	ug/kg	
74-83-9	Bromomethane ^a	ND	5.4	1.1	ug/kg	UJ
78-93-3	2-Butanone (MEK)	ND	11	4.0	ug/kg	
75-15-0	Carbon disulfide	8.0	2.2	1.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.2	0.59	ug/kg	
108-90-7	Chlorobenzene	ND	2.2	0.38	ug/kg	
75-00-3	Chloroethane	ND	5.4	0.74	ug/kg	
67-66-3	Chloroform	ND	2.2	0.40	ug/kg	
74-87-3	Chloromethane	ND	5.4	2.1	ug/kg	
110-82-7	Cyclohexane	ND	2.2	0.44	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.2	0.90	ug/kg	
124-48-1	Dibromochloromethane	ND	2.2	0.37	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.1	0.35	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.1	0.33	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.1	0.39	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.1	0.37	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.4	0.69	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.1	0.42	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.1	0.51	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.1	0.71	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.1	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.1	0.72	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.2	0.44	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.2	0.38	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.2	0.35	ug/kg	
100-41-4	Ethylbenzene	ND	1.1	0.60	ug/kg	
76-13-1	Freon 113	ND	5.4	0.82	ug/kg	
591-78-6	2-Hexanone	ND	5.4	1.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-49R(8-10)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-8	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	79.6
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	1.3	2.2	0.75	ug/kg	J
79-20-9	Methyl Acetate	ND	5.4	1.5	ug/kg	
108-87-2	Methylcyclohexane	ND	2.2	0.76	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.1	0.38	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.4	1.7	ug/kg	
75-09-2	Methylene chloride	ND	5.4	2.7	ug/kg	
100-42-5	Styrene	ND	2.2	0.62	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.2	0.42	ug/kg	
127-18-4	Tetrachloroethene	ND	2.2	0.50	ug/kg	
108-88-3	Toluene	ND	1.1	0.41	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.4	1.1	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.4	1.1	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.2	0.46	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.2	0.37	ug/kg	
79-01-6	Trichloroethene	ND	1.1	0.82	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.4	0.74	ug/kg	
75-01-4	Vinyl chloride	ND	2.2	0.51	ug/kg	
	m,p-Xylene	ND	1.1	0.81	ug/kg	
95-47-6	o-Xylene	ND	1.1	0.63	ug/kg	
1330-20-7	Xylene (total)	ND	1.1	0.63	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		75-127%
17060-07-0	1,2-Dichloroethane-D4	101%		75-130%
2037-26-5	Toluene-D8	105%		80-120%
460-00-4	4-Bromofluorobenzene	111%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-49R(8-10)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-8	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	79.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58714.D	1	04/22/19 04:21	CB	04/19/19 07:45	OP19847	E5P2780
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	31.8 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	79	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	24	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	34	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	70	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	200	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	200	42	ug/kg	
95-48-7	2-Methylphenol	47.8	79	25	ug/kg	J
	3&4-Methylphenol	105	79	32	ug/kg	
88-75-5	2-Nitrophenol	ND	200	26	ug/kg	
100-02-7	4-Nitrophenol	ND	400	110	ug/kg	
87-86-5	Pentachlorophenol	ND	160	37	ug/kg	
108-95-2	Phenol	145	79	21	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	26	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	30	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	24	ug/kg	
83-32-9	Acenaphthene	470	40	14	ug/kg	
208-96-8	Acenaphthylene	87.1	40	20	ug/kg	
98-86-2	Acetophenone	ND	200	8.5	ug/kg	
120-12-7	Anthracene	320	40	24	ug/kg	
1912-24-9	Atrazine	ND	79	17	ug/kg	
56-55-3	Benzo(a)anthracene	398	40	11	ug/kg	
50-32-8	Benzo(a)pyrene	468	40	18	ug/kg	
205-99-2	Benzo(b)fluoranthene	426	40	17	ug/kg	
191-24-2	Benzo(g,h,i)perylene	264	40	20	ug/kg	
207-08-9	Benzo(k)fluoranthene	176	40	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	79	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	79	9.6	ug/kg	
92-52-4	1,1'-Biphenyl	17.8	79	5.4	ug/kg	J
100-52-7	Benzaldehyde	ND	200	9.8	ug/kg	
91-58-7	2-Chloronaphthalene	ND	79	9.4	ug/kg	
106-47-8	4-Chloroaniline	ND	200	14	ug/kg	
86-74-8	Carbazole	47.9	79	5.7	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-49R(8-10)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-8	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	79.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	79	16	ug/kg	
218-01-9	Chrysene	387	40	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	79	8.5	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	79	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	79	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	79	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	40	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	40	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	79	33	ug/kg	
123-91-1	1,4-Dioxane	ND	40	26	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	59.2	40	17	ug/kg	
132-64-9	Dibenzofuran	77.3	79	16	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	79	6.4	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	79	9.8	ug/kg	
84-66-2	Diethyl phthalate	ND	79	8.4	ug/kg	
131-11-3	Dimethyl phthalate	ND	79	7.0	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	79	9.2	ug/kg	
206-44-0	Fluoranthene	576	40	18	ug/kg	
86-73-7	Fluorene	327	40	18	ug/kg	
118-74-1	Hexachlorobenzene	ND	79	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	40	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	400	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	20	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	259	40	19	ug/kg	
78-59-1	Isophorone	ND	79	8.5	ug/kg	
91-57-6	2-Methylnaphthalene	32.2	40	8.9	ug/kg	J
88-74-4	2-Nitroaniline	ND	200	9.3	ug/kg	
99-09-2	3-Nitroaniline	ND	200	9.9	ug/kg	
100-01-6	4-Nitroaniline	ND	200	10	ug/kg	
91-20-3	Naphthalene	159	40	11	ug/kg	
98-95-3	Nitrobenzene	ND	79	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	79	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	14	ug/kg	
85-01-8	Phenanthrene	845	40	13	ug/kg	
129-00-0	Pyrene	719	40	13	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	41%		23-115%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.8
4

Report of Analysis

Client Sample ID: PCTP-49R(8-10)		Date Sampled: 04/16/19
Lab Sample ID: JC86553-8		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 79.6
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	43%		27-114%
118-79-6	2,4,6-Tribromophenol	44%		19-152%
4165-60-0	Nitrobenzene-d5	44%		26-134%
321-60-8	2-Fluorobiphenyl	48%		39-124%
1718-51-0	Terphenyl-d14	43%		36-134%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.8
4

Report of Analysis

Client Sample ID:	PCTP-49R(10-11)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-9	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	62.8
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	I225561.D	1	04/19/19 19:53	TDN	n/a	n/a	VI9087
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.5 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	1700	870	ug/kg	
71-43-2	Benzene	563	87	66	ug/kg	
74-97-5	Bromochloromethane	ND	870	75	ug/kg	
75-27-4	Bromodichloromethane	ND	350	77	ug/kg	
75-25-2	Bromoform	ND	870	70	ug/kg	
74-83-9	Bromomethane	ND	870	170	ug/kg	
78-93-3	2-Butanone (MEK)	ND	1700	650	ug/kg	
75-15-0	Carbon disulfide	6610	350	160	ug/kg	
56-23-5	Carbon tetrachloride	ND	350	96	ug/kg	
108-90-7	Chlorobenzene	ND	350	62	ug/kg	
75-00-3	Chloroethane	ND	870	120	ug/kg	
67-66-3	Chloroform	ND	350	65	ug/kg	
74-87-3	Chloromethane	ND	870	340	ug/kg	
110-82-7	Cyclohexane	ND	350	71	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	350	150	ug/kg	
124-48-1	Dibromochloromethane	ND	350	59	ug/kg	
106-93-4	1,2-Dibromoethane ^b	ND	170	57	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	170	53	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	170	63	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	170	60	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	870	110	ug/kg	
75-34-3	1,1-Dichloroethane	ND	170	67	ug/kg	
107-06-2	1,2-Dichloroethane	ND	170	82	ug/kg	
75-35-4	1,1-Dichloroethene	ND	170	110	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	170	170	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	170	120	ug/kg	
78-87-5	1,2-Dichloropropane	ND	350	71	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	350	61	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	350	57	ug/kg	
100-41-4	Ethylbenzene	1850	170	96	ug/kg	
76-13-1	Freon 113	ND	870	130	ug/kg	
591-78-6	2-Hexanone	ND	870	220	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-49R(10-11)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-9	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	62.8
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	3030	350	120	ug/kg	
79-20-9	Methyl Acetate	ND	870	240	ug/kg	
108-87-2	Methylcyclohexane	778	350	120	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	170	61	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	870	270	ug/kg	
75-09-2	Methylene chloride	ND	870	440	ug/kg	
100-42-5	Styrene	ND	350	100	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	350	68	ug/kg	
127-18-4	Tetrachloroethene	ND	350	81	ug/kg	
108-88-3	Toluene	406	170	66	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	870	170	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	870	170	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	350	74	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	350	60	ug/kg	
79-01-6	Trichloroethene	ND	170	130	ug/kg	
75-69-4	Trichlorofluoromethane	ND	870	120	ug/kg	
75-01-4	Vinyl chloride	ND	350	82	ug/kg	
	m,p-Xylene	847	170	130	ug/kg	
95-47-6	o-Xylene	756	170	100	ug/kg	
1330-20-7	Xylene (total)	1600	170	100	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		75-127%
17060-07-0	1,2-Dichloroethane-D4	103%		75-130%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	113%		79-127%

- (a) Diluted due to high concentration of non-target compound.
(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 3

Client Sample ID: PCTP-49R(10-11)	
Lab Sample ID: JC86553-9	Date Sampled: 04/16/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8270D SW846 3546	Percent Solids: 62.8
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58715.D	1	04/22/19 04:43	CB	04/19/19 07:45	OP19847	E5P2780
Run #2	5P58739.D	5	04/22/19 15:49	YC	04/19/19 07:45	OP19847	E5P2781

Run #	Initial Weight	Final Volume
Run #1	31.8 g	1.0 ml
Run #2	31.8 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	100	25	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	250	31	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	250	43	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	250	89	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	250	190	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	250	54	ug/kg	
95-48-7	2-Methylphenol	72.7	100	32	ug/kg	J
	3&4-Methylphenol	250	100	41	ug/kg	
88-75-5	2-Nitrophenol	ND	250	33	ug/kg	
100-02-7	4-Nitrophenol	ND	500	130	ug/kg	
87-86-5	Pentachlorophenol	ND	200	47	ug/kg	
108-95-2	Phenol	293	100	26	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	250	33	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	250	38	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	250	30	ug/kg	
83-32-9	Acenaphthene	3880	50	17	ug/kg	
208-96-8	Acenaphthylene	219	50	25	ug/kg	
98-86-2	Acetophenone	ND	250	11	ug/kg	
120-12-7	Anthracene	1790	50	31	ug/kg	
1912-24-9	Atrazine	ND	100	21	ug/kg	
56-55-3	Benzo(a)anthracene	951	50	14	ug/kg	
50-32-8	Benzo(a)pyrene	917	50	23	ug/kg	
205-99-2	Benzo(b)fluoranthene	944	50	22	ug/kg	
191-24-2	Benzo(g,h,i)perylene	490	50	25	ug/kg	
207-08-9	Benzo(k)fluoranthene	327	50	23	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	100	19	ug/kg	
85-68-7	Butyl benzyl phthalate	58.6	100	12	ug/kg	J
92-52-4	1,1'-Biphenyl	878	100	6.9	ug/kg	
100-52-7	Benzaldehyde	ND	250	12	ug/kg	
91-58-7	2-Chloronaphthalene	ND	100	12	ug/kg	
106-47-8	4-Chloroaniline	ND	250	18	ug/kg	
86-74-8	Carbazole	739	100	7.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-49R(10-11)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-9	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	62.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	100	20	ug/kg	
218-01-9	Chrysene	1060	50	16	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	100	11	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	100	22	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	100	18	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	100	16	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	50	16	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	50	25	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	100	42	ug/kg	
123-91-1	1,4-Dioxane	ND	50	33	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	105	50	22	ug/kg	
132-64-9	Dibenzofuran	1910	100	20	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	100	8.2	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	100	12	ug/kg	
84-66-2	Diethyl phthalate	ND	100	11	ug/kg	
131-11-3	Dimethyl phthalate	ND	100	8.9	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	100	12	ug/kg	
206-44-0	Fluoranthene	2820	50	22	ug/kg	
86-73-7	Fluorene	2910	50	23	ug/kg	
118-74-1	Hexachlorobenzene	ND	100	13	ug/kg	
87-68-3	Hexachlorobutadiene	ND	50	20	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	500	20	ug/kg	
67-72-1	Hexachloroethane	ND	250	25	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	482	50	23	ug/kg	
78-59-1	Isophorone	ND	100	11	ug/kg	
91-57-6	2-Methylnaphthalene	957	50	11	ug/kg	
88-74-4	2-Nitroaniline	ND	250	12	ug/kg	
99-09-2	3-Nitroaniline	ND	250	13	ug/kg	
100-01-6	4-Nitroaniline	ND	250	13	ug/kg	
91-20-3	Naphthalene	2020	50	14	ug/kg	
98-95-3	Nitrobenzene	ND	100	19	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	100	14	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	250	18	ug/kg	
85-01-8	Phenanthrene	9200 ^a	250	84	ug/kg	D
129-00-0	Pyrene	2580	50	16	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	250	13	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	52%	47%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-49R(10-11) Lab Sample ID: JC86553-9 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/16/19 Date Received: 04/17/19 Percent Solids: 62.8
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	52%	54%	27-114%
118-79-6	2,4,6-Tribromophenol	51%	63%	19-152%
4165-60-0	Nitrobenzene-d5	52%	59%	26-134%
321-60-8	2-Fluorobiphenyl	59%	66%	39-124%
1718-51-0	Terphenyl-d14	51%	58%	36-134%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 2

Client Sample ID:	PSSTP-10R(1-2)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-10	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	88.2
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151405.D	1	04/25/19 02:15	PS	n/a	n/a	V3C6807
Run #2							

Run #	Initial Weight
Run #1	4.5 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	394	13	6.3	ug/kg	
71-43-2	Benzene	ND	0.63	0.47	ug/kg	
74-97-5	Bromochloromethane	ND	6.3	0.54	ug/kg	
75-27-4	Bromodichloromethane	ND	2.5	0.55	ug/kg	
75-25-2	Bromoform	ND	6.3	0.50	ug/kg	
74-83-9	Bromomethane ^a	ND	6.3	1.2	ug/kg	UJ
78-93-3	2-Butanone (MEK)	ND	13	4.7	ug/kg	
75-15-0	Carbon disulfide	ND	2.5	1.2	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.5	0.69	ug/kg	
108-90-7	Chlorobenzene	ND	2.5	0.44	ug/kg	
75-00-3	Chloroethane	ND	6.3	0.86	ug/kg	
67-66-3	Chloroform	ND	2.5	0.47	ug/kg	
74-87-3	Chloromethane	ND	6.3	2.5	ug/kg	
110-82-7	Cyclohexane	ND	2.5	0.51	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.5	1.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.5	0.42	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.3	0.41	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.3	0.38	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.3	0.45	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.3	0.43	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.3	0.79	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.3	0.48	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.3	0.59	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.3	0.82	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.3	1.2	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.3	0.83	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.5	0.51	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.5	0.44	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.5	0.41	ug/kg	
100-41-4	Ethylbenzene	ND	1.3	0.69	ug/kg	
76-13-1	Freon 113	ND	6.3	0.95	ug/kg	
591-78-6	2-Hexanone	ND	6.3	1.6	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-10R(1-2)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-10	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	88.2
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.5	0.87	ug/kg	
79-20-9	Methyl Acetate	6.1	6.3	1.7	ug/kg	J
108-87-2	Methylcyclohexane	ND	2.5	0.88	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.3	0.44	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.3	2.0	ug/kg	
75-09-2	Methylene chloride	ND	6.3	3.1	ug/kg	
100-42-5	Styrene	ND	2.5	0.72	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.5	0.49	ug/kg	
127-18-4	Tetrachloroethene	ND	2.5	0.58	ug/kg	
108-88-3	Toluene	ND	1.3	0.47	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.3	1.3	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.3	1.3	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.5	0.53	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.5	0.43	ug/kg	
79-01-6	Trichloroethene	ND	1.3	0.95	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.3	0.85	ug/kg	
75-01-4	Vinyl chloride	ND	2.5	0.59	ug/kg	
	m,p-Xylene	ND	1.3	0.93	ug/kg	
95-47-6	o-Xylene	ND	1.3	0.73	ug/kg	
1330-20-7	Xylene (total)	ND	1.3	0.73	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		75-127%
17060-07-0	1,2-Dichloroethane-D4	106%		75-130%
2037-26-5	Toluene-D8	105%		80-120%
460-00-4	4-Bromofluorobenzene	109%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-10R(1-2)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-10	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	88.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58716.D	1	04/22/19 05:05	CB	04/19/19 07:45	OP19847	E5P2780
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	74	18	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	180	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	180	32	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	180	66	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	180	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	180	40	ug/kg	
95-48-7	2-Methylphenol	ND	74	24	ug/kg	
	3&4-Methylphenol	ND	74	30	ug/kg	
88-75-5	2-Nitrophenol	ND	180	24	ug/kg	
100-02-7	4-Nitrophenol	ND	370	99	ug/kg	
87-86-5	Pentachlorophenol	ND	150	35	ug/kg	
108-95-2	Phenol	ND	74	19	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	180	24	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	180	28	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	180	22	ug/kg	
83-32-9	Acenaphthene	28.4	37	13	ug/kg	J
208-96-8	Acenaphthylene	266	37	19	ug/kg	
98-86-2	Acetophenone	ND	180	7.9	ug/kg	
120-12-7	Anthracene	608	37	23	ug/kg	
1912-24-9	Atrazine	ND	74	16	ug/kg	
56-55-3	Benzo(a)anthracene	1760	37	10	ug/kg	
50-32-8	Benzo(a)pyrene	1310	37	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	1970	37	16	ug/kg	
191-24-2	Benzo(g,h,i)perylene	909	37	18	ug/kg	
207-08-9	Benzo(k)fluoranthene	781	37	17	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	74	14	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	74	9.0	ug/kg	
92-52-4	1,1'-Biphenyl	13.2	74	5.1	ug/kg	J
100-52-7	Benzaldehyde	ND	180	9.2	ug/kg	
91-58-7	2-Chloronaphthalene	ND	74	8.8	ug/kg	
106-47-8	4-Chloroaniline	ND	180	13	ug/kg	
86-74-8	Carbazole	218	74	5.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-10R(1-2)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-10	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	88.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	74	15	ug/kg	
218-01-9	Chrysene	1720	37	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	74	7.9	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	74	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	74	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	74	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	37	11	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	37	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	74	31	ug/kg	
123-91-1	1,4-Dioxane	ND	37	24	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	354	37	16	ug/kg	
132-64-9	Dibenzofuran	115	74	15	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	74	6.0	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	74	9.2	ug/kg	
84-66-2	Diethyl phthalate	ND	74	7.9	ug/kg	
131-11-3	Dimethyl phthalate	ND	74	6.6	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	74	8.6	ug/kg	
206-44-0	Fluoranthene	3210	37	16	ug/kg	
86-73-7	Fluorene	203	37	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	74	9.3	ug/kg	
87-68-3	Hexachlorobutadiene	ND	37	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	370	15	ug/kg	
67-72-1	Hexachloroethane	ND	180	18	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1030	37	17	ug/kg	
78-59-1	Isophorone	ND	74	7.9	ug/kg	
91-57-6	2-Methylnaphthalene	27.3	37	8.3	ug/kg	J
88-74-4	2-Nitroaniline	ND	180	8.7	ug/kg	
99-09-2	3-Nitroaniline	ND	180	9.2	ug/kg	
100-01-6	4-Nitroaniline	ND	180	9.6	ug/kg	
91-20-3	Naphthalene	81.3	37	10	ug/kg	
98-95-3	Nitrobenzene	ND	74	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	74	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	180	14	ug/kg	
85-01-8	Phenanthrene	2250	37	12	ug/kg	
129-00-0	Pyrene	2560	37	12	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	180	9.4	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	38%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSSTP-10R(1-2) Lab Sample ID: JC86553-10 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/16/19 Date Received: 04/17/19 Percent Solids: 88.2
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	39%		27-114%
118-79-6	2,4,6-Tribromophenol	41%		19-152%
4165-60-0	Nitrobenzene-d5	43%		26-134%
321-60-8	2-Fluorobiphenyl	45%		39-124%
1718-51-0	Terphenyl-d14	42%		36-134%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	PSSTP-10R(1-2)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-10	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	88.2
Method:	SW846 8081B SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G958615.D	1	04/22/19 12:05	MH	04/22/19 10:00	OP19865	G4G2733
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	15.5 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.73	0.60	ug/kg	
319-84-6	alpha-BHC	ND	0.73	0.59	ug/kg	
319-85-7	beta-BHC	ND	0.73	0.66	ug/kg	
319-86-8	delta-BHC	ND	0.73	0.70	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.73	0.54	ug/kg	
5103-71-9	alpha-Chlordane ^a	ND	0.73	0.59	ug/kg	UJ
5103-74-2	gamma-Chlordane ^a	ND	0.73	0.33	ug/kg	UJ
60-57-1	Dieldrin	ND	0.73	0.50	ug/kg	
72-54-8	4,4'-DDD	ND	0.73	0.67	ug/kg	
72-55-9	4,4'-DDE ^a	ND	0.73	0.64	ug/kg	UJ
50-29-3	4,4'-DDT	ND	0.73	0.65	ug/kg	
72-20-8	Endrin	ND	0.73	0.57	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.73	0.57	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.73	0.41	ug/kg	
959-98-8	Endosulfan-I	ND	0.73	0.42	ug/kg	
33213-65-9	Endosulfan-II	ND	0.73	0.46	ug/kg	
76-44-8	Heptachlor	ND	0.73	0.63	ug/kg	
1024-57-3	Heptachlor epoxide	ND	0.73	0.51	ug/kg	
72-43-5	Methoxychlor	ND	1.5	0.58	ug/kg	
53494-70-5	Endrin ketone	ND	0.73	0.53	ug/kg	
8001-35-2	Toxaphene	ND	18	17	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	71%		25-135%
877-09-8	Tetrachloro-m-xylene	73%		25-135%
2051-24-3	Decachlorobiphenyl	98%		10-156%
2051-24-3	Decachlorobiphenyl	134%		10-156%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PSSTP-10R(1-2)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-10	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	88.2
Method:	SW846 8082A SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G178686.D	1	04/22/19 16:35	TR	04/22/19 10:00	OP19863	G2G4637
Run #2							

Run #	Initial Weight	Final Volume
Run #1	15.5 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	37	17	ug/kg	
11104-28-2	Aroclor 1221	ND	37	19	ug/kg	
11141-16-5	Aroclor 1232	ND	37	28	ug/kg	
53469-21-9	Aroclor 1242	ND	37	15	ug/kg	
12672-29-6	Aroclor 1248	ND	37	33	ug/kg	
11097-69-1	Aroclor 1254	ND	37	20	ug/kg	
11096-82-5	Aroclor 1260 ^a	ND	37	16	ug/kg	
11100-14-4	Aroclor 1268	ND	37	15	ug/kg	
37324-23-5	Aroclor 1262	ND	37	24	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	85%		31-146%
877-09-8	Tetrachloro-m-xylene	82%		31-146%
2051-24-3	Decachlorobiphenyl	108%		17-164%
2051-24-3	Decachlorobiphenyl	169% ^b		17-164%

(a) Associated CCV outside of control limits low.

(b) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PSSTP-10R(8-9)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-11	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	84.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151406.D	1	04/25/19 02:38	PS	n/a	n/a	V3C6807
Run #2							

Run #1	Initial Weight
Run #1	6.5 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	22.6	9.1	4.6	ug/kg	
71-43-2	Benzene	ND	0.46	0.34	ug/kg	
74-97-5	Bromochloromethane	ND	4.6	0.39	ug/kg	
75-27-4	Bromodichloromethane	ND	1.8	0.40	ug/kg	
75-25-2	Bromoform	ND	4.6	0.37	ug/kg	
74-83-9	Bromomethane ^a	ND	4.6	0.91	ug/kg	UJ
78-93-3	2-Butanone (MEK)	ND	9.1	3.4	ug/kg	
75-15-0	Carbon disulfide	ND	1.8	0.85	ug/kg	
56-23-5	Carbon tetrachloride	ND	1.8	0.50	ug/kg	
108-90-7	Chlorobenzene	ND	1.8	0.32	ug/kg	
75-00-3	Chloroethane	ND	4.6	0.63	ug/kg	
67-66-3	Chloroform	ND	1.8	0.34	ug/kg	
74-87-3	Chloromethane	ND	4.6	1.8	ug/kg	
110-82-7	Cyclohexane	ND	1.8	0.37	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.8	0.76	ug/kg	
124-48-1	Dibromochloromethane	ND	1.8	0.31	ug/kg	
106-93-4	1,2-Dibromoethane	ND	0.91	0.30	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.91	0.28	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.91	0.33	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.91	0.31	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	4.6	0.58	ug/kg	
75-34-3	1,1-Dichloroethane	ND	0.91	0.35	ug/kg	
107-06-2	1,2-Dichloroethane	ND	0.91	0.43	ug/kg	
75-35-4	1,1-Dichloroethene	ND	0.91	0.60	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.91	0.87	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.91	0.61	ug/kg	
78-87-5	1,2-Dichloropropane	ND	1.8	0.37	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	1.8	0.32	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	1.8	0.30	ug/kg	
100-41-4	Ethylbenzene	ND	0.91	0.50	ug/kg	
76-13-1	Freon 113	ND	4.6	0.70	ug/kg	
591-78-6	2-Hexanone	ND	4.6	1.2	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-10R(8-9)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-11	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	84.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.8	0.64	ug/kg	
79-20-9	Methyl Acetate	ND	4.6	1.3	ug/kg	
108-87-2	Methylcyclohexane	ND	1.8	0.65	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.91	0.32	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	4.6	1.4	ug/kg	
75-09-2	Methylene chloride	ND	4.6	2.3	ug/kg	
100-42-5	Styrene	ND	1.8	0.52	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.8	0.36	ug/kg	
127-18-4	Tetrachloroethene	ND	1.8	0.42	ug/kg	
108-88-3	Toluene	ND	0.91	0.34	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	4.6	0.91	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	4.6	0.91	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	1.8	0.39	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	1.8	0.31	ug/kg	
79-01-6	Trichloroethene	ND	0.91	0.70	ug/kg	
75-69-4	Trichlorofluoromethane	ND	4.6	0.62	ug/kg	
75-01-4	Vinyl chloride	ND	1.8	0.43	ug/kg	
	m,p-Xylene	ND	0.91	0.68	ug/kg	
95-47-6	o-Xylene	ND	0.91	0.53	ug/kg	
1330-20-7	Xylene (total)	ND	0.91	0.53	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		75-127%
17060-07-0	1,2-Dichloroethane-D4	103%		75-130%
2037-26-5	Toluene-D8	104%		80-120%
460-00-4	4-Bromofluorobenzene	110%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-10R(8-9)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-11	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	84.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58720.D	1	04/22/19 06:34	CB	04/19/19 07:45	OP19847	E5P2780
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.9 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	77	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	24	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	33	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	190	68	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	190	41	ug/kg	
95-48-7	2-Methylphenol	ND	77	25	ug/kg	
	3&4-Methylphenol	ND	77	32	ug/kg	
88-75-5	2-Nitrophenol	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol	ND	380	100	ug/kg	
87-86-5	Pentachlorophenol	ND	150	36	ug/kg	
108-95-2	Phenol	ND	77	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	29	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	23	ug/kg	
83-32-9	Acenaphthene	14.7	38	13	ug/kg	J
208-96-8	Acenaphthylene	124	38	20	ug/kg	
98-86-2	Acetophenone	23.2	190	8.3	ug/kg	J
120-12-7	Anthracene	35.1	38	24	ug/kg	J
1912-24-9	Atrazine	ND	77	16	ug/kg	
56-55-3	Benzo(a)anthracene	125	38	11	ug/kg	
50-32-8	Benzo(a)pyrene	163	38	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	217	38	17	ug/kg	
191-24-2	Benzo(g,h,i)perylene	135	38	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	72.1	38	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	77	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	77	9.4	ug/kg	
92-52-4	1,1'-Biphenyl	ND	77	5.3	ug/kg	
100-52-7	Benzaldehyde	ND	190	9.5	ug/kg	
91-58-7	2-Chloronaphthalene	ND	77	9.1	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	9.3	77	5.6	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-10R(8-9)	Date Sampled:	04/16/19
Lab Sample ID:	JC86553-11	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	84.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	77	15	ug/kg	
218-01-9	Chrysene	145	38	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	77	8.2	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	77	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	77	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	77	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	38	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	38	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	77	32	ug/kg	
123-91-1	1,4-Dioxane	ND	38	25	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	33.2	38	17	ug/kg	J
132-64-9	Dibenzofuran	ND	77	16	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	77	6.3	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	77	9.6	ug/kg	
84-66-2	Diethyl phthalate	ND	77	8.2	ug/kg	
131-11-3	Dimethyl phthalate	ND	77	6.8	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	77	9.0	ug/kg	
206-44-0	Fluoranthene	160	38	17	ug/kg	
86-73-7	Fluorene	ND	38	18	ug/kg	
118-74-1	Hexachlorobenzene	ND	77	9.7	ug/kg	
87-68-3	Hexachlorobutadiene	ND	38	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	380	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	134	38	18	ug/kg	
78-59-1	Isophorone	ND	77	8.2	ug/kg	
91-57-6	2-Methylnaphthalene	ND	38	8.7	ug/kg	
88-74-4	2-Nitroaniline	ND	190	9.1	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.6	ug/kg	
100-01-6	4-Nitroaniline	ND	190	9.9	ug/kg	
91-20-3	Naphthalene	36.8	38	11	ug/kg	J
98-95-3	Nitrobenzene	ND	77	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	77	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	89.0	38	13	ug/kg	
129-00-0	Pyrene	174	38	12	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.8	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	64%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSSTP-10R(8-9)	
Lab Sample ID: JC86553-11	Date Sampled: 04/16/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8270D SW846 3546	Percent Solids: 84.3
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	65%		27-114%
118-79-6	2,4,6-Tribromophenol	73%		19-152%
4165-60-0	Nitrobenzene-d5	69%		26-134%
321-60-8	2-Fluorobiphenyl	71%		39-124%
1718-51-0	Terphenyl-d14	68%		36-134%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: PSSTP-10R(8-9)		Date Sampled: 04/16/19
Lab Sample ID: JC86553-11		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 84.3
Method: SW846 8081B SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G958616.D	1	04/22/19 12:22	MH	04/22/19 10:00	OP19865	G4G2733
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	15.0 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.79	0.65	ug/kg	
319-84-6	alpha-BHC	ND	0.79	0.64	ug/kg	
319-85-7	beta-BHC	ND	0.79	0.71	ug/kg	
319-86-8	delta-BHC	ND	0.79	0.76	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.79	0.58	ug/kg	
5103-71-9	alpha-Chlordane ^a	ND	0.79	0.64	ug/kg	UJ
5103-74-2	gamma-Chlordane ^a	ND	0.79	0.36	ug/kg	UJ
60-57-1	Dieldrin	ND	0.79	0.54	ug/kg	
72-54-8	4,4'-DDD	ND	0.79	0.73	ug/kg	
72-55-9	4,4'-DDE ^b	1.1	0.79	0.69	ug/kg	JN
50-29-3	4,4'-DDT	ND	0.79	0.70	ug/kg	
72-20-8	Endrin	ND	0.79	0.61	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.79	0.62	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.79	0.45	ug/kg	
959-98-8	Endosulfan-I	ND	0.79	0.46	ug/kg	
33213-65-9	Endosulfan-II	ND	0.79	0.49	ug/kg	
76-44-8	Heptachlor	ND	0.79	0.68	ug/kg	
1024-57-3	Heptachlor epoxide	ND	0.79	0.55	ug/kg	
72-43-5	Methoxychlor	ND	1.6	0.63	ug/kg	
53494-70-5	Endrin ketone	ND	0.79	0.57	ug/kg	
8001-35-2	Toxaphene	ND	20	18	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	62%		25-135%
877-09-8	Tetrachloro-m-xylene	34%		25-135%
2051-24-3	Decachlorobiphenyl	53%		10-156%
2051-24-3	Decachlorobiphenyl	40%		10-156%

(a) Associated CCV outside of control limits low.

(b) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Client Sample ID: PSSTP-10R(8-9)	
Lab Sample ID: JC86553-11	Date Sampled: 04/16/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8082A SW846 3546	Percent Solids: 84.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2G178687.D	1	04/22/19 16:52	TR	04/22/19 10:00	OP19863	G2G4637
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	15.0 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	40	18	ug/kg	
11104-28-2	Aroclor 1221	ND	40	20	ug/kg	
11141-16-5	Aroclor 1232	ND	40	30	ug/kg	
53469-21-9	Aroclor 1242	ND	40	16	ug/kg	
12672-29-6	Aroclor 1248	ND	40	35	ug/kg	
11097-69-1	Aroclor 1254	ND	40	21	ug/kg	
11096-82-5	Aroclor 1260 ^a	ND	40	17	ug/kg	
11100-14-4	Aroclor 1268	ND	40	17	ug/kg	
37324-23-5	Aroclor 1262	ND	40	26	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	121%		31-146%
877-09-8	Tetrachloro-m-xylene	97%		31-146%
2051-24-3	Decachlorobiphenyl	71%		17-164%
2051-24-3	Decachlorobiphenyl	77%		17-164%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-130(2-4)		Date Sampled: 04/17/19
Lab Sample ID: JC86553-12		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 80.3
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151407.D	1	04/25/19 03:01	PS	n/a	n/a	V3C6807
Run #2							

Run #1	Initial Weight
Run #1	3.4 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	18	9.1	ug/kg	
71-43-2	Benzene	17.6	0.91	0.68	ug/kg	
74-97-5	Bromochloromethane	ND	9.1	0.78	ug/kg	
75-27-4	Bromodichloromethane	ND	3.6	0.80	ug/kg	
75-25-2	Bromoform	ND	9.1	0.73	ug/kg	
74-83-9	Bromomethane ^a	ND	9.1	1.8	ug/kg	UJ
78-93-3	2-Butanone (MEK)	ND	18	6.8	ug/kg	
75-15-0	Carbon disulfide	1.7	3.6	1.7	ug/kg	J
56-23-5	Carbon tetrachloride	ND	3.6	1.0	ug/kg	
108-90-7	Chlorobenzene	ND	3.6	0.64	ug/kg	
75-00-3	Chloroethane	ND	9.1	1.2	ug/kg	
67-66-3	Chloroform	ND	3.6	0.67	ug/kg	
74-87-3	Chloromethane	ND	9.1	3.5	ug/kg	
110-82-7	Cyclohexane	ND	3.6	0.73	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.6	1.5	ug/kg	
124-48-1	Dibromochloromethane	ND	3.6	0.61	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.8	0.59	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.8	0.55	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.8	0.65	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.8	0.62	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	9.1	1.1	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.8	0.70	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.8	0.85	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.8	1.2	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.8	1.7	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.8	1.2	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.6	0.74	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.6	0.64	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.6	0.59	ug/kg	
100-41-4	Ethylbenzene	ND	1.8	1.0	ug/kg	
76-13-1	Freon 113	ND	9.1	1.4	ug/kg	
591-78-6	2-Hexanone	ND	9.1	2.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-130(2-4)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-12	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	80.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.6	1.3	ug/kg	
79-20-9	Methyl Acetate	ND	9.1	2.5	ug/kg	
108-87-2	Methylcyclohexane	ND	3.6	1.3	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.8	0.64	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	9.1	2.8	ug/kg	
75-09-2	Methylene chloride	ND	9.1	4.5	ug/kg	
100-42-5	Styrene	ND	3.6	1.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.6	0.71	ug/kg	
127-18-4	Tetrachloroethene	ND	3.6	0.84	ug/kg	
108-88-3	Toluene	1.5	1.8	0.68	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	9.1	1.8	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	9.1	1.8	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.6	0.77	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.6	0.62	ug/kg	
79-01-6	Trichloroethene	ND	1.8	1.4	ug/kg	
75-69-4	Trichlorofluoromethane	ND	9.1	1.2	ug/kg	
75-01-4	Vinyl chloride	ND	3.6	0.85	ug/kg	
	m,p-Xylene	ND	1.8	1.4	ug/kg	
95-47-6	o-Xylene	ND	1.8	1.1	ug/kg	
1330-20-7	Xylene (total)	ND	1.8	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		75-127%
17060-07-0	1,2-Dichloroethane-D4	101%		75-130%
2037-26-5	Toluene-D8	106%		80-120%
460-00-4	4-Bromofluorobenzene	111%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-130(2-4)		
Lab Sample ID: JC86553-12		Date Sampled: 04/17/19
Matrix: SO - Soil		Date Received: 04/17/19
Method: SW846 8270D SW846 3546		Percent Solids: 80.3
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58721.D	1	04/22/19 06:56	CB	04/19/19 07:45	OP19847	E5P2780
Run #2	5P58737.D	2	04/22/19 15:04	YC	04/19/19 07:45	OP19847	E5P2781

Run #	Initial Weight	Final Volume
Run #1	31.5 g	1.0 ml
Run #2	31.5 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	79	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	24	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	34	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	70	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	200	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	200	42	ug/kg	
95-48-7	2-Methylphenol	188	79	25	ug/kg	
	3&4-Methylphenol	368	79	32	ug/kg	
88-75-5	2-Nitrophenol	ND	200	26	ug/kg	
100-02-7	4-Nitrophenol	ND	400	110	ug/kg	
87-86-5	Pentachlorophenol	ND	160	37	ug/kg	
108-95-2	Phenol	647	79	21	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	26	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	30	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	24	ug/kg	
83-32-9	Acenaphthene	ND	40	14	ug/kg	
208-96-8	Acenaphthylene	120	40	20	ug/kg	
98-86-2	Acetophenone	83.5	200	8.5	ug/kg	J
120-12-7	Anthracene	28.5	40	24	ug/kg	J
1912-24-9	Atrazine	ND	79	17	ug/kg	
56-55-3	Benzo(a)anthracene	26.9	40	11	ug/kg	J
50-32-8	Benzo(a)pyrene	30.0	40	18	ug/kg	J
205-99-2	Benzo(b)fluoranthene	45.6	40	17	ug/kg	
191-24-2	Benzo(g,h,i)perylene	38.0	40	20	ug/kg	J
207-08-9	Benzo(k)fluoranthene	ND	40	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	79	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	79	9.6	ug/kg	
92-52-4	1,1'-Biphenyl	98.0	79	5.4	ug/kg	
100-52-7	Benzaldehyde	ND	200	9.8	ug/kg	
91-58-7	2-Chloronaphthalene	ND	79	9.4	ug/kg	
106-47-8	4-Chloroaniline	ND	200	14	ug/kg	
86-74-8	Carbazole	21.4	79	5.7	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-130(2-4)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-12	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	80.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	79	16	ug/kg	
218-01-9	Chrysene	53.1	40	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	79	8.5	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	79	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	79	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	79	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	40	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	40	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	79	33	ug/kg	
123-91-1	1,4-Dioxane	ND	40	26	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	40	17	ug/kg	
132-64-9	Dibenzofuran	76.0	79	16	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	79	6.4	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	79	9.8	ug/kg	
84-66-2	Diethyl phthalate	ND	79	8.4	ug/kg	
131-11-3	Dimethyl phthalate	ND	79	7.0	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	79	9.3	ug/kg	
206-44-0	Fluoranthene	29.9	40	18	ug/kg	J
86-73-7	Fluorene	23.0	40	18	ug/kg	J
118-74-1	Hexachlorobenzene	ND	79	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	40	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	400	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	20	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	32.6	40	19	ug/kg	J
78-59-1	Isophorone	ND	79	8.5	ug/kg	
91-57-6	2-Methylnaphthalene	592	40	8.9	ug/kg	
88-74-4	2-Nitroaniline	ND	200	9.3	ug/kg	
99-09-2	3-Nitroaniline	ND	200	9.9	ug/kg	
100-01-6	4-Nitroaniline	ND	200	10	ug/kg	
91-20-3	Naphthalene	6710 ^a	79	22	ug/kg	D
98-95-3	Nitrobenzene	ND	79	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	79	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	14	ug/kg	
85-01-8	Phenanthrene	249	40	13	ug/kg	
129-00-0	Pyrene	34.7	40	13	ug/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	51%	54%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-130(2-4)		Date Sampled: 04/17/19
Lab Sample ID: JC86553-12		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 80.3
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	53%	56%	27-114%
118-79-6	2,4,6-Tribromophenol	62%	67%	19-152%
4165-60-0	Nitrobenzene-d5	61%	62%	26-134%
321-60-8	2-Fluorobiphenyl	59%	64%	39-124%
1718-51-0	Terphenyl-d14	50%	55%	36-134%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-130(7-8)		
Lab Sample ID: JC86553-13		Date Sampled: 04/17/19
Matrix: SO - Soil		Date Received: 04/17/19
Method: SW846 8260C		Percent Solids: 73.0
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151408.D	1	04/25/19 03:24	PS	n/a	n/a	V3C6807
Run #2							

Run #1	Initial Weight
Run #1	5.7 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	133	12	6.0	ug/kg	
71-43-2	Benzene	66.1	0.60	0.45	ug/kg	
74-97-5	Bromochloromethane	ND	6.0	0.51	ug/kg	
75-27-4	Bromodichloromethane	ND	2.4	0.53	ug/kg	
75-25-2	Bromoform	ND	6.0	0.48	ug/kg	
74-83-9	Bromomethane ^a	ND	6.0	1.2	ug/kg	UJ
78-93-3	2-Butanone (MEK)	16.2	12	4.5	ug/kg	
75-15-0	Carbon disulfide	3.0	2.4	1.1	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.4	0.66	ug/kg	
108-90-7	Chlorobenzene	ND	2.4	0.42	ug/kg	
75-00-3	Chloroethane	ND	6.0	0.82	ug/kg	
67-66-3	Chloroform	ND	2.4	0.44	ug/kg	
74-87-3	Chloromethane	ND	6.0	2.3	ug/kg	
110-82-7	Cyclohexane	ND	2.4	0.48	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.4	1.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.4	0.40	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.2	0.39	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.2	0.36	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.2	0.43	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.2	0.41	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.0	0.76	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.2	0.46	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.2	0.56	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.2	0.78	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.2	1.1	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.2	0.80	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.4	0.49	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.4	0.42	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.4	0.39	ug/kg	
100-41-4	Ethylbenzene	0.71	1.2	0.66	ug/kg	J
76-13-1	Freon 113	ND	6.0	0.91	ug/kg	
591-78-6	2-Hexanone	ND	6.0	1.5	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-130(7-8)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-13	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	73.0
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.4	0.83	ug/kg	
79-20-9	Methyl Acetate	2.4	6.0	1.7	ug/kg	J
108-87-2	Methylcyclohexane	ND	2.4	0.84	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.2	0.42	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.0	1.9	ug/kg	
75-09-2	Methylene chloride	ND	6.0	3.0	ug/kg	
100-42-5	Styrene	ND	2.4	0.69	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.4	0.47	ug/kg	
127-18-4	Tetrachloroethene	ND	2.4	0.55	ug/kg	
108-88-3	Toluene	1.5	1.2	0.45	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.0	1.2	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.0	1.2	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.4	0.51	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.4	0.41	ug/kg	
79-01-6	Trichloroethene	ND	1.2	0.91	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.0	0.81	ug/kg	
75-01-4	Vinyl chloride	ND	2.4	0.56	ug/kg	
	m,p-Xylene	ND	1.2	0.89	ug/kg	
95-47-6	o-Xylene	ND	1.2	0.70	ug/kg	
1330-20-7	Xylene (total)	ND	1.2	0.70	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		75-127%
17060-07-0	1,2-Dichloroethane-D4	101%		75-130%
2037-26-5	Toluene-D8	106%		80-120%
460-00-4	4-Bromofluorobenzene	111%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-130(7-8)		
Lab Sample ID: JC86553-13		Date Sampled: 04/17/19
Matrix: SO - Soil		Date Received: 04/17/19
Method: SW846 8270D SW846 3546		Percent Solids: 73.0
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58709.D	1	04/22/19 02:30	CB	04/19/19 07:45	OP19847	E5P2780
Run #2	5P58738.D	5	04/22/19 15:26	YC	04/19/19 07:45	OP19847	E5P2781

Run #	Initial Weight	Final Volume
Run #1	31.2 g	1.0 ml
Run #2	31.2 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	88	22	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	220	27	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	220	37	ug/kg	
105-67-9	2,4-Dimethylphenol	783	220	78	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	220	170	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	220	47	ug/kg	
95-48-7	2-Methylphenol	1540	88	28	ug/kg	
	3&4-Methylphenol	1480	88	36	ug/kg	
88-75-5	2-Nitrophenol	ND	220	29	ug/kg	
100-02-7	4-Nitrophenol	ND	440	120	ug/kg	
87-86-5	Pentachlorophenol	ND	180	41	ug/kg	
108-95-2	Phenol	1730	88	23	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	220	29	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	220	33	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	220	26	ug/kg	
83-32-9	Acenaphthene	90.8	44	15	ug/kg	
208-96-8	Acenaphthylene	29.2	44	22	ug/kg	J
98-86-2	Acetophenone	42.4	220	9.4	ug/kg	J
120-12-7	Anthracene	85.4	44	27	ug/kg	
1912-24-9	Atrazine	ND	88	19	ug/kg	
56-55-3	Benzo(a)anthracene	77.0	44	12	ug/kg	
50-32-8	Benzo(a)pyrene	63.5	44	20	ug/kg	
205-99-2	Benzo(b)fluoranthene	84.0	44	19	ug/kg	
191-24-2	Benzo(g,h,i)perylene	44.0	44	22	ug/kg	
207-08-9	Benzo(k)fluoranthene	26.5	44	21	ug/kg	J
101-55-3	4-Bromophenyl phenyl ether	ND	88	17	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	88	11	ug/kg	
92-52-4	1,1'-Biphenyl	41.3	88	6.0	ug/kg	J
100-52-7	Benzaldehyde	ND	220	11	ug/kg	
91-58-7	2-Chloronaphthalene	ND	88	10	ug/kg	
106-47-8	4-Chloroaniline	ND	220	16	ug/kg	
86-74-8	Carbazole	40.0	88	6.4	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-130(7-8)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-13	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	73.0
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	88	17	ug/kg	
218-01-9	Chrysene	93.1	44	14	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	88	9.4	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	88	19	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	88	16	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	88	14	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	44	14	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	44	22	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	88	37	ug/kg	
123-91-1	1,4-Dioxane	ND	44	29	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	44	19	ug/kg	
132-64-9	Dibenzofuran	51.4	88	18	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	88	7.2	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	88	11	ug/kg	
84-66-2	Diethyl phthalate	ND	88	9.4	ug/kg	
131-11-3	Dimethyl phthalate	ND	88	7.8	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	88	10	ug/kg	
206-44-0	Fluoranthene	153	44	20	ug/kg	
86-73-7	Fluorene	82.6	44	20	ug/kg	
118-74-1	Hexachlorobenzene	ND	88	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	44	18	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	440	17	ug/kg	
67-72-1	Hexachloroethane	ND	220	22	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	44.1	44	21	ug/kg	
78-59-1	Isophorone	ND	88	9.4	ug/kg	
91-57-6	2-Methylnaphthalene	227	44	9.9	ug/kg	
88-74-4	2-Nitroaniline	ND	220	10	ug/kg	
99-09-2	3-Nitroaniline	ND	220	11	ug/kg	
100-01-6	4-Nitroaniline	ND	220	11	ug/kg	
91-20-3	Naphthalene	11700 ^a	220	62	ug/kg	D
98-95-3	Nitrobenzene	ND	88	17	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	88	13	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	220	16	ug/kg	
85-01-8	Phenanthrene	270	44	15	ug/kg	
129-00-0	Pyrene	141	44	14	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	220	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	50%	59%	23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-130(7-8)		Date Sampled: 04/17/19
Lab Sample ID: JC86553-13		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 73.0
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	53%	60%	27-114%
118-79-6	2,4,6-Tribromophenol	55%	61%	19-152%
4165-60-0	Nitrobenzene-d5	55%	64%	26-134%
321-60-8	2-Fluorobiphenyl	61%	66%	39-124%
1718-51-0	Terphenyl-d14	52%	61%	36-134%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.13
4

Report of Analysis

Client Sample ID: S-130(10-12)	
Lab Sample ID: JC86553-14	Date Sampled: 04/17/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8260C	Percent Solids: 56.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	I225558.D	1	04/19/19 18:25	TDN	n/a	n/a	VI9087
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	2100	1100	ug/kg	
71-43-2	Benzene	285	110	81	ug/kg	
74-97-5	Bromochloromethane	ND	1100	92	ug/kg	
75-27-4	Bromodichloromethane	ND	430	95	ug/kg	
75-25-2	Bromoform	ND	1100	86	ug/kg	
74-83-9	Bromomethane	ND	1100	210	ug/kg	
78-93-3	2-Butanone (MEK)	ND	2100	800	ug/kg	
75-15-0	Carbon disulfide	2080	430	200	ug/kg	
56-23-5	Carbon tetrachloride	ND	430	120	ug/kg	
108-90-7	Chlorobenzene	ND	430	76	ug/kg	
75-00-3	Chloroethane	ND	1100	150	ug/kg	
67-66-3	Chloroform	ND	430	79	ug/kg	
74-87-3	Chloromethane	ND	1100	420	ug/kg	
110-82-7	Cyclohexane	ND	430	87	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	430	180	ug/kg	
124-48-1	Dibromochloromethane	ND	430	72	ug/kg	
106-93-4	1,2-Dibromoethane ^b	ND	210	69	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	210	65	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	210	77	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	210	73	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	1100	140	ug/kg	
75-34-3	1,1-Dichloroethane	ND	210	82	ug/kg	
107-06-2	1,2-Dichloroethane	ND	210	100	ug/kg	
75-35-4	1,1-Dichloroethene	ND	210	140	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	210	200	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	210	140	ug/kg	
78-87-5	1,2-Dichloropropane	ND	430	87	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	430	75	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	430	70	ug/kg	
100-41-4	Ethylbenzene	235	210	120	ug/kg	
76-13-1	Freon 113	ND	1100	160	ug/kg	
591-78-6	2-Hexanone	ND	1100	270	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-130(10-12)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-14	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	56.9
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	541	430	150	ug/kg	
79-20-9	Methyl Acetate	ND	1100	300	ug/kg	
108-87-2	Methylcyclohexane	209	430	150	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	210	75	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	1100	330	ug/kg	
75-09-2	Methylene chloride	ND	1100	530	ug/kg	
100-42-5	Styrene	ND	430	120	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	430	83	ug/kg	
127-18-4	Tetrachloroethene	ND	430	99	ug/kg	
108-88-3	Toluene	381	210	80	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	1100	210	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	1100	210	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	430	91	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	430	73	ug/kg	
79-01-6	Trichloroethene	ND	210	160	ug/kg	
75-69-4	Trichlorofluoromethane	ND	1100	150	ug/kg	
75-01-4	Vinyl chloride	ND	430	100	ug/kg	
	m,p-Xylene	162	210	160	ug/kg	J
95-47-6	o-Xylene	ND	210	120	ug/kg	
1330-20-7	Xylene (total)	162	210	120	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		75-127%
17060-07-0	1,2-Dichloroethane-D4	112%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	108%		79-127%

- (a) Diluted due to high concentration of non-target compound.
 (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-130(10-12)		
Lab Sample ID: JC86553-14		Date Sampled: 04/17/19
Matrix: SO - Soil		Date Received: 04/17/19
Method: SW846 8270D SW846 3546		Percent Solids: 56.9
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58717.D	1	04/22/19 05:28	CB	04/19/19 07:45	OP19847	E5P2780
Run #2	5P58742.D	5	04/22/19 16:58	YC	04/19/19 07:45	OP19847	E5P2781

Run #	Initial Weight	Final Volume
Run #1	31.3 g	1.0 ml
Run #2	31.3 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	110	28	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	280	34	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	280	48	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	280	100	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	280	210	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	280	60	ug/kg	
95-48-7	2-Methylphenol	166	110	36	ug/kg	
	3&4-Methylphenol	231	110	46	ug/kg	
88-75-5	2-Nitrophenol	ND	280	37	ug/kg	
100-02-7	4-Nitrophenol	ND	560	150	ug/kg	
87-86-5	Pentachlorophenol	ND	220	53	ug/kg	
108-95-2	Phenol	196	110	29	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	280	37	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	280	42	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	280	33	ug/kg	
83-32-9	Acenaphthene	6800 ^a	280	97	ug/kg	D
208-96-8	Acenaphthylene	325	56	29	ug/kg	
98-86-2	Acetophenone	ND	280	12	ug/kg	
120-12-7	Anthracene	1880	56	34	ug/kg	
1912-24-9	Atrazine	ND	110	24	ug/kg	
56-55-3	Benzo(a)anthracene	1150	56	16	ug/kg	
50-32-8	Benzo(a)pyrene	1060	56	26	ug/kg	
205-99-2	Benzo(b)fluoranthene	993	56	25	ug/kg	
191-24-2	Benzo(g,h,i)perylene	513	56	28	ug/kg	
207-08-9	Benzo(k)fluoranthene	318	56	26	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	110	22	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	110	14	ug/kg	
92-52-4	1,1'-Biphenyl	160	110	7.7	ug/kg	
100-52-7	Benzaldehyde	ND	280	14	ug/kg	
91-58-7	2-Chloronaphthalene	ND	110	13	ug/kg	
106-47-8	4-Chloroaniline	ND	280	20	ug/kg	
86-74-8	Carbazole	783	110	8.1	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-130(10-12)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-14	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	56.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	110	22	ug/kg	
218-01-9	Chrysene	1220	56	18	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	110	12	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	110	24	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	110	20	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	110	18	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	56	17	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	56	28	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	110	47	ug/kg	
123-91-1	1,4-Dioxane	ND	56	37	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	160	56	25	ug/kg	
132-64-9	Dibenzofuran	1540	110	23	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	110	9.2	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	110	14	ug/kg	
84-66-2	Diethyl phthalate	ND	110	12	ug/kg	
131-11-3	Dimethyl phthalate	ND	110	10	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	110	13	ug/kg	
206-44-0	Fluoranthene	2900	56	25	ug/kg	
86-73-7	Fluorene	3290	56	26	ug/kg	
118-74-1	Hexachlorobenzene	ND	110	14	ug/kg	
87-68-3	Hexachlorobutadiene	ND	56	23	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	560	22	ug/kg	
67-72-1	Hexachloroethane	ND	280	28	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	502	56	26	ug/kg	
78-59-1	Isophorone	ND	110	12	ug/kg	
91-57-6	2-Methylnaphthalene	3720	56	13	ug/kg	
88-74-4	2-Nitroaniline	ND	280	13	ug/kg	
99-09-2	3-Nitroaniline	ND	280	14	ug/kg	
100-01-6	4-Nitroaniline	ND	280	15	ug/kg	
91-20-3	Naphthalene	2110	56	16	ug/kg	
98-95-3	Nitrobenzene	ND	110	22	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	110	16	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	280	21	ug/kg	
85-01-8	Phenanthrene	9570 ^a	280	94	ug/kg	D
129-00-0	Pyrene	3080	56	18	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	280	14	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	54%	60%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-130(10-12)		Date Sampled: 04/17/19
Lab Sample ID: JC86553-14		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 56.9
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	56%	63%	27-114%
118-79-6	2,4,6-Tribromophenol	58%	60%	19-152%
4165-60-0	Nitrobenzene-d5	61%	66%	26-134%
321-60-8	2-Fluorobiphenyl	71%	76%	39-124%
1718-51-0	Terphenyl-d14	59%	67%	36-134%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.14
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Report of Analysis

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Client Sample ID: S-130(13-15)	
Lab Sample ID: JC86553-15	Date Sampled: 04/17/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8260C	Percent Solids: 60.6
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	I225605.D	1	04/22/19 13:34	TDN	n/a	n/a	VI9089

Run #1	Initial Weight
Run #2	5.0 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	49.2	17	8.3	ug/kg	
71-43-2	Benzene	ND	0.83	0.62	ug/kg	
74-97-5	Bromochloromethane	ND	8.3	0.71	ug/kg	
75-27-4	Bromodichloromethane	ND	3.3	0.73	ug/kg	
75-25-2	Bromoform	ND	8.3	0.67	ug/kg	
74-83-9	Bromomethane	ND	8.3	1.6	ug/kg	
78-93-3	2-Butanone (MEK)	8.4	17	6.2	ug/kg	J
75-15-0	Carbon disulfide	ND	3.3	1.5	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.3	0.91	ug/kg	
108-90-7	Chlorobenzene	ND	3.3	0.58	ug/kg	
75-00-3	Chloroethane	ND	8.3	1.1	ug/kg	
67-66-3	Chloroform	ND	3.3	0.61	ug/kg	
74-87-3	Chloromethane	ND	8.3	3.2	ug/kg	
110-82-7	Cyclohexane	ND	3.3	0.67	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.3	1.4	ug/kg	
124-48-1	Dibromochloromethane	ND	3.3	0.56	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.7	0.54	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.7	0.50	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.7	0.59	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.7	0.57	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	8.3	1.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.7	0.64	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.7	0.78	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.7	1.1	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.7	1.6	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.7	1.1	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.3	0.67	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.3	0.58	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.3	0.54	ug/kg	
100-41-4	Ethylbenzene	ND	1.7	0.91	ug/kg	
76-13-1	Freon 113	ND	8.3	1.3	ug/kg	
591-78-6	2-Hexanone	ND	8.3	2.1	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-130(13-15)		Date Sampled: 04/17/19
Lab Sample ID: JC86553-15		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 60.6
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	1.4	3.3	1.2	ug/kg	J
79-20-9	Methyl Acetate	ND	8.3	2.3	ug/kg	
108-87-2	Methylcyclohexane	1.4	3.3	1.2	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.7	0.58	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	8.3	2.6	ug/kg	
75-09-2	Methylene chloride	ND	8.3	4.1	ug/kg	
100-42-5	Styrene	ND	3.3	0.95	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.3	0.64	ug/kg	
127-18-4	Tetrachloroethene	ND	3.3	0.76	ug/kg	
108-88-3	Toluene	ND	1.7	0.62	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	8.3	1.7	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	8.3	1.7	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.3	0.70	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.3	0.56	ug/kg	
79-01-6	Trichloroethene	ND	1.7	1.3	ug/kg	
75-69-4	Trichlorofluoromethane	ND	8.3	1.1	ug/kg	
75-01-4	Vinyl chloride	ND	3.3	0.77	ug/kg	
	m,p-Xylene	ND	1.7	1.2	ug/kg	
95-47-6	o-Xylene	ND	1.7	0.96	ug/kg	
1330-20-7	Xylene (total)	ND	1.7	0.96	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%		75-127%
17060-07-0	1,2-Dichloroethane-D4	116%		75-130%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	110%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.15
4

Report of Analysis

Client Sample ID:	S-130(13-15)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-15	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	60.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58718.D	1	04/22/19 05:50	CB	04/19/19 07:45	OP19847	E5P2780
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	31.9 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	100	26	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	260	32	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	260	44	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	260	92	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	260	190	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	260	55	ug/kg	
95-48-7	2-Methylphenol	ND	100	33	ug/kg	
	3&4-Methylphenol	128	100	43	ug/kg	
88-75-5	2-Nitrophenol	ND	260	34	ug/kg	
100-02-7	4-Nitrophenol	ND	520	140	ug/kg	
87-86-5	Pentachlorophenol	ND	210	49	ug/kg	
108-95-2	Phenol	ND	100	27	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	260	34	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	260	39	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	260	31	ug/kg	
83-32-9	Acenaphthene	1100	52	18	ug/kg	
208-96-8	Acenaphthylene	136	52	26	ug/kg	
98-86-2	Acetophenone	ND	260	11	ug/kg	
120-12-7	Anthracene	440	52	32	ug/kg	
1912-24-9	Atrazine	ND	100	22	ug/kg	
56-55-3	Benzo(a)anthracene	436	52	15	ug/kg	
50-32-8	Benzo(a)pyrene	445	52	24	ug/kg	
205-99-2	Benzo(b)fluoranthene	480	52	23	ug/kg	
191-24-2	Benzo(g,h,i)perylene	253	52	26	ug/kg	
207-08-9	Benzo(k)fluoranthene	146	52	24	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	100	20	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	100	13	ug/kg	
92-52-4	1,1'-Biphenyl	45.2	100	7.1	ug/kg	J
100-52-7	Benzaldehyde	ND	260	13	ug/kg	
91-58-7	2-Chloronaphthalene	ND	100	12	ug/kg	
106-47-8	4-Chloroaniline	ND	260	19	ug/kg	
86-74-8	Carbazole	24.7	100	7.5	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-130(13-15)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-15	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	60.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	100	20	ug/kg	
218-01-9	Chrysene	535	52	16	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	100	11	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	100	22	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	100	19	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	100	17	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	52	16	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	52	26	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	100	43	ug/kg	
123-91-1	1,4-Dioxane	ND	52	34	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	61.1	52	23	ug/kg	
132-64-9	Dibenzofuran	82.3	100	21	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	100	8.4	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	100	13	ug/kg	
84-66-2	Diethyl phthalate	ND	100	11	ug/kg	
131-11-3	Dimethyl phthalate	ND	100	9.2	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	100	12	ug/kg	
206-44-0	Fluoranthene	982	52	23	ug/kg	
86-73-7	Fluorene	550	52	24	ug/kg	
118-74-1	Hexachlorobenzene	ND	100	13	ug/kg	
87-68-3	Hexachlorobutadiene	ND	52	21	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	520	21	ug/kg	
67-72-1	Hexachloroethane	ND	260	26	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	239	52	24	ug/kg	
78-59-1	Isophorone	ND	100	11	ug/kg	
91-57-6	2-Methylnaphthalene	279	52	12	ug/kg	
88-74-4	2-Nitroaniline	ND	260	12	ug/kg	
99-09-2	3-Nitroaniline	ND	260	13	ug/kg	
100-01-6	4-Nitroaniline	ND	260	13	ug/kg	
91-20-3	Naphthalene	587	52	15	ug/kg	
98-95-3	Nitrobenzene	ND	100	20	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	100	15	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	260	19	ug/kg	
85-01-8	Phenanthrene	1900	52	17	ug/kg	
129-00-0	Pyrene	1130	52	17	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	260	13	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	47%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-130(13-15)	
Lab Sample ID: JC86553-15	Date Sampled: 04/17/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8270D SW846 3546	Percent Solids: 60.6
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	46%		27-114%
118-79-6	2,4,6-Tribromophenol	50%		19-152%
4165-60-0	Nitrobenzene-d5	54%		26-134%
321-60-8	2-Fluorobiphenyl	58%		39-124%
1718-51-0	Terphenyl-d14	48%		36-134%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.15
 4

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Report of Analysis

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Client Sample ID: S-126(7-9)		Date Sampled: 04/17/19
Lab Sample ID: JC86553-16		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 84.7
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151409.D	1	04/25/19 03:48	PS	n/a	n/a	V3C6807
Run #2							

Run #1	Initial Weight
Run #1	6.7 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	29.3	8.8	4.4	ug/kg	
71-43-2	Benzene	3.5	0.44	0.33	ug/kg	
74-97-5	Bromochloromethane	ND	4.4	0.38	ug/kg	
75-27-4	Bromodichloromethane	ND	1.8	0.39	ug/kg	
75-25-2	Bromoform	ND	4.4	0.35	ug/kg	
74-83-9	Bromomethane ^a	ND	4.4	0.87	ug/kg	UJ
78-93-3	2-Butanone (MEK)	ND	8.8	3.3	ug/kg	
75-15-0	Carbon disulfide	1.2	1.8	0.82	ug/kg	J
56-23-5	Carbon tetrachloride	ND	1.8	0.48	ug/kg	
108-90-7	Chlorobenzene	ND	1.8	0.31	ug/kg	
75-00-3	Chloroethane	ND	4.4	0.60	ug/kg	
67-66-3	Chloroform	ND	1.8	0.33	ug/kg	
74-87-3	Chloromethane	ND	4.4	1.7	ug/kg	
110-82-7	Cyclohexane	ND	1.8	0.36	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.8	0.73	ug/kg	
124-48-1	Dibromochloromethane	ND	1.8	0.30	ug/kg	
106-93-4	1,2-Dibromoethane	ND	0.88	0.29	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.88	0.27	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.88	0.32	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.88	0.30	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	4.4	0.56	ug/kg	
75-34-3	1,1-Dichloroethane	ND	0.88	0.34	ug/kg	
107-06-2	1,2-Dichloroethane	ND	0.88	0.41	ug/kg	
75-35-4	1,1-Dichloroethene	ND	0.88	0.58	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.88	0.84	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.88	0.59	ug/kg	
78-87-5	1,2-Dichloropropane	ND	1.8	0.36	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	1.8	0.31	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	1.8	0.29	ug/kg	
100-41-4	Ethylbenzene	ND	0.88	0.48	ug/kg	
76-13-1	Freon 113	ND	4.4	0.67	ug/kg	
591-78-6	2-Hexanone	ND	4.4	1.1	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-126(7-9)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-16	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	84.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.8	0.61	ug/kg	
79-20-9	Methyl Acetate	ND	4.4	1.2	ug/kg	
108-87-2	Methylcyclohexane	ND	1.8	0.62	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.88	0.31	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	4.4	1.4	ug/kg	
75-09-2	Methylene chloride	ND	4.4	2.2	ug/kg	
100-42-5	Styrene	ND	1.8	0.51	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.8	0.34	ug/kg	
127-18-4	Tetrachloroethene	ND	1.8	0.41	ug/kg	
108-88-3	Toluene	ND	0.88	0.33	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	4.4	0.88	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	4.4	0.88	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	1.8	0.37	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	1.8	0.30	ug/kg	
79-01-6	Trichloroethene	ND	0.88	0.67	ug/kg	
75-69-4	Trichlorofluoromethane	ND	4.4	0.60	ug/kg	
75-01-4	Vinyl chloride	ND	1.8	0.41	ug/kg	
	m,p-Xylene	ND	0.88	0.66	ug/kg	
95-47-6	o-Xylene	ND	0.88	0.51	ug/kg	
1330-20-7	Xylene (total)	ND	0.88	0.51	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		75-127%
17060-07-0	1,2-Dichloroethane-D4	102%		75-130%
2037-26-5	Toluene-D8	104%		80-120%
460-00-4	4-Bromofluorobenzene	109%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-126(7-9)		
Lab Sample ID: JC86553-16		Date Sampled: 04/17/19
Matrix: SO - Soil		Date Received: 04/17/19
Method: SW846 8270D SW846 3546		Percent Solids: 84.7
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153642.D	1	04/21/19 04:59	CB	04/19/19 07:45	OP19854	EM6566
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q	
95-57-8	2-Chlorophenol	ND	78	19	ug/kg		
59-50-7	4-Chloro-3-methyl phenol	ND	200	24	ug/kg		
120-83-2	2,4-Dichlorophenol	ND	200	33	ug/kg		
105-67-9	2,4-Dimethylphenol	91.3	200	70	ug/kg	J	
51-28-5	2,4-Dinitrophenol	ND	200	150	ug/kg		
534-52-1	4,6-Dinitro-o-cresol ^a	ND	200	42	ug/kg		
95-48-7	2-Methylphenol	63.0	78	25	ug/kg	J	
	3&4-Methylphenol	129	78	32	ug/kg		
88-75-5	2-Nitrophenol	ND	200	26	ug/kg		
100-02-7	4-Nitrophenol	ND	390	100	ug/kg		
87-86-5	Pentachlorophenol ^a	ND	160	37	ug/kg		
108-95-2	Phenol	37.3	78	20	ug/kg	J	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	26	ug/kg		
95-95-4	2,4,5-Trichlorophenol	ND	200	29	ug/kg		
88-06-2	2,4,6-Trichlorophenol	ND	200	23	ug/kg		
83-32-9	Acenaphthene	ND	39	13	ug/kg		
208-96-8	Acenaphthylene	ND	39	20	ug/kg		
98-86-2	Acetophenone	12.0	200	8.4	ug/kg	J	
120-12-7	Anthracene	35.1	39	24	ug/kg	J	
1912-24-9	Atrazine	ND	78	17	ug/kg		
56-55-3	Benzo(a)anthracene	98.5	39	11	ug/kg		
50-32-8	Benzo(a)pyrene	93.7	39	18	ug/kg		
205-99-2	Benzo(b)fluoranthene	116	39	17	ug/kg		
191-24-2	Benzo(g,h,i)perylene	62.4	39	20	ug/kg		
207-08-9	Benzo(k)fluoranthene	40.5	39	18	ug/kg		
101-55-3	4-Bromophenyl phenyl ether	ND	78	15	ug/kg		
85-68-7	Butyl benzyl phthalate	ND	78	9.5	ug/kg		
92-52-4	1,1'-Biphenyl	78	6.7	78	5.4	ug/kg	JB UB
100-52-7	Benzaldehyde	ND	200	9.7	ug/kg		
91-58-7	2-Chloronaphthalene	ND	78	9.3	ug/kg		
106-47-8	4-Chloroaniline	ND	200	14	ug/kg		
86-74-8	Carbazole	78	16.6	78	5.7	ug/kg	JB UB

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-126(7-9)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-16	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	84.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	78	15	ug/kg	
218-01-9	Chrysene	110	39	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	78	8.4	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	78	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	78	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	78	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	39	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	39	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	78	33	ug/kg	
123-91-1	1,4-Dioxane ^b	ND	39	26	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	ND	39	17	ug/kg	
132-64-9	Dibenzofuran	ND	78	16	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	78	6.4	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	78	9.7	ug/kg	
84-66-2	Diethyl phthalate	ND	78	8.3	ug/kg	
131-11-3	Dimethyl phthalate	ND	78	7.0	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	78	9.1	ug/kg	
206-44-0	Fluoranthene	182	39	17	ug/kg	
86-73-7	Fluorene	20.1	39	18	ug/kg	J
118-74-1	Hexachlorobenzene	ND	78	9.9	ug/kg	
87-68-3	Hexachlorobutadiene	ND	39	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^a	ND	390	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	77.3	39	18	ug/kg	
78-59-1	Isophorone	ND	78	8.4	ug/kg	
91-57-6	2-Methylnaphthalene	11.4	39	8.8	ug/kg	J
88-74-4	2-Nitroaniline	ND	200	9.2	ug/kg	
99-09-2	3-Nitroaniline	ND	200	9.8	ug/kg	
100-01-6	4-Nitroaniline	ND	200	10	ug/kg	
91-20-3	Naphthalene	251	39	11	ug/kg	
98-95-3	Nitrobenzene	ND	78	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	78	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	14	ug/kg	
85-01-8	Phenanthrene	105	39	13	ug/kg	
129-00-0	Pyrene	176	39	13	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	9.9	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	32%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-126(7-9)	
Lab Sample ID: JC86553-16	Date Sampled: 04/17/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8270D SW846 3546	Percent Solids: 84.7
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	32%		27-114%
118-79-6	2,4,6-Tribromophenol	50%		19-152%
4165-60-0	Nitrobenzene-d5	40%		26-134%
321-60-8	2-Fluorobiphenyl	45%		39-124%
1718-51-0	Terphenyl-d14	41%		36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-126(13-15)		Date Sampled: 04/17/19
Lab Sample ID: JC86553-17		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 60.3
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	3C151410.D	1	04/25/19 04:11	PS	n/a	n/a	V3C6807

Run #1	Initial Weight
Run #2	6.6 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	69.8	13	6.3	ug/kg	
71-43-2	Benzene	ND	0.63	0.48	ug/kg	
74-97-5	Bromochloromethane	ND	6.3	0.54	ug/kg	
75-27-4	Bromodichloromethane	ND	2.5	0.56	ug/kg	
75-25-2	Bromoform	ND	6.3	0.51	ug/kg	
74-83-9	Bromomethane ^a	ND	6.3	1.3	ug/kg	UJ
78-93-3	2-Butanone (MEK)	9.3	13	4.7	ug/kg	J
75-15-0	Carbon disulfide	ND	2.5	1.2	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.5	0.70	ug/kg	
108-90-7	Chlorobenzene	ND	2.5	0.45	ug/kg	
75-00-3	Chloroethane	ND	6.3	0.87	ug/kg	
67-66-3	Chloroform	ND	2.5	0.47	ug/kg	
74-87-3	Chloromethane	ND	6.3	2.5	ug/kg	
110-82-7	Cyclohexane	ND	2.5	0.51	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.5	1.1	ug/kg	
124-48-1	Dibromochloromethane	ND	2.5	0.43	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.3	0.41	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.3	0.39	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.3	0.45	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.3	0.44	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.3	0.80	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.3	0.49	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.3	0.59	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.3	0.83	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.3	1.2	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.3	0.84	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.5	0.52	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.5	0.45	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.5	0.41	ug/kg	
100-41-4	Ethylbenzene	ND	1.3	0.70	ug/kg	
76-13-1	Freon 113	ND	6.3	0.96	ug/kg	
591-78-6	2-Hexanone	ND	6.3	1.6	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-126(13-15)		Date Sampled: 04/17/19
Lab Sample ID: JC86553-17		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 60.3
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	4.3	2.5	0.88	ug/kg	
79-20-9	Methyl Acetate	ND	6.3	1.8	ug/kg	
108-87-2	Methylcyclohexane	ND	2.5	0.90	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.3	0.45	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.3	2.0	ug/kg	
75-09-2	Methylene chloride	ND	6.3	3.2	ug/kg	
100-42-5	Styrene	ND	2.5	0.73	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.5	0.49	ug/kg	
127-18-4	Tetrachloroethene	ND	2.5	0.58	ug/kg	
108-88-3	Toluene	ND	1.3	0.48	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.3	1.3	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.3	1.3	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.5	0.54	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.5	0.43	ug/kg	
79-01-6	Trichloroethene	ND	1.3	0.96	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.3	0.86	ug/kg	
75-01-4	Vinyl chloride	ND	2.5	0.59	ug/kg	
	m,p-Xylene	ND	1.3	0.94	ug/kg	
95-47-6	o-Xylene	ND	1.3	0.74	ug/kg	
1330-20-7	Xylene (total)	ND	1.3	0.74	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		75-127%
17060-07-0	1,2-Dichloroethane-D4	103%		75-130%
2037-26-5	Toluene-D8	105%		80-120%
460-00-4	4-Bromofluorobenzene	110%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-126(13-15)	
Lab Sample ID: JC86553-17	Date Sampled: 04/17/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8270D SW846 3546	Percent Solids: 60.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153645.D	1	04/21/19 06:23	CB	04/19/19 07:45	OP19854	EM6566
Run #2	M153681.D	5	04/22/19 18:20	YC	04/19/19 07:45	OP19854	EM6567

Run #1	Initial Weight	Final Volume
Run #1	30.3 g	1.0 ml
Run #2	30.3 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	110	27	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	270	34	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	270	47	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	270	97	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	270	210	ug/kg	
534-52-1	4,6-Dinitro-o-cresol ^a	ND	270	59	ug/kg	
95-48-7	2-Methylphenol	ND	110	35	ug/kg	
	3&4-Methylphenol	74.6	110	45	ug/kg	J
88-75-5	2-Nitrophenol	ND	270	36	ug/kg	
100-02-7	4-Nitrophenol	ND	550	150	ug/kg	
87-86-5	Pentachlorophenol ^a	ND	220	51	ug/kg	
108-95-2	Phenol	ND	110	29	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	270	36	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	270	41	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	270	33	ug/kg	
83-32-9	Acenaphthene	6790 ^b	270	94	ug/kg	D
208-96-8	Acenaphthylene	256	55	28	ug/kg	
98-86-2	Acetophenone	ND	270	12	ug/kg	
120-12-7	Anthracene	3090	55	34	ug/kg	
1912-24-9	Atrazine	ND	110	23	ug/kg	
56-55-3	Benzo(a)anthracene	1250	55	15	ug/kg	
50-32-8	Benzo(a)pyrene	992	55	25	ug/kg	
205-99-2	Benzo(b)fluoranthene	972	55	24	ug/kg	
191-24-2	Benzo(g,h,i)perylene	462	55	27	ug/kg	
207-08-9	Benzo(k)fluoranthene	376	55	26	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	110	21	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	110	13	ug/kg	
92-52-4	1,1'-Biphenyl	110	82.5	110	7.5	ug/kg JB UB
100-52-7	Benzaldehyde	ND	270	14	ug/kg	
91-58-7	2-Chloronaphthalene	ND	110	13	ug/kg	
106-47-8	4-Chloroaniline	ND	270	20	ug/kg	
86-74-8	Carbazole	687	110	7.9	ug/kg	B

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-126(13-15)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-17	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	60.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	110	22	ug/kg	
218-01-9	Chrysene	1420	55	17	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	110	12	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	110	24	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	110	20	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	110	18	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	55	17	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	55	27	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	110	46	ug/kg	
123-91-1	1,4-Dioxane ^c	ND	55	36	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	122	55	24	ug/kg	
132-64-9	Dibenzofuran	2190	110	22	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	110	8.9	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	110	14	ug/kg	
84-66-2	Diethyl phthalate	ND	110	12	ug/kg	
131-11-3	Dimethyl phthalate	ND	110	9.7	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	110	13	ug/kg	
206-44-0	Fluoranthene	5010	55	24	ug/kg	
86-73-7	Fluorene	4390	55	25	ug/kg	
118-74-1	Hexachlorobenzene	ND	110	14	ug/kg	
87-68-3	Hexachlorobutadiene	ND	55	22	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^a	ND	550	22	ug/kg	
67-72-1	Hexachloroethane	ND	270	27	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	414	55	26	ug/kg	
78-59-1	Isophorone	ND	110	12	ug/kg	
91-57-6	2-Methylnaphthalene	853	55	12	ug/kg	
88-74-4	2-Nitroaniline	ND	270	13	ug/kg	
99-09-2	3-Nitroaniline	ND	270	14	ug/kg	
100-01-6	4-Nitroaniline	ND	270	14	ug/kg	
91-20-3	Naphthalene	831	55	15	ug/kg	
98-95-3	Nitrobenzene	ND	110	21	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	110	16	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	270	20	ug/kg	
85-01-8	Phenanthrene	16500 ^b	270	92	ug/kg	D
129-00-0	Pyrene	4390	55	18	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	270	14	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	37%	43%	23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-126(13-15)		Date Sampled: 04/17/19
Lab Sample ID: JC86553-17		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 60.3
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	38%	43%	27-114%
118-79-6	2,4,6-Tribromophenol	66%	72%	19-152%
4165-60-0	Nitrobenzene-d5	48%	52%	26-134%
321-60-8	2-Fluorobiphenyl	56%	61%	39-124%
1718-51-0	Terphenyl-d14	52%	57%	36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Result is from Run# 2
- (c) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	S-127(2-4)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-18	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	88.6
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	I225560.D	1	04/19/19 19:24	TDN	n/a	n/a	VI9087
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.9 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	1200	610	ug/kg	
71-43-2	Benzene	134	61	46	ug/kg	J
74-97-5	Bromochloromethane	ND	610	52	ug/kg	
75-27-4	Bromodichloromethane	ND	240	54	ug/kg	
75-25-2	Bromoform	ND	610	49	ug/kg	
74-83-9	Bromomethane	ND	610	120	ug/kg	
78-93-3	2-Butanone (MEK)	ND	1200	450	ug/kg	
75-15-0	Carbon disulfide	ND	240	110	ug/kg	
56-23-5	Carbon tetrachloride	ND	240	67	ug/kg	
108-90-7	Chlorobenzene	ND	240	43	ug/kg	
75-00-3	Chloroethane	ND	610	84	ug/kg	
67-66-3	Chloroform	ND	240	45	ug/kg	
74-87-3	Chloromethane	ND	610	240	ug/kg	
110-82-7	Cyclohexane	ND	240	49	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	240	100	ug/kg	
124-48-1	Dibromochloromethane	ND	240	41	ug/kg	
106-93-4	1,2-Dibromoethane ^b	ND	120	40	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	120	37	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	120	44	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	120	42	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	610	77	ug/kg	
75-34-3	1,1-Dichloroethane	ND	120	47	ug/kg	
107-06-2	1,2-Dichloroethane	ND	120	57	ug/kg	
75-35-4	1,1-Dichloroethene	ND	120	80	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	120	120	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	120	81	ug/kg	
78-87-5	1,2-Dichloropropane	ND	240	49	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	240	43	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	240	40	ug/kg	
100-41-4	Ethylbenzene	ND	120	67	ug/kg	
76-13-1	Freon 113	ND	610	93	ug/kg	
591-78-6	2-Hexanone	ND	610	150	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-127(2-4)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-18	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	88.6
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	240	85	ug/kg	
79-20-9	Methyl Acetate	ND	610	170	ug/kg	
108-87-2	Methylcyclohexane	ND	240	86	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	120	43	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	610	190	ug/kg	
75-09-2	Methylene chloride	ND	610	300	ug/kg	
100-42-5	Styrene	ND	240	70	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	240	47	ug/kg	
127-18-4	Tetrachloroethene	ND	240	56	ug/kg	
108-88-3	Toluene	143	120	46	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	610	120	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	610	120	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	240	52	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	240	42	ug/kg	
79-01-6	Trichloroethene	ND	120	93	ug/kg	
75-69-4	Trichlorofluoromethane	ND	610	83	ug/kg	
75-01-4	Vinyl chloride	ND	240	57	ug/kg	
	m,p-Xylene	434	120	91	ug/kg	J
95-47-6	o-Xylene	198	120	71	ug/kg	J
1330-20-7	Xylene (total)	632	120	71	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		75-127%
17060-07-0	1,2-Dichloroethane-D4	106%		75-130%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	107%		79-127%

- (a) Diluted due to high concentration of non-target compound.
 (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-127(2-4)	
Lab Sample ID: JC86553-18	Date Sampled: 04/17/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8270D SW846 3546	Percent Solids: 88.6
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	M153685.D	2	04/22/19 20:15	YC	04/19/19 07:45	OP19854	EM6567
Run #2	M153729.D	20	04/23/19 17:23	CC	04/19/19 07:45	OP19854	EM6569
Run #3	M153727.D	200	04/23/19 16:26	CC	04/19/19 07:45	OP19854	EM6569

Run #	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2	30.4 g	1.0 ml
Run #3	30.4 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	150	37	ug/kg	UJ
59-50-7	4-Chloro-3-methyl phenol	ND	370	46	ug/kg	↓
120-83-2	2,4-Dichlorophenol	ND	370	63	ug/kg	↓
105-67-9	2,4-Dimethylphenol	997	370	130	ug/kg	J ↓
51-28-5	2,4-Dinitrophenol	ND	370	280	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	370	79	ug/kg	UJ
95-48-7	2-Methylphenol	573	150	47	ug/kg	J
	3&4-Methylphenol	1160	150	61	ug/kg	J
88-75-5	2-Nitrophenol	ND	370	49	ug/kg	UJ
100-02-7	4-Nitrophenol ^b	ND	740	200	ug/kg	↓
87-86-5	Pentachlorophenol	ND	300	70	ug/kg	↓
108-95-2	Phenol	338	150	39	ug/kg	J ↓
58-90-2	2,3,4,6-Tetrachlorophenol	ND	370	49	ug/kg	UJ
95-95-4	2,4,5-Trichlorophenol	ND	370	56	ug/kg	↓
88-06-2	2,4,6-Trichlorophenol	ND	370	44	ug/kg	↓
83-32-9	Acenaphthene	4140	74	26	ug/kg	J ↓
208-96-8	Acenaphthylene	12200 ^c	740	380	ug/kg	D
98-86-2	Acetophenone	95.4	370	16	ug/kg	J
120-12-7	Anthracene	54800 ^c	740	460	ug/kg	DJ
1912-24-9	Atrazine	ND	150	32	ug/kg	UJ
56-55-3	Benzo(a)anthracene	45300 ^c	740	210	ug/kg	DJ
50-32-8	Benzo(a)pyrene	37600 ^c	740	340	ug/kg	D
205-99-2	Benzo(b)fluoranthene	46100 ^c	740	330	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	18700 ^c	740	370	ug/kg	D
207-08-9	Benzo(k)fluoranthene	15700 ^c	740	350	ug/kg	DJ
101-55-3	4-Bromophenyl phenyl ether	ND	150	29	ug/kg	UJ
85-68-7	Butyl benzyl phthalate	ND	150	18	ug/kg	UJ
92-52-4	1,1'-Biphenyl	9320 ^c	1500	100	ug/kg	-B D
100-52-7	Benzaldehyde	ND	370	18	ug/kg	UJ
91-58-7	2-Chloronaphthalene	ND	150	18	ug/kg	UJ

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	S-127(2-4)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-18	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	88.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	370	27	ug/kg	UJ
86-74-8	Carbazole	27500 ^c	1500	110	ug/kg	B D
105-60-2	Caprolactam	ND	150	29	ug/kg	UJ
218-01-9	Chrysene	39300 ^c	740	230	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	150	16	ug/kg	UJ
111-44-4	bis(2-Chloroethyl)ether ^b	ND	150	32	ug/kg	UJ
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	150	27	ug/kg	UJ
7005-72-3	4-Chlorophenyl phenyl ether	ND	150	24	ug/kg	UJ
121-14-2	2,4-Dinitrotoluene	ND	74	23	ug/kg	UJ
606-20-2	2,6-Dinitrotoluene	ND	74	37	ug/kg	UJ
91-94-1	3,3'-Dichlorobenzidine	ND	150	62	ug/kg	UJ
123-91-1	1,4-Dioxane ^b	ND	74	49	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	5740 ^c	740	330	ug/kg	D J
132-64-9	Dibenzofuran	46600 ^c	1500	300	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	150	12	ug/kg	UJ
117-84-0	Di-n-octyl phthalate	ND	150	18	ug/kg	UJ
84-66-2	Diethyl phthalate	ND	150	16	ug/kg	UJ
131-11-3	Dimethyl phthalate	ND	150	13	ug/kg	UJ
117-81-7	bis(2-Ethylhexyl)phthalate	ND	150	17	ug/kg	UJ
206-44-0	Fluoranthene	130000 ^d	7400	3300	ug/kg	D
86-73-7	Fluorene	64300 ^c	740	340	ug/kg	D
118-74-1	Hexachlorobenzene	ND	150	19	ug/kg	UJ
87-68-3	Hexachlorobutadiene	ND	74	30	ug/kg	UJ
77-47-4	Hexachlorocyclopentadiene	ND	740	30	ug/kg	UJ
67-72-1	Hexachloroethane	ND	370	37	ug/kg	UJ
193-39-5	Indeno(1,2,3-cd)pyrene	19600 ^c	740	350	ug/kg	D
78-59-1	Isophorone	ND	150	16	ug/kg	UJ
91-57-6	2-Methylnaphthalene	41100 ^c	740	170	ug/kg	DJ
88-74-4	2-Nitroaniline	ND	370	18	ug/kg	UJ
99-09-2	3-Nitroaniline	ND	370	19	ug/kg	UJ
100-01-6	4-Nitroaniline	ND	370	19	ug/kg	UJ
91-20-3	Naphthalene	168000 ^d	7400	2100	ug/kg	D
98-95-3	Nitrobenzene	ND	150	29	ug/kg	UJ
621-64-7	N-Nitroso-di-n-propylamine	ND	150	21	ug/kg	UJ
86-30-6	N-Nitrosodiphenylamine	ND	370	27	ug/kg	UJ
85-01-8	Phenanthrene	216000 ^d	7400	2500	ug/kg	D
129-00-0	Pyrene	82800 ^d	7400	2400	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	370	19	ug/kg	UJ

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-127(2-4)	
Lab Sample ID: JC86553-18	Date Sampled: 04/17/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8270D SW846 3546	Percent Solids: 88.6
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	28%	32%	0% ^e	23-115%
4165-62-2	Phenol-d5	29%	33%	0% ^e	27-114%
118-79-6	2,4,6-Tribromophenol	49%	47%	0% ^e	19-152%
4165-60-0	Nitrobenzene-d5	32%	40%	43%	26-134%
321-60-8	2-Fluorobiphenyl	36% ^f	43%	48%	39-124%
1718-51-0	Terphenyl-d14	30% ^f	42%	50%	36-134%

(a) Dilution required due to viscosity of the extract matrix.

(b) Associated CCV outside of control limits low.

(c) Result is from Run# 2

(d) Result is from Run# 3

(e) Outside control limits due to dilution.

(f) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SO-DUP-0417	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-19	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	83.9
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	I225562.D	1	04/19/19 20:23	TDN	n/a	n/a	VI9087
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.4 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	1500	730	ug/kg	
71-43-2	Benzene	365	73	55	ug/kg	J
74-97-5	Bromochloromethane	ND	730	62	ug/kg	
75-27-4	Bromodichloromethane	ND	290	64	ug/kg	
75-25-2	Bromoform	ND	730	58	ug/kg	
74-83-9	Bromomethane	ND	730	140	ug/kg	
78-93-3	2-Butanone (MEK)	ND	1500	540	ug/kg	
75-15-0	Carbon disulfide	ND	290	130	ug/kg	
56-23-5	Carbon tetrachloride	ND	290	80	ug/kg	
108-90-7	Chlorobenzene	ND	290	51	ug/kg	
75-00-3	Chloroethane	ND	730	100	ug/kg	
67-66-3	Chloroform	ND	290	54	ug/kg	
74-87-3	Chloromethane	ND	730	280	ug/kg	
110-82-7	Cyclohexane	ND	290	59	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	290	120	ug/kg	
124-48-1	Dibromochloromethane	ND	290	49	ug/kg	
106-93-4	1,2-Dibromoethane ^b	ND	150	47	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	150	44	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	150	52	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	150	50	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	730	92	ug/kg	
75-34-3	1,1-Dichloroethane	ND	150	56	ug/kg	
107-06-2	1,2-Dichloroethane	ND	150	68	ug/kg	
75-35-4	1,1-Dichloroethene	ND	150	95	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	150	140	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	150	97	ug/kg	
78-87-5	1,2-Dichloropropane	ND	290	59	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	290	51	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	290	47	ug/kg	
100-41-4	Ethylbenzene	ND	150	80	ug/kg	
76-13-1	Freon 113	ND	730	110	ug/kg	
591-78-6	2-Hexanone	ND	730	180	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SO-DUP-0417	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-19	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	83.9
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	290	100	ug/kg	
79-20-9	Methyl Acetate	ND	730	200	ug/kg	
108-87-2	Methylcyclohexane	ND	290	100	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	150	51	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	730	230	ug/kg	
75-09-2	Methylene chloride	ND	730	360	ug/kg	
100-42-5	Styrene	ND	290	83	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	290	57	ug/kg	
127-18-4	Tetrachloroethene	ND	290	67	ug/kg	
108-88-3	Toluene	360	150	55	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	730	150	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	730	150	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	290	62	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	290	50	ug/kg	
79-01-6	Trichloroethene	ND	150	110	ug/kg	
75-69-4	Trichlorofluoromethane	ND	730	99	ug/kg	
75-01-4	Vinyl chloride	ND	290	68	ug/kg	
	m,p-Xylene	912	150	110	ug/kg	J
95-47-6	o-Xylene	383	150	85	ug/kg	J
1330-20-7	Xylene (total)	1300	150	85	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		75-127%
17060-07-0	1,2-Dichloroethane-D4	107%		75-130%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	106%		79-127%

- (a) Diluted due to high concentration of non-target compound.
 (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SO-DUP-0417	
Lab Sample ID: JC86553-19	Date Sampled: 04/17/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8270D SW846 3546	Percent Solids: 83.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	M153686.D	2	04/22/19 20:43	YC	04/19/19 07:45	OP19854	EM6567
Run #2	M153730.D	20	04/23/19 17:52	CC	04/19/19 07:45	OP19854	EM6569
Run #3	M153728.D	200	04/23/19 16:55	CC	04/19/19 07:45	OP19854	EM6569

Run #	Initial Weight	Final Volume
Run #1	30.5 g	1.0 ml
Run #2	30.5 g	1.0 ml
Run #3	30.5 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	160	39	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	390	48	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	390	67	ug/kg	
105-67-9	2,4-Dimethylphenol	1930	390	140	ug/kg	J
51-28-5	2,4-Dinitrophenol	ND	390	290	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	390	84	ug/kg	
95-48-7	2-Methylphenol	1180	160	50	ug/kg	J
	3&4-Methylphenol	2390	160	64	ug/kg	J
88-75-5	2-Nitrophenol	ND	390	52	ug/kg	
100-02-7	4-Nitrophenol ^b	ND	780	210	ug/kg	UJ
87-86-5	Pentachlorophenol	ND	310	73	ug/kg	
108-95-2	Phenol	720	160	41	ug/kg	J
58-90-2	2,3,4,6-Tetrachlorophenol	ND	390	52	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	390	59	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	390	47	ug/kg	
83-32-9	Acenaphthene	7150	78	27	ug/kg	J
208-96-8	Acenaphthylene	19900 ^c	780	400	ug/kg	D
98-86-2	Acetophenone	194	390	17	ug/kg	J
120-12-7	Anthracene	90800 ^d	7800	4800	ug/kg	D
1912-24-9	Atrazine	ND	160	33	ug/kg	
56-55-3	Benzo(a)anthracene	75200 ^c	780	220	ug/kg	D
50-32-8	Benzo(a)pyrene	60900 ^c	780	360	ug/kg	D
205-99-2	Benzo(b)fluoranthene	74400 ^c	780	350	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	31000 ^c	780	390	ug/kg	D
207-08-9	Benzo(k)fluoranthene	29400 ^c	780	360	ug/kg	DJ
101-55-3	4-Bromophenyl phenyl ether	ND	160	30	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	160	19	ug/kg	
92-52-4	1,1'-Biphenyl	14700 ^c	1600	110	ug/kg	B D
100-52-7	Benzaldehyde	ND	390	19	ug/kg	
91-58-7	2-Chloronaphthalene	ND	160	19	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	SO-DUP-0417	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-19	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	83.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	390	28	ug/kg	
86-74-8	Carbazole	43300 ^c	1600	110	ug/kg	B D
105-60-2	Caprolactam	ND	160	31	ug/kg	
218-01-9	Chrysene	64600 ^c	780	250	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	160	17	ug/kg	
111-44-4	bis(2-Chloroethyl)ether ^b	ND	160	34	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	160	28	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	160	25	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	78	24	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	78	39	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	160	65	ug/kg	
123-91-1	1,4-Dioxane ^b	ND	78	52	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	11000 ^c	780	350	ug/kg	D J
132-64-9	Dibenzofuran	73000 ^c	1600	320	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	160	13	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	160	19	ug/kg	
84-66-2	Diethyl phthalate	ND	160	17	ug/kg	
131-11-3	Dimethyl phthalate	ND	160	14	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	160	18	ug/kg	
206-44-0	Fluoranthene	211000 ^d	7800	3500	ug/kg	D
86-73-7	Fluorene	103000 ^d	7800	3600	ug/kg	D
118-74-1	Hexachlorobenzene	ND	160	20	ug/kg	
87-68-3	Hexachlorobutadiene	ND	78	31	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	780	31	ug/kg	
67-72-1	Hexachloroethane	ND	390	39	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	32200 ^c	780	370	ug/kg	D
78-59-1	Isophorone	ND	160	17	ug/kg	
91-57-6	2-Methylnaphthalene	64300 ^c	780	180	ug/kg	D
88-74-4	2-Nitroaniline	ND	390	18	ug/kg	
99-09-2	3-Nitroaniline	ND	390	20	ug/kg	
100-01-6	4-Nitroaniline	ND	390	20	ug/kg	
91-20-3	Naphthalene	278000 ^d	7800	2200	ug/kg	D
98-95-3	Nitrobenzene	ND	160	30	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	160	23	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	390	29	ug/kg	
85-01-8	Phenanthrene	350000 ^d	7800	2600	ug/kg	D
129-00-0	Pyrene	137000 ^d	7800	2500	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	390	20	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SO-DUP-0417	
Lab Sample ID: JC86553-19	Date Sampled: 04/17/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8270D SW846 3546	Percent Solids: 83.9
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	46%	49%	74%	23-115%
4165-62-2	Phenol-d5	48%	46%	48%	27-114%
118-79-6	2,4,6-Tribromophenol	69%	77%	0% ^e	19-152%
4165-60-0	Nitrobenzene-d5	52%	55%	63%	26-134%
321-60-8	2-Fluorobiphenyl	55%	61%	73%	39-124%
1718-51-0	Terphenyl-d14	45%	61%	70%	36-134%

(a) Dilution required due to viscosity of the extract matrix.

(b) Associated CCV outside of control limits low.

(c) Result is from Run# 2

(d) Result is from Run# 3

(e) Outside control limits due to dilution.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-127(6-8)	
Lab Sample ID: JC86553-20	Date Sampled: 04/17/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8260C	Percent Solids: 87.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D263961.D	1	04/23/19 13:55	TDN	n/a	n/a	VD10639
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.9 g	10.0 ml	10.0 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	9000	4500	ug/kg	
71-43-2	Benzene	8520	450	340	ug/kg	
74-97-5	Bromochloromethane	ND	4500	390	ug/kg	
75-27-4	Bromodichloromethane	ND	1800	400	ug/kg	
75-25-2	Bromoform	ND	4500	360	ug/kg	
74-83-9	Bromomethane	ND	4500	900	ug/kg	
78-93-3	2-Butanone (MEK)	ND	9000	3400	ug/kg	
75-15-0	Carbon disulfide	ND	1800	840	ug/kg	
56-23-5	Carbon tetrachloride	ND	1800	500	ug/kg	
108-90-7	Chlorobenzene	ND	1800	320	ug/kg	
75-00-3	Chloroethane	ND	4500	620	ug/kg	
67-66-3	Chloroform	ND	1800	340	ug/kg	
74-87-3	Chloromethane	ND	4500	1800	ug/kg	
110-82-7	Cyclohexane	ND	1800	370	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1800	750	ug/kg	
124-48-1	Dibromochloromethane	ND	1800	310	ug/kg	
106-93-4	1,2-Dibromoethane	ND	900	290	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	900	280	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	900	320	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	900	310	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	4500	570	ug/kg	
75-34-3	1,1-Dichloroethane	ND	900	350	ug/kg	
107-06-2	1,2-Dichloroethane ^b	ND	900	420	ug/kg	UJ
75-35-4	1,1-Dichloroethene	ND	900	590	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	900	860	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	900	600	ug/kg	
78-87-5	1,2-Dichloropropane	ND	1800	370	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	1800	320	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	1800	300	ug/kg	
100-41-4	Ethylbenzene	7460	900	500	ug/kg	
76-13-1	Freon 113	ND	4500	690	ug/kg	
591-78-6	2-Hexanone	ND	4500	1100	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-127(6-8)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-20	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	87.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1800	630	ug/kg	
79-20-9	Methyl Acetate	ND	4500	1300	ug/kg	
108-87-2	Methylcyclohexane	ND	1800	640	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	900	320	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	4500	1400	ug/kg	
75-09-2	Methylene chloride	ND	4500	2300	ug/kg	
100-42-5	Styrene	ND	1800	520	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1800	350	ug/kg	
127-18-4	Tetrachloroethene	ND	1800	420	ug/kg	
108-88-3	Toluene	7560	900	340	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	4500	900	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	4500	900	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	1800	380	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	1800	310	ug/kg	
79-01-6	Trichloroethene	ND	900	690	ug/kg	
75-69-4	Trichlorofluoromethane	ND	4500	610	ug/kg	
75-01-4	Vinyl chloride	ND	1800	420	ug/kg	
	m,p-Xylene	19700	900	670	ug/kg	
95-47-6	o-Xylene	8260	900	530	ug/kg	
1330-20-7	Xylene (total)	27900	900	530	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		75-127%
17060-07-0	1,2-Dichloroethane-D4	94%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	84%		79-127%

(a) Diluted due to high concentration of non-target compound.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-127(6-8)	
Lab Sample ID: JC86553-20	Date Sampled: 04/17/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8270D SW846 3546	Percent Solids: 87.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	M153654.D	1	04/21/19 10:37	CB	04/19/19 07:45	OP19854	EM6566
Run #2	M153684.D	20	04/22/19 19:46	YC	04/19/19 07:45	OP19854	EM6567
Run #3	M153726.D	100	04/23/19 15:57	CC	04/19/19 07:45	OP19854	EM6569

Run #	Initial Weight	Final Volume
Run #1	15.4 g	1.0 ml
Run #2	15.4 g	1.0 ml
Run #3	15.4 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	150	37	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	370	46	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	370	63	ug/kg	
105-67-9	2,4-Dimethylphenol	3170	370	130	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	370	280	ug/kg	
534-52-1	4,6-Dinitro-o-cresol ^b	ND	370	80	ug/kg	
95-48-7	2-Methylphenol	362	150	48	ug/kg	
	3&4-Methylphenol	2160	150	61	ug/kg	
88-75-5	2-Nitrophenol	ND	370	49	ug/kg	
100-02-7	4-Nitrophenol	ND	740	200	ug/kg	
87-86-5	Pentachlorophenol ^b	ND	300	70	ug/kg	
108-95-2	Phenol	276	150	39	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	370	49	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	370	56	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	370	44	ug/kg	
83-32-9	Acenaphthene	42600 ^c	1500	510	ug/kg	D
208-96-8	Acenaphthylene	16400 ^c	1500	760	ug/kg	D
98-86-2	Acetophenone	ND	370	16	ug/kg	
120-12-7	Anthracene	29900 ^c	1500	910	ug/kg	D
1912-24-9	Atrazine	ND	150	32	ug/kg	
56-55-3	Benzo(a)anthracene	30500 ^c	1500	420	ug/kg	D
50-32-8	Benzo(a)pyrene	27100 ^c	1500	680	ug/kg	
205-99-2	Benzo(b)fluoranthene	31900 ^c	1500	660	ug/kg	
191-24-2	Benzo(g,h,i)perylene	14300 ^c	1500	740	ug/kg	
207-08-9	Benzo(k)fluoranthene	11300 ^c	1500	690	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	150	29	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	150	18	ug/kg	
92-52-4	1,1'-Biphenyl	7080	150	10	ug/kg	B
100-52-7	Benzaldehyde	ND	370	18	ug/kg	
91-58-7	2-Chloronaphthalene	ND	150	18	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.20
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Report of Analysis

Client Sample ID:	S-127(6-8)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-20	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	87.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	370	27	ug/kg	
86-74-8	Carbazole	15600 ^c	3000	220	ug/kg	B D
105-60-2	Caprolactam	ND	150	29	ug/kg	
218-01-9	Chrysene	25100 ^c	1500	470	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	150	16	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	150	32	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	150	27	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	150	24	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	74	23	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	74	37	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	150	62	ug/kg	
123-91-1	1,4-Dioxane ^d	ND	74	49	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	3370	74	33	ug/kg	
132-64-9	Dibenzofuran	38300 ^c	3000	610	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	150	12	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	150	19	ug/kg	
84-66-2	Diethyl phthalate	ND	150	16	ug/kg	
131-11-3	Dimethyl phthalate	ND	150	13	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	150	17	ug/kg	
206-44-0	Fluoranthene	87100 ^c	1500	660	ug/kg	D
86-73-7	Fluorene	51300 ^c	1500	680	ug/kg	D
118-74-1	Hexachlorobenzene	ND	150	19	ug/kg	
87-68-3	Hexachlorobutadiene	ND	74	30	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^b	ND	740	30	ug/kg	
67-72-1	Hexachloroethane	ND	370	37	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	13900 ^c	1500	700	ug/kg	D
78-59-1	Isophorone	ND	150	16	ug/kg	
91-57-6	2-Methylnaphthalene	46800 ^c	1500	340	ug/kg	D
88-74-4	2-Nitroaniline	ND	370	18	ug/kg	
99-09-2	3-Nitroaniline	ND	370	19	ug/kg	
100-01-6	4-Nitroaniline	ND	370	19	ug/kg	
91-20-3	Naphthalene	282000 ^e	7400	2100	ug/kg	D
98-95-3	Nitrobenzene	ND	150	29	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	150	21	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	370	27	ug/kg	
85-01-8	Phenanthrene	154000 ^e	7400	2500	ug/kg	D
129-00-0	Pyrene	55800 ^c	1500	480	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	370	19	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-127(6-8) Lab Sample ID: JC86553-20 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/17/19 Date Received: 04/17/19 Percent Solids: 87.3
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	49%	69%	72%	23-115%
4165-62-2	Phenol-d5	53%	68%	81%	27-114%
118-79-6	2,4,6-Tribromophenol	84%	118%	125%	19-152%
4165-60-0	Nitrobenzene-d5	62%	85%	92%	26-134%
321-60-8	2-Fluorobiphenyl	74%	98%	107%	39-124%
1718-51-0	Terphenyl-d14	62%	92%	90%	36-134%

- (a) Elevated detection limit due to low volume of sample extracted.
- (b) Associated CCV outside of control limits high, sample was ND.
- (c) Result is from Run# 2
- (d) Associated CCV outside of control limits low.
- (e) Result is from Run# 3

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-127(13-15)	
Lab Sample ID: JC86553-21	Date Sampled: 04/17/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8260C	Percent Solids: 62.4
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I225606.D	1	04/22/19 14:03	TDN	n/a	n/a	VI9089
Run #2							

Run #1	Initial Weight
Run #1	5.5 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	69.3	15	7.3	ug/kg	
71-43-2	Benzene	ND	0.73	0.55	ug/kg	
74-97-5	Bromochloromethane	ND	7.3	0.63	ug/kg	
75-27-4	Bromodichloromethane	ND	2.9	0.65	ug/kg	
75-25-2	Bromoform	ND	7.3	0.59	ug/kg	
74-83-9	Bromomethane	ND	7.3	1.5	ug/kg	
78-93-3	2-Butanone (MEK)	11.2	15	5.4	ug/kg	J
75-15-0	Carbon disulfide	ND	2.9	1.4	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.9	0.80	ug/kg	
108-90-7	Chlorobenzene	ND	2.9	0.52	ug/kg	
75-00-3	Chloroethane	ND	7.3	1.0	ug/kg	
67-66-3	Chloroform	ND	2.9	0.54	ug/kg	
74-87-3	Chloromethane	ND	7.3	2.9	ug/kg	
110-82-7	Cyclohexane	ND	2.9	0.59	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.9	1.2	ug/kg	
124-48-1	Dibromochloromethane	ND	2.9	0.49	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.5	0.47	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.5	0.44	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.5	0.52	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.5	0.50	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	7.3	0.93	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.5	0.56	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.5	0.68	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.5	0.96	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.5	1.4	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.5	0.97	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.9	0.59	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.9	0.51	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.9	0.48	ug/kg	
100-41-4	Ethylbenzene	ND	1.5	0.80	ug/kg	
76-13-1	Freon 113	ND	7.3	1.1	ug/kg	
591-78-6	2-Hexanone	ND	7.3	1.9	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-127(13-15)		Date Sampled: 04/17/19
Lab Sample ID: JC86553-21		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 62.4
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	1.2	2.9	1.0	ug/kg	J
79-20-9	Methyl Acetate	ND	7.3	2.0	ug/kg	
108-87-2	Methylcyclohexane	3.4	2.9	1.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.5	0.51	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	7.3	2.3	ug/kg	
75-09-2	Methylene chloride	ND	7.3	3.6	ug/kg	
100-42-5	Styrene	ND	2.9	0.84	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.9	0.57	ug/kg	
127-18-4	Tetrachloroethene	ND	2.9	0.67	ug/kg	
108-88-3	Toluene	0.60	1.5	0.55	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	7.3	1.5	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	7.3	1.5	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.9	0.62	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.9	0.50	ug/kg	
79-01-6	Trichloroethene	ND	1.5	1.1	ug/kg	
75-69-4	Trichlorofluoromethane	ND	7.3	0.99	ug/kg	
75-01-4	Vinyl chloride	ND	2.9	0.68	ug/kg	
	m,p-Xylene	ND	1.5	1.1	ug/kg	
95-47-6	o-Xylene	ND	1.5	0.85	ug/kg	
1330-20-7	Xylene (total)	ND	1.5	0.85	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	113%		75-127%
17060-07-0	1,2-Dichloroethane-D4	112%		75-130%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	117%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-127(13-15)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-21	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	62.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153646.D	1	04/21/19 06:51	CB	04/19/19 07:45	OP19854	EM6566
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.3 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	110	26	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	260	32	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	260	45	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	260	94	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	260	200	ug/kg	
534-52-1	4,6-Dinitro-o-cresol ^a	ND	260	57	ug/kg	
95-48-7	2-Methylphenol	ND	110	34	ug/kg	
	3&4-Methylphenol	142	110	43	ug/kg	
88-75-5	2-Nitrophenol	ND	260	35	ug/kg	
100-02-7	4-Nitrophenol	ND	530	140	ug/kg	
87-86-5	Pentachlorophenol ^a	ND	210	50	ug/kg	
108-95-2	Phenol	ND	110	28	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	260	35	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	260	40	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	260	32	ug/kg	
83-32-9	Acenaphthene	1500	53	18	ug/kg	
208-96-8	Acenaphthylene	228	53	27	ug/kg	
98-86-2	Acetophenone	ND	260	11	ug/kg	
120-12-7	Anthracene	1040	53	32	ug/kg	
1912-24-9	Atrazine	ND	110	23	ug/kg	
56-55-3	Benzo(a)anthracene	940	53	15	ug/kg	
50-32-8	Benzo(a)pyrene	1070	53	24	ug/kg	
205-99-2	Benzo(b)fluoranthene	1080	53	23	ug/kg	
191-24-2	Benzo(g,h,i)perylene	587	53	26	ug/kg	
207-08-9	Benzo(k)fluoranthene	384	53	25	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	110	20	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	110	13	ug/kg	
92-52-4	1,1'-Biphenyl	77.3	110	7.2	ug/kg	JB
100-52-7	Benzaldehyde	ND	260	13	ug/kg	
91-58-7	2-Chloronaphthalene	ND	110	13	ug/kg	
106-47-8	4-Chloroaniline	ND	260	19	ug/kg	
86-74-8	Carbazole	59.9	110	7.7	ug/kg	JB

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-127(13-15)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-21	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	62.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	110	21	ug/kg	
218-01-9	Chrysene	1100	53	17	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	110	11	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	110	23	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	110	19	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	110	17	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	53	16	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	53	27	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	110	44	ug/kg	
123-91-1	1,4-Dioxane ^b	ND	53	35	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	145	53	23	ug/kg	
132-64-9	Dibenzofuran	382	110	22	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	110	8.6	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	110	13	ug/kg	
84-66-2	Diethyl phthalate	ND	110	11	ug/kg	
131-11-3	Dimethyl phthalate	ND	110	9.4	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	110	12	ug/kg	
206-44-0	Fluoranthene	2090	53	24	ug/kg	
86-73-7	Fluorene	1120	53	24	ug/kg	
118-74-1	Hexachlorobenzene	ND	110	13	ug/kg	
87-68-3	Hexachlorobutadiene	ND	53	21	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^a	ND	530	21	ug/kg	
67-72-1	Hexachloroethane	ND	260	26	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	518	53	25	ug/kg	
78-59-1	Isophorone	ND	110	11	ug/kg	
91-57-6	2-Methylnaphthalene	405	53	12	ug/kg	
88-74-4	2-Nitroaniline	ND	260	12	ug/kg	
99-09-2	3-Nitroaniline	ND	260	13	ug/kg	
100-01-6	4-Nitroaniline	ND	260	14	ug/kg	
91-20-3	Naphthalene	1030	53	15	ug/kg	
98-95-3	Nitrobenzene	ND	110	20	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	110	15	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	260	19	ug/kg	
85-01-8	Phenanthrene	4690	53	18	ug/kg	
129-00-0	Pyrene	2300	53	17	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	260	13	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	40%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-127(13-15)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-21	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 62.4
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	41%		27-114%
118-79-6	2,4,6-Tribromophenol	67%		19-152%
4165-60-0	Nitrobenzene-d5	53%		26-134%
321-60-8	2-Fluorobiphenyl	60%		39-124%
1718-51-0	Terphenyl-d14	56%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: SB-131(2-4)		Date Sampled: 04/17/19
Lab Sample ID: JC86553-22		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 85.0
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	3C151411.D	1	04/25/19 04:34	PS	n/a	n/a	V3C6807

Run #1	Initial Weight
Run #2	6.0 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	32.4	9.8	4.9	ug/kg	
71-43-2	Benzene	ND	0.49	0.37	ug/kg	
74-97-5	Bromochloromethane	ND	4.9	0.42	ug/kg	
75-27-4	Bromodichloromethane	ND	2.0	0.43	ug/kg	
75-25-2	Bromoform	ND	4.9	0.39	ug/kg	
74-83-9	Bromomethane ^a	ND	4.9	0.97	ug/kg	UJ
78-93-3	2-Butanone (MEK)	ND	9.8	3.7	ug/kg	
75-15-0	Carbon disulfide	ND	2.0	0.91	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.0	0.54	ug/kg	
108-90-7	Chlorobenzene	ND	2.0	0.35	ug/kg	
75-00-3	Chloroethane	ND	4.9	0.67	ug/kg	
67-66-3	Chloroform	ND	2.0	0.36	ug/kg	
74-87-3	Chloromethane	ND	4.9	1.9	ug/kg	
110-82-7	Cyclohexane	ND	2.0	0.40	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.82	ug/kg	
124-48-1	Dibromochloromethane	ND	2.0	0.33	ug/kg	
106-93-4	1,2-Dibromoethane	ND	0.98	0.32	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.98	0.30	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.98	0.35	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.98	0.34	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	4.9	0.62	ug/kg	
75-34-3	1,1-Dichloroethane	ND	0.98	0.38	ug/kg	
107-06-2	1,2-Dichloroethane	ND	0.98	0.46	ug/kg	
75-35-4	1,1-Dichloroethene	ND	0.98	0.64	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.98	0.94	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.98	0.65	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.0	0.40	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.0	0.34	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.0	0.32	ug/kg	
100-41-4	Ethylbenzene	ND	0.98	0.54	ug/kg	
76-13-1	Freon 113	ND	4.9	0.74	ug/kg	
591-78-6	2-Hexanone	ND	4.9	1.2	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-131(2-4)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-22	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	85.0
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.0	0.68	ug/kg	
79-20-9	Methyl Acetate	ND	4.9	1.4	ug/kg	
108-87-2	Methylcyclohexane	ND	2.0	0.69	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.98	0.34	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	4.9	1.5	ug/kg	
75-09-2	Methylene chloride	ND	4.9	2.4	ug/kg	
100-42-5	Styrene	ND	2.0	0.56	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.0	0.38	ug/kg	
127-18-4	Tetrachloroethene	ND	2.0	0.45	ug/kg	
108-88-3	Toluene	ND	0.98	0.37	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	4.9	0.98	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	4.9	0.98	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.0	0.42	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.0	0.33	ug/kg	
79-01-6	Trichloroethene	ND	0.98	0.74	ug/kg	
75-69-4	Trichlorofluoromethane	ND	4.9	0.67	ug/kg	
75-01-4	Vinyl chloride	ND	2.0	0.46	ug/kg	
	m,p-Xylene	ND	0.98	0.73	ug/kg	
95-47-6	o-Xylene	ND	0.98	0.57	ug/kg	
1330-20-7	Xylene (total)	ND	0.98	0.57	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		75-127%
17060-07-0	1,2-Dichloroethane-D4	104%		75-130%
2037-26-5	Toluene-D8	103%		80-120%
460-00-4	4-Bromofluorobenzene	109%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	SB-131(2-4)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-22	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	85.0
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153638.D	1	04/21/19 03:05	CB	04/19/19 07:45	OP19854	EM6566
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	31.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	75	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	32	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	190	67	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol ^a	ND	190	40	ug/kg	
95-48-7	2-Methylphenol	ND	75	24	ug/kg	
	3&4-Methylphenol	ND	75	31	ug/kg	
88-75-5	2-Nitrophenol	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol	ND	380	100	ug/kg	
87-86-5	Pentachlorophenol ^a	ND	150	35	ug/kg	
108-95-2	Phenol	ND	75	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	28	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	22	ug/kg	
83-32-9	Acenaphthene	ND	38	13	ug/kg	
208-96-8	Acenaphthylene	ND	38	19	ug/kg	
98-86-2	Acetophenone	ND	190	8.1	ug/kg	
120-12-7	Anthracene	ND	38	23	ug/kg	
1912-24-9	Atrazine	ND	75	16	ug/kg	
56-55-3	Benzo(a)anthracene	11.4	38	11	ug/kg	J
50-32-8	Benzo(a)pyrene	ND	38	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	38	17	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	38	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	38	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	75	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	75	9.2	ug/kg	
92-52-4	1,1'-Biphenyl	ND	75	5.2	ug/kg	
100-52-7	Benzaldehyde	ND	190	9.4	ug/kg	
91-58-7	2-Chloronaphthalene	ND	75	9.0	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	ND	75	5.5	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SB-131(2-4)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-22	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	85.0
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	75	15	ug/kg	
218-01-9	Chrysene	ND	38	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	75	8.1	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	75	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	75	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	75	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	38	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	38	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	75	31	ug/kg	
123-91-1	1,4-Dioxane ^b	ND	38	25	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	ND	38	17	ug/kg	
132-64-9	Dibenzofuran	ND	75	15	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	75	6.1	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	75	9.4	ug/kg	
84-66-2	Diethyl phthalate	ND	75	8.0	ug/kg	
131-11-3	Dimethyl phthalate	ND	75	6.7	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	75	8.8	ug/kg	
206-44-0	Fluoranthene	17.1	38	17	ug/kg	J
86-73-7	Fluorene	ND	38	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	75	9.5	ug/kg	
87-68-3	Hexachlorobutadiene	ND	38	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^a	ND	380	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	38	18	ug/kg	
78-59-1	Isophorone	ND	75	8.1	ug/kg	
91-57-6	2-Methylnaphthalene	ND	38	8.5	ug/kg	
88-74-4	2-Nitroaniline	ND	190	8.9	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.4	ug/kg	
100-01-6	4-Nitroaniline	ND	190	9.8	ug/kg	
91-20-3	Naphthalene	ND	38	11	ug/kg	
98-95-3	Nitrobenzene	ND	75	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	75	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	16.0	38	13	ug/kg	J
129-00-0	Pyrene	13.1	38	12	ug/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.6	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	35%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SB-131(2-4)		Date Sampled: 04/17/19
Lab Sample ID: JC86553-22		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 85.0
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	35%		27-114%
118-79-6	2,4,6-Tribromophenol	55%		19-152%
4165-60-0	Nitrobenzene-d5	42%		26-134%
321-60-8	2-Fluorobiphenyl	48%		39-124%
1718-51-0	Terphenyl-d14	46%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.22
4

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Client Sample ID: S-131(7-9)		
Lab Sample ID: JC86553-23		Date Sampled: 04/17/19
Matrix: SO - Soil		Date Received: 04/17/19
Method: SW846 8260C		Percent Solids: 59.7
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	I225607.D	1	04/22/19 14:33	TDN	n/a	n/a	VI9089

	Initial Weight
Run #1	4.3 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	57.7	19	9.7	ug/kg	
71-43-2	Benzene	1.8	0.97	0.73	ug/kg	
74-97-5	Bromochloromethane	ND	9.7	0.84	ug/kg	
75-27-4	Bromodichloromethane	ND	3.9	0.86	ug/kg	
75-25-2	Bromoform	ND	9.7	0.78	ug/kg	
74-83-9	Bromomethane	ND	9.7	1.9	ug/kg	
78-93-3	2-Butanone (MEK)	8.5	19	7.3	ug/kg	J
75-15-0	Carbon disulfide	3.8	3.9	1.8	ug/kg	J
56-23-5	Carbon tetrachloride	ND	3.9	1.1	ug/kg	
108-90-7	Chlorobenzene	ND	3.9	0.69	ug/kg	
75-00-3	Chloroethane	ND	9.7	1.3	ug/kg	
67-66-3	Chloroform	ND	3.9	0.72	ug/kg	
74-87-3	Chloromethane	ND	9.7	3.8	ug/kg	
110-82-7	Cyclohexane	ND	3.9	0.79	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.9	1.6	ug/kg	
124-48-1	Dibromochloromethane	ND	3.9	0.66	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.9	0.63	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.9	0.59	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.9	0.70	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.9	0.67	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	9.7	1.2	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.9	0.75	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.9	0.92	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.9	1.3	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.9	1.9	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.9	1.3	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.9	0.79	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.9	0.69	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.9	0.64	ug/kg	
100-41-4	Ethylbenzene	2.1	1.9	1.1	ug/kg	
76-13-1	Freon 113	ND	9.7	1.5	ug/kg	
591-78-6	2-Hexanone	ND	9.7	2.5	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-131(7-9)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-23	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	59.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	4.4	3.9	1.4	ug/kg	
79-20-9	Methyl Acetate	ND	9.7	2.7	ug/kg	
108-87-2	Methylcyclohexane	2.4	3.9	1.4	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.9	0.69	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	9.7	3.0	ug/kg	
75-09-2	Methylene chloride	ND	9.7	4.9	ug/kg	
100-42-5	Styrene	ND	3.9	1.1	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.9	0.76	ug/kg	
127-18-4	Tetrachloroethene	ND	3.9	0.90	ug/kg	
108-88-3	Toluene	0.83	1.9	0.73	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	9.7	1.9	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	9.7	1.9	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.9	0.83	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.9	0.67	ug/kg	
79-01-6	Trichloroethene	ND	1.9	1.5	ug/kg	
75-69-4	Trichlorofluoromethane	ND	9.7	1.3	ug/kg	
75-01-4	Vinyl chloride	ND	3.9	0.91	ug/kg	
	m,p-Xylene	ND	1.9	1.5	ug/kg	
95-47-6	o-Xylene	ND	1.9	1.1	ug/kg	
1330-20-7	Xylene (total)	1.7	1.9	1.1	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%		75-127%
17060-07-0	1,2-Dichloroethane-D4	109%		75-130%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	110%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-131(7-9)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-23	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	59.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153647.D	1	04/21/19 07:20	CB	04/19/19 07:45	OP19854	EM6566
Run #2	M153682.D	5	04/22/19 18:49	YC	04/19/19 07:45	OP19854	EM6567

Run #1	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2	30.4 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	110	27	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	280	34	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	280	47	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	280	98	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	280	210	ug/kg	
534-52-1	4,6-Dinitro-o-cresol ^a	ND	280	59	ug/kg	
95-48-7	2-Methylphenol	ND	110	35	ug/kg	
	3&4-Methylphenol	101	110	45	ug/kg	J
88-75-5	2-Nitrophenol	ND	280	36	ug/kg	
100-02-7	4-Nitrophenol	ND	550	150	ug/kg	
87-86-5	Pentachlorophenol ^a	ND	220	52	ug/kg	
108-95-2	Phenol	ND	110	29	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	280	36	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	280	41	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	280	33	ug/kg	
83-32-9	Acenaphthene	7650 ^b	280	95	ug/kg	D
208-96-8	Acenaphthylene	223	55	28	ug/kg	
98-86-2	Acetophenone	33.4	280	12	ug/kg	J
120-12-7	Anthracene	4930	55	34	ug/kg	
1912-24-9	Atrazine	ND	110	24	ug/kg	
56-55-3	Benzo(a)anthracene	1590	55	16	ug/kg	
50-32-8	Benzo(a)pyrene	989	55	25	ug/kg	
205-99-2	Benzo(b)fluoranthene	1230	55	24	ug/kg	
191-24-2	Benzo(g,h,i)perylene	426	55	28	ug/kg	
207-08-9	Benzo(k)fluoranthene	411	55	26	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	110	21	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	110	13	ug/kg	
92-52-4	1,1'-Biphenyl	218	110	7.5	ug/kg	B
100-52-7	Benzaldehyde	ND	280	14	ug/kg	
91-58-7	2-Chloronaphthalene	ND	110	13	ug/kg	
106-47-8	4-Chloroaniline	ND	280	20	ug/kg	
86-74-8	Carbazole	1610	110	8.0	ug/kg	B

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-131(7-9)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-23	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	59.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	110	22	ug/kg	
218-01-9	Chrysene	2020	55	17	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	110	12	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	110	24	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	110	20	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	110	18	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	55	17	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	55	28	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	110	46	ug/kg	
123-91-1	1,4-Dioxane ^c	ND	55	36	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	120	55	24	ug/kg	
132-64-9	Dibenzofuran	2780	110	22	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	110	9.0	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	110	14	ug/kg	
84-66-2	Diethyl phthalate	ND	110	12	ug/kg	
131-11-3	Dimethyl phthalate	ND	110	9.8	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	110	13	ug/kg	
206-44-0	Fluoranthene	6590 ^b	280	120	ug/kg	D
86-73-7	Fluorene	5690 ^b	280	130	ug/kg	D
118-74-1	Hexachlorobenzene	ND	110	14	ug/kg	
87-68-3	Hexachlorobutadiene	ND	55	22	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^a	ND	550	22	ug/kg	
67-72-1	Hexachloroethane	ND	280	27	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	400	55	26	ug/kg	
78-59-1	Isophorone	ND	110	12	ug/kg	
91-57-6	2-Methylnaphthalene	752	55	12	ug/kg	
88-74-4	2-Nitroaniline	ND	280	13	ug/kg	
99-09-2	3-Nitroaniline	ND	280	14	ug/kg	
100-01-6	4-Nitroaniline	ND	280	14	ug/kg	
91-20-3	Naphthalene	1120	55	16	ug/kg	
98-95-3	Nitrobenzene	ND	110	21	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	110	16	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	280	20	ug/kg	
85-01-8	Phenanthrene	17000 ^b	280	93	ug/kg	D
129-00-0	Pyrene	5270	55	18	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	280	14	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	50%	46%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-131(7-9) Lab Sample ID: JC86553-23 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/17/19 Date Received: 04/17/19 Percent Solids: 59.7
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	50%	49%	27-114%
118-79-6	2,4,6-Tribromophenol	82%	79%	19-152%
4165-60-0	Nitrobenzene-d5	61%	58%	26-134%
321-60-8	2-Fluorobiphenyl	71%	70%	39-124%
1718-51-0	Terphenyl-d14	67%	62%	36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Result is from Run# 2
- (c) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-132(2-4)	
Lab Sample ID: JC86553-24	Date Sampled: 04/17/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8260C	Percent Solids: 83.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V44300.D	1	04/24/19 19:23	RS	n/a	n/a	V3V1778
Run #2							

Run #1	Initial Weight
Run #1	4.4 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	14	6.8	ug/kg	
71-43-2	Benzene	ND	0.68	0.51	ug/kg	
74-97-5	Bromochloromethane	ND	6.8	0.58	ug/kg	
75-27-4	Bromodichloromethane	ND	2.7	0.60	ug/kg	
75-25-2	Bromoform	ND	6.8	0.55	ug/kg	
74-83-9	Bromomethane	ND	6.8	1.3	ug/kg	
78-93-3	2-Butanone (MEK)	ND	14	5.1	ug/kg	
75-15-0	Carbon disulfide	ND	2.7	1.3	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.7	0.74	ug/kg	
108-90-7	Chlorobenzene	ND	2.7	0.48	ug/kg	
75-00-3	Chloroethane	ND	6.8	0.93	ug/kg	
67-66-3	Chloroform	ND	2.7	0.50	ug/kg	
74-87-3	Chloromethane	ND	6.8	2.7	ug/kg	
110-82-7	Cyclohexane ^a	ND	2.7	0.55	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.7	1.1	ug/kg	
124-48-1	Dibromochloromethane	ND	2.7	0.46	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.4	0.44	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.4	0.41	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.4	0.49	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.4	0.47	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.8	0.86	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.4	0.52	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.4	0.64	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.4	0.89	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.4	1.3	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.4	0.90	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.7	0.55	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.7	0.48	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.7	0.44	ug/kg	
100-41-4	Ethylbenzene	ND	1.4	0.75	ug/kg	
76-13-1	Freon 113	ND	6.8	1.0	ug/kg	
591-78-6	2-Hexanone	ND	6.8	1.7	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-132(2-4)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-24	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	83.9
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.7	0.94	ug/kg	
79-20-9	Methyl Acetate	ND	6.8	1.9	ug/kg	
108-87-2	Methylcyclohexane ^a	ND	2.7	0.96	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.4	0.48	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.8	2.1	ug/kg	
75-09-2	Methylene chloride	ND	6.8	3.4	ug/kg	
100-42-5	Styrene	ND	2.7	0.78	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.7	0.53	ug/kg	
127-18-4	Tetrachloroethene	ND	2.7	0.63	ug/kg	
108-88-3	Toluene	ND	1.4	0.51	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.8	1.4	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.8	1.4	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.7	0.58	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.7	0.46	ug/kg	
79-01-6	Trichloroethene	ND	1.4	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.8	0.92	ug/kg	
75-01-4	Vinyl chloride	ND	2.7	0.64	ug/kg	
	m,p-Xylene	ND	1.4	1.0	ug/kg	
95-47-6	o-Xylene	ND	1.4	0.79	ug/kg	
1330-20-7	Xylene (total)	ND	1.4	0.79	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		75-127%
17060-07-0	1,2-Dichloroethane-D4	98%		75-130%
2037-26-5	Toluene-D8	103%		80-120%
460-00-4	4-Bromofluorobenzene	103%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-132(2-4)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-24	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	83.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153653.D	1	04/21/19 10:09	CB	04/19/19 07:45	OP19854	EM6566
Run #2	M153683.D	20	04/22/19 19:18	YC	04/19/19 07:45	OP19854	EM6567

Run #	Initial Weight	Final Volume
Run #1	31.3 g	1.0 ml
Run #2	31.3 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	76	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	32	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	190	68	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol ^a	ND	190	41	ug/kg	
95-48-7	2-Methylphenol	71.6	76	24	ug/kg	J
	3&4-Methylphenol	177	76	31	ug/kg	
88-75-5	2-Nitrophenol	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol	ND	380	100	ug/kg	
87-86-5	Pentachlorophenol ^a	ND	150	36	ug/kg	
108-95-2	Phenol	196	76	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	29	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	23	ug/kg	
83-32-9	Acenaphthene	925	38	13	ug/kg	
208-96-8	Acenaphthylene	14200 ^b	760	390	ug/kg	D
98-86-2	Acetophenone	38.5	190	8.2	ug/kg	J
120-12-7	Anthracene	13600 ^b	760	470	ug/kg	D
1912-24-9	Atrazine	ND	76	16	ug/kg	
56-55-3	Benzo(a)anthracene	36100 ^b	760	220	ug/kg	D
50-32-8	Benzo(a)pyrene	33500 ^b	760	350	ug/kg	
205-99-2	Benzo(b)fluoranthene	45200 ^b	760	340	ug/kg	
191-24-2	Benzo(g,h,i)perylene	19400 ^b	760	380	ug/kg	
207-08-9	Benzo(k)fluoranthene	15600 ^b	760	360	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	76	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	76	9.3	ug/kg	
92-52-4	1,1'-Biphenyl	195	76	5.2	ug/kg	B
100-52-7	Benzaldehyde	ND	190	9.4	ug/kg	
91-58-7	2-Chloronaphthalene	ND	76	9.1	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	2190	76	5.5	ug/kg	B

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-132(2-4)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-24	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	83.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	76	15	ug/kg	
218-01-9	Chrysene	31200 ^b	760	240	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	76	8.1	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	76	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	76	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	76	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	38	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	38	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	76	32	ug/kg	
123-91-1	1,4-Dioxane ^c	ND	38	25	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	5910 ^b	760	340	ug/kg	D
132-64-9	Dibenzofuran	3190	76	15	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	76	6.2	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	76	9.5	ug/kg	
84-66-2	Diethyl phthalate	ND	76	8.1	ug/kg	
131-11-3	Dimethyl phthalate	ND	76	6.8	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	76	8.9	ug/kg	
206-44-0	Fluoranthene	73700 ^b	760	340	ug/kg	D
86-73-7	Fluorene	6940 ^b	760	350	ug/kg	D
118-74-1	Hexachlorobenzene	ND	76	9.6	ug/kg	
87-68-3	Hexachlorobutadiene	ND	38	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^a	ND	380	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	19700 ^b	760	360	ug/kg	D
78-59-1	Isophorone	ND	76	8.1	ug/kg	
91-57-6	2-Methylnaphthalene	1280	38	8.6	ug/kg	
88-74-4	2-Nitroaniline	ND	190	9.0	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.5	ug/kg	
100-01-6	4-Nitroaniline	ND	190	9.9	ug/kg	
91-20-3	Naphthalene	2990	38	11	ug/kg	
98-95-3	Nitrobenzene	ND	76	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	76	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	43800 ^b	760	260	ug/kg	D
129-00-0	Pyrene	53300 ^b	760	240	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.7	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	35%	44%	23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-132(2-4)		Date Sampled: 04/17/19
Lab Sample ID: JC86553-24		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 83.9
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	34%	46%	27-114%
118-79-6	2,4,6-Tribromophenol	61%	65%	19-152%
4165-60-0	Nitrobenzene-d5	44%	58%	26-134%
321-60-8	2-Fluorobiphenyl	51%	65%	39-124%
1718-51-0	Terphenyl-d14	39%	61%	36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Result is from Run# 2
- (c) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.24
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Report of Analysis

Client Sample ID: S-132(8-10)		Date Sampled: 04/17/19
Lab Sample ID: JC86553-25		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 56.1
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D264003.D	1	04/24/19 10:46	TDN	n/a	n/a	VD10641
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.5 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^b	ND	2400	1200	ug/kg	
71-43-2	Benzene	363	120	89	ug/kg	
74-97-5	Bromochloromethane	ND	1200	100	ug/kg	
75-27-4	Bromodichloromethane	ND	470	110	ug/kg	
75-25-2	Bromoform	ND	1200	96	ug/kg	
74-83-9	Bromomethane	ND	1200	240	ug/kg	
78-93-3	2-Butanone (MEK)	ND	2400	890	ug/kg	
75-15-0	Carbon disulfide	607	470	220	ug/kg	
56-23-5	Carbon tetrachloride	ND	470	130	ug/kg	
108-90-7	Chlorobenzene	ND	470	84	ug/kg	
75-00-3	Chloroethane	ND	1200	160	ug/kg	
67-66-3	Chloroform	ND	470	88	ug/kg	
74-87-3	Chloromethane	ND	1200	460	ug/kg	
110-82-7	Cyclohexane	ND	470	96	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	470	200	ug/kg	
124-48-1	Dibromochloromethane	ND	470	80	ug/kg	
106-93-4	1,2-Dibromoethane	ND	240	77	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	240	72	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	240	85	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	240	82	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	1200	150	ug/kg	
75-34-3	1,1-Dichloroethane	ND	240	91	ug/kg	
107-06-2	1,2-Dichloroethane ^c	ND	240	110	ug/kg	UJ
75-35-4	1,1-Dichloroethene	ND	240	160	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	240	230	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	240	160	ug/kg	
78-87-5	1,2-Dichloropropane	ND	470	97	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	470	83	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	470	78	ug/kg	
100-41-4	Ethylbenzene	249	240	130	ug/kg	
76-13-1	Freon 113	ND	1200	180	ug/kg	
591-78-6	2-Hexanone	ND	1200	300	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-132(8-10)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-25	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	56.1
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	470	170	ug/kg	
79-20-9	Methyl Acetate	1030	1200	330	ug/kg	J
108-87-2	Methylcyclohexane	ND	470	170	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	240	83	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	1200	370	ug/kg	
75-09-2	Methylene chloride	ND	1200	590	ug/kg	
100-42-5	Styrene	ND	470	140	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	470	93	ug/kg	
127-18-4	Tetrachloroethene	ND	470	110	ug/kg	
108-88-3	Toluene	1630	240	89	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	1200	240	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	1200	240	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	470	100	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	470	81	ug/kg	
79-01-6	Trichloroethene	ND	240	180	ug/kg	
75-69-4	Trichlorofluoromethane	ND	1200	160	ug/kg	
75-01-4	Vinyl chloride	ND	470	110	ug/kg	
	m,p-Xylene	311	240	180	ug/kg	
95-47-6	o-Xylene	ND	240	140	ug/kg	
1330-20-7	Xylene (total)	311	240	140	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		75-127%
17060-07-0	1,2-Dichloroethane-D4	92%		75-130%
2037-26-5	Toluene-D8	98%		80-120%
460-00-4	4-Bromofluorobenzene	93%		79-127%

- (a) Diluted due to high concentration of non-target compound.
 (b) Associated CCV outside of control limits high, sample was ND.
 (c) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-132(8-10)		Date Sampled: 04/17/19
Lab Sample ID: JC86553-25		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 56.1
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153643.D	1	04/21/19 05:27	CB	04/19/19 07:45	OP19854	EM6566
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	120	29	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	290	36	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	290	50	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	290	100	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	290	220	ug/kg	
534-52-1	4,6-Dinitro-o-cresol ^a	ND	290	62	ug/kg	
95-48-7	2-Methylphenol	ND	120	37	ug/kg	
	3&4-Methylphenol	345	120	48	ug/kg	
88-75-5	2-Nitrophenol	ND	290	39	ug/kg	
100-02-7	4-Nitrophenol	ND	580	160	ug/kg	
87-86-5	Pentachlorophenol ^a	ND	230	55	ug/kg	
108-95-2	Phenol	ND	120	30	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	290	39	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	290	44	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	290	35	ug/kg	
83-32-9	Acenaphthene	265	58	20	ug/kg	
208-96-8	Acenaphthylene	62.1	58	30	ug/kg	
98-86-2	Acetophenone	18.2	290	13	ug/kg	J
120-12-7	Anthracene	98.8	58	36	ug/kg	
1912-24-9	Atrazine	ND	120	25	ug/kg	
56-55-3	Benzo(a)anthracene	137	58	16	ug/kg	
50-32-8	Benzo(a)pyrene	184	58	27	ug/kg	
205-99-2	Benzo(b)fluoranthene	177	58	26	ug/kg	
191-24-2	Benzo(g,h,i)perylene	121	58	29	ug/kg	
207-08-9	Benzo(k)fluoranthene	71.7	58	27	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	120	22	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	120	14	ug/kg	
92-52-4	1,1'-Biphenyl	120	120	8.0	ug/kg	JB UB
100-52-7	Benzaldehyde	ND	290	14	ug/kg	
91-58-7	2-Chloronaphthalene	ND	120	14	ug/kg	
106-47-8	4-Chloroaniline	ND	290	21	ug/kg	
86-74-8	Carbazole	120	120	8.4	ug/kg	JB UB

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-132(8-10)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-25	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	56.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	120	23	ug/kg	
218-01-9	Chrysene	175	58	18	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	120	12	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	120	25	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	120	21	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	120	19	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	58	18	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	58	29	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	120	49	ug/kg	
123-91-1	1,4-Dioxane ^b	ND	58	39	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	27.0	58	26	ug/kg	J
132-64-9	Dibenzofuran	45.0	120	24	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	120	9.5	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	120	15	ug/kg	
84-66-2	Diethyl phthalate	ND	120	12	ug/kg	
131-11-3	Dimethyl phthalate	ND	120	10	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	120	14	ug/kg	
206-44-0	Fluoranthene	282	58	26	ug/kg	
86-73-7	Fluorene	103	58	27	ug/kg	
118-74-1	Hexachlorobenzene	ND	120	15	ug/kg	
87-68-3	Hexachlorobutadiene	ND	58	23	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^a	ND	580	23	ug/kg	
67-72-1	Hexachloroethane	ND	290	29	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	120	58	27	ug/kg	
78-59-1	Isophorone	ND	120	12	ug/kg	
91-57-6	2-Methylnaphthalene	181	58	13	ug/kg	
88-74-4	2-Nitroaniline	ND	290	14	ug/kg	
99-09-2	3-Nitroaniline	ND	290	15	ug/kg	
100-01-6	4-Nitroaniline	ND	290	15	ug/kg	
91-20-3	Naphthalene	762	58	16	ug/kg	
98-95-3	Nitrobenzene	ND	120	22	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	120	17	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	290	21	ug/kg	
85-01-8	Phenanthrene	340	58	20	ug/kg	
129-00-0	Pyrene	347	58	19	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	290	15	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	46%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-132(8-10)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-25	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 56.1
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	46%		27-114%
118-79-6	2,4,6-Tribromophenol	77%		19-152%
4165-60-0	Nitrobenzene-d5	57%		26-134%
321-60-8	2-Fluorobiphenyl	68%		39-124%
1718-51-0	Terphenyl-d14	64%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-133(2-4)		Date Sampled: 04/17/19
Lab Sample ID: JC86553-26		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 83.7
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	3C151412.D	1	04/25/19 04:57	PS	n/a	n/a	V3C6807

Run #1	Initial Weight
Run #2	4.4 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	447	13	6.7	ug/kg	
71-43-2	Benzene	ND	0.67	0.51	ug/kg	
74-97-5	Bromochloromethane	ND	6.7	0.58	ug/kg	
75-27-4	Bromodichloromethane	ND	2.7	0.60	ug/kg	
75-25-2	Bromoform	ND	6.7	0.54	ug/kg	
74-83-9	Bromomethane ^a	ND	6.7	1.3	ug/kg	UJ
78-93-3	2-Butanone (MEK)	40.3	13	5.0	ug/kg	
75-15-0	Carbon disulfide	9.5	2.7	1.2	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.7	0.74	ug/kg	
108-90-7	Chlorobenzene	ND	2.7	0.48	ug/kg	
75-00-3	Chloroethane	ND	6.7	0.92	ug/kg	
67-66-3	Chloroform	ND	2.7	0.50	ug/kg	
74-87-3	Chloromethane	ND	6.7	2.6	ug/kg	
110-82-7	Cyclohexane	ND	2.7	0.55	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.7	1.1	ug/kg	
124-48-1	Dibromochloromethane	ND	2.7	0.45	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.3	0.44	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.3	0.41	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.3	0.48	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.3	0.46	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.7	0.85	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.3	0.52	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.3	0.63	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.3	0.88	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.3	1.3	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.3	0.90	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.7	0.55	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.7	0.47	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.7	0.44	ug/kg	
100-41-4	Ethylbenzene	ND	1.3	0.74	ug/kg	
76-13-1	Freon 113	ND	6.7	1.0	ug/kg	
591-78-6	2-Hexanone	ND	6.7	1.7	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-133(2-4)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-26	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	83.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.7	0.94	ug/kg	
79-20-9	Methyl Acetate	ND	6.7	1.9	ug/kg	
108-87-2	Methylcyclohexane	ND	2.7	0.95	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.3	0.47	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.7	2.1	ug/kg	
75-09-2	Methylene chloride	ND	6.7	3.4	ug/kg	
100-42-5	Styrene	ND	2.7	0.77	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.7	0.52	ug/kg	
127-18-4	Tetrachloroethene	ND	2.7	0.62	ug/kg	
108-88-3	Toluene	ND	1.3	0.51	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.7	1.3	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.7	1.3	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.7	0.57	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.7	0.46	ug/kg	
79-01-6	Trichloroethene	ND	1.3	1.0	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.7	0.92	ug/kg	
75-01-4	Vinyl chloride	ND	2.7	0.63	ug/kg	
	m,p-Xylene	ND	1.3	1.0	ug/kg	
95-47-6	o-Xylene	ND	1.3	0.78	ug/kg	
1330-20-7	Xylene (total)	ND	1.3	0.78	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	78%		75-127%
17060-07-0	1,2-Dichloroethane-D4	103%		75-130%
2037-26-5	Toluene-D8	106%		80-120%
460-00-4	4-Bromofluorobenzene	114%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-133(2-4)		Date Sampled: 04/17/19
Lab Sample ID: JC86553-26		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 83.7
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153652.D	1	04/21/19 09:41	CB	04/19/19 07:45	OP19854	EM6566
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	79	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	24	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	34	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	70	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	200	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol ^a	ND	200	42	ug/kg	
95-48-7	2-Methylphenol	ND	79	25	ug/kg	
	3&4-Methylphenol	ND	79	32	ug/kg	
88-75-5	2-Nitrophenol	ND	200	26	ug/kg	
100-02-7	4-Nitrophenol	ND	390	100	ug/kg	
87-86-5	Pentachlorophenol ^b	447	160	37	ug/kg	J
108-95-2	Phenol	ND	79	21	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	29.1	200	26	ug/kg	J
95-95-4	2,4,5-Trichlorophenol	ND	200	29	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	23	ug/kg	
83-32-9	Acenaphthene	84.3	39	14	ug/kg	
208-96-8	Acenaphthylene	351	39	20	ug/kg	
98-86-2	Acetophenone	ND	200	8.4	ug/kg	
120-12-7	Anthracene	661	39	24	ug/kg	
1912-24-9	Atrazine	ND	79	17	ug/kg	
56-55-3	Benzo(a)anthracene	1560	39	11	ug/kg	
50-32-8	Benzo(a)pyrene	1570	39	18	ug/kg	
205-99-2	Benzo(b)fluoranthene	2170	39	17	ug/kg	
191-24-2	Benzo(g,h,i)perylene	1150	39	20	ug/kg	
207-08-9	Benzo(k)fluoranthene	719	39	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	79	15	ug/kg	
85-68-7	Butyl benzyl phthalate	45.4	79	9.6	ug/kg	J
92-52-4	1,1'-Biphenyl	33.4	79	5.4	ug/kg	JB UB
100-52-7	Benzaldehyde	ND	200	9.7	ug/kg	
91-58-7	2-Chloronaphthalene	ND	79	9.4	ug/kg	
106-47-8	4-Chloroaniline	ND	200	14	ug/kg	
86-74-8	Carbazole	355	79	5.7	ug/kg	B

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-133(2-4)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-26	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	83.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	79	16	ug/kg	
218-01-9	Chrysene	1580	39	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	79	8.4	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	79	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	79	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	79	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	39	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	39	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	79	33	ug/kg	
123-91-1	1,4-Dioxane ^c	ND	39	26	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	289	39	17	ug/kg	
132-64-9	Dibenzofuran	278	79	16	ug/kg	
84-74-2	Di-n-butyl phthalate	98.2	79	6.4	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	79	9.8	ug/kg	
84-66-2	Diethyl phthalate	ND	79	8.4	ug/kg	
131-11-3	Dimethyl phthalate	ND	79	7.0	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	396	79	9.2	ug/kg	
206-44-0	Fluoranthene	3520	39	18	ug/kg	
86-73-7	Fluorene	328	39	18	ug/kg	
118-74-1	Hexachlorobenzene	ND	79	9.9	ug/kg	
87-68-3	Hexachlorobutadiene	ND	39	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^a	ND	390	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1130	39	18	ug/kg	
78-59-1	Isophorone	ND	79	8.4	ug/kg	
91-57-6	2-Methylnaphthalene	74.5	39	8.9	ug/kg	
88-74-4	2-Nitroaniline	ND	200	9.3	ug/kg	
99-09-2	3-Nitroaniline	ND	200	9.8	ug/kg	
100-01-6	4-Nitroaniline	ND	200	10	ug/kg	
91-20-3	Naphthalene	157	39	11	ug/kg	
98-95-3	Nitrobenzene	ND	79	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	79	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	14	ug/kg	
85-01-8	Phenanthrene	3260	39	13	ug/kg	
129-00-0	Pyrene	2850	39	13	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	21% ^d		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-133(2-4)		Date Sampled: 04/17/19
Lab Sample ID: JC86553-26		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 83.7
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	27%		27-114%
118-79-6	2,4,6-Tribromophenol	22%		19-152%
4165-60-0	Nitrobenzene-d5	37%		26-134%
321-60-8	2-Fluorobiphenyl	41%		39-124%
1718-51-0	Terphenyl-d14	40%		36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits high.
- (c) Associated CCV outside of control limits low.
- (d) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.26
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Report of Analysis

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Client Sample ID: S-133(7-9)		Date Sampled: 04/17/19
Lab Sample ID: JC86553-27		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 92.2
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151353.D	1	04/23/19 20:16	PS	n/a	n/a	V3C6805
Run #2							

Run #1	Initial Weight
Run #1	3.1 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	173	17	8.7	ug/kg	
71-43-2	Benzene	8.8	0.87	0.66	ug/kg	
74-97-5	Bromochloromethane	ND	8.7	0.75	ug/kg	
75-27-4	Bromodichloromethane	ND	3.5	0.77	ug/kg	
75-25-2	Bromoform	ND	8.7	0.70	ug/kg	
74-83-9	Bromomethane	ND	8.7	1.7	ug/kg	
78-93-3	2-Butanone (MEK)	30.4	17	6.5	ug/kg	
75-15-0	Carbon disulfide	6.3	3.5	1.6	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.5	0.96	ug/kg	
108-90-7	Chlorobenzene	ND	3.5	0.62	ug/kg	
75-00-3	Chloroethane	ND	8.7	1.2	ug/kg	
67-66-3	Chloroform	ND	3.5	0.65	ug/kg	
74-87-3	Chloromethane	ND	8.7	3.4	ug/kg	
110-82-7	Cyclohexane	ND	3.5	0.71	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.5	1.5	ug/kg	
124-48-1	Dibromochloromethane	ND	3.5	0.59	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.7	0.57	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.7	0.53	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.7	0.63	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.7	0.60	ug/kg	
75-71-8	Dichlorodifluoromethane ^a	ND	8.7	1.1	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	1.7	0.67	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.7	0.82	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.7	1.1	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.7	1.7	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.7	1.2	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.5	0.71	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.5	0.62	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.5	0.57	ug/kg	
100-41-4	Ethylbenzene	ND	1.7	0.97	ug/kg	
76-13-1	Freon 113	ND	8.7	1.3	ug/kg	
591-78-6	2-Hexanone	ND	8.7	2.2	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-133(7-9)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-27	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	92.2
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.5	1.2	ug/kg	
79-20-9	Methyl Acetate	3.9	8.7	2.4	ug/kg	J
108-87-2	Methylcyclohexane	ND	3.5	1.2	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.7	0.62	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	8.7	2.7	ug/kg	
75-09-2	Methylene chloride	ND	8.7	4.4	ug/kg	
100-42-5	Styrene	ND	3.5	1.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.5	0.68	ug/kg	
127-18-4	Tetrachloroethene	ND	3.5	0.81	ug/kg	
108-88-3	Toluene	1.0	1.7	0.66	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	8.7	1.7	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	8.7	1.7	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.5	0.75	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.5	0.60	ug/kg	
79-01-6	Trichloroethene	ND	1.7	1.3	ug/kg	
75-69-4	Trichlorofluoromethane ^a	ND	8.7	1.2	ug/kg	UU
75-01-4	Vinyl chloride	ND	3.5	0.82	ug/kg	
	m,p-Xylene	ND	1.7	1.3	ug/kg	
95-47-6	o-Xylene	ND	1.7	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.7	1.0	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		75-127%
17060-07-0	1,2-Dichloroethane-D4	112%		75-130%
2037-26-5	Toluene-D8	105%		80-120%
460-00-4	4-Bromofluorobenzene	115%		79-127%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-133(7-9)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-27	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	92.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153644.D	1	04/21/19 05:55	CB	04/19/19 07:45	OP19854	EM6566
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	71	18	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	180	22	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	180	30	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	180	63	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	180	130	ug/kg	
534-52-1	4,6-Dinitro-o-cresol ^a	ND	180	38	ug/kg	
95-48-7	2-Methylphenol	ND	71	23	ug/kg	
	3&4-Methylphenol	ND	71	29	ug/kg	
88-75-5	2-Nitrophenol	ND	180	23	ug/kg	
100-02-7	4-Nitrophenol	ND	350	95	ug/kg	
87-86-5	Pentachlorophenol ^a	ND	140	33	ug/kg	
108-95-2	Phenol	23.2	71	19	ug/kg	J
58-90-2	2,3,4,6-Tetrachlorophenol	ND	180	23	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	180	27	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	180	21	ug/kg	
83-32-9	Acenaphthene	758	35	12	ug/kg	
208-96-8	Acenaphthylene	55.1	35	18	ug/kg	
98-86-2	Acetophenone	ND	180	7.6	ug/kg	
120-12-7	Anthracene	139	35	22	ug/kg	
1912-24-9	Atrazine	ND	71	15	ug/kg	
56-55-3	Benzo(a)anthracene	87.3	35	10	ug/kg	
50-32-8	Benzo(a)pyrene	72.4	35	16	ug/kg	
205-99-2	Benzo(b)fluoranthene	95.5	35	16	ug/kg	
191-24-2	Benzo(g,h,i)perylene	36.7	35	18	ug/kg	
207-08-9	Benzo(k)fluoranthene	36.0	35	17	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	71	14	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	71	8.6	ug/kg	
92-52-4	1,1'-Biphenyl	71	71	4.9	ug/kg	JB UB
100-52-7	Benzaldehyde	ND	180	8.8	ug/kg	
91-58-7	2-Chloronaphthalene	ND	71	8.4	ug/kg	
106-47-8	4-Chloroaniline	ND	180	13	ug/kg	
86-74-8	Carbazole	ND	71	5.1	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-133(7-9)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-27	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	92.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	71	14	ug/kg	
218-01-9	Chrysene	99.7	35	11	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	71	7.6	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	71	15	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	71	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	71	11	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	35	11	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	35	18	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	71	30	ug/kg	
123-91-1	1,4-Dioxane ^b	ND	35	23	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	ND	35	16	ug/kg	
132-64-9	Dibenzofuran	103	71	14	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	71	5.8	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	71	8.8	ug/kg	
84-66-2	Diethyl phthalate	ND	71	7.5	ug/kg	
131-11-3	Dimethyl phthalate	ND	71	6.3	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	71	8.3	ug/kg	
206-44-0	Fluoranthene	289	35	16	ug/kg	
86-73-7	Fluorene	465	35	16	ug/kg	
118-74-1	Hexachlorobenzene	ND	71	9.0	ug/kg	
87-68-3	Hexachlorobutadiene	ND	35	14	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^a	ND	350	14	ug/kg	
67-72-1	Hexachloroethane	ND	180	18	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	51.6	35	17	ug/kg	
78-59-1	Isophorone	ND	71	7.6	ug/kg	
91-57-6	2-Methylnaphthalene	77.1	35	8.0	ug/kg	
88-74-4	2-Nitroaniline	ND	180	8.4	ug/kg	
99-09-2	3-Nitroaniline	ND	180	8.9	ug/kg	
100-01-6	4-Nitroaniline	ND	180	9.2	ug/kg	
91-20-3	Naphthalene	1260	35	10	ug/kg	
98-95-3	Nitrobenzene	ND	71	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	71	10	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	180	13	ug/kg	
85-01-8	Phenanthrene	173	35	12	ug/kg	
129-00-0	Pyrene	296	35	11	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	180	9.0	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	46%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-133(7-9)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-27	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 92.2
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	45%		27-114%
118-79-6	2,4,6-Tribromophenol	90%		19-152%
4165-60-0	Nitrobenzene-d5	59%		26-134%
321-60-8	2-Fluorobiphenyl	68%		39-124%
1718-51-0	Terphenyl-d14	50%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-133(13-15)	
Lab Sample ID: JC86553-28	Date Sampled: 04/17/19
Matrix: SO - Soil	Date Received: 04/17/19
Method: SW846 8260C	Percent Solids: 64.8
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184764.D	1	04/26/19 12:50	EH	n/a	n/a	VY8016
Run #2							

Run #1	Initial Weight
Run #1	5.2 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	64.8	15	7.4	ug/kg	
71-43-2	Benzene	ND	0.74	0.56	ug/kg	
74-97-5	Bromochloromethane	ND	7.4	0.64	ug/kg	
75-27-4	Bromodichloromethane	ND	3.0	0.66	ug/kg	
75-25-2	Bromoform	ND	7.4	0.60	ug/kg	
74-83-9	Bromomethane	ND	7.4	1.5	ug/kg	
78-93-3	2-Butanone (MEK)	10.4	15	5.5	ug/kg	J
75-15-0	Carbon disulfide	ND	3.0	1.4	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.0	0.82	ug/kg	
108-90-7	Chlorobenzene	ND	3.0	0.53	ug/kg	
75-00-3	Chloroethane	ND	7.4	1.0	ug/kg	
67-66-3	Chloroform	ND	3.0	0.55	ug/kg	
74-87-3	Chloromethane	ND	7.4	2.9	ug/kg	
110-82-7	Cyclohexane	ND	3.0	0.60	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.0	1.2	ug/kg	
124-48-1	Dibromochloromethane	ND	3.0	0.50	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.5	0.48	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.5	0.45	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.5	0.53	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.5	0.51	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	7.4	0.94	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.5	0.57	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.5	0.70	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.5	0.97	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.5	1.4	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.5	0.99	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.0	0.60	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.0	0.52	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.0	0.49	ug/kg	
100-41-4	Ethylbenzene	ND	1.5	0.82	ug/kg	
76-13-1	Freon 113 ^a	ND	7.4	1.1	ug/kg	
591-78-6	2-Hexanone	ND	7.4	1.9	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-133(13-15)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-28	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	64.8
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	1.0	3.0	1.0	ug/kg	J
79-20-9	Methyl Acetate	ND	7.4	2.1	ug/kg	
108-87-2	Methylcyclohexane	1.9	3.0	1.0	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.5	0.52	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	7.4	2.3	ug/kg	
75-09-2	Methylene chloride	ND	7.4	3.7	ug/kg	
100-42-5	Styrene	ND	3.0	0.85	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane ^b	ND	3.0	0.58	ug/kg	UJ
127-18-4	Tetrachloroethene	ND	3.0	0.69	ug/kg	
108-88-3	Toluene	ND	1.5	0.56	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	7.4	1.5	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	7.4	1.5	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.0	0.63	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.0	0.51	ug/kg	
79-01-6	Trichloroethene	ND	1.5	1.1	ug/kg	
75-69-4	Trichlorofluoromethane	ND	7.4	1.0	ug/kg	
75-01-4	Vinyl chloride	ND	3.0	0.70	ug/kg	
	m,p-Xylene	ND	1.5	1.1	ug/kg	
95-47-6	o-Xylene	ND	1.5	0.87	ug/kg	
1330-20-7	Xylene (total)	ND	1.5	0.87	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	115%		75-127%
17060-07-0	1,2-Dichloroethane-D4	97%		75-130%
2037-26-5	Toluene-D8	89%		80-120%
460-00-4	4-Bromofluorobenzene	97%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-133(13-15)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-28	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	64.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153648.D	1	04/21/19 07:48	CB	04/19/19 07:45	OP19854	EM6566
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	100	25	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	260	31	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	260	44	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	260	91	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	260	190	ug/kg	
534-52-1	4,6-Dinitro-o-cresol ^a	ND	260	55	ug/kg	
95-48-7	2-Methylphenol	ND	100	33	ug/kg	
	3&4-Methylphenol	121	100	42	ug/kg	
88-75-5	2-Nitrophenol	ND	260	34	ug/kg	
100-02-7	4-Nitrophenol	ND	510	140	ug/kg	
87-86-5	Pentachlorophenol ^a	ND	210	48	ug/kg	
108-95-2	Phenol	ND	100	27	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	260	34	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	260	38	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	260	31	ug/kg	
83-32-9	Acenaphthene	461	51	18	ug/kg	
208-96-8	Acenaphthylene	234	51	26	ug/kg	
98-86-2	Acetophenone	11.8	260	11	ug/kg	J
120-12-7	Anthracene	390	51	31	ug/kg	
1912-24-9	Atrazine	ND	100	22	ug/kg	
56-55-3	Benzo(a)anthracene	807	51	15	ug/kg	
50-32-8	Benzo(a)pyrene	1060	51	23	ug/kg	
205-99-2	Benzo(b)fluoranthene	1050	51	23	ug/kg	
191-24-2	Benzo(g,h,i)perylene	616	51	26	ug/kg	
207-08-9	Benzo(k)fluoranthene	376	51	24	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	100	20	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	100	13	ug/kg	
92-52-4	1,1'-Biphenyl	100	53.7	100	7.0	ug/kg JB UB
100-52-7	Benzaldehyde	ND	260	13	ug/kg	
91-58-7	2-Chloronaphthalene	ND	100	12	ug/kg	
106-47-8	4-Chloroaniline	ND	260	18	ug/kg	
86-74-8	Carbazole	57.1	100	7.4	ug/kg	JB

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-133(13-15)	Date Sampled:	04/17/19
Lab Sample ID:	JC86553-28	Date Received:	04/17/19
Matrix:	SO - Soil	Percent Solids:	64.8
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	100	20	ug/kg	
218-01-9	Chrysene	931	51	16	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	100	11	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	100	22	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	100	18	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	100	17	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	51	16	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	51	26	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	100	43	ug/kg	
123-91-1	1,4-Dioxane ^b	ND	51	34	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	163	51	23	ug/kg	
132-64-9	Dibenzofuran	94.3	100	21	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	100	8.4	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	100	13	ug/kg	
84-66-2	Diethyl phthalate	ND	100	11	ug/kg	
131-11-3	Dimethyl phthalate	ND	100	9.1	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	100	12	ug/kg	
206-44-0	Fluoranthene	1270	51	23	ug/kg	
86-73-7	Fluorene	293	51	24	ug/kg	
118-74-1	Hexachlorobenzene	ND	100	13	ug/kg	
87-68-3	Hexachlorobutadiene	ND	51	21	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^a	ND	510	20	ug/kg	
67-72-1	Hexachloroethane	ND	260	25	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	580	51	24	ug/kg	
78-59-1	Isophorone	ND	100	11	ug/kg	
91-57-6	2-Methylnaphthalene	253	51	12	ug/kg	
88-74-4	2-Nitroaniline	ND	260	12	ug/kg	
99-09-2	3-Nitroaniline	ND	260	13	ug/kg	
100-01-6	4-Nitroaniline	ND	260	13	ug/kg	
91-20-3	Naphthalene	752	51	14	ug/kg	
98-95-3	Nitrobenzene	ND	100	20	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	100	15	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	260	19	ug/kg	
85-01-8	Phenanthrene	916	51	17	ug/kg	
129-00-0	Pyrene	1400	51	16	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	260	13	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	43%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-133(13-15)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-28	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 64.8
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	44%		27-114%
118-79-6	2,4,6-Tribromophenol	75%		19-152%
4165-60-0	Nitrobenzene-d5	56%		26-134%
321-60-8	2-Fluorobiphenyl	65%		39-124%
1718-51-0	Terphenyl-d14	60%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-116(4-6)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-1	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 81.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	1310 J	65	10	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Antimony	0.68 J	2.6	0.53	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Arsenic	12.1	2.6	0.36	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Barium	55.0	26	2.5	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Beryllium	0.52	0.26	0.10	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Cadmium	0.70	0.65	0.090	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Calcium	1110 J	650	57	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Chromium	13.8 J	1.3	0.48	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Cobalt	3.0 J	6.5	0.36	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Copper	110	3.2	1.1	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Iron	19000	65	25	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Lead	69.0	2.6	0.53	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Magnesium	202 J	650	18	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Manganese	253 J	1.9	0.53	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Mercury	0.26	0.040	0.017	mg/kg	1	04/19/19	04/19/19	LL	SW846 7471B ¹ SW846 7471B ⁴
Nickel	15.9	5.2	0.45	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Potassium	201 J	1300	41	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Selenium	2.1 J	2.6	0.84	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Silver	0.22 U	0.65	0.22	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Sodium	100 U	1300	100	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Thallium	0.75 U	1.3	0.75	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Vanadium	9.2	6.5	0.25	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³
Zinc	216 J	6.5	3.0	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ² SW846 3050B ³

(1) Instrument QC Batch: MA46538

(2) Instrument QC Batch: MA46556

(3) Prep QC Batch: MP14348

(4) Prep QC Batch: MP14381

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.1
4

Report of Analysis

Client Sample ID: S-116(4-6)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-1	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 81.5
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	2.5	0.26	0.13	mg/kg	1	04/25/19 15:04 KI	SW846	9012B/LACHAT
Solids, Percent	81.5			%	1	04/24/19 16:15 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.1
4

Report of Analysis

Client Sample ID: S-115(4-6)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-2	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 81.6
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	2250 J	64	10	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	1.1 J	2.6	0.52	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic ^a	21.6	5.1	0.71	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³	SW846 3050B ⁴
Barium	72.1	26	2.4	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.61	0.26	0.10	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium ^a	0.50 J	1.3	0.18	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³	SW846 3050B ⁴
Calcium	1770 J	640	56	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	90.2 J	1.3	0.47	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	4.4 J	6.4	0.36	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ²	SW846 3050B ⁴
Copper ^a	135	6.4	2.1	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³	SW846 3050B ⁴
Iron	32200	130	49	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³	SW846 3050B ⁴
Lead ^a	162	5.1	1.0	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³	SW846 3050B ⁴
Magnesium	464 J	640	17	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ²	SW846 3050B ⁴
Manganese ^a	211 J	3.8	1.0	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³	SW846 3050B ⁴
Mercury	0.22 J	0.040	0.018	mg/kg	1	04/19/19	04/19/19	LL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	24.0	5.1	0.45	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	290 J	1300	41	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ²	SW846 3050B ⁴
Selenium ^a	1.7 U	5.1	1.7	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³	SW846 3050B ⁴
Silver ^a	0.43 U	1.3	0.43	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³	SW846 3050B ⁴
Sodium	99 U	1300	99	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ²	SW846 3050B ⁴
Thallium ^a	1.5 U	2.6	1.5	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³	SW846 3050B ⁴
Vanadium	11.1	6.4	0.24	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	183 J	6.4	2.9	mg/kg	1	04/19/19	04/22/19	ND	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46538
- (2) Instrument QC Batch: MA46556
- (3) Instrument QC Batch: MA46568
- (4) Prep QC Batch: MP14348
- (5) Prep QC Batch: MP14381

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.2
4

Report of Analysis

Client Sample ID: S-115(4-6)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-2	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 81.6
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	18.3 J	0.31	0.15	mg/kg	1	04/23/19 14:38	KI	SW846 9012B/LACHAT
Solids, Percent	81.6			%	1	04/26/19 15:30	JMP	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.2
4

Report of Analysis

Client Sample ID: SO-DUP-0416	Date Sampled: 04/16/19
Lab Sample ID: JC86553-3	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 81.4
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	1750 J	63	10	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	1.3 J	2.5	0.51	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic ^a	16.8	5.0	0.70	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³	SW846 3050B ⁴
Barium	49.4	25	2.4	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.45	0.25	0.10	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.39 J	0.63	0.088	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	3880 J	630	55	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	25.4 J	1.3	0.46	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	3.7 J	6.3	0.35	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Copper ^a	98.5	6.3	2.1	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³	SW846 3050B ⁴
Iron	25900	130	48	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³	SW846 3050B ⁴
Lead ^a	108	5.0	1.0	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³	SW846 3050B ⁴
Magnesium	1820	630	17	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Manganese ^a	280 J	3.8	1.0	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³	SW846 3050B ⁴
Mercury	0.14 J	0.040	0.017	mg/kg	1	04/19/19	04/19/19	LL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	19.2	5.0	0.44	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	255 J	1300	40	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Selenium ^a	1.6 U	5.0	1.6	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³	SW846 3050B ⁴
Silver ^a	0.43 U	1.3	0.43	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³	SW846 3050B ⁴
Sodium	98 U	1300	98	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Thallium ^a	1.5 U	2.5	1.5	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³	SW846 3050B ⁴
Vanadium	10.4	6.3	0.24	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	115 J	6.3	2.9	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46538
- (2) Instrument QC Batch: MA46556
- (3) Instrument QC Batch: MA46568
- (4) Prep QC Batch: MP14348
- (5) Prep QC Batch: MP14381

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.3
4

Report of Analysis

Client Sample ID: SO-DUP-0416	Date Sampled: 04/16/19
Lab Sample ID: JC86553-3	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 81.4
Project: National Grid, Philly Coke, Philadelphia, PA	

4.3
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	21.2 J	0.29	0.15	mg/kg	1	04/23/19 14:39 KI	SW846	9012B/LACHAT
Solids, Percent	81.4			%	1	04/26/19 15:30 JMP	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-117(4-6) Lab Sample ID: JC86553-4 Matrix: SO - Soil Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/16/19 Date Received: 04/17/19 Percent Solids: 80.3
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Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	1310 J	62	10	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Antimony	1.2 J	2.5	0.51	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Arsenic	12.6	2.5	0.35	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Barium	81.5	25	2.4	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Beryllium	0.41	0.25	0.10	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Cadmium	0.49 J	0.62	0.087	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Calcium	1420 J	620	55	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Chromium	18.1 J	1.2	0.46	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Cobalt	3.0 J	6.2	0.35	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Copper	312	3.1	1.0	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Iron	22900	62	24	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Lead	134	2.5	0.51	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Magnesium	561 J	620	17	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Manganese	193 J	1.9	0.51	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Mercury	0.19 J	0.039	0.017	mg/kg	1	04/19/19	04/19/19	LL	SW846 7471B ¹ SW846 7471B ⁴
Nickel	17.1	5.0	0.44	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Potassium	226 J	1200	40	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Selenium	1.7 J	2.5	0.81	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Silver	0.21 U	0.62	0.21	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Sodium	142 J	1200	97	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Thallium	0.72 U	1.2	0.72	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Vanadium	9.4	6.2	0.24	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Zinc	169 J	6.2	2.9	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³

(1) Instrument QC Batch: MA46538

(2) Instrument QC Batch: MA46556

(3) Prep QC Batch: MP14348

(4) Prep QC Batch: MP14381

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.4
4

Report of Analysis

Client Sample ID: S-117(4-6)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-4	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 80.3
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	13.2 J	0.30	0.15	mg/kg	1	04/23/19 14:40 KI	SW846	9012B/LACHAT
Solids, Percent	80.3			%	1	04/26/19 15:30 JMP	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.4
4

Report of Analysis

Client Sample ID: TP-15R(5-7)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-5	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 81.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	1680 J	64	10	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	1.6 J	2.6	0.53	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	17.0	2.6	0.36	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	62.0	26	2.4	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.73	0.26	0.10	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	0.83	0.64	0.090	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	5490 J	640	57	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	16.4 J	1.3	0.47	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	3.5 J	6.4	0.36	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	598	3.2	1.1	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	20000	64	25	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	257	2.6	0.53	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	2510	640	18	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	213 J	1.9	0.53	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	2.1 J	0.19	0.083	mg/kg	5	04/19/19	04/19/19	LL	SW846 7471B ¹ SW846 7471B ⁵
Nickel	25.5	5.1	0.45	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	260 J	1300	41	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	2.6	2.6	0.83	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	0.22 U	0.64	0.22	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	144 J	1300	100	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	0.74 U	1.3	0.74	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	10.9	6.4	0.24	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	1210 J	13	5.9	mg/kg	2	04/19/19	04/30/19	ND	SW846 6010D ³ SW846 3050B ⁴

- (1) Instrument QC Batch: MA46538
- (2) Instrument QC Batch: MA46556
- (3) Instrument QC Batch: MA46611
- (4) Prep QC Batch: MP14348
- (5) Prep QC Batch: MP14381

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.5
 4

Report of Analysis

Client Sample ID: TP-15R(5-7)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-5	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 81.2
Project: National Grid, Philly Coke, Philadelphia, PA	

4.5
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	7.0 J	0.27	0.14	mg/kg	1	04/23/19 14:42 KI	SW846	9012B/LACHAT
Solids, Percent	81.2			%	1	04/26/19 15:00 JMP	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: TP-15R(16.5-12.5)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-6	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 74.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	5060 J	68	11	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Antimony	0.56 U J	2.7	0.56	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Arsenic	7.0	2.7	0.38	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Barium	34.3	27	2.6	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Beryllium	0.41	0.27	0.11	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Cadmium	0.12 J	0.68	0.095	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Calcium	506 J	680	60	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Chromium	14.2 J	1.4	0.50	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Cobalt	5.8 J	6.8	0.38	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Copper	21.1	3.4	1.1	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Iron	12500	68	26	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Lead	50.9	2.7	0.56	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Magnesium	1660	680	19	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Manganese	184 J	2.0	0.56	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Mercury	0.096 J	0.041	0.018	mg/kg	1	04/19/19	04/19/19	LL	SW846 7471B ¹ SW846 7471B ⁴
Nickel	11.4	5.4	0.47	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Potassium	626 J	1400	43	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Selenium	0.88 U	2.7	0.88	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Silver	0.23 U	0.68	0.23	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Sodium	110 U	1400	110	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Thallium	0.79 U	1.4	0.79	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Vanadium	7.1	6.8	0.26	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Zinc	104 J	6.8	3.1	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³

(1) Instrument QC Batch: MA46538

(2) Instrument QC Batch: MA46556

(3) Prep QC Batch: MP14348

(4) Prep QC Batch: MP14381

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.6
4

Report of Analysis

Client Sample ID: TP-15R(16.5-12.5)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-6	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 74.5
Project: National Grid, Philly Coke, Philadelphia, PA	

4.6
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.14 U J	0.29	0.14	mg/kg	1	04/23/19 14:43 KI	SW846	9012B/LACHAT
Solids, Percent	74.5			%	1	04/26/19 15:00 JMP	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-118(4-6)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-7	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 87.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	4680 J	56	9.0	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Antimony	0.56 J	2.2	0.46	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Arsenic	5.7	2.2	0.31	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Barium	38.8	22	2.1	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Beryllium	0.40	0.22	0.089	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Cadmium	0.23 J	0.56	0.078	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Calcium	2590 J	560	49	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Chromium	24.4 J	1.1	0.41	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Cobalt	3.7 J	5.6	0.31	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Copper	37.1	2.8	0.93	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Iron	10500	56	21	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Lead	65.2	2.2	0.46	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Magnesium	1510	560	15	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Manganese	83.6 J	1.7	0.46	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Mercury	0.49 J	0.034	0.015	mg/kg	1	04/19/19	04/19/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	12.3	4.4	0.39	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Potassium	565 J	1100	35	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Selenium	0.72 U	2.2	0.72	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Silver	0.19 U	0.56	0.19	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Sodium	87 U	1100	87	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Thallium	0.65 U	1.1	0.65	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Vanadium	13.6	5.6	0.21	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Zinc	86.5 J	5.6	2.6	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³

- (1) Instrument QC Batch: MA46538
- (2) Instrument QC Batch: MA46568
- (3) Prep QC Batch: MP14348
- (4) Prep QC Batch: MP14381

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.7
 4

Report of Analysis

Client Sample ID: S-118(4-6)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-7	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 87.3
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	18.3 J	0.27	0.14	mg/kg	1	04/23/19 14:47 KI	SW846	9012B/LACHAT
Solids, Percent	87.3			%	1	04/26/19 15:00 JMP	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.7
4

Report of Analysis

Client Sample ID: PCTP-49R(8-10)		Date Sampled: 04/16/19
Lab Sample ID: JC86553-8		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 79.6
Project: National Grid, Philly Coke, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	5030 J	60	9.6	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Antimony	0.49 U	J 2.4	0.49	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Arsenic	5.6	2.4	0.34	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Barium	37.7	24	2.3	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Beryllium	0.39	0.24	0.096	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Cadmium	0.18 J	0.60	0.084	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Calcium	1030 J	600	53	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Chromium	15.2 J	1.2	0.44	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Cobalt	5.4 J	6.0	0.34	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Copper	14.4	3.0	1.0	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Iron	12000	60	23	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Lead	32.4	2.4	0.49	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Magnesium	1640	600	16	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Manganese	258 J	1.8	0.49	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Mercury	0.12 J	0.038	0.017	mg/kg	1	04/19/19	04/19/19	LL	SW846 7471B ¹ SW846 7471B ⁴
Nickel	10.2	4.8	0.42	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Potassium	724 J	1200	38	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Selenium	0.78 U	2.4	0.78	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Silver	0.20 U	0.60	0.20	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Sodium	93 U	1200	93	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Thallium	0.69 U	1.2	0.69	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Vanadium	7.8	6.0	0.23	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Zinc	82.5 J	6.0	2.8	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³

(1) Instrument QC Batch: MA46538

(2) Instrument QC Batch: MA46556

(3) Prep QC Batch: MP14348

(4) Prep QC Batch: MP14381

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.8
4

Report of Analysis

Client Sample ID: PCTP-49R(8-10)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-8	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 79.6
Project: National Grid, Philly Coke, Philadelphia, PA	

4.8
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.13 U	J	0.27	0.13	mg/kg	1	04/23/19 14:49	KI SW846 9012B/LACHAT
Solids, Percent	79.6			%	1	04/26/19 15:00	JMP SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCTP-49R(10-11)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-9	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 62.8
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	10000 J	80	13	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Antimony	0.66 U	J 3.2	0.66	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Arsenic	24.6	3.2	0.45	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Barium	118	32	3.1	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Beryllium	0.72	0.32	0.13	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Cadmium	1.2	0.80	0.11	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Calcium	3320 J	800	71	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Chromium	71.6 J	1.6	0.60	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Cobalt	11.2	8.0	0.45	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Copper	62.3	4.0	1.4	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Iron	21300	80	31	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Lead	139	3.2	0.66	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Magnesium	3000	800	22	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Manganese	563 J	2.4	0.66	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Mercury	1.2 J	0.052	0.023	mg/kg	1	04/19/19	04/19/19	LL	SW846 7471B ¹ SW846 7471B ⁴
Nickel	20.0	6.4	0.56	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Potassium	1330 J	1600	51	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Selenium	1.2 J	3.2	1.0	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Silver	0.47 J	0.80	0.27	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Sodium	442 J	1600	130	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Thallium	0.93 U	1.6	0.93	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Vanadium	19.3	8.0	0.31	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Zinc	365 J	8.0	3.7	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³

(1) Instrument QC Batch: MA46538

(2) Instrument QC Batch: MA46556

(3) Prep QC Batch: MP14348

(4) Prep QC Batch: MP14381

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCTP-49R(10-11)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-9	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 62.8
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.52 J	0.34	0.17	mg/kg	1	04/23/19 14:50 KI	SW846	9012B/LACHAT
Solids, Percent	62.8			%	1	04/24/19 16:15 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PSSTP-10R(1-2)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-10	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 88.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	5430 J	58	9.3	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ³	SW846 3050B ⁴
Antimony	0.56 J	2.3	0.47	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic	7.9	2.3	0.32	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Barium	42.5	23	2.2	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.40	0.23	0.093	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.32 J	0.58	0.081	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	519 J	580	51	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	19.5 J	1.2	0.43	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	5.2 J	5.8	0.32	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Copper	63.1	2.9	0.97	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Iron	13300	58	22	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ³	SW846 3050B ⁴
Lead	153	2.3	0.47	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Magnesium	1540	580	16	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Manganese	202 J	1.7	0.47	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Mercury	0.24 J	0.036	0.016	mg/kg	1	04/19/19	04/19/19	LL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	10	4.6	0.40	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	798 J	1200	37	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	0.75 U	2.3	0.75	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Silver	0.20 U	0.58	0.20	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Sodium	90 U	1200	90	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Thallium	0.67 U	1.2	0.67	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Vanadium	12.5	5.8	0.22	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	99.8 J	5.8	2.7	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46538
- (2) Instrument QC Batch: MA46556
- (3) Instrument QC Batch: MA46568
- (4) Prep QC Batch: MP14348
- (5) Prep QC Batch: MP14381

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PSSTP-10R(1-2)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-10	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 88.2
Project: National Grid, Philly Coke, Philadelphia, PA	

4.10
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.14 U J	0.27	0.14	mg/kg	1	04/23/19 14:51 KI	SW846	9012B/LACHAT
Solids, Percent	88.2			%	1	04/26/19 15:00 JMP	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PSSTP-10R(8-9)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-11	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 84.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	7300 J	61	9.9	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	0.50 U	J 2.4	0.50	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic ^a	12.1	4.9	0.68	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³ SW846 3050B ⁴
Barium	51.5	24	2.3	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.46	0.24	0.098	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	0.27 J	0.61	0.086	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	478 J	610	54	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	16.4	J 1.2	0.45	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	5.4 J	6.1	0.34	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper ^a	61.7	6.1	2.1	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³ SW846 3050B ⁴
Iron	26300	120	47	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³ SW846 3050B ⁴
Lead ^a	192	4.9	1.0	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³ SW846 3050B ⁴
Magnesium	1460	610	17	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese ^a	192	J 3.7	1.0	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³ SW846 3050B ⁴
Mercury	0.17	J 0.036	0.016	mg/kg	1	04/19/19	04/19/19	LL	SW846 7471B ¹ SW846 7471B ⁵
Nickel	12.6	4.9	0.43	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	729 J	1200	39	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium ^a	1.6 U	4.9	1.6	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³ SW846 3050B ⁴
Silver ^a	0.42 U	1.2	0.42	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³ SW846 3050B ⁴
Sodium	95 U	1200	95	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium ^a	1.4 U	2.4	1.4	mg/kg	2	04/19/19	04/23/19	ND	SW846 6010D ³ SW846 3050B ⁴
Vanadium	16.9	6.1	0.23	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	110	J 6.1	2.8	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ⁴

- (1) Instrument QC Batch: MA46538
- (2) Instrument QC Batch: MA46556
- (3) Instrument QC Batch: MA46568
- (4) Prep QC Batch: MP14348
- (5) Prep QC Batch: MP14381

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PSSTP-10R(8-9)	Date Sampled: 04/16/19
Lab Sample ID: JC86553-11	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 84.3
Project: National Grid, Philly Coke, Philadelphia, PA	

4.11
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.28 J	0.25	0.13	mg/kg	1	04/23/19 14:53 KI	SW846	9012B/LACHAT
Solids, Percent	84.3			%	1	04/26/19 15:00 JMP	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-130(2-4)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-12	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 80.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	2610 J	65	10	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Antimony	0.67 J	2.6	0.53	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Arsenic	8.1	2.6	0.36	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Barium	120	26	2.5	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Beryllium	0.38	0.26	0.10	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Cadmium	0.14 J	0.65	0.091	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Calcium	2040 J	650	57	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Chromium	18.5 J	1.3	0.48	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Cobalt	2.9 J	6.5	0.36	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Copper	96.7	3.2	1.1	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Iron	8800	65	25	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Lead	181	2.6	0.53	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Magnesium	291 J	650	18	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Manganese	44.8 J	1.9	0.53	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Mercury	0.57 J	0.038	0.017	mg/kg	1	04/19/19	04/19/19	LL	SW846 7471B ¹ SW846 7471B ⁴
Nickel	11.0	5.2	0.45	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Potassium	368 J	1300	41	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Selenium	1.5 J	2.6	0.84	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Silver	0.22 U	0.65	0.22	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Sodium	100 U	1300	100	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Thallium	0.75 U	1.3	0.75	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Vanadium	12.4	6.5	0.25	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Zinc	48.2 J	6.5	3.0	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³

(1) Instrument QC Batch: MA46538

(2) Instrument QC Batch: MA46556

(3) Prep QC Batch: MP14348

(4) Prep QC Batch: MP14381

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-130(2-4)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-12	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 80.3
Project: National Grid, Philly Coke, Philadelphia, PA	

4.12
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	8.4 J	0.27	0.13	mg/kg	1	04/23/19 14:54	KI	SW846 9012B/LACHAT
Solids, Percent	80.3			%	1	04/26/19 15:00	JMP	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-130(7-8) Lab Sample ID: JC86553-13 Matrix: SO - Soil Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/17/19 Date Received: 04/17/19 Percent Solids: 73.0
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Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	4490 J	65	11	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Antimony	0.53 U	J 2.6	0.53	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Arsenic	16.5	2.6	0.37	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Barium	45.8	26	2.5	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Beryllium	0.60	0.26	0.10	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Cadmium	0.90	0.65	0.091	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Calcium	1050	J 650	58	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Chromium	18.4 J	1.3	0.48	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Cobalt	8.7	6.5	0.37	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Copper	46.8	3.3	1.1	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Iron	14800	65	25	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Lead	169	2.6	0.53	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Magnesium	911	650	18	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Manganese	158	J 2.0	0.53	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Mercury	0.15 J	0.031	0.014	mg/kg	1	04/19/19	04/19/19	LL	SW846 7471B ¹ SW846 7471B ⁴
Nickel	26.2	5.2	0.46	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Potassium	467 J	1300	41	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Selenium	2.3 J	2.6	0.85	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Silver	0.22 U	0.65	0.22	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Sodium	100 U	1300	100	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Thallium	0.76 U	1.3	0.76	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Vanadium	13.8	6.5	0.25	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Zinc	85.8 J	6.5	3.0	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³

(1) Instrument QC Batch: MA46538

(2) Instrument QC Batch: MA46556

(3) Prep QC Batch: MP14348

(4) Prep QC Batch: MP14381

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.13
4

Report of Analysis

Client Sample ID: S-130(7-8)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-13	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 73.0
Project: National Grid, Philly Coke, Philadelphia, PA	

4.13
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.8 J	0.29	0.15	mg/kg	1	04/23/19 14:55 KI	SW846	9012B/LACHAT
Solids, Percent	73			%	1	04/26/19 15:00 JMP	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-130(10-12)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-14	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 56.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	16300 J	85	14	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Antimony	0.70 U	J 3.4	0.70	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Arsenic	35.8	3.4	0.48	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Barium	165	34	3.2	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Beryllium	1.2	0.34	0.14	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Cadmium	1.6	0.85	0.12	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Calcium	3880 J	850	75	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Chromium	151 J	1.7	0.63	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Cobalt	15.5	8.5	0.48	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Copper	103	4.3	1.4	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Iron	29600	85	33	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Lead	212	3.4	0.70	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Magnesium	4050	850	23	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Manganese	718 J	2.6	0.70	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Mercury	1.6 J	0.11	0.050	mg/kg	2	04/19/19	04/19/19	LL	SW846 7471B ¹ SW846 7471B ⁴
Nickel	33.5	6.8	0.60	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Potassium	1890	1700	54	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Selenium	1.5 J	3.4	1.1	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Silver	0.77 J	0.85	0.29	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Sodium	270 J	1700	130	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Thallium	0.99 U	1.7	0.99	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Vanadium	35.8	8.5	0.32	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Zinc	485 J	8.5	3.9	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³

(1) Instrument QC Batch: MA46538

(2) Instrument QC Batch: MA46556

(3) Prep QC Batch: MP14348

(4) Prep QC Batch: MP14381

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-130(10-12)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-14	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 56.9
Project: National Grid, Philly Coke, Philadelphia, PA	

4.14
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.81 J	0.38	0.19	mg/kg	1	04/23/19 14:57 KI	SW846	9012B/LACHAT
Solids, Percent	56.9			%	1	04/26/19 15:00 JMP	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-130(13-15)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-15	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 60.6
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	19400 J	86	14	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁴
Antimony	1.1 J	3.4	0.70	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic	64.3	3.4	0.48	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Barium	260	34	3.3	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁴
Beryllium	1.6	0.34	0.14	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	2.8	0.86	0.12	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	5250 J	860	76	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁴
Chromium	427 J	1.7	0.64	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	17.8	8.6	0.48	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Copper	204	4.3	1.4	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Iron	32300	86	33	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁴
Lead	497	3.4	0.70	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Magnesium	4550	860	23	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁴
Manganese	743 J	2.6	0.70	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Mercury	2.3 J	0.26	0.12	mg/kg	5	04/19/19	04/19/19 LL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	38.4	6.9	0.60	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	2180	1700	55	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	3.6	3.4	1.1	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Silver	2.5	0.86	0.29	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Sodium	421 J	1700	130	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Thallium	1.0 U	1.7	1.0	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Vanadium	38.7	8.6	0.33	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	1040 J	8.6	4.0	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46538
- (2) Instrument QC Batch: MA46556
- (3) Instrument QC Batch: MA46568
- (4) Prep QC Batch: MP14348
- (5) Prep QC Batch: MP14381

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-130(13-15)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-15	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 60.6
Project: National Grid, Philly Coke, Philadelphia, PA	

4.15
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.92 J	0.41	0.21	mg/kg	1	04/23/19 14:58 KI	SW846	9012B/LACHAT
Solids, Percent	60.6			%	1	04/23/19 16:00 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-126(7-9)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-16	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 84.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	8020 J	57	9.1	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Antimony	0.47 U J	2.3	0.47	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Arsenic	6.9	2.3	0.32	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Barium	85.0	23	2.2	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Beryllium	0.56	0.23	0.091	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Cadmium	0.28 J	0.57	0.079	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Calcium	1120 J	570	50	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Chromium	14.7 J	1.1	0.42	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Cobalt	5.7	5.7	0.32	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Copper	31.9	2.8	0.95	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Iron	19200	57	22	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Lead	749	2.3	0.47	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Magnesium	1250	570	16	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Manganese	137 J	1.7	0.47	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Mercury	0.31 J	0.038	0.017	mg/kg	1	04/19/19	04/19/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	11.9	4.5	0.40	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Potassium	842 J	1100	36	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Selenium	0.74 U	2.3	0.74	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Silver	0.19 U	0.57	0.19	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Sodium	88 U	1100	88	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Thallium	0.66 U	1.1	0.66	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Vanadium	15.8	5.7	0.22	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³
Zinc	118 J	5.7	2.6	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ³

- (1) Instrument QC Batch: MA46538
- (2) Instrument QC Batch: MA46556
- (3) Prep QC Batch: MP14348
- (4) Prep QC Batch: MP14381

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-126(7-9)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-16	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 84.7
Project: National Grid, Philly Coke, Philadelphia, PA	

4.16
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.14 U J	0.28	0.14	mg/kg	1	04/23/19 15:00 KI	SW846	9012B/LACHAT
Solids, Percent	84.7			%	1	04/26/19 15:00 JMP	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-126(13-15)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-17	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 60.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	18700 J	85	14	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Antimony	0.69 U	J 3.4	0.69	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Arsenic	60.2	3.4	0.47	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Barium	216	34	3.2	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Beryllium	1.5	0.34	0.14	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Cadmium	1.7	0.85	0.12	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Calcium	3480 J	850	75	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Chromium	273 J	1.7	0.63	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Cobalt	15.9	8.5	0.47	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Copper	156	4.2	1.4	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Iron	31000	85	32	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Lead	303	3.4	0.69	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Magnesium	4080	850	23	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Manganese	736 J	2.5	0.69	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Mercury	1.4 J	0.10	0.046	mg/kg	2	04/19/19	04/19/19	LL	SW846 7471B ¹ SW846 7471B ⁴
Nickel	33.0	6.8	0.59	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Potassium	1900	1700	54	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Selenium	1.8 J	3.4	1.1	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Silver	1.1	0.85	0.29	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Sodium	215 J	1700	130	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Thallium	0.98 U	1.7	0.98	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Vanadium	35.4	8.5	0.32	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Zinc	632 J	8.5	3.9	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³

- (1) Instrument QC Batch: MA46538
- (2) Instrument QC Batch: MA46556
- (3) Prep QC Batch: MP14348
- (4) Prep QC Batch: MP14381

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.17
 4

Report of Analysis

Client Sample ID: S-126(13-15)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-17	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 60.3
Project: National Grid, Philly Coke, Philadelphia, PA	

4.17
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.33 J	0.37	0.18	mg/kg	1	04/23/19 15:04	KI	SW846 9012B/LACHAT
Solids, Percent	60.3			%	1	04/26/19 15:00	JMP	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-127(2-4)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-18	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 88.6
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	9820 J	58	9.3	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.47 U J	2.3	0.47	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic ^a	9.7	4.6	0.64	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁴
Barium	121	23	2.2	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.82	0.23	0.092	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.35 J	0.58	0.081	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	14800	580	51	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	22.0	1.2	0.43	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	4.9 J	5.8	0.32	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Copper ^a	37.6	5.8	1.9	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁴
Iron	25700	120	44	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁴
Lead ^a	417	4.6	0.94	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁴
Magnesium	7300	580	16	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Manganese ^a	624	J 3.5	0.94	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁴
Mercury ^R	0.016 U	0.037	0.016	mg/kg	1	04/19/19	04/19/19 LL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	14.4	4.6	0.40	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	1440	1200	37	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Selenium ^a	1.5 U	4.6	1.5	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁴
Silver ^a	0.39 U	1.2	0.39	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁴
Sodium	252 J	1200	90	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Thallium ^a	1.3 U	2.3	1.3	mg/kg	2	04/19/19	04/23/19 ND	SW846 6010D ³	SW846 3050B ⁴
Vanadium	24.2	5.8	0.22	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	208 J	5.8	2.6	mg/kg	1	04/19/19	04/23/19 ND	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46538
- (2) Instrument QC Batch: MA46556
- (3) Instrument QC Batch: MA46568
- (4) Prep QC Batch: MP14348
- (5) Prep QC Batch: MP14381

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-127(2-4)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-18	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 88.6
Project: National Grid, Philly Coke, Philadelphia, PA	

4.18
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.1 J	0.27	0.14	mg/kg	1	04/23/19 15:05	KI	SW846 9012B/LACHAT
Solids, Percent	88.6			%	1	04/26/19 15:00	JMP	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: SO-DUP-0417		Date Sampled: 04/17/19
Lab Sample ID: JC86553-19		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 83.9
Project: National Grid, Philly Coke, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	11600 J	60	9.7	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.49 U J	2.4	0.49	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic	7.9	2.4	0.34	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Barium	176	24	2.3	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.90	0.24	0.096	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.33 J	0.60	0.084	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	19700	600	53	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	24.9	1.2	0.45	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	5.3 J	6.0	0.34	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Copper	47.7	3.0	1.0	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Iron	21800	60	23	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Lead	454	2.4	0.49	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Magnesium	9260	600	16	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Manganese	1080 J	3.6	0.99	mg/kg	2	04/19/19	04/30/19	ND	SW846 6010D ³	SW846 3050B ⁴
Mercury	R 0.016 U	0.037	0.016	mg/kg	1	04/19/19	04/19/19	LL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	15.6	4.8	0.42	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	1600	1200	38	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	0.78 U	2.4	0.78	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Silver	0.20 U	0.60	0.20	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Sodium	348 J	1200	94	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Thallium ^a	1.4 U	2.4	1.4	mg/kg	2	04/19/19	04/30/19	ND	SW846 6010D ³	SW846 3050B ⁴
Vanadium	36.3	6.0	0.23	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	180 J	6.0	2.8	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46538
- (2) Instrument QC Batch: MA46556
- (3) Instrument QC Batch: MA46611
- (4) Prep QC Batch: MP14348
- (5) Prep QC Batch: MP14381

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.19
4

Report of Analysis

Client Sample ID: SO-DUP-0417	Date Sampled: 04/17/19
Lab Sample ID: JC86553-19	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 83.9
Project: National Grid, Philly Coke, Philadelphia, PA	

4.19
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.63 J	0.28	0.14	mg/kg	1	04/23/19 15:06 KI	SW846	9012B/LACHAT
Solids, Percent	83.9			%	1	04/26/19 15:00 JMP	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-127(6-8)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-20	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 87.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	9850 J	57	9.1	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Antimony	0.46 U	J 2.3	0.46	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Arsenic	8.2	2.3	0.32	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Barium	29.5	23	2.2	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Beryllium	0.45	0.23	0.091	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Cadmium	0.10 J	0.57	0.079	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Calcium	516 J	570	50	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Chromium	15.4 J	J 1.1	0.42	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Cobalt	4.7 J	5.7	0.32	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Copper	12.2	2.8	0.95	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Iron	19400	57	22	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Lead	24.1	2.3	0.46	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Magnesium	1700	570	16	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Manganese	172	J 1.7	0.46	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Mercury	0.052 J	J 0.037	0.016	mg/kg	1	04/19/19	04/19/19	LL	SW846 7471B ¹ SW846 7471B ⁴
Nickel	11.6	4.5	0.40	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Potassium	954 J	1100	36	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Selenium	0.74 U	2.3	0.74	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Silver	0.19 U	0.57	0.19	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Sodium	88 U	1100	88	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Thallium	0.66 U	1.1	0.66	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Vanadium	19.3	5.7	0.22	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³
Zinc	159 J	J 5.7	2.6	mg/kg	1	04/19/19	04/23/19	ND	SW846 6010D ² SW846 3050B ³

(1) Instrument QC Batch: MA46538

(2) Instrument QC Batch: MA46556

(3) Prep QC Batch: MP14348

(4) Prep QC Batch: MP14381

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.20
4

Report of Analysis

Client Sample ID: S-127(6-8)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-20	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 87.3
Project: National Grid, Philly Coke, Philadelphia, PA	

4.20
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.13 U J	0.25	0.13	mg/kg	1	04/23/19 14:04 KI	SW846	9012B/LACHAT
Solids, Percent	87.3			%	1	04/24/19 16:15 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-127(13-15)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-21	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 62.4
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	16400 J	79	13	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Antimony	0.71 J	3.1	0.64	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Arsenic	41.6	3.1	0.44	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Barium	165	31	3.0	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Beryllium	0.97	0.31	0.13	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Cadmium	1.8	0.79	0.11	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Calcium	2900 J	790	69	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Chromium	122 J	1.6	0.58	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Cobalt	13.9	7.9	0.44	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Copper	97.5	3.9	1.3	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Iron	24000	79	30	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Lead	186	3.1	0.64	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Magnesium	3750	790	21	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Manganese	562 J	2.4	0.64	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Mercury	0.87 J	0.050	0.022	mg/kg	1	04/19/19	04/19/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	26.7	6.3	0.55	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Potassium	1670	1600	50	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Selenium	1.4 J	3.1	1.0	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Silver	0.27 U	0.79	0.27	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Sodium	175 J	1600	120	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Thallium	0.91 U	1.6	0.91	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Vanadium	31.4	7.9	0.30	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Zinc	507 J	7.9	3.6	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³

- (1) Instrument QC Batch: MA46538
- (2) Instrument QC Batch: MA46544
- (3) Prep QC Batch: MP14349
- (4) Prep QC Batch: MP14380

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-127(13-15)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-21	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 62.4
Project: National Grid, Philly Coke, Philadelphia, PA	

4.21
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.50 J	0.36	0.18	mg/kg	1	04/23/19 14:05	KI	SW846 9012B/LACHAT
Solids, Percent	62.4			%	1	04/23/19 16:00	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: SB-131(2-4)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-22	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 85.0
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	21400 J	61	9.9	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.50 U J	2.5	0.50	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴
Arsenic	4.9	2.5	0.34	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴
Barium	51.6	25	2.3	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.66	0.25	0.098	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.086 U	0.61	0.086	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴
Calcium	672 J	610	54	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴
Chromium	31.5 J	1.2	0.45	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴
Cobalt	7.5	6.1	0.34	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴
Copper	12.0	3.1	1.0	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴
Iron	21200	61	24	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴
Lead	20.2	2.5	0.50	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴
Magnesium	2110	610	17	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴
Manganese	209 J	1.8	0.50	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴
Mercury	R 0.016 U	0.038	0.016	mg/kg	1	04/19/19	04/19/19	LL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	14.2	4.9	0.43	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴
Potassium	1060 J	1200	39	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴
Selenium	0.80 U	2.5	0.80	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴
Silver	0.21 U	0.61	0.21	mg/kg	1	04/19/19	04/30/19	ND	SW846 6010D ³	SW846 3050B ⁴
Sodium	95 U	1200	95	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴
Thallium	0.71 U	1.2	0.71	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴
Vanadium	45.3	6.1	0.23	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴
Zinc	55.9 J	6.1	2.8	mg/kg	1	04/19/19	04/20/19	GT	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46538
- (2) Instrument QC Batch: MA46544
- (3) Instrument QC Batch: MA46623
- (4) Prep QC Batch: MP14349
- (5) Prep QC Batch: MP14380

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: SB-131(2-4)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-22	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 85.0
Project: National Grid, Philly Coke, Philadelphia, PA	

4.22
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.44 J	0.29	0.15	mg/kg	1	04/23/19 14:06 KI	SW846	9012B/LACHAT
Solids, Percent	85			%	1	04/26/19 15:00 JMP	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-131(7-9)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-23	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 59.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	16600 J	85	14	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Antimony	0.69 U J	3.4	0.69	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Arsenic	33.4	3.4	0.47	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Barium	150	34	3.2	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Beryllium	1.0	0.34	0.14	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Cadmium	1.2	0.85	0.12	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Calcium	3310 J	850	75	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Chromium	129 J	1.7	0.63	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Cobalt	17.6	8.5	0.47	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Copper	85.8	4.2	1.4	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Iron	29800	85	32	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Lead	153	3.4	0.69	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Magnesium	4100	850	23	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Manganese	867 J	2.5	0.69	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Mercury	1.2 J	0.050	0.022	mg/kg	1	04/19/19	04/19/19	LL SW846 7471B ¹	SW846 7471B ⁴
Nickel	29.7	6.8	0.59	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Potassium	1710	1700	54	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Selenium	1.1 U	3.4	1.1	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Silver	0.29 U	0.85	0.29	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Sodium	222 J	1700	130	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Thallium	0.98 U	1.7	0.98	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Vanadium	32.4	8.5	0.32	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Zinc	453 J	8.5	3.9	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³

(1) Instrument QC Batch: MA46538

(2) Instrument QC Batch: MA46544

(3) Prep QC Batch: MP14349

(4) Prep QC Batch: MP14380

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-131(7-9)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-23	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 59.7
Project: National Grid, Philly Coke, Philadelphia, PA	

4.23
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	2.1 J	0.40	0.20	mg/kg	1	04/23/19 14:08	KI	SW846 9012B/LACHAT
Solids, Percent	59.7			%	1	04/24/19 16:15	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-132(2-4)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-24	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 83.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	4930 J	59	9.5	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁵
Antimony ^a	3.9 J	4.7	0.97	mg/kg	2	04/19/19	04/22/19 ND	SW846 6010D ³	SW846 3050B ⁵
Arsenic	21.1	2.4	0.33	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁵
Barium	163	24	2.2	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁵
Beryllium	0.35	0.24	0.094	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁵
Cadmium	0.34 J	0.59	0.083	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁵
Calcium	5200 J	590	52	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁵
Chromium	169 J	1.2	0.44	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁵
Cobalt	4.7 J	5.9	0.33	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁵
Copper ^a	195	8.9	3.0	mg/kg	3	04/19/19	04/30/19 ND	SW846 6010D ⁴	SW846 3050B ⁵
Iron	47000	180	68	mg/kg	3	04/19/19	04/30/19 ND	SW846 6010D ⁴	SW846 3050B ⁵
Lead ^a	246	7.1	1.5	mg/kg	3	04/19/19	04/30/19 ND	SW846 6010D ⁴	SW846 3050B ⁵
Magnesium	1920	590	16	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁵
Manganese ^a	268 J	5.3	1.5	mg/kg	3	04/19/19	04/30/19 ND	SW846 6010D ⁴	SW846 3050B ⁵
Mercury	1.4 J	0.19	0.085	mg/kg	5	04/19/19	04/19/19 LL	SW846 7471B ¹	SW846 7471B ⁶
Nickel	25.5	4.7	0.41	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁵
Potassium	956 J	1200	38	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁵
Selenium ^a	2.3 U	7.1	2.3	mg/kg	3	04/19/19	04/30/19 ND	SW846 6010D ⁴	SW846 3050B ⁵
Silver ^a	0.60 U	1.8	0.60	mg/kg	3	04/19/19	04/30/19 ND	SW846 6010D ⁴	SW846 3050B ⁵
Sodium	201 J	1200	92	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁵
Thallium ^a	2.1 U	3.5	2.1	mg/kg	3	04/19/19	04/30/19 ND	SW846 6010D ⁴	SW846 3050B ⁵
Vanadium	35.7	5.9	0.22	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁵
Zinc	331 J	5.9	2.7	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46538
- (2) Instrument QC Batch: MA46544
- (3) Instrument QC Batch: MA46553
- (4) Instrument QC Batch: MA46623
- (5) Prep QC Batch: MP14349
- (6) Prep QC Batch: MP14380

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-132(2-4)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-24	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 83.9
Project: National Grid, Philly Coke, Philadelphia, PA	

4.24
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	4.2 J	0.28	0.14	mg/kg	1	04/23/19 14:09	KI	SW846 9012B/LACHAT
Solids, Percent	83.9			%	1	04/26/19 15:00	JMP	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-132(8-10)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-25	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 56.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	19900 J	93	15	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Antimony	3.6 J	3.7	0.76	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Arsenic	34.5	3.7	0.52	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Barium	241	37	3.5	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Beryllium	1.3	0.37	0.15	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Cadmium	1.4	0.93	0.13	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Calcium	3910 J	930	82	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Chromium	149 J	1.9	0.69	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Cobalt	17.4	9.3	0.52	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Copper	93.6	4.6	1.6	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Iron	32000	93	36	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Lead	178	3.7	0.76	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Magnesium	4840	930	25	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Manganese	1180 J	2.8	0.76	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Mercury	1.3 J	0.10	0.046	mg/kg	2	04/19/19	04/19/19	LL SW846 7471B ¹	SW846 7471B ⁴
Nickel	34.5	7.4	0.65	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Potassium	2080	1900	59	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Selenium	1.2 U	3.7	1.2	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Silver	0.32 U	0.93	0.32	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Sodium	171 J	1900	140	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Thallium	1.1 U	1.9	1.1	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Vanadium	41.1	9.3	0.35	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Zinc	514 J	9.3	4.3	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³

(1) Instrument QC Batch: MA46538

(2) Instrument QC Batch: MA46544

(3) Prep QC Batch: MP14349

(4) Prep QC Batch: MP14380

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.25
 4

Report of Analysis

Client Sample ID: S-132(8-10)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-25	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 56.1
Project: National Grid, Philly Coke, Philadelphia, PA	

4.25
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.50 J	0.43	0.21	mg/kg	1	04/23/19 14:11 KI	SW846	9012B/LACHAT
Solids, Percent	56.1			%	1	04/26/19 10:25 RC	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-133(2-4)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-26	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 83.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	11400 J	59	9.5	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁴
Antimony ^a	2.8 J	4.7	0.97	mg/kg	2	04/19/19	04/22/19 ND	SW846 6010D ³	SW846 3050B ⁴
Arsenic	11.2	2.4	0.33	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁴
Barium	168	24	2.2	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.93	0.24	0.095	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁴
Cadmium	4.8	0.59	0.083	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁴
Calcium	21100 J	590	52	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁴
Chromium	107 J	1.2	0.44	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁴
Cobalt	7.2	5.9	0.33	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁴
Copper ^a	143	5.9	2.0	mg/kg	2	04/19/19	04/22/19 ND	SW846 6010D ³	SW846 3050B ⁴
Iron	33800	120	45	mg/kg	2	04/19/19	04/22/19 ND	SW846 6010D ³	SW846 3050B ⁴
Lead ^a	297	4.7	0.97	mg/kg	2	04/19/19	04/22/19 ND	SW846 6010D ³	SW846 3050B ⁴
Magnesium	4590	590	16	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁴
Manganese ^a	607 J	3.5	0.97	mg/kg	2	04/19/19	04/22/19 ND	SW846 6010D ³	SW846 3050B ⁴
Mercury	1.3 J	0.20	0.087	mg/kg	5	04/19/19	04/19/19 LL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	56.3	4.7	0.41	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁴
Potassium	2050	1200	38	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁴
Selenium ^a	1.5 U	4.7	1.5	mg/kg	2	04/19/19	04/22/19 ND	SW846 6010D ³	SW846 3050B ⁴
Silver ^a	0.40 U	1.2	0.40	mg/kg	2	04/19/19	04/22/19 ND	SW846 6010D ³	SW846 3050B ⁴
Sodium	167 J	1200	92	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁴
Thallium ^a	1.4 U	2.4	1.4	mg/kg	2	04/19/19	04/22/19 ND	SW846 6010D ³	SW846 3050B ⁴
Vanadium	24.9	5.9	0.22	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁴
Zinc	383 J	5.9	2.7	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46538
- (2) Instrument QC Batch: MA46544
- (3) Instrument QC Batch: MA46553
- (4) Prep QC Batch: MP14349
- (5) Prep QC Batch: MP14380

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-133(2-4)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-26	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 83.7
Project: National Grid, Philly Coke, Philadelphia, PA	

4.26
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.61 J	0.26	0.13	mg/kg	1	04/23/19 14:15 KI	SW846	9012B/LACHAT
Solids, Percent	83.7			%	1	04/22/19 14:44 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-133(7-9)		Date Sampled: 04/17/19
Lab Sample ID: JC86553-27		Date Received: 04/17/19
Matrix: SO - Soil		Percent Solids: 92.2
Project: National Grid, Philly Coke, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	6230 J	52	8.4	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Antimony	1.3 J	2.1	0.43	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Arsenic	3.8	2.1	0.29	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Barium	43.5	21	2.0	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Beryllium	0.37	0.21	0.083	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Cadmium	0.073 J	0.52	0.073	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Calcium	1400 J	520	46	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Chromium	17.6 J	1.0	0.39	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Cobalt	4.5 J	5.2	0.29	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Copper	28.6	2.6	0.88	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Iron	14600	52	20	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Lead	23.1	2.1	0.43	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Magnesium	2220	520	14	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Manganese	254 J	1.6	0.43	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Mercury	0.070 J	0.035	0.015	mg/kg	1	04/19/19	04/19/19	LL SW846 7471B ¹	SW846 7471B ⁴
Nickel	11.4	4.2	0.37	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Potassium	988 J	1000	33	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Selenium	0.68 U	2.1	0.68	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Silver	0.18 U	0.52	0.18	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Sodium	135 J	1000	81	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Thallium	0.60 U	1.0	0.60	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Vanadium	15.6	5.2	0.20	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³
Zinc	56.1 J	5.2	2.4	mg/kg	1	04/19/19	04/20/19	GT SW846 6010D ²	SW846 3050B ³

(1) Instrument QC Batch: MA46538

(2) Instrument QC Batch: MA46544

(3) Prep QC Batch: MP14349

(4) Prep QC Batch: MP14380

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.27
4

Report of Analysis

Client Sample ID: S-133(7-9)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-27	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 92.2
Project: National Grid, Philly Coke, Philadelphia, PA	

4.27
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.28 J	0.24	0.12	mg/kg	1	04/23/19 14:16 KI	SW846	9012B/LACHAT
Solids, Percent	92.2			%	1	04/26/19 15:00 JMP	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-133(13-15)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-28	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 64.8
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	17200 J	81	13	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Antimony	4.2 J	3.2	0.67	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Arsenic	38.4	3.2	0.45	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Barium	195	32	3.1	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Beryllium	1.1	0.32	0.13	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Cadmium	1.6	0.81	0.11	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Calcium	2630 J	810	72	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Chromium	207 J	1.6	0.60	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Cobalt	14.7	8.1	0.45	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Copper	127	4.1	1.4	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Iron	26500	81	31	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Lead	270	3.2	0.67	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Magnesium	3320	810	22	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Manganese	785 J	2.4	0.67	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Mercury	1.6 J	0.24	0.11	mg/kg	5	04/19/19	04/19/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	28.3	6.5	0.57	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Potassium	1580 J	1600	52	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Selenium	1.1 U	3.2	1.1	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Silver	0.68 J	0.81	0.28	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Sodium	142 J	1600	130	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Thallium	0.94 U	1.6	0.94	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Vanadium	32.4	8.1	0.31	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³
Zinc	679 J	8.1	3.7	mg/kg	1	04/19/19	04/20/19 GT	SW846 6010D ²	SW846 3050B ³

(1) Instrument QC Batch: MA46538

(2) Instrument QC Batch: MA46544

(3) Prep QC Batch: MP14349

(4) Prep QC Batch: MP14380

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-133(13-15)	Date Sampled: 04/17/19
Lab Sample ID: JC86553-28	Date Received: 04/17/19
Matrix: SO - Soil	Percent Solids: 64.8
Project: National Grid, Philly Coke, Philadelphia, PA	

4.28
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.36 J	0.37	0.19	mg/kg	1	04/23/19 14:17	KI	SW846 9012B/LACHAT
Solids, Percent	64.8			%	1	04/26/19 15:00	JMP	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

National Grid

Philly Coke

DATA REVIEW

Philadelphia, Pennsylvania

Volatile Organic Compound (VOC), Semivolatile Organic Compounds (SVOC), Pesticides, PCBs, Metals,
and Miscellaneous Analyses

SDG # JC86716

Analyses Reported By:
SGS Laboratories
Dayton, New Jersey

Report #33343R
Review Level: Tier II
Project: 30004026 (B0036790.0001) 00006

DATA REVIEW REPORT

SUMMARY

This data review report summarizes the review of Sample Delivery Group (SDG) # JC86716 for samples collected in association with the National Grid Philly Coke site in Philadelphia, Pennsylvania. The review was conducted as a Tier II evaluation and included review of laboratory analytical data package completeness. Field documentation was not included in this review. Included with this assessment are the post-validation annotated sample result sheets, and chain of custody (COC). Analyses were performed on the following samples

SDG Number	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PEST/ PCB	Metals	MISC
JC86716	S-129 (2-4) (04-18-2019)	JC86716-1	Soil	4/18/2019		X	X		X	X
	S-129 (8-10) (04-18-2019)	JC86716-2	Soil	4/18/2019		X	X		X	X
	S-129 (10-12) (04-18-2019)	JC86716-3	Soil	4/18/2019		X	X		X	X
	S-128 (2-4) (04-18-2019)	JC86716-4	Soil	4/18/2019		X	X		X	X
	S-128 (10-12) (04-18-2019)	JC86716-5	Soil	4/18/2019		X	X		X	X
	S-128 (13-15) (04-18-2019)	JC86716-6	Soil	4/18/2019		X	X		X	X
	S-125 (7-9) (04-18-2019)	JC86716-7	Soil	4/18/2019		X	X		X	X
	S-125 (11-13) (04-18-2019)	JC86716-8	Soil	4/18/2019		X	X		X	X
	S-125 (13-15) (04-18-2019)	JC86716-9	Soil	4/18/2019		X	X		X	X
	TP-63R (7-9) (04-18-2019)	JC86716-10	Soil	4/18/2019		X	X		X	X
	TP-63R (11-13) (04-18-2019)	JC86716-11	Soil	4/18/2019		X	X		X	X
	S-124 (7-9) (04-18-2019)	JC86716-12	Soil	4/18/2019		X	X		X	X
	S-124 (10-12) (04-18-2019)	JC86716-13	Soil	4/18/2019		X	X		X	X
	S-123 (7-9) (04-18-2019)	JC86716-14	Soil	4/18/2019		X	X		X	X
	S-123 (13-15) (04-18-2019)	JC86716-15	Soil	4/18/2019		X	X		X	X
	PSSTP-07R (0.5-2) (04-18-2019)	JC86716-16	Soil	4/18/2019		X	X	X	X	X
	SO-DUP-0418 (04-18-2019)	JC86716-17	Soil	4/18/2019	PSSTP-07R (0.5-2) (04-18-2019)	X	X	X	X	X
	PSSTP-07R (8-9) (04-18-2019)	JC86716-18	Soil	4/18/2019		X	X	X	X	X
	PSSTP-07R (20-22) (04-18-2019)	JC86716-19	Soil	4/18/2019		X	X		X	X
	PCTP-51R (10-12) (04-18-2019)	JC86716-20	Soil	4/18/2019		X	X		X	X
PCSB-30R (0.5-2) (04-19-2019)	JC86716-21	Soil	4/19/2019		X	X	X	X	X	
PCSB-26R (0.5-2) (04-19-2019)	JC86716-22	Soil	4/19/2019		X	X	X	X	X	

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SDG Number	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PEST/PCB	Metals	MISC
	PCSB-49R (3-5) (04-19-2019)	JC86716-23	Soil	4/19/2019		X	X		X	X
	PCSB-49R (10-12) (04-19-2019)	JC86716-24	Soil	4/19/2019		X	X		X	X

Notes:

1. PEST/PCB = Pesticides and polychlorinated biphenyls
2. SVOC = Semivolatile Organic Compounds
3. VOC = Volatile Organic Compound
4. MISC = Miscellaneous (total cyanide)

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ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

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ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260C, 8270D, 8081A, and 8082A. Data were reviewed in accordance with the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540/R-2017-002, January 2017 and the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, EPA540/R-99/008, October 1999 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

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that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

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VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times/Preservation

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis (preserved) 7 days from collection to analysis (non-preserved)	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis	Cool to <6 °C.

Note:

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

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Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
PCSB-30R (0.5-2) (04-19-2019)	Carbon disulfide	<LL but >10%	<LL but >10%
	1,2-Dibromoethane	<LL but >10%	AC
	1,3-Dichlorobenzene	<LL but >10%	<LL but >10%
	1,4-Dichlorobenzene	<LL but >10%	<LL but >10%
	trans-1,2-Dichloroethene	<LL but >10%	<LL but >10%
	cis-1,3-Dichloropropene	<LL but >10%	<LL but >10%
	trans-1,3-Dichloropropene	<LL but >10%	<LL but >10%
S-128 (2-4) (04-18-2019)	Benzene	<LL but >10%	<LL but >10%
	Methyl Acetate	AC	>UL

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Parent sample concentration > four times the MS/MSD spiking solution concentration.	Detect	No Action
	Non-detect	

Sample locations associated with MS/MSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

Sample Locations	Compound
S-128 (2-4) (04-18-2019)	Methyl Acetate 1,2,3-Trichlorobenzene

The criteria used to evaluate the RPD between the MS/MSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

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Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS/LCSD analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery	LCSD Recovery
S-129 (2-4) (04-18-2019)	1,2-Dibromoethane	>UL	--
S-129 (10-12) (04-18-2019)			
S-128 (2-4) (04-18-2019)			
S-128 (13-15) (04-18-2019)			
S-125 (13-15) (04-18-2019)			
TP-63R (7-9) (04-18-2019)			
TP-63R (11-13) (04-18-2019)			
S-124 (10-12) (04-18-2019)			
S-123 (7-9) (04-18-2019)			
S-123 (13-15) (04-18-2019)			

Note:

AC = Acceptable

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

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Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PSSTP-07R (0.5-2) (04-18-2019)/ SO-DUP-0418 (04-18-2019)	Acetone	10 U	9.5 J	AC
	Benzene	0.89	3.4	NC

Notes:

AC Acceptable
NC Not compliant

Benzene associated with sample locations PSSTP-07R (0.5-2) (04-18-2019) and SO-DUP-0418 (04-18-2019) exhibited a field duplicate RPD greater than the control limit. The associated sample results from these sample locations for the listed analyte were qualified as estimated.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Trip blanks	X				X
Laboratory Control Sample (LCS)		X	X		
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)		X	X		
Matrix Spike Duplicate(MSD)		X	X		
MS/MSD Precision (RPD)		X	X		
Field/Lab Duplicate (RPD)		X	X		
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

- %RSD Relative standard deviation
- %R Percent recovery
- RPD Relative percent difference
- %D Percent difference

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SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Recovery
S-129 (8-10)	Phenol-d6	AC
	2-Fluorophenol	AC
	2,4,6-Tribromophenol	AC
S-128 (10-12)	Nitrobenzene-d5	>UL
	2-Fluorobiphenyl	AC
	Terphenyl-d14	AC

Notes:

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AC Acceptable

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
	Detect	J
< LL but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

Sample locations associated with the MS/MSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Compound	MS Recovery	MSD Recovery
S-128 (2-4) (04-18-2019)	2,4-Dinitrophenol	AC	< 10%
	4,6-Dinitro-o-cresol	AC	< 10%
	Hexachlorocyclopentadiene	AC	< 10%
	Pyrene	< 10%	< 10%

The criteria used to evaluate the MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J

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Control Limit	Sample Result	Qualification
< 10%	Non-detect	R
	Detect	J

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

The LCS/LCSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PSSTP-07R (0.5-2) (04-18-2019)/ SO-DUP-0418 (04-18-2019)	1,1-Biphenyl	10.7 J	8.5 J	AC
	2-Methylnaphthalene	19.5 J	15.1 J	AC
	Acenaphthene	125	90.6	31.9 %
	Acenaphthylene	72	88.6	20.6 %
	Anthracene	321	346	7.4 %
	Benz(a)anthracene	939	983	4.5 %
	Benzaldehyde	22.1 J	17.7 J	AC
	Benzo(a)pyrene	979	987	0.8 %
	Benzo(b)fluoranthene	1210	1210	0.0 %
	Benzo(g,h,i)perylene	626	558	11.4 %
	Benzo(k)fluoranthene	481	401	18.1 %
	bis(2-Ethylhexyl)phthalate	191	110	AC
	Carbazole	139	102	AC
	Chrysene	847	907	6.8 %
	Dibenz(a,h)anthracene	132	135	AC
	Dibenzofuran	67.6 J	59.6 J	AC
Di-n-butyl phthalate	343	294	15.3 %	

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Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
	Fluoranthene	1710	1820	6.2 %
	Fluorene	136	128	AC
	Indeno(1,2,3-cd)pyrene	660	633	4.1 %
	Naphthalene	32.1 J	19.2 J	AC
	Phenanthrene	1200	1210	0.8 %
	Pyrene	1590	1680	5.5 %

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

Several samples were diluted to bring target compounds within linear range of the instrument. Sample results that were reported from a secondary dilution were qualified with a "D", indicating the result is diluted.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

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DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

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PESTICIDE ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8081A	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. Herbicide analysis requires that one of the two pesticide surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

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5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 40% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PSSTP-07R (0.5-2) (04-18-2019)/ SO-DUP-0418 (04-18-2019)	4,4-DDD	2.5	1.6	AC
	4,4-DDT	7.6	4.9	43.1 %
	Heptachlor epoxide	1.2	0.99	AC
	trans-chlordane	1.5	1.2	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows for both the primary and confirmation columns. When dual column analysis is performed the percent difference (%D) of detected sample results must be less than 40%.

Sample locations associated with %D analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	%D
PSSTP-07R (0.5-2)	gamma-Chlordane	96.6%
	Heptachlor epoxide	66.7%
SO-DUP-0418	gamma-Chlordane	54.5%

The criteria used to evaluate the %D are presented in the following table. In the case of a %D deviation, the sample results are qualified as documented in the table below.

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Control Limit (%D)	Qualification
>40% to 70%	J
>70% to 100%	JN
>100% ¹	R
>100% to 200% (Interference detected) ²	J or JN
>50% (pesticide) sample results less than the RL)	U

When the pesticide sample results are less than the RL and the %D greater than 50% the sample result are raised to the RL and reported as non-detect.

Notes:

- 1: If the pattern is confirmed sample results will be qualified as estimated (J). If pattern exhibits interference or if the pesticide cannot be positively determined due to weathering the sample results will be qualified as tentative identification estimate (JN).
- 2: If interference is detected in either column the sample results will be qualified as tentative identification estimate (JN).

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR PESTICIDES

Pesticides; SW-846 8081	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)		X		X	
Matrix Spike Duplicate(MSD)		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Column %D ≤ 40% (If dual column is performed for reporting-not confirmation)		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%RSD – relative standard deviation

%R - percent recovery

RPD - relative percent difference

%D – difference.

DATA REVIEW REPORT

POLYCHLORINATED BIPHENYLS (PCBs) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8082A	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. PCB analysis requires that one of the two PCB surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD was not performed on a sample within this SDG.

DATA REVIEW REPORT

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PSSTP-07R (0.5-2) (04-18-2019)/ SO-DUP-0418 (04-18-2019)	Aroclor 1254	40 U	61	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

7. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows for both the primary and confirmation columns. When dual column analysis is performed the relative percent difference (%RPD) of detected sample results must be less than 40%.

No Aroclors were detected in the samples within this SDG.

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR PCBs

PCBs; SW-846 8082A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Column (%D) (If dual column is performed-not confirmation purposes only)		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

%R - percent recovery

RPD - relative percent difference

%D – difference

DATA REVIEW REPORT

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6010D, 7471A, and 9012B. Data were reviewed in accordance with the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA 540/R-2017-001, January 2017; and the USEPA CLP National Functional Guidelines for Inorganic Data Review, EPA 540-R-01-008, July 2002 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6010D	Water	180 days from collection to analysis	Preserved to a pH of less than 2.
	Soil	180 days from collection to analysis	Cool to <6 °C.
SW-846 7471A	Soil	28 days from collection to analysis	Cool to <6 °C.
SW-846 7470A	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL and/or were non-detect. No qualification of the sample results was required.

3. Matrix Spike (MS)/Matrix Spike Duplicate(MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analyte present in the table below.

DATA REVIEW REPORT

Sample Location	Analyte	MS Recovery	MSD Recovery
S-128 (2-4) (04-18-2019)	Antimony	65.6%	65.9%
	Lead	59.0%	134.6%
	Magnesium	35.5%	49.3%
	Manganese	17.5%	54.5%
	Mercury	157.9%	236.9%

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications for all metals are applied to all sample results associated with this SDG except PCSB-30R (0.5-2) (04-19-2019).

Control limit	Sample Result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery <30%	Non-detect	R
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD analysis exhibited RPDs within the control limits.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PSSTP-07R (0.5-2) (04-18-2019)/	Aluminum	11100	7460	39.2 %

DATA REVIEW REPORT

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
SO-DUP-0418 (04-18-2019)	Arsenic	6.6	6.9	AC
	Barium	110	146	28.1 %
	Beryllium	0.52	0.37	33.7 %
	Cadmium	0.65 U	0.74	AC
	Calcium	22400	27600	20.8 %
	Chromium	18	20	10.5 %
	Copper	17.7	28.1	45.4 %
	Iron	17000	16000	6.0 %
	Lead	158	201	23.9 %
	Magnesium	4540	4260	6.3 %
	Manganese	316	297	6.1 %
	Mercury	0.19	0.23	19.0%
	Nickel	11.1	11.6	4.4 %
	Vanadium	18	15.3	16.2 %
Zinc	127	164	25.4 %	

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR METAL

METALS; SW846 6010D/7471A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field Blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate (MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Total vs. Dissolved	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Cyanide by SW-846 9012	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of greater than 12.
	Soil		Cool to <6 °C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analyte present in the table below.

Sample Location	Analyte	MS Recovery
S-128 (2-4) (04-18-2019)	Cyanide	54.0%

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications are applied to all sample results

DATA REVIEW REPORT

associated with this SDG except S-129 (2-4) (04-18-2019), S-125 (13-15) (04-18-2019), and PCSB-30R (0.5-2) (04-19-2019), which exhibited a passing MS recovery.

Control limit	Sample Result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery <30%	Non-detect	R
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

The laboratory duplicate analysis exhibited RPD within control limits.

4. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
PSSTP-07R (0.5-2) (04-18-2019)/ SO-DUP-0418 (04-18-2019)	Cyanide	0.33	0.37	AC

Notes:

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

DATA REVIEW REPORT

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: EPA 9012	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Dilution Factor		X		X	
Moisture Content					X

Notes:

%R - percent recovery

RPD - relative percent difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: July 17, 2019

PEER REVIEW: Dennis Capria

DATE: July 22, 2019

CHAIN OF CUSTODY SAMPLE ANALYSIS DATA SHEETS





SLL

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
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Handwritten initials
PJL
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FED-EX Tracking #
Bottle Order / Sample # **ER-041619-205**
SGS Quote #
SGS Job # **JC86716**

Client / Reporting Information			Project Information						Requested Analysis						Matrix Codes									
Company Name: Arada			Project Name: Philly Coler												DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank									
Billing Address: 110 W Fayette St #300			Client Address: 4501 Richmond St																					
City: Spring Lake NJ 07081			City: Philadelphia PA																					
E-mail: Carly.Hardy@Lawrence.Hardy.Consulting.com			Phone: 800.867.9901																					
Phone: 315-335-9493			Project Manager: John Bussiel																					
Sampling Method: 362 345 0881			Attention:																					
SGS Form #	Field ID / Point of Collection	MECH/DI Val #	Collection			Matrix	# of bottles	Number of preserved bottles										LAB USE ONLY						
			Date	Time	Sampled by			HEI	NH3	H2S	NO2	NO3	PH	DO	TEMP	TOC	TO17		OTHER	REMARKS				
1.	S-129 (2-4)		4/16/19	800	GB	5	50	5																
2.	S-129 (8-6)			810																				
3.	S-129 (10-12)			820																				D43
4.	S-128 (2-4)			900																				C64T1
5.	S-128 (2-4) MS			900																				14M3
6.	S-128 (2-4) MSD			900																				40104
7.	S-128 (10-16)			915																				40103
8.	S-128 (12-15)			930																				
9.	S-125 (7-9)			1075																				
10.	S-125 (11-13)			1035																				
	S-125 (13-15)			1045																				
	T-9-C3R (7-9)			1055																				
Turn Around Time (Business Days)			Approved By (SGS PM) / Date:						Deliverable						Comments / Special Instructions									
<input checked="" type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days <input type="checkbox"/> 2 Business Days <input type="checkbox"/> 1 Business Day <input type="checkbox"/> Other _____			<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input checked="" type="checkbox"/> Full Tier I (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ DKQP						<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format						Initial Assessment 2B0 Label Verification Label Verification									
All data available via Labtrak			* Approval needed for 1-3 Business Day TAT						Commercial "A" = Results only; Commercial "B" = Results + QC Summary Commercial "C" = Results + QC Summary + Partial Raw data						http://www.sgs.com/en/terms-and-conditions									
Sample Custody must be documented below each time samples change possession, including courier delivery.																								
Relinquished By: <i>[Signature]</i>	Date / Time: 4/16/19 10:30	Received By: <i>[Signature]</i>	Date / Time: 4/16/19	Relinquished By: <i>[Signature]</i>	Date / Time: 4/16/19	Received By: <i>[Signature]</i>	Date / Time: 4/16/19	Relinquished By: <i>[Signature]</i>	Date / Time: 4/16/19	Received By: <i>[Signature]</i>	Date / Time: 4/16/19	Relinquished By: <i>[Signature]</i>	Date / Time: 4/16/19	Received By: <i>[Signature]</i>	Date / Time: 4/16/19									
Custody Seal #												<input type="checkbox"/> Intact <input type="checkbox"/> Not intact												
Preserved where applicable												<input type="checkbox"/> Aboard <input type="checkbox"/> Therm: 0												

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5





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FED-EX Tracking #
Bottle Order Control #
SGS Quote #
SGS Job # JC86716

Client / Reporting Information, Project Information, Requested Analysis, Matrix Codes, Collection table, Deliverables, and Signature sections.

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EHSQA-QAC-0023-02-FORM-Dayton - Standard COC.docx

JC86716: Chain of Custody

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FED-EX Tracking #
SGS Quote #
Bottle Order Control #
SGS Job # JC86716

Client / Reporting Information, Project Information, Requested Analysis, Matrix Codes, Collection table, Turn Around Time, Deliverable, Sample Custody, Relinquished by, Received by, Date / Time, Custody Seal #, On Ice, Therm. ID.

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SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: S-129 (2-4)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-1	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 86.4
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I225772.D	1	04/27/19 13:31	TDN	n/a	n/a	VI9096
Run #2							

Run #	Initial Weight
Run #1	4.6 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	55.2	13	6.3	ug/kg	
71-43-2	Benzene	1.2	0.63	0.47	ug/kg	
74-97-5	Bromochloromethane	ND	6.3	0.54	ug/kg	
75-27-4	Bromodichloromethane	ND	2.5	0.56	ug/kg	
75-25-2	Bromoform	ND	6.3	0.51	ug/kg	
74-83-9	Bromomethane	ND	6.3	1.3	ug/kg	
78-93-3	2-Butanone (MEK)	ND	13	4.7	ug/kg	
75-15-0	Carbon disulfide	1.3	2.5	1.2	ug/kg	J
56-23-5	Carbon tetrachloride	ND	2.5	0.69	ug/kg	
108-90-7	Chlorobenzene	ND	2.5	0.45	ug/kg	
75-00-3	Chloroethane	ND	6.3	0.86	ug/kg	
67-66-3	Chloroform	ND	2.5	0.47	ug/kg	
74-87-3	Chloromethane	ND	6.3	2.5	ug/kg	
110-82-7	Cyclohexane	ND	2.5	0.51	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.5	1.1	ug/kg	
124-48-1	Dibromochloromethane	ND	2.5	0.43	ug/kg	
106-93-4	1,2-Dibromoethane ^a	ND	1.3	0.41	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.3	0.38	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.3	0.45	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.3	0.43	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	6.3	0.80	ug/kg	
75-34-3	1,1-Dichloroethane	0.52	1.3	0.48	ug/kg	J
107-06-2	1,2-Dichloroethane	ND	1.3	0.59	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.3	0.83	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.3	1.2	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.3	0.84	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.5	0.51	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.5	0.44	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.5	0.41	ug/kg	
100-41-4	Ethylbenzene	ND	1.3	0.69	ug/kg	
76-13-1	Freon 113	ND	6.3	0.96	ug/kg	
591-78-6	2-Hexanone	ND	6.3	1.6	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-129 (2-4) Lab Sample ID: JC86716-1 Matrix: SO - Soil Method: SW846 8260C Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/18/19 Date Received: 04/19/19 Percent Solids: 86.4
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VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.5	0.88	ug/kg	
79-20-9	Methyl Acetate	ND	6.3	1.7	ug/kg	
108-87-2	Methylcyclohexane	ND	2.5	0.89	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.3	0.44	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.3	2.0	ug/kg	
75-09-2	Methylene chloride	ND	6.3	3.1	ug/kg	
100-42-5	Styrene	ND	2.5	0.72	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.5	0.49	ug/kg	
127-18-4	Tetrachloroethene	ND	2.5	0.58	ug/kg	
108-88-3	Toluene	ND	1.3	0.47	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.3	1.3	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.3	1.3	ug/kg	
71-55-6	1,1,1-Trichloroethane	0.82	2.5	0.54	ug/kg	J
79-00-5	1,1,2-Trichloroethane	ND	2.5	0.43	ug/kg	
79-01-6	Trichloroethene	ND	1.3	0.96	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.3	0.86	ug/kg	
75-01-4	Vinyl chloride	ND	2.5	0.59	ug/kg	
	m,p-Xylene	ND	1.3	0.94	ug/kg	
95-47-6	o-Xylene	ND	1.3	0.73	ug/kg	
1330-20-7	Xylene (total)	ND	1.3	0.73	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		75-127%
17060-07-0	1,2-Dichloroethane-D4	124%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	112%		79-127%

- (a) This compound in BS is outside in house QC limits bias high. Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

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Client Sample ID:	S-129 (2-4)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-1	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	86.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P86925.D	1	04/27/19 10:22	CS	04/24/19 11:00	OP19948	E2P3839
Run #2	2P86918.D	5	04/27/19 07:55	CS	04/24/19 11:00	OP19948	E2P3839

Run #	Initial Weight	Final Volume
Run #1	31.3 g	1.0 ml
Run #2	31.3 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	74	18	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	180	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	180	32	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	180	66	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	180	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	180	40	ug/kg	
95-48-7	2-Methylphenol	ND	74	24	ug/kg	
	3&4-Methylphenol	ND	74	30	ug/kg	
88-75-5	2-Nitrophenol	ND	180	24	ug/kg	
100-02-7	4-Nitrophenol	ND	370	99	ug/kg	
87-86-5	Pentachlorophenol	ND	150	35	ug/kg	
108-95-2	Phenol	ND	74	19	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	180	24	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	180	28	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	180	22	ug/kg	
83-32-9	Acenaphthene	255	37	13	ug/kg	
208-96-8	Acenaphthylene	809	37	19	ug/kg	
98-86-2	Acetophenone	17.0	180	8.0	ug/kg	J
120-12-7	Anthracene	1220	37	23	ug/kg	
1912-24-9	Atrazine	ND	74	16	ug/kg	
56-55-3	Benzo(a)anthracene	2670	37	10	ug/kg	
50-32-8	Benzo(a)pyrene	2940	37	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	4370 ^a	180	82	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	1430	37	18	ug/kg	
207-08-9	Benzo(k)fluoranthene	1780 ^a	180	86	ug/kg	D
101-55-3	4-Bromophenyl phenyl ether	ND	74	14	ug/kg	
85-68-7	Butyl benzyl phthalate	47.0	74	9.0	ug/kg	J
92-52-4	1,1'-Biphenyl	47.9	74	5.1	ug/kg	J
100-52-7	Benzaldehyde	22.0	180	9.2	ug/kg	J
91-58-7	2-Chloronaphthalene	ND	74	8.8	ug/kg	
106-47-8	4-Chloroaniline	ND	180	13	ug/kg	
86-74-8	Carbazole	413	74	5.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-129 (2-4)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-1	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 86.4
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	74	15	ug/kg	
218-01-9	Chrysene	2970	37	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	74	7.9	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	74	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	74	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	74	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	37	11	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	37	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	74	31	ug/kg	
123-91-1	1,4-Dioxane	ND	37	24	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	533	37	16	ug/kg	
132-64-9	Dibenzofuran	384	74	15	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	74	6.0	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	74	9.2	ug/kg	
84-66-2	Diethyl phthalate	ND	74	7.9	ug/kg	
131-11-3	Dimethyl phthalate	ND	74	6.6	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	80.5	74	8.7	ug/kg	
206-44-0	Fluoranthene	6350 ^a	180	82	ug/kg	D
86-73-7	Fluorene	689	37	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	74	9.4	ug/kg	
87-68-3	Hexachlorobutadiene	ND	37	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^b	ND	370	15	ug/kg	UJ
67-72-1	Hexachloroethane	ND	180	18	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	1410	37	17	ug/kg	
78-59-1	Isophorone	ND	74	7.9	ug/kg	
91-57-6	2-Methylnaphthalene	159	37	8.4	ug/kg	
88-74-4	2-Nitroaniline	ND	180	8.7	ug/kg	
99-09-2	3-Nitroaniline	ND	180	9.2	ug/kg	
100-01-6	4-Nitroaniline	ND	180	9.6	ug/kg	
91-20-3	Naphthalene	352	37	10	ug/kg	
98-95-3	Nitrobenzene	ND	74	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	74	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	180	14	ug/kg	
85-01-8	Phenanthrene	5830 ^a	180	62	ug/kg	D
129-00-0	Pyrene	5930 ^a	180	59	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	180	9.4	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	41%	49%	23-115%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: S-129 (2-4)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-1	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 86.4
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	50%	58%	27-114%
118-79-6	2,4,6-Tribromophenol	56%	58%	19-152%
4165-60-0	Nitrobenzene-d5	56%	72%	26-134%
321-60-8	2-Fluorobiphenyl	70%	76%	39-124%
1718-51-0	Terphenyl-d14	55%	67%	36-134%

- (a) Result is from Run# 2
- (b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
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Report of Analysis

Client Sample ID: S-129 (2-4)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-1	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 86.4
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	8600	57	9.2	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.47 U J	2.3	0.47	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Arsenic	6.3	2.3	0.32	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Barium	157	23	2.2	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.39	0.23	0.092	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.88	0.57	0.080	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Calcium	35700	1700	150	mg/kg	3	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Chromium	24.3	1.1	0.42	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Cobalt	4.9 J	5.7	0.32	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Copper	66.7	2.9	0.96	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Iron	17400	57	22	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Lead	279 J	2.3	0.47	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Magnesium	9790 J	570	16	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Manganese	260 J	1.7	0.47	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Mercury	0.56 J	0.035	0.015	mg/kg	1	04/23/19	04/23/19 LL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	18.9	4.6	0.40	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Potassium	1200	1100	36	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Selenium	0.74 U	2.3	0.74	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Silver	0.52 J	0.57	0.19	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Sodium	212 J	1100	89	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Thallium	0.66 U	1.1	0.66	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Vanadium	24.7	5.7	0.22	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Zinc	308	5.7	2.6	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46561
- (2) Instrument QC Batch: MA46589
- (3) Instrument QC Batch: MA46629
- (4) Prep QC Batch: MP14499
- (5) Prep QC Batch: MP14502

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.1
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Report of Analysis

Client Sample ID: S-129 (2-4)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-1	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 86.4
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.64	0.33	0.17	mg/kg	1	04/30/19 13:11 KI	SW846	9012B/LACHAT
Solids, Percent	86.4			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.1
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SGS North America Inc.

Report of Analysis

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Client Sample ID: S-129 (8-10)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-2	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 84.6
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	I225831.D	1	04/30/19 13:53	TDN	n/a	n/a	VI9098
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.8 g	10.0 ml	1.0 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	130000	66000	ug/kg	
71-43-2	Benzene	44300	6600	5000	ug/kg	
74-97-5	Bromochloromethane	ND	66000	5700	ug/kg	
75-27-4	Bromodichloromethane	ND	26000	5900	ug/kg	
75-25-2	Bromoform	ND	66000	5300	ug/kg	
74-83-9	Bromomethane	ND	66000	13000	ug/kg	
78-93-3	2-Butanone (MEK)	ND	130000	49000	ug/kg	
75-15-0	Carbon disulfide	ND	26000	12000	ug/kg	
56-23-5	Carbon tetrachloride	ND	26000	7300	ug/kg	
108-90-7	Chlorobenzene	ND	26000	4700	ug/kg	
75-00-3	Chloroethane	ND	66000	9100	ug/kg	
67-66-3	Chloroform	ND	26000	4900	ug/kg	
74-87-3	Chloromethane	ND	66000	26000	ug/kg	
110-82-7	Cyclohexane	ND	26000	5400	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	26000	11000	ug/kg	
124-48-1	Dibromochloromethane	ND	26000	4500	ug/kg	
106-93-4	1,2-Dibromoethane	ND	13000	4300	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	13000	4000	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	13000	4700	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	13000	4500	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	66000	8400	ug/kg	
75-34-3	1,1-Dichloroethane	ND	13000	5100	ug/kg	
107-06-2	1,2-Dichloroethane	ND	13000	6200	ug/kg	
75-35-4	1,1-Dichloroethene	ND	13000	8700	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	13000	13000	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	13000	8800	ug/kg	
78-87-5	1,2-Dichloropropane	ND	26000	5400	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	26000	4700	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	26000	4300	ug/kg	
100-41-4	Ethylbenzene	11600	13000	7300	ug/kg	J
76-13-1	Freon 113	ND	66000	10000	ug/kg	
591-78-6	2-Hexanone	ND	66000	17000	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-129 (8-10) Lab Sample ID: JC86716-2 Matrix: SO - Soil Method: SW846 8260C Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/18/19 Date Received: 04/19/19 Percent Solids: 84.6
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VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	26000	9200	ug/kg	
79-20-9	Methyl Acetate	ND	66000	18000	ug/kg	
108-87-2	Methylcyclohexane	ND	26000	9300	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	13000	4700	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	66000	21000	ug/kg	
75-09-2	Methylene chloride	ND	66000	33000	ug/kg	
100-42-5	Styrene	ND	26000	7600	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	26000	5200	ug/kg	
127-18-4	Tetrachloroethene	ND	26000	6100	ug/kg	
108-88-3	Toluene	17600	13000	5000	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	66000	13000	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	66000	13000	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	26000	5600	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	26000	4500	ug/kg	
79-01-6	Trichloroethene	ND	13000	10000	ug/kg	
75-69-4	Trichlorofluoromethane	ND	66000	9000	ug/kg	
75-01-4	Vinyl chloride	ND	26000	6200	ug/kg	
	m,p-Xylene	80900	13000	9900	ug/kg	
95-47-6	o-Xylene	29700	13000	7700	ug/kg	
1330-20-7	Xylene (total)	111000	13000	7700	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		75-127%
17060-07-0	1,2-Dichloroethane-D4	106%		75-130%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	110%		79-127%

- (a) Diluted due to high concentration of non-target compound.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

SGS North America Inc.

Report of Analysis

Client Sample ID:	S-129 (8-10)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-2	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	84.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	2P86928.D	10	04/27/19 11:26	CS	04/24/19 11:00	OP19948	E2P3839
Run #2	2P86936.D	500	04/29/19 12:27	YC	04/24/19 11:00	OP19948	E2P3840
Run #3	6P481498.D	1000	04/30/19 14:45	AR	04/24/19 11:00	OP19948	E6P2577

Run #	Initial Weight	Final Volume
Run #1	30.5 g	1.0 ml
Run #2	30.5 g	1.0 ml
Run #3	30.5 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	780	190	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	1900	240	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	1900	330	ug/kg	
105-67-9	2,4-Dimethylphenol	4180	1900	690	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	1900	1500	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	1900	410	ug/kg	
95-48-7	2-Methylphenol	ND	780	250	ug/kg	
	3&4-Methylphenol	390	780	320	ug/kg	J
88-75-5	2-Nitrophenol	ND	1900	260	ug/kg	
100-02-7	4-Nitrophenol	ND	3900	1000	ug/kg	
87-86-5	Pentachlorophenol	ND	1600	360	ug/kg	
108-95-2	Phenol	ND	780	200	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	1900	260	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	1900	290	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	1900	230	ug/kg	
83-32-9	Acenaphthene	469000 ^b	19000	6700	ug/kg	D
208-96-8	Acenaphthylene	121000 ^b	19000	9800	ug/kg	D
98-86-2	Acetophenone	ND	1900	83	ug/kg	
120-12-7	Anthracene	325000 ^b	19000	12000	ug/kg	D
1912-24-9	Atrazine	ND	780	170	ug/kg	
56-55-3	Benzo(a)anthracene	357000 ^b	19000	5500	ug/kg	D
50-32-8	Benzo(a)pyrene	299000 ^b	19000	8800	ug/kg	
205-99-2	Benzo(b)fluoranthene	345000 ^b	19000	8600	ug/kg	
191-24-2	Benzo(g,h,i)perylene	135000 ^b	19000	9700	ug/kg	
207-08-9	Benzo(k)fluoranthene	147000 ^b	19000	9000	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	780	150	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	780	95	ug/kg	
92-52-4	1,1'-Biphenyl	127000 ^b	39000	2700	ug/kg	D
100-52-7	Benzaldehyde	ND	1900	96	ug/kg	
91-58-7	2-Chloronaphthalene	ND	780	92	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID:	S-129 (8-10)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-2	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	84.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	1900	140	ug/kg	
86-74-8	Carbazole	152000 ^b	39000	2800	ug/kg	D
105-60-2	Caprolactam	ND	780	150	ug/kg	
218-01-9	Chrysene	296000 ^b	19000	6100	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	780	83	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	780	170	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	780	140	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	780	130	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	390	120	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	390	190	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	780	320	ug/kg	
123-91-1	1,4-Dioxane	ND	390	260	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	9110	390	170	ug/kg	
132-64-9	Dibenzofuran	472000 ^b	39000	7900	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	780	63	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	780	97	ug/kg	
84-66-2	Diethyl phthalate	ND	780	83	ug/kg	
131-11-3	Dimethyl phthalate	ND	780	69	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	780	91	ug/kg	
206-44-0	Fluoranthene	864000 ^b	19000	8600	ug/kg	D
86-73-7	Fluorene	693000 ^b	19000	8900	ug/kg	D
118-74-1	Hexachlorobenzene	ND	780	98	ug/kg	
87-68-3	Hexachlorobutadiene	ND	390	160	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^c	ND	3900	150	ug/kg	UJ
67-72-1	Hexachloroethane	ND	1900	190	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	120000 ^b	19000	9100	ug/kg	D
78-59-1	Isophorone	ND	780	83	ug/kg	
91-57-6	2-Methylnaphthalene	533000 ^b	19000	4400	ug/kg	D
88-74-4	2-Nitroaniline	ND	1900	91	ug/kg	
99-09-2	3-Nitroaniline	ND	1900	97	ug/kg	
100-01-6	4-Nitroaniline	ND	1900	100	ug/kg	
91-20-3	Naphthalene	2440000 ^d	39000	11000	ug/kg	D
98-95-3	Nitrobenzene	ND	780	150	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	780	110	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	1900	140	ug/kg	
85-01-8	Phenanthrene	1700000 ^b	19000	6500	ug/kg	D
129-00-0	Pyrene	586000 ^b	19000	6200	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	1900	98	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-129 (8-10)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-2	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 84.6
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	51%	26%	0% ^e	23-115%
4165-62-2	Phenol-d5	60%	293% ^e	0% ^e	27-114%
118-79-6	2,4,6-Tribromophenol	87%	71%	0% ^e	19-152%
4165-60-0	Nitrobenzene-d5	137% ^f	85%	0% ^e	26-134%
321-60-8	2-Fluorobiphenyl	71%	117%	121%	39-124%
1718-51-0	Terphenyl-d14	80%	96%	0% ^e	36-134%

- (a) Dilution required due to viscosity of the extract matrix.
- (b) Result is from Run# 2
- (c) Associated CCV outside of control limits low.
- (d) Result is from Run# 3
- (e) Outside control limits due to dilution.
- (f) Outside control limits due to dilution and matrix interference.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.2
4

Report of Analysis

Client Sample ID: S-129 (8-10)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-2	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 84.6
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	5970	59	9.5	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Antimony	0.48 U J	2.4	0.48	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Arsenic	7.4	2.4	0.33	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Barium	58.4	24	2.2	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Beryllium	0.32	0.24	0.095	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cadmium	0.50 J	0.59	0.083	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Calcium	1380	590	52	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Chromium	11.5	1.2	0.44	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cobalt	5.9	5.9	0.33	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Copper	45.2	3.0	0.99	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Iron	17000	59	23	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Lead	196 J	2.4	0.48	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Magnesium	1170 J	590	16	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Manganese	469 J	1.8	0.48	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Mercury	0.086 J	0.033	0.014	mg/kg	1	04/23/19	04/23/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	11.7	4.7	0.41	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Potassium	601 J	1200	38	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Selenium	0.77 U	2.4	0.77	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Silver	0.20 U	0.59	0.20	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Sodium	92 U	1200	92	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Thallium	0.69 U	1.2	0.69	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Vanadium	10.6	5.9	0.22	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Zinc	249	5.9	2.7	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³

(1) Instrument QC Batch: MA46561

(2) Instrument QC Batch: MA46589

(3) Prep QC Batch: MP14499

(4) Prep QC Batch: MP14502

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.2
4

Report of Analysis

Client Sample ID: S-129 (8-10)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-2	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 84.6
Project: National Grid, Philly Coke, Philadelphia, PA	

4.2
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	7.7 J	0.35	0.18	mg/kg	1	04/30/19 13:12 KI	SW846	9012B/LACHAT
Solids, Percent	84.6			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

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Client Sample ID: S-129 (10-12)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-3	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 55.7
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	I225773.D	1	04/27/19 14:01	TDN	n/a	n/a	VI9096

Run #1	Initial Weight
Run #2	5.4 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	105	17	8.3	ug/kg	
71-43-2	Benzene	82.4	0.83	0.63	ug/kg	
74-97-5	Bromochloromethane	ND	8.3	0.71	ug/kg	
75-27-4	Bromodichloromethane	ND	3.3	0.74	ug/kg	
75-25-2	Bromoform	ND	8.3	0.67	ug/kg	
74-83-9	Bromomethane	ND	8.3	1.7	ug/kg	
78-93-3	2-Butanone (MEK)	11.1	17	6.2	ug/kg	J
75-15-0	Carbon disulfide	2.0	3.3	1.5	ug/kg	J
56-23-5	Carbon tetrachloride	ND	3.3	0.91	ug/kg	
108-90-7	Chlorobenzene	ND	3.3	0.59	ug/kg	
75-00-3	Chloroethane	ND	8.3	1.1	ug/kg	
67-66-3	Chloroform	ND	3.3	0.62	ug/kg	
74-87-3	Chloromethane	ND	8.3	3.3	ug/kg	
110-82-7	Cyclohexane	ND	3.3	0.67	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.3	1.4	ug/kg	
124-48-1	Dibromochloromethane	ND	3.3	0.56	ug/kg	
106-93-4	1,2-Dibromoethane ^a	ND	1.7	0.54	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.7	0.51	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.7	0.60	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.7	0.57	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	8.3	1.1	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.7	0.64	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.7	0.78	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.7	1.1	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.7	1.6	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.7	1.1	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.3	0.68	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.3	0.59	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.3	0.54	ug/kg	
100-41-4	Ethylbenzene	1.0	1.7	0.92	ug/kg	J
76-13-1	Freon 113	ND	8.3	1.3	ug/kg	
591-78-6	2-Hexanone	ND	8.3	2.1	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-129 (10-12)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-3	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	55.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	2.4	3.3	1.2	ug/kg	J
79-20-9	Methyl Acetate	ND	8.3	2.3	ug/kg	
108-87-2	Methylcyclohexane	ND	3.3	1.2	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.7	0.59	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	8.3	2.6	ug/kg	
75-09-2	Methylene chloride	ND	8.3	4.2	ug/kg	
100-42-5	Styrene	ND	3.3	0.96	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.3	0.65	ug/kg	
127-18-4	Tetrachloroethene	ND	3.3	0.77	ug/kg	
108-88-3	Toluene	2.6	1.7	0.63	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	8.3	1.7	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	8.3	1.7	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.3	0.71	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.3	0.57	ug/kg	
79-01-6	Trichloroethene	ND	1.7	1.3	ug/kg	
75-69-4	Trichlorofluoromethane	ND	8.3	1.1	ug/kg	
75-01-4	Vinyl chloride	ND	3.3	0.78	ug/kg	
	m,p-Xylene	4.5	1.7	1.2	ug/kg	
95-47-6	o-Xylene	2.6	1.7	0.97	ug/kg	
1330-20-7	Xylene (total)	7.1	1.7	0.97	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	108%		75-127%
17060-07-0	1,2-Dichloroethane-D4	123%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	111%		79-127%

(a) This compound in BS is outside in house QC limits bias high. Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID: S-129 (10-12)		
Lab Sample ID: JC86716-3		Date Sampled: 04/18/19
Matrix: SO - Soil		Date Received: 04/19/19
Method: SW846 8270D SW846 3546		Percent Solids: 55.7
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P86910.D	1	04/27/19 05:06	CS	04/24/19 11:00	OP19948	E2P3839
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	120	29	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	290	36	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	290	50	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	290	100	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	290	220	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	290	63	ug/kg	
95-48-7	2-Methylphenol	ND	120	37	ug/kg	
	3&4-Methylphenol	60.4	120	48	ug/kg	J
88-75-5	2-Nitrophenol	ND	290	39	ug/kg	
100-02-7	4-Nitrophenol	ND	580	160	ug/kg	
87-86-5	Pentachlorophenol	197	230	55	ug/kg	J
108-95-2	Phenol	ND	120	31	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	290	39	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	290	44	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	290	35	ug/kg	
83-32-9	Acenaphthene	885	58	20	ug/kg	
208-96-8	Acenaphthylene	85.9	58	30	ug/kg	
98-86-2	Acetophenone	ND	290	13	ug/kg	
120-12-7	Anthracene	392	58	36	ug/kg	
1912-24-9	Atrazine	ND	120	25	ug/kg	
56-55-3	Benzo(a)anthracene	314	58	17	ug/kg	
50-32-8	Benzo(a)pyrene	303	58	27	ug/kg	
205-99-2	Benzo(b)fluoranthene	336	58	26	ug/kg	
191-24-2	Benzo(g,h,i)perylene	168	58	29	ug/kg	
207-08-9	Benzo(k)fluoranthene	147	58	27	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	120	23	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	120	14	ug/kg	
92-52-4	1,1'-Biphenyl	54.2	120	8.0	ug/kg	J
100-52-7	Benzaldehyde	ND	290	15	ug/kg	
91-58-7	2-Chloronaphthalene	ND	120	14	ug/kg	
106-47-8	4-Chloroaniline	ND	290	21	ug/kg	
86-74-8	Carbazole	191	120	8.5	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-129 (10-12)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-3	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	55.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	120	23	ug/kg	
218-01-9	Chrysene	382	58	18	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	120	13	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	120	25	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	120	21	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	120	19	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	58	18	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	58	29	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	120	49	ug/kg	
123-91-1	1,4-Dioxane	ND	58	39	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	53.5	58	26	ug/kg	J
132-64-9	Dibenzofuran	256	120	24	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	120	9.5	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	120	15	ug/kg	
84-66-2	Diethyl phthalate	ND	120	12	ug/kg	
131-11-3	Dimethyl phthalate	ND	120	10	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	120	14	ug/kg	
206-44-0	Fluoranthene	750	58	26	ug/kg	
86-73-7	Fluorene	604	58	27	ug/kg	
118-74-1	Hexachlorobenzene	ND	120	15	ug/kg	
87-68-3	Hexachlorobutadiene	ND	58	24	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^a	ND	580	23	ug/kg	UJ
67-72-1	Hexachloroethane	ND	290	29	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	139	58	27	ug/kg	
78-59-1	Isophorone	ND	120	13	ug/kg	
91-57-6	2-Methylnaphthalene	234	58	13	ug/kg	
88-74-4	2-Nitroaniline	ND	290	14	ug/kg	
99-09-2	3-Nitroaniline	ND	290	15	ug/kg	
100-01-6	4-Nitroaniline	ND	290	15	ug/kg	
91-20-3	Naphthalene	984	58	16	ug/kg	
98-95-3	Nitrobenzene	ND	120	23	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	120	17	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	290	21	ug/kg	
85-01-8	Phenanthrene	1070	58	20	ug/kg	
129-00-0	Pyrene	752	58	19	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	290	15	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	50%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-129 (10-12)	
Lab Sample ID: JC86716-3	Date Sampled: 04/18/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8270D SW846 3546	Percent Solids: 55.7
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	57%		27-114%
118-79-6	2,4,6-Tribromophenol	68%		19-152%
4165-60-0	Nitrobenzene-d5	70%		26-134%
321-60-8	2-Fluorobiphenyl	78%		39-124%
1718-51-0	Terphenyl-d14	70%		36-134%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-129 (10-12)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-3	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 55.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	14200	91	15	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Antimony	0.74 U J	3.6	0.74	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Arsenic	24.9	3.6	0.51	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Barium	154	36	3.4	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Beryllium	0.82	0.36	0.15	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cadmium	1.2	0.91	0.13	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Calcium	4120	910	80	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Chromium	109	1.8	0.67	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cobalt	12.8	9.1	0.51	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Copper	78.4	4.5	1.5	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Iron	24400	91	35	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Lead	196 J	3.6	0.74	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Magnesium	4380 J	910	25	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Manganese	843 J	2.7	0.74	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Mercury	0.88 J	0.054	0.024	mg/kg	1	04/23/19	04/23/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	26.3	7.3	0.63	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Potassium	1780 J	1800	58	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Selenium	1.2 U	3.6	1.2	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Silver	0.34 J	0.91	0.31	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Sodium	179 J	1800	140	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Thallium	1.1 U	1.8	1.1	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Vanadium	27.8	9.1	0.34	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Zinc	380	9.1	4.2	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³

- (1) Instrument QC Batch: MA46561
- (2) Instrument QC Batch: MA46589
- (3) Prep QC Batch: MP14499
- (4) Prep QC Batch: MP14502

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.3
 4

Report of Analysis

Client Sample ID: S-129 (10-12)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-3	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 55.7
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.0 J	0.43	0.22	mg/kg	1	04/30/19 13:13 KI	SW846	9012B/LACHAT
Solids, Percent	55.7			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.3
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SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: S-128 (2-4)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-4		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 83.1
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	I225771.D	1	04/27/19 13:02	TDN	n/a	n/a	VI9096

Run #1	Initial Weight
Run #2	4.1 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	15	7.3	ug/kg	
71-43-2	Benzene	25.2	0.73	0.55	ug/kg	J
74-97-5	Bromochloromethane	ND	7.3	0.63	ug/kg	
75-27-4	Bromodichloromethane	ND	2.9	0.65	ug/kg	
75-25-2	Bromoform	ND	7.3	0.59	ug/kg	
74-83-9	Bromomethane	ND	7.3	1.5	ug/kg	
78-93-3	2-Butanone (MEK)	ND	15	5.5	ug/kg	
75-15-0	Carbon disulfide	ND	2.9	1.4	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.9	0.81	ug/kg	
108-90-7	Chlorobenzene	ND	2.9	0.52	ug/kg	
75-00-3	Chloroethane	ND	7.3	1.0	ug/kg	
67-66-3	Chloroform	ND	2.9	0.55	ug/kg	
74-87-3	Chloromethane	ND	7.3	2.9	ug/kg	
110-82-7	Cyclohexane	ND	2.9	0.60	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.9	1.2	ug/kg	
124-48-1	Dibromochloromethane	ND	2.9	0.50	ug/kg	
106-93-4	1,2-Dibromoethane ^a	ND	1.5	0.48	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.5	0.45	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.5	0.53	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.5	0.50	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	7.3	0.93	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.5	0.56	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.5	0.69	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.5	0.96	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.5	1.4	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.5	0.98	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.9	0.60	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.9	0.52	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.9	0.48	ug/kg	
100-41-4	Ethylbenzene	ND	1.5	0.81	ug/kg	
76-13-1	Freon 113	ND	7.3	1.1	ug/kg	
591-78-6	2-Hexanone	ND	7.3	1.9	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-128 (2-4)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-4		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 83.1
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.9	1.0	ug/kg	
79-20-9	Methyl Acetate	ND	7.3	2.0	ug/kg	UJ
108-87-2	Methylcyclohexane	ND	2.9	1.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.5	0.52	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	7.3	2.3	ug/kg	
75-09-2	Methylene chloride	ND	7.3	3.7	ug/kg	
100-42-5	Styrene	ND	2.9	0.84	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.9	0.57	ug/kg	
127-18-4	Tetrachloroethene	ND	2.9	0.68	ug/kg	
108-88-3	Toluene	1.0	1.5	0.55	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	7.3	1.5	ug/kg	UJ
120-82-1	1,2,4-Trichlorobenzene	ND	7.3	1.5	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.9	0.63	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.9	0.50	ug/kg	
79-01-6	Trichloroethene	ND	1.5	1.1	ug/kg	
75-69-4	Trichlorofluoromethane	ND	7.3	1.0	ug/kg	
75-01-4	Vinyl chloride	ND	2.9	0.69	ug/kg	
	m,p-Xylene	ND	1.5	1.1	ug/kg	
95-47-6	o-Xylene	ND	1.5	0.86	ug/kg	
1330-20-7	Xylene (total)	ND	1.5	0.86	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	108%		75-127%
17060-07-0	1,2-Dichloroethane-D4	122%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	110%		79-127%

- (a) This compound in BS is outside in house QC limits bias high. Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.4
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SGS North America Inc.

Report of Analysis

Client Sample ID: S-128 (2-4)	
Lab Sample ID: JC86716-4	Date Sampled: 04/18/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8270D SW846 3546	Percent Solids: 83.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P86922.D	1	04/27/19 09:19	CS	04/24/19 11:00	OP19948	E2P3839
Run #2	2P86916.D	5	04/27/19 07:13	CS	04/24/19 11:00	OP19948	E2P3839

Run #	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2	30.4 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	79	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	24	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	34	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	70	ug/kg	
51-28-5	2,4-Dinitrophenol	R ND	200	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	R ND	200	42	ug/kg	
95-48-7	2-Methylphenol	ND	79	25	ug/kg	
	3&4-Methylphenol	ND	79	33	ug/kg	
88-75-5	2-Nitrophenol	ND	200	26	ug/kg	
100-02-7	4-Nitrophenol	ND	400	110	ug/kg	
87-86-5	Pentachlorophenol	ND	160	37	ug/kg	
108-95-2	Phenol	ND	79	21	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	26	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	30	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	24	ug/kg	
83-32-9	Acenaphthene	996	40	14	ug/kg	
208-96-8	Acenaphthylene	511	40	20	ug/kg	
98-86-2	Acetophenone	ND	200	8.5	ug/kg	
120-12-7	Anthracene	2030	40	24	ug/kg	
1912-24-9	Atrazine	ND	79	17	ug/kg	
56-55-3	Benzo(a)anthracene	5260 ^a	200	56	ug/kg	D
50-32-8	Benzo(a)pyrene	5480 ^a	200	90	ug/kg	D
205-99-2	Benzo(b)fluoranthene	7310 ^a	200	87	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	2850	40	20	ug/kg	
207-08-9	Benzo(k)fluoranthene	1600	40	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	79	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	79	9.7	ug/kg	
92-52-4	1,1'-Biphenyl	68.5	79	5.4	ug/kg	J
100-52-7	Benzaldehyde	ND	200	9.8	ug/kg	
91-58-7	2-Chloronaphthalene	ND	79	9.4	ug/kg	
106-47-8	4-Chloroaniline	ND	200	14	ug/kg	
86-74-8	Carbazole	916	79	5.7	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-128 (2-4)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-4	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	83.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	79	16	ug/kg	
218-01-9	Chrysene	5530 ^a	200	62	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	79	8.5	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	79	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	79	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	79	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	40	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	40	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	79	33	ug/kg	
123-91-1	1,4-Dioxane	ND	40	26	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	1090	40	17	ug/kg	
132-64-9	Dibenzofuran	545	79	16	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	79	6.5	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	79	9.9	ug/kg	
84-66-2	Diethyl phthalate	ND	79	8.4	ug/kg	
131-11-3	Dimethyl phthalate	ND	79	7.0	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	93.8	79	9.3	ug/kg	
206-44-0	Fluoranthene	9620 ^a	200	88	ug/kg	D
86-73-7	Fluorene	1050	40	18	ug/kg	
118-74-1	Hexachlorobenzene	ND	79	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	40	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^b	ND	400	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	20	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	2830	40	19	ug/kg	
78-59-1	Isophorone	ND	79	8.5	ug/kg	
91-57-6	2-Methylnaphthalene	237	40	8.9	ug/kg	
88-74-4	2-Nitroaniline	ND	200	9.3	ug/kg	
99-09-2	3-Nitroaniline	ND	200	9.9	ug/kg	
100-01-6	4-Nitroaniline	ND	200	10	ug/kg	
91-20-3	Naphthalene	510	40	11	ug/kg	
98-95-3	Nitrobenzene	ND	79	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	79	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	14	ug/kg	
85-01-8	Phenanthrene	8700 ^a	200	67	ug/kg	D
129-00-0	Pyrene	9220 ^a	200	63	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	44%	41%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-128 (2-4) Lab Sample ID: JC86716-4 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/18/19 Date Received: 04/19/19 Percent Solids: 83.1
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	53%	53%	27-114%
118-79-6	2,4,6-Tribromophenol	64%	58%	19-152%
4165-60-0	Nitrobenzene-d5	60%	66%	26-134%
321-60-8	2-Fluorobiphenyl	71%	70%	39-124%
1718-51-0	Terphenyl-d14	59%	62%	36-134%

- (a) Result is from Run# 2
- (b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: S-128 (2-4)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-4	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 83.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	8370	60	9.6	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.49 U J	2.4	0.49	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Arsenic	9.3	2.4	0.33	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Barium	211	24	2.3	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.49	0.24	0.095	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.99	0.60	0.083	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Calcium	58100	1800	160	mg/kg	3	04/23/19	05/01/19 GT	SW846 6010D ³	SW846 3050B ⁴
Chromium	25.9	1.2	0.44	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Cobalt	5.3 J	6.0	0.33	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Copper ^a	52.7	8.9	3.0	mg/kg	3	04/23/19	05/01/19 GT	SW846 6010D ³	SW846 3050B ⁴
Iron	41100	180	69	mg/kg	3	04/23/19	05/01/19 GT	SW846 6010D ³	SW846 3050B ⁴
Lead	769 J	2.4	0.49	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Magnesium	7110 J	600	16	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Manganese ^a	617 J	5.4	1.5	mg/kg	3	04/23/19	05/01/19 GT	SW846 6010D ³	SW846 3050B ⁴
Mercury	0.93 J	0.073	0.032	mg/kg	2	04/23/19	04/23/19 LL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	17.9	4.8	0.42	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Potassium	1080 J	1200	38	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Selenium ^a	3.0 J	7.1	2.3	mg/kg	3	04/23/19	05/01/19 GT	SW846 6010D ³	SW846 3050B ⁴
Silver ^a	0.61 U	1.8	0.61	mg/kg	3	04/23/19	05/01/19 GT	SW846 6010D ³	SW846 3050B ⁴
Sodium	265 J	1200	93	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Thallium ^a	2.1 U	3.6	2.1	mg/kg	3	04/23/19	05/01/19 GT	SW846 6010D ³	SW846 3050B ⁴
Vanadium	23.4	6.0	0.23	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Zinc	721	6.0	2.7	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46561
- (2) Instrument QC Batch: MA46589
- (3) Instrument QC Batch: MA46631
- (4) Prep QC Batch: MP14499
- (5) Prep QC Batch: MP14502

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.4
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Report of Analysis

Client Sample ID: S-128 (2-4)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-4	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 83.1
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.38 J	0.25	0.12	mg/kg	1	04/30/19 13:17	KI	SW846 9012B/LACHAT
Solids, Percent	83.1			%	1	04/29/19 17:22	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

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SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID:	S-128 (10-12)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-5	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	72.9
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	I225832.D	1	04/30/19 14:23	TDN	n/a	n/a	VI9098
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.4 g	10.0 ml	20.0 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	6300	3100	ug/kg	
71-43-2	Benzene	1290	310	240	ug/kg	
74-97-5	Bromochloromethane	ND	3100	270	ug/kg	
75-27-4	Bromodichloromethane	ND	1300	280	ug/kg	
75-25-2	Bromoform	ND	3100	250	ug/kg	
74-83-9	Bromomethane	ND	3100	630	ug/kg	
78-93-3	2-Butanone (MEK)	ND	6300	2400	ug/kg	
75-15-0	Carbon disulfide	ND	1300	580	ug/kg	
56-23-5	Carbon tetrachloride	ND	1300	350	ug/kg	
108-90-7	Chlorobenzene	ND	1300	220	ug/kg	
75-00-3	Chloroethane	ND	3100	430	ug/kg	
67-66-3	Chloroform	ND	1300	230	ug/kg	
74-87-3	Chloromethane	ND	3100	1200	ug/kg	
110-82-7	Cyclohexane	ND	1300	260	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1300	530	ug/kg	
124-48-1	Dibromochloromethane	ND	1300	210	ug/kg	
106-93-4	1,2-Dibromoethane	ND	630	200	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	630	190	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	630	230	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	630	220	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	3100	400	ug/kg	
75-34-3	1,1-Dichloroethane	ND	630	240	ug/kg	
107-06-2	1,2-Dichloroethane	ND	630	300	ug/kg	
75-35-4	1,1-Dichloroethene	ND	630	410	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	630	600	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	630	420	ug/kg	
78-87-5	1,2-Dichloropropane	ND	1300	260	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	1300	220	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	1300	210	ug/kg	
100-41-4	Ethylbenzene	ND	630	350	ug/kg	
76-13-1	Freon 113	ND	3100	480	ug/kg	
591-78-6	2-Hexanone	ND	3100	800	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-128 (10-12)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-5		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 72.9
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1300	440	ug/kg	
79-20-9	Methyl Acetate	ND	3100	870	ug/kg	
108-87-2	Methylcyclohexane	ND	1300	440	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	630	220	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	3100	980	ug/kg	
75-09-2	Methylene chloride	ND	3100	1600	ug/kg	
100-42-5	Styrene	ND	1300	360	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1300	250	ug/kg	
127-18-4	Tetrachloroethene	ND	1300	290	ug/kg	
108-88-3	Toluene	626	630	240	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	3100	630	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	3100	630	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	1300	270	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	1300	220	ug/kg	
79-01-6	Trichloroethene	ND	630	480	ug/kg	
75-69-4	Trichlorofluoromethane	ND	3100	430	ug/kg	
75-01-4	Vinyl chloride	ND	1300	290	ug/kg	
	m,p-Xylene	915	630	470	ug/kg	
95-47-6	o-Xylene	ND	630	370	ug/kg	
1330-20-7	Xylene (total)	915	630	370	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		75-127%
17060-07-0	1,2-Dichloroethane-D4	105%		75-130%
2037-26-5	Toluene-D8	104%		80-120%
460-00-4	4-Bromofluorobenzene	112%		79-127%

- (a) Diluted due to high concentration of non-target compound.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

Client Sample ID: S-128 (10-12)	
Lab Sample ID: JC86716-5	Date Sampled: 04/18/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8270D SW846 3546	Percent Solids: 72.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	2P86926.D	2	04/27/19 10:43	CS	04/24/19 11:00	OP19948	E2P3839
Run #2	2P86917.D	100	04/27/19 07:34	CS	04/24/19 11:00	OP19948	E2P3839
Run #3	6P481499.D	200	04/30/19 15:09	AR	04/24/19 11:00	OP19948	E6P2577

Run #	Initial Weight	Final Volume
Run #1	31.8 g	1.0 ml
Run #2	31.8 g	1.0 ml
Run #3	31.8 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	170	43	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	430	53	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	430	74	ug/kg	
105-67-9	2,4-Dimethylphenol	659	430	150	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	430	320	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	430	92	ug/kg	
95-48-7	2-Methylphenol	136	170	55	ug/kg	J
	3&4-Methylphenol	389	170	71	ug/kg	
88-75-5	2-Nitrophenol	ND	430	57	ug/kg	
100-02-7	4-Nitrophenol	ND	860	230	ug/kg	
87-86-5	Pentachlorophenol	ND	350	81	ug/kg	
108-95-2	Phenol	204	170	45	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	430	57	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	430	65	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	430	51	ug/kg	
83-32-9	Acenaphthene	60500 ^b	4300	1500	ug/kg	D
208-96-8	Acenaphthylene	33600 ^b	4300	2200	ug/kg	D
98-86-2	Acetophenone	ND	430	19	ug/kg	
120-12-7	Anthracene	140000 ^b	4300	2600	ug/kg	D
1912-24-9	Atrazine	ND	170	37	ug/kg	
56-55-3	Benzo(a)anthracene	141000 ^b	4300	1200	ug/kg	D
50-32-8	Benzo(a)pyrene	110000 ^b	4300	2000	ug/kg	
205-99-2	Benzo(b)fluoranthene	150000 ^b	4300	1900	ug/kg	
191-24-2	Benzo(g,h,i)perylene	55500 ^b	4300	2200	ug/kg	
207-08-9	Benzo(k)fluoranthene	50000 ^b	4300	2000	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	170	33	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	170	21	ug/kg	
92-52-4	1,1'-Biphenyl	29300 ^b	8600	590	ug/kg	D
100-52-7	Benzaldehyde	ND	430	21	ug/kg	
91-58-7	2-Chloronaphthalene	ND	170	21	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID:	S-128 (10-12)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-5	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	72.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	430	31	ug/kg	
86-74-8	Carbazole	70900 ^b	8600	630	ug/kg	D
105-60-2	Caprolactam	ND	170	34	ug/kg	
218-01-9	Chrysene	135000 ^b	4300	1400	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	170	18	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	170	37	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	170	31	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	170	28	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	86	27	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	86	43	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	170	72	ug/kg	
123-91-1	1,4-Dioxane	ND	86	57	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	2360	86	38	ug/kg	
132-64-9	Dibenzofuran	172000 ^b	8600	1800	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	170	14	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	170	21	ug/kg	
84-66-2	Diethyl phthalate	ND	170	18	ug/kg	
131-11-3	Dimethyl phthalate	ND	170	15	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	170	20	ug/kg	
206-44-0	Fluoranthene	396000 ^b	4300	1900	ug/kg	D
86-73-7	Fluorene	197000 ^b	4300	2000	ug/kg	
118-74-1	Hexachlorobenzene	ND	170	22	ug/kg	
87-68-3	Hexachlorobutadiene	ND	86	35	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^c	ND	860	34	ug/kg	UJ
67-72-1	Hexachloroethane	ND	430	43	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	51700 ^b	4300	2000	ug/kg	D
78-59-1	Isophorone	ND	170	18	ug/kg	
91-57-6	2-Methylnaphthalene	123000 ^b	4300	970	ug/kg	D
88-74-4	2-Nitroaniline	ND	430	20	ug/kg	
99-09-2	3-Nitroaniline	ND	430	22	ug/kg	
100-01-6	4-Nitroaniline	ND	430	22	ug/kg	
91-20-3	Naphthalene	557000 ^d	8600	2400	ug/kg	D
98-95-3	Nitrobenzene	ND	170	33	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	170	25	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	430	32	ug/kg	
85-01-8	Phenanthrene	718000 ^d	8600	2900	ug/kg	D
129-00-0	Pyrene	286000 ^b	4300	1400	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	430	22	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-128 (10-12)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-5		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 72.9
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	52%	43%	0% ^e	23-115%
4165-62-2	Phenol-d5	59%	59%	55%	27-114%
118-79-6	2,4,6-Tribromophenol	116%	85%	91%	19-152%
4165-60-0	Nitrobenzene-d5	139% ^f	91%	73%	26-134%
321-60-8	2-Fluorobiphenyl	67%	105%	98%	39-124%
1718-51-0	Terphenyl-d14	79%	105%	89%	36-134%

- (a) Dilution required due to viscosity of the extract matrix.
- (b) Result is from Run# 2
- (c) Associated CCV outside of control limits low.
- (d) Result is from Run# 3
- (e) Outside control limits due to dilution.
- (f) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.5
4

Report of Analysis

Client Sample ID: S-128 (10-12)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-5	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 72.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	14500	69	11	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.56 U J	2.7	0.56	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Arsenic	12.9	2.7	0.38	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Barium	148	27	2.6	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Beryllium	1.3	0.27	0.11	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.49 J	0.69	0.096	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Calcium	30900	1400	120	mg/kg	2	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Chromium	33.3	1.4	0.51	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Cobalt	7.5	6.9	0.38	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Copper	52.3	3.4	1.2	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Iron	13200	69	26	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Lead	84.2 J	2.7	0.56	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Magnesium	15000 J	690	19	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Manganese	1380 J	4.1	1.1	mg/kg	2	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Mercury	0.29 J	0.041	0.018	mg/kg	1	04/23/19	04/23/19 LL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	21.5	5.5	0.48	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Potassium	2320	1400	44	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Selenium	1.4 J	2.7	0.89	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Silver	0.23 U	0.69	0.23	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Sodium	1400	1400	110	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Thallium ^a	1.6 U	2.7	1.6	mg/kg	2	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Vanadium	32.0	6.9	0.26	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Zinc	144	6.9	3.2	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46561
- (2) Instrument QC Batch: MA46589
- (3) Instrument QC Batch: MA46629
- (4) Prep QC Batch: MP14499
- (5) Prep QC Batch: MP14502

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.5
4

Report of Analysis

Client Sample ID: S-128 (10-12)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-5	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 72.9
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	2.1 J	0.28	0.14	mg/kg	1	04/30/19 13:19 KI	SW846	9012B/LACHAT
Solids, Percent	72.9			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

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Client Sample ID: S-128 (13-15)		
Lab Sample ID: JC86716-6		Date Sampled: 04/18/19
Matrix: SO - Soil		Date Received: 04/19/19
Method: SW846 8260C		Percent Solids: 54.6
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	I225774.D	1	04/27/19 14:30	TDN	n/a	n/a	VI9096

Run #1	Initial Weight
Run #2	4.8 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	125	19	9.5	ug/kg	
71-43-2	Benzene	1.9	0.95	0.72	ug/kg	
74-97-5	Bromochloromethane	ND	9.5	0.82	ug/kg	
75-27-4	Bromodichloromethane	ND	3.8	0.85	ug/kg	
75-25-2	Bromoform	ND	9.5	0.77	ug/kg	
74-83-9	Bromomethane	ND	9.5	1.9	ug/kg	
78-93-3	2-Butanone (MEK)	19.6	19	7.1	ug/kg	
75-15-0	Carbon disulfide	ND	3.8	1.8	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.8	1.0	ug/kg	
108-90-7	Chlorobenzene	ND	3.8	0.68	ug/kg	
75-00-3	Chloroethane	ND	9.5	1.3	ug/kg	
67-66-3	Chloroform	ND	3.8	0.71	ug/kg	
74-87-3	Chloromethane	ND	9.5	3.7	ug/kg	
110-82-7	Cyclohexane	ND	3.8	0.77	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.8	1.6	ug/kg	
124-48-1	Dibromochloromethane	ND	3.8	0.64	ug/kg	
106-93-4	1,2-Dibromoethane ^a	ND	1.9	0.62	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.9	0.58	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.9	0.68	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.9	0.66	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	9.5	1.2	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.9	0.73	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.9	0.90	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.9	1.3	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.9	1.8	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.9	1.3	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.8	0.78	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.8	0.67	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.8	0.62	ug/kg	
100-41-4	Ethylbenzene	ND	1.9	1.1	ug/kg	
76-13-1	Freon 113	ND	9.5	1.5	ug/kg	
591-78-6	2-Hexanone	ND	9.5	2.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-128 (13-15)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-6		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 54.6
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	2.0	3.8	1.3	ug/kg	J
79-20-9	Methyl Acetate	ND	9.5	2.7	ug/kg	
108-87-2	Methylcyclohexane	3.5	3.8	1.3	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.9	0.67	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	9.5	3.0	ug/kg	
75-09-2	Methylene chloride	ND	9.5	4.8	ug/kg	
100-42-5	Styrene	ND	3.8	1.1	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.8	0.74	ug/kg	
127-18-4	Tetrachloroethene	ND	3.8	0.88	ug/kg	
108-88-3	Toluene	ND	1.9	0.72	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	9.5	1.9	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	9.5	1.9	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.8	0.81	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.8	0.65	ug/kg	
79-01-6	Trichloroethene	ND	1.9	1.5	ug/kg	
75-69-4	Trichlorofluoromethane	ND	9.5	1.3	ug/kg	
75-01-4	Vinyl chloride	ND	3.8	0.89	ug/kg	
	m,p-Xylene	ND	1.9	1.4	ug/kg	
95-47-6	o-Xylene	1.3	1.9	1.1	ug/kg	J
1330-20-7	Xylene (total)	1.3	1.9	1.1	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		75-127%
17060-07-0	1,2-Dichloroethane-D4	124%		75-130%
2037-26-5	Toluene-D8	103%		80-120%
460-00-4	4-Bromofluorobenzene	114%		79-127%

- (a) This compound in BS is outside in house QC limits bias high. Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.6
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SGS North America Inc.

Report of Analysis

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Client Sample ID:	S-128 (13-15)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-6	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	54.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P86911.D	1	04/27/19 05:27	CS	04/24/19 11:00	OP19948	E2P3839
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	31.0 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	120	29	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	300	36	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	300	50	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	300	110	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	300	220	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	300	63	ug/kg	
95-48-7	2-Methylphenol	ND	120	38	ug/kg	
	3&4-Methylphenol	154	120	49	ug/kg	
88-75-5	2-Nitrophenol	ND	300	39	ug/kg	
100-02-7	4-Nitrophenol	ND	590	160	ug/kg	
87-86-5	Pentachlorophenol	ND	240	55	ug/kg	
108-95-2	Phenol	ND	120	31	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	300	39	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	300	44	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	300	35	ug/kg	
83-32-9	Acenaphthene	1990	59	20	ug/kg	
208-96-8	Acenaphthylene	119	59	30	ug/kg	
98-86-2	Acetophenone	ND	300	13	ug/kg	
120-12-7	Anthracene	996	59	36	ug/kg	
1912-24-9	Atrazine	ND	120	25	ug/kg	
56-55-3	Benzo(a)anthracene	584	59	17	ug/kg	
50-32-8	Benzo(a)pyrene	533	59	27	ug/kg	
205-99-2	Benzo(b)fluoranthene	585	59	26	ug/kg	
191-24-2	Benzo(g,h,i)perylene	273	59	30	ug/kg	
207-08-9	Benzo(k)fluoranthene	166	59	28	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	120	23	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	120	14	ug/kg	
92-52-4	1,1'-Biphenyl	36.9	120	8.1	ug/kg	J
100-52-7	Benzaldehyde	ND	300	15	ug/kg	
91-58-7	2-Chloronaphthalene	ND	120	14	ug/kg	
106-47-8	4-Chloroaniline	ND	300	21	ug/kg	
86-74-8	Carbazole	65.9	120	8.6	ug/kg	J

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-128 (13-15)

Lab Sample ID: JC86716-6

Matrix: SO - Soil

Method: SW846 8270D SW846 3546

Project: National Grid, Philly Coke, Philadelphia, PA

Date Sampled: 04/18/19

Date Received: 04/19/19

Percent Solids: 54.6

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	120	23	ug/kg	
218-01-9	Chrysene	776	59	19	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	120	13	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	120	25	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	120	21	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	120	19	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	59	18	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	59	30	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	120	49	ug/kg	
123-91-1	1,4-Dioxane	ND	59	39	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	77.6	59	26	ug/kg	
132-64-9	Dibenzofuran	502	120	24	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	120	9.6	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	120	15	ug/kg	
84-66-2	Diethyl phthalate	ND	120	13	ug/kg	
131-11-3	Dimethyl phthalate	ND	120	11	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	120	14	ug/kg	
206-44-0	Fluoranthene	1830	59	26	ug/kg	
86-73-7	Fluorene	1310	59	27	ug/kg	
118-74-1	Hexachlorobenzene	ND	120	15	ug/kg	
87-68-3	Hexachlorobutadiene	ND	59	24	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^a	ND	590	24	ug/kg	UJ
67-72-1	Hexachloroethane	ND	300	29	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	209	59	28	ug/kg	
78-59-1	Isophorone	ND	120	13	ug/kg	
91-57-6	2-Methylnaphthalene	142	59	13	ug/kg	
88-74-4	2-Nitroaniline	ND	300	14	ug/kg	
99-09-2	3-Nitroaniline	ND	300	15	ug/kg	
100-01-6	4-Nitroaniline	ND	300	15	ug/kg	
91-20-3	Naphthalene	451	59	17	ug/kg	
98-95-3	Nitrobenzene	ND	120	23	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	120	17	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	300	22	ug/kg	
85-01-8	Phenanthrene	5120	59	20	ug/kg	
129-00-0	Pyrene	1910	59	19	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	300	15	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	45%		23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-128 (13-15)	
Lab Sample ID: JC86716-6	Date Sampled: 04/18/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8270D SW846 3546	Percent Solids: 54.6
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	51%		27-114%
118-79-6	2,4,6-Tribromophenol	61%		19-152%
4165-60-0	Nitrobenzene-d5	61%		26-134%
321-60-8	2-Fluorobiphenyl	71%		39-124%
1718-51-0	Terphenyl-d14	64%		36-134%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-128 (13-15)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-6	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 54.6
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	24500	89	14	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.73 U J	3.6	0.73	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Arsenic	80.7	3.6	0.50	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Barium	257	36	3.4	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Beryllium	1.7	0.36	0.14	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Cadmium	3.1	0.89	0.12	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Calcium	6290	890	79	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Chromium	247	1.8	0.66	mg/kg	1	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Cobalt	22.6	8.9	0.50	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Copper ^a	182	8.9	3.0	mg/kg	2	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Iron	39800	180	68	mg/kg	2	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Lead	374 J	3.6	0.73	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Magnesium	5290 J	890	24	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Manganese ^a	886 J	5.3	1.5	mg/kg	2	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Mercury	2.0 J	0.12	0.052	mg/kg	2	04/23/19	04/23/19 LL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	43.3	7.1	0.62	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Potassium	2470	1800	57	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Selenium ^a	4.3 J	7.1	2.3	mg/kg	2	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Silver ^a	2.5	1.8	0.60	mg/kg	2	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Sodium	337 J	1800	140	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Thallium ^a	2.1 U	3.6	2.1	mg/kg	2	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Vanadium	44.3	8.9	0.34	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Zinc	960	8.9	4.1	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46561
- (2) Instrument QC Batch: MA46589
- (3) Instrument QC Batch: MA46629
- (4) Prep QC Batch: MP14499
- (5) Prep QC Batch: MP14502

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-128 (13-15)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-6	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 54.6
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.7 J	0.55	0.27	mg/kg	1	04/30/19 13:20 KI	SW846	9012B/LACHAT
Solids, Percent	54.6			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

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Client Sample ID: S-125 (7-9)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-7		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 83.4
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	I225833.D	1	04/30/19 14:52	TDN	n/a	n/a	VI9098
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.2 g	10.0 ml	4.0 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	31000	16000	ug/kg	
71-43-2	Benzene	157000	1600	1200	ug/kg	
74-97-5	Bromochloromethane	ND	16000	1300	ug/kg	
75-27-4	Bromodichloromethane	ND	6300	1400	ug/kg	
75-25-2	Bromoform	ND	16000	1300	ug/kg	
74-83-9	Bromomethane	ND	16000	3100	ug/kg	
78-93-3	2-Butanone (MEK)	ND	31000	12000	ug/kg	
75-15-0	Carbon disulfide	ND	6300	2900	ug/kg	
56-23-5	Carbon tetrachloride	ND	6300	1700	ug/kg	
108-90-7	Chlorobenzene	47500	6300	1100	ug/kg	
75-00-3	Chloroethane	ND	16000	2200	ug/kg	
67-66-3	Chloroform	ND	6300	1200	ug/kg	
74-87-3	Chloromethane	ND	16000	6100	ug/kg	
110-82-7	Cyclohexane	ND	6300	1300	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	6300	2600	ug/kg	
124-48-1	Dibromochloromethane	ND	6300	1100	ug/kg	
106-93-4	1,2-Dibromoethane	ND	3100	1000	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	3100	950	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	3100	1100	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	3100	1100	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	16000	2000	ug/kg	
75-34-3	1,1-Dichloroethane	ND	3100	1200	ug/kg	
107-06-2	1,2-Dichloroethane	ND	3100	1500	ug/kg	
75-35-4	1,1-Dichloroethene	ND	3100	2100	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	3100	3000	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	3100	2100	ug/kg	
78-87-5	1,2-Dichloropropane	ND	6300	1300	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	6300	1100	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	6300	1000	ug/kg	
100-41-4	Ethylbenzene	51000	3100	1700	ug/kg	
76-13-1	Freon 113	ND	16000	2400	ug/kg	
591-78-6	2-Hexanone	ND	16000	4000	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-125 (7-9), Lab Sample ID: JC86716-7, Matrix: SO - Soil, Method: SW846 8260C, Project: National Grid, Philly Coke, Philadelphia, PA, Date Sampled: 04/18/19, Date Received: 04/19/19, Percent Solids: 83.4

VOA TCL List

Table with columns: CAS No., Compound, Result, RL, MDL, Units, Q. Lists various compounds like Isopropylbenzene, Methyl Acetate, etc., with their respective results and limits.

Table with columns: CAS No., Surrogate Recoveries, Run# 1, Run# 2, Limits. Shows recovery percentages for compounds like Dibromofluoromethane, 1,2-Dichloroethane-D4, etc.

- (a) Diluted due to high concentration of non-target compound.
(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected, MDL = Method Detection Limit, J = Indicates an estimated value, RL = Reporting Limit, B = Indicates analyte found in associated method blank, E = Indicates value exceeds calibration range, N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	S-125 (7-9)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-7	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	83.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P86921.D	1	04/27/19 08:58	CS	04/24/19 11:00	OP19948	E2P3839
Run #2	2P86915.D	10	04/27/19 06:52	CS	04/24/19 11:00	OP19948	E2P3839

Run #	Initial Weight	Final Volume
Run #1	30.3 g	1.0 ml
Run #2	30.3 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	79	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	24	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	34	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	70	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	200	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	200	42	ug/kg	
95-48-7	2-Methylphenol	ND	79	25	ug/kg	
	3&4-Methylphenol	ND	79	33	ug/kg	
88-75-5	2-Nitrophenol	ND	200	26	ug/kg	
100-02-7	4-Nitrophenol	ND	400	110	ug/kg	
87-86-5	Pentachlorophenol	ND	160	37	ug/kg	
108-95-2	Phenol	ND	79	21	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	26	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	30	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	24	ug/kg	
83-32-9	Acenaphthene	9610 ^a	400	140	ug/kg	D
208-96-8	Acenaphthylene	1410	40	20	ug/kg	
98-86-2	Acetophenone	ND	200	8.5	ug/kg	
120-12-7	Anthracene	7700 ^a	400	240	ug/kg	D
1912-24-9	Atrazine	ND	79	17	ug/kg	
56-55-3	Benzo(a)anthracene	6070 ^a	400	110	ug/kg	D
50-32-8	Benzo(a)pyrene	5490 ^a	400	180	ug/kg	D
205-99-2	Benzo(b)fluoranthene	6310 ^a	400	170	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	2470	40	20	ug/kg	
207-08-9	Benzo(k)fluoranthene	2770 ^a	400	180	ug/kg	D
101-55-3	4-Bromophenyl phenyl ether	ND	79	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	79	9.7	ug/kg	
92-52-4	1,1'-Biphenyl	1330	79	5.4	ug/kg	
100-52-7	Benzaldehyde	ND	200	9.8	ug/kg	
91-58-7	2-Chloronaphthalene	ND	79	9.4	ug/kg	
106-47-8	4-Chloroaniline	ND	200	14	ug/kg	
86-74-8	Carbazole	9030 ^a	790	57	ug/kg	D

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-125 (7-9)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-7	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	83.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	79	16	ug/kg	
218-01-9	Chrysene	5090 ^a	400	120	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	79	8.5	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	79	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	79	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	79	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	40	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	40	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	79	33	ug/kg	
123-91-1	1,4-Dioxane	ND	40	26	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	866	40	17	ug/kg	
132-64-9	Dibenzofuran	7740 ^a	790	160	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	79	6.5	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	79	9.9	ug/kg	
84-66-2	Diethyl phthalate	ND	79	8.4	ug/kg	
131-11-3	Dimethyl phthalate	ND	79	7.0	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	79	9.3	ug/kg	
206-44-0	Fluoranthene	17100 ^a	400	180	ug/kg	D
86-73-7	Fluorene	11900 ^a	400	180	ug/kg	D
118-74-1	Hexachlorobenzene	ND	79	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	40	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^b	ND	400	16	ug/kg	UJ
67-72-1	Hexachloroethane	ND	200	20	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	2310	40	19	ug/kg	
78-59-1	Isophorone	ND	79	8.5	ug/kg	
91-57-6	2-Methylnaphthalene	1480	40	8.9	ug/kg	
88-74-4	2-Nitroaniline	ND	200	9.3	ug/kg	
99-09-2	3-Nitroaniline	ND	200	9.9	ug/kg	
100-01-6	4-Nitroaniline	ND	200	10	ug/kg	
91-20-3	Naphthalene	19200 ^a	400	110	ug/kg	D
98-95-3	Nitrobenzene	ND	79	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	79	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	14	ug/kg	
85-01-8	Phenanthrene	29800 ^a	400	130	ug/kg	D
129-00-0	Pyrene	12500 ^a	400	130	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	35%	36%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-125 (7-9)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-7	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 83.4
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	42%	47%	27-114%
118-79-6	2,4,6-Tribromophenol	50%	43%	19-152%
4165-60-0	Nitrobenzene-d5	48%	53%	26-134%
321-60-8	2-Fluorobiphenyl	53%	61%	39-124%
1718-51-0	Terphenyl-d14	47%	51%	36-134%

- (a) Result is from Run# 2
- (b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.7
4

Report of Analysis

Client Sample ID: S-125 (7-9)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-7		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 83.4
Project: National Grid, Philly Coke, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	2190	59	9.5	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.48 U J	2.4	0.48	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Arsenic	3.6	2.4	0.33	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Barium	33.3	24	2.2	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.35	0.24	0.094	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.18 J	0.59	0.082	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Calcium	31600	1200	100	mg/kg	2	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Chromium	7.1	1.2	0.43	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Cobalt	8.5	5.9	0.33	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Copper	42.2	2.9	0.99	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Iron	5710	59	23	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Lead	10.9 J	2.4	0.48	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Magnesium	870 J	590	16	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Manganese	66.3 J	1.8	0.48	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Mercury	0.018 J	0.035	0.015	mg/kg	1	04/23/19	04/23/19 LL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	67.6	4.7	0.41	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Potassium	183 J	1200	37	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Selenium	0.76 U	2.4	0.76	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Silver	0.20 U	0.59	0.20	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Sodium	91 U	1200	91	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Thallium	0.68 U	1.2	0.68	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Vanadium	3.9 J	5.9	0.22	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Zinc	512	5.9	2.7	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46561
- (2) Instrument QC Batch: MA46589
- (3) Instrument QC Batch: MA46629
- (4) Prep QC Batch: MP14499
- (5) Prep QC Batch: MP14502

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

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Report of Analysis

Client Sample ID: S-125 (7-9)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-7	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 83.4
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	8.3 J	0.31	0.16	mg/kg	1	05/01/19 16:02 KI	SW846	9012B/LACHAT
Solids, Percent	83.4			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.7
4

SGS North America Inc.

Report of Analysis

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Client Sample ID: S-125 (11-13)	
Lab Sample ID: JC86716-8	Date Sampled: 04/18/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8260C	Percent Solids: 82.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	I225834.D	1	04/30/19 15:21	TDN	n/a	n/a	VI9098
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	6.2 g	10.0 ml	5.0 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	22000	11000	ug/kg	
71-43-2	Benzene	69000	1100	810	ug/kg	
74-97-5	Bromochloromethane	ND	11000	930	ug/kg	
75-27-4	Bromodichloromethane	ND	4300	960	ug/kg	
75-25-2	Bromoform	ND	11000	870	ug/kg	
74-83-9	Bromomethane	ND	11000	2200	ug/kg	
78-93-3	2-Butanone (MEK)	ND	22000	8100	ug/kg	
75-15-0	Carbon disulfide	ND	4300	2000	ug/kg	
56-23-5	Carbon tetrachloride	ND	4300	1200	ug/kg	
108-90-7	Chlorobenzene	19000	4300	760	ug/kg	
75-00-3	Chloroethane	ND	11000	1500	ug/kg	
67-66-3	Chloroform	ND	4300	800	ug/kg	
74-87-3	Chloromethane	ND	11000	4200	ug/kg	
110-82-7	Cyclohexane	ND	4300	880	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	4300	1800	ug/kg	
124-48-1	Dibromochloromethane	ND	4300	730	ug/kg	
106-93-4	1,2-Dibromoethane	ND	2200	700	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	2200	660	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	2200	780	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	2200	740	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	11000	1400	ug/kg	
75-34-3	1,1-Dichloroethane	ND	2200	830	ug/kg	
107-06-2	1,2-Dichloroethane	ND	2200	1000	ug/kg	
75-35-4	1,1-Dichloroethene	ND	2200	1400	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	2200	2100	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	2200	1400	ug/kg	
78-87-5	1,2-Dichloropropane	ND	4300	880	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	4300	760	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	4300	710	ug/kg	
100-41-4	Ethylbenzene	18200	2200	1200	ug/kg	
76-13-1	Freon 113	ND	11000	1600	ug/kg	
591-78-6	2-Hexanone	ND	11000	2700	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-125 (11-13)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-8	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	82.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	4300	1500	ug/kg	
79-20-9	Methyl Acetate	ND	11000	3000	ug/kg	
108-87-2	Methylcyclohexane	ND	4300	1500	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	2200	760	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	11000	3400	ug/kg	
75-09-2	Methylene chloride	ND	11000	5400	ug/kg	
100-42-5	Styrene	ND	4300	1200	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	4300	840	ug/kg	
127-18-4	Tetrachloroethene	ND	4300	1000	ug/kg	
108-88-3	Toluene	14600	2200	810	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	11000	2200	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	11000	2200	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	4300	920	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	4300	740	ug/kg	
79-01-6	Trichloroethene	ND	2200	1600	ug/kg	
75-69-4	Trichlorofluoromethane	ND	11000	1500	ug/kg	
75-01-4	Vinyl chloride	ND	4300	1000	ug/kg	
	m,p-Xylene	29700	2200	1600	ug/kg	
95-47-6	o-Xylene	8230	2200	1300	ug/kg	
1330-20-7	Xylene (total)	37900	2200	1300	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		75-127%
17060-07-0	1,2-Dichloroethane-D4	108%		75-130%
2037-26-5	Toluene-D8	103%		80-120%
460-00-4	4-Bromofluorobenzene	107%		79-127%

- (a) Diluted due to high concentration of non-target compound.
(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Client Sample ID: S-125 (11-13)	
Lab Sample ID: JC86716-8	Date Sampled: 04/18/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8270D SW846 3546	Percent Solids: 82.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	2P86927.D	2	04/27/19 11:05	CS	04/24/19 11:00	OP19948	E2P3839
Run #2	2P86914.D	40	04/27/19 06:30	CS	04/24/19 11:00	OP19948	E2P3839
Run #3	2P86937.D	200	04/29/19 12:49	YC	04/24/19 11:00	OP19948	E2P3840

Run #	Initial Weight	Final Volume
Run #1	31.3 g	1.0 ml
Run #2	31.3 g	1.0 ml
Run #3	31.3 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	150	38	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	390	47	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	390	66	ug/kg	
105-67-9	2,4-Dimethylphenol	1060	390	140	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	390	290	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	390	83	ug/kg	
95-48-7	2-Methylphenol	85.2	150	49	ug/kg	J
	3&4-Methylphenol	66.2	150	64	ug/kg	J
88-75-5	2-Nitrophenol	ND	390	51	ug/kg	
100-02-7	4-Nitrophenol	ND	770	210	ug/kg	
87-86-5	Pentachlorophenol	ND	310	73	ug/kg	
108-95-2	Phenol	126	150	40	ug/kg	J
58-90-2	2,3,4,6-Tetrachlorophenol	ND	390	51	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	390	58	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	390	46	ug/kg	
83-32-9	Acenaphthene	82500 ^b	1500	530	ug/kg	D
208-96-8	Acenaphthylene	22900 ^b	1500	790	ug/kg	D
98-86-2	Acetophenone	ND	390	17	ug/kg	
120-12-7	Anthracene	54400 ^b	1500	950	ug/kg	D
1912-24-9	Atrazine	ND	150	33	ug/kg	
56-55-3	Benzo(a)anthracene	48000 ^b	1500	440	ug/kg	D
50-32-8	Benzo(a)pyrene	43400 ^b	1500	700	ug/kg	D
205-99-2	Benzo(b)fluoranthene	52200 ^b	1500	680	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	20800 ^b	1500	770	ug/kg	D
207-08-9	Benzo(k)fluoranthene	6040	77	36	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	150	30	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	150	19	ug/kg	
92-52-4	1,1'-Biphenyl	15300 ^b	3100	210	ug/kg	D
100-52-7	Benzaldehyde	ND	390	19	ug/kg	
91-58-7	2-Chloronaphthalene	ND	150	18	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.8
 4

Report of Analysis

Client Sample ID:	S-125 (11-13)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-8	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	82.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	390	28	ug/kg	
86-74-8	Carbazole	27000 ^b	3100	220	ug/kg	D
105-60-2	Caprolactam	ND	150	31	ug/kg	
218-01-9	Chrysene	41400 ^b	1500	490	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	150	17	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	150	33	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	150	28	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	150	25	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	77	24	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	77	39	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	150	64	ug/kg	
123-91-1	1,4-Dioxane	ND	77	51	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	1570	77	34	ug/kg	
132-64-9	Dibenzofuran	63300 ^b	3100	630	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	150	13	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	150	19	ug/kg	
84-66-2	Diethyl phthalate	ND	150	16	ug/kg	
131-11-3	Dimethyl phthalate	ND	150	14	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	150	18	ug/kg	
206-44-0	Fluoranthene	128000 ^b	1500	690	ug/kg	D
86-73-7	Fluorene	94400 ^b	1500	710	ug/kg	D
118-74-1	Hexachlorobenzene	ND	150	20	ug/kg	
87-68-3	Hexachlorobutadiene	ND	77	31	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^c	ND	770	31	ug/kg	UJ
67-72-1	Hexachloroethane	ND	390	38	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	18700 ^b	1500	720	ug/kg	D
78-59-1	Isophorone	ND	150	17	ug/kg	
91-57-6	2-Methylnaphthalene	57700 ^b	1500	350	ug/kg	D
88-74-4	2-Nitroaniline	ND	390	18	ug/kg	
99-09-2	3-Nitroaniline	ND	390	19	ug/kg	
100-01-6	4-Nitroaniline	ND	390	20	ug/kg	
91-20-3	Naphthalene	302000 ^d	7700	2200	ug/kg	D
98-95-3	Nitrobenzene	ND	150	30	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	150	22	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	390	28	ug/kg	
85-01-8	Phenanthrene	254000 ^d	7700	2600	ug/kg	D
129-00-0	Pyrene	87800 ^b	1500	490	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	390	20	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-125 (11-13)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-8		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 82.7
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	35%	37%	39%	23-115%
4165-62-2	Phenol-d5	52%	57%	0% ^e	27-114%
118-79-6	2,4,6-Tribromophenol	87%	57%	54%	19-152%
4165-60-0	Nitrobenzene-d5	90%	78%	72%	26-134%
321-60-8	2-Fluorobiphenyl	67%	85%	88%	39-124%
1718-51-0	Terphenyl-d14	53%	72%	76%	36-134%

- (a) Dilution required due to viscosity of the extract matrix.
- (b) Result is from Run# 2
- (c) Associated CCV outside of control limits low.
- (d) Result is from Run# 3
- (e) Outside control limits due to dilution.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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4

Report of Analysis

Client Sample ID: S-125 (11-13)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-8	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 82.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	6940	64	10	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Antimony	0.52 U J	2.5	0.52	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Arsenic	4.7	2.5	0.36	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Barium	57.6	25	2.4	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Beryllium	0.57	0.25	0.10	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cadmium	0.17 J	0.64	0.089	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Calcium	13600	640	56	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Chromium	19.8	1.3	0.47	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cobalt	6.2 J	6.4	0.36	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Copper	28.8	3.2	1.1	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Iron	12900	64	24	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Lead	30.3 J	2.5	0.52	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Magnesium	1540 J	640	17	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Manganese	205 J	1.9	0.52	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Mercury	0.065 J	0.028	0.012	mg/kg	1	04/23/19	04/23/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	30.5	5.1	0.45	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Potassium	661 J	1300	40	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Selenium	0.83 U	2.5	0.83	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Silver	0.22 U	0.64	0.22	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Sodium	102 J	1300	99	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Thallium	0.74 U	1.3	0.74	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Vanadium	16.6	6.4	0.24	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Zinc	268	6.4	2.9	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³

- (1) Instrument QC Batch: MA46561
- (2) Instrument QC Batch: MA46589
- (3) Prep QC Batch: MP14499
- (4) Prep QC Batch: MP14502

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-125 (11-13)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-8	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 82.7
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.3 J	0.36	0.18	mg/kg	1	05/01/19 16:04 KI	SW846	9012B/LACHAT
Solids, Percent	82.7			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: S-125 (13-15)	
Lab Sample ID: JC86716-9	Date Sampled: 04/18/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8260C	Percent Solids: 56.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	I225775.D	1	04/27/19 15:00	TDN	n/a	n/a	VI9096

Run #1	Initial Weight
Run #2	5.2 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	106	17	8.6	ug/kg	
71-43-2	Benzene	91.6	0.86	0.65	ug/kg	
74-97-5	Bromochloromethane	ND	8.6	0.74	ug/kg	
75-27-4	Bromodichloromethane	ND	3.4	0.76	ug/kg	
75-25-2	Bromoform	ND	8.6	0.69	ug/kg	
74-83-9	Bromomethane	ND	8.6	1.7	ug/kg	
78-93-3	2-Butanone (MEK)	8.4	17	6.4	ug/kg	J
75-15-0	Carbon disulfide	ND	3.4	1.6	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.4	0.94	ug/kg	
108-90-7	Chlorobenzene	2.1	3.4	0.61	ug/kg	J
75-00-3	Chloroethane	ND	8.6	1.2	ug/kg	
67-66-3	Chloroform	ND	3.4	0.64	ug/kg	
74-87-3	Chloromethane	ND	8.6	3.4	ug/kg	
110-82-7	Cyclohexane	ND	3.4	0.69	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.4	1.4	ug/kg	
124-48-1	Dibromochloromethane	ND	3.4	0.58	ug/kg	
106-93-4	1,2-Dibromoethane ^a	ND	1.7	0.56	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.7	0.52	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.7	0.61	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.7	0.59	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	8.6	1.1	ug/kg	UJ
75-34-3	1,1-Dichloroethane	ND	1.7	0.66	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.7	0.80	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.7	1.1	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.7	1.6	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.7	1.1	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.4	0.70	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.4	0.60	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.4	0.56	ug/kg	
100-41-4	Ethylbenzene	3.7	1.7	0.94	ug/kg	
76-13-1	Freon 113	ND	8.6	1.3	ug/kg	
591-78-6	2-Hexanone	ND	8.6	2.2	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-125 (13-15)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-9	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	56.2
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.4	1.2	ug/kg	
79-20-9	Methyl Acetate	ND	8.6	2.4	ug/kg	
108-87-2	Methylcyclohexane	ND	3.4	1.2	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.7	0.60	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	8.6	2.7	ug/kg	
75-09-2	Methylene chloride	ND	8.6	4.3	ug/kg	
100-42-5	Styrene	ND	3.4	0.98	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.4	0.67	ug/kg	
127-18-4	Tetrachloroethene	ND	3.4	0.79	ug/kg	
108-88-3	Toluene	3.2	1.7	0.64	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	8.6	1.7	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	8.6	1.7	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.4	0.73	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.4	0.59	ug/kg	
79-01-6	Trichloroethene	ND	1.7	1.3	ug/kg	
75-69-4	Trichlorofluoromethane	ND	8.6	1.2	ug/kg	
75-01-4	Vinyl chloride	ND	3.4	0.80	ug/kg	
	m,p-Xylene	5.0	1.7	1.3	ug/kg	
95-47-6	o-Xylene	2.1	1.7	1.0	ug/kg	
1330-20-7	Xylene (total)	7.1	1.7	1.0	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		75-127%
17060-07-0	1,2-Dichloroethane-D4	122%		75-130%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	114%		79-127%

- (a) This compound in BS is outside in house QC limits bias high. Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	S-125 (13-15)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-9	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	56.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58942.D	1	04/26/19 16:53	CC	04/25/19 13:30	OP19971	E5P2787
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	120	29	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	290	36	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	290	50	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	290	100	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	290	220	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	290	63	ug/kg	
95-48-7	2-Methylphenol	ND	120	38	ug/kg	
	3&4-Methylphenol	ND	120	48	ug/kg	
88-75-5	2-Nitrophenol	ND	290	39	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	590	160	ug/kg	
87-86-5	Pentachlorophenol	ND	240	55	ug/kg	
108-95-2	Phenol	ND	120	31	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	290	39	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	290	44	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	290	35	ug/kg	
83-32-9	Acenaphthene	206	59	20	ug/kg	
208-96-8	Acenaphthylene	40.3	59	30	ug/kg	J
98-86-2	Acetophenone	ND	290	13	ug/kg	
120-12-7	Anthracene	137	59	36	ug/kg	
1912-24-9	Atrazine	ND	120	25	ug/kg	
56-55-3	Benzo(a)anthracene	154	59	17	ug/kg	
50-32-8	Benzo(a)pyrene	158	59	27	ug/kg	
205-99-2	Benzo(b)fluoranthene	184	59	26	ug/kg	
191-24-2	Benzo(g,h,i)perylene	84.9	59	29	ug/kg	
207-08-9	Benzo(k)fluoranthene	61.4	59	28	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	120	23	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	120	14	ug/kg	
92-52-4	1,1'-Biphenyl	17.3	120	8.1	ug/kg	J
100-52-7	Benzaldehyde	ND	290	15	ug/kg	
91-58-7	2-Chloronaphthalene	ND	120	14	ug/kg	
106-47-8	4-Chloroaniline	ND	290	21	ug/kg	
86-74-8	Carbazole	32.1	120	8.5	ug/kg	J

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-125 (13-15)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-9	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	56.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	120	23	ug/kg	
218-01-9	Chrysene	148	59	19	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	120	13	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	120	25	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	120	21	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	120	19	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	59	18	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	59	30	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	120	49	ug/kg	
123-91-1	1,4-Dioxane	ND	59	39	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	59	26	ug/kg	
132-64-9	Dibenzofuran	77.7	120	24	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	120	9.6	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	120	15	ug/kg	
84-66-2	Diethyl phthalate	ND	120	13	ug/kg	
131-11-3	Dimethyl phthalate	ND	120	10	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	120	14	ug/kg	
206-44-0	Fluoranthene	378	59	26	ug/kg	
86-73-7	Fluorene	164	59	27	ug/kg	
118-74-1	Hexachlorobenzene	ND	120	15	ug/kg	
87-68-3	Hexachlorobutadiene	ND	59	24	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	590	23	ug/kg	
67-72-1	Hexachloroethane	ND	290	29	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	90.2	59	28	ug/kg	
78-59-1	Isophorone	ND	120	13	ug/kg	
91-57-6	2-Methylnaphthalene	62.8	59	13	ug/kg	
88-74-4	2-Nitroaniline	ND	290	14	ug/kg	
99-09-2	3-Nitroaniline	ND	290	15	ug/kg	
100-01-6	4-Nitroaniline	ND	290	15	ug/kg	
91-20-3	Naphthalene	213	59	17	ug/kg	
98-95-3	Nitrobenzene	ND	120	23	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	120	17	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	290	22	ug/kg	
85-01-8	Phenanthrene	613	59	20	ug/kg	
129-00-0	Pyrene	303	59	19	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	290	15	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	63%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-125 (13-15)	
Lab Sample ID: JC86716-9	Date Sampled: 04/18/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8270D SW846 3546	Percent Solids: 56.2
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	64%		27-114%
118-79-6	2,4,6-Tribromophenol	69%		19-152%
4165-60-0	Nitrobenzene-d5	71%		26-134%
321-60-8	2-Fluorobiphenyl	68%		39-124%
1718-51-0	Terphenyl-d14	64%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-125 (13-15)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-9		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 56.2
Project: National Grid, Philly Coke, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	19900	92	15	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Antimony	1.6 J	3.7	0.75	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Arsenic	56.3	3.7	0.51	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Barium	267	37	3.5	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Beryllium	1.3	0.37	0.15	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cadmium	2.5	0.92	0.13	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Calcium	5330	920	81	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Chromium	271	1.8	0.68	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cobalt	19.1	9.2	0.51	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Copper	162	4.6	1.5	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Iron	32200 J	92	35	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Lead	408 J	3.7	0.75	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Magnesium	4760 J	920	25	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Manganese	947 J	2.8	0.75	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Mercury	2.0	0.10	0.045	mg/kg	2	04/23/19	04/23/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	37.8	7.3	0.64	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Potassium	2090	1800	58	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Selenium	1.4 J	3.7	1.2	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Silver	1.4	0.92	0.31	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Sodium	276 J	1800	140	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Thallium	1.1 U	1.8	1.1	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Vanadium	40.1	9.2	0.35	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Zinc	850	9.2	4.2	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³

(1) Instrument QC Batch: MA46561

(2) Instrument QC Batch: MA46589

(3) Prep QC Batch: MP14499

(4) Prep QC Batch: MP14502

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.9
4

Report of Analysis

Client Sample ID: S-125 (13-15)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-9	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 56.2
Project: National Grid, Philly Coke, Philadelphia, PA	

4.9
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.1	0.49	0.24	mg/kg	1	05/01/19 16:05	KI	SW846 9012B/LACHAT
Solids, Percent	56.2			%	1	04/29/19 17:22	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: TP-63R (7-9)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-10		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 77.1
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I225776.D	1	04/27/19 15:29	TDN	n/a	n/a	VI9096
Run #2							

Run #1	Initial Weight
Run #1	4.1 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	16	7.9	ug/kg	
71-43-2	Benzene	32.7	0.79	0.60	ug/kg	
74-97-5	Bromochloromethane	ND	7.9	0.68	ug/kg	
75-27-4	Bromodichloromethane	ND	3.2	0.70	ug/kg	
75-25-2	Bromoform	ND	7.9	0.64	ug/kg	
74-83-9	Bromomethane	ND	7.9	1.6	ug/kg	
78-93-3	2-Butanone (MEK)	ND	16	5.9	ug/kg	
75-15-0	Carbon disulfide	ND	3.2	1.5	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.2	0.87	ug/kg	
108-90-7	Chlorobenzene	ND	3.2	0.56	ug/kg	
75-00-3	Chloroethane	ND	7.9	1.1	ug/kg	
67-66-3	Chloroform	ND	3.2	0.59	ug/kg	
74-87-3	Chloromethane	ND	7.9	3.1	ug/kg	
110-82-7	Cyclohexane	ND	3.2	0.64	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.2	1.3	ug/kg	
124-48-1	Dibromochloromethane	ND	3.2	0.53	ug/kg	
106-93-4	1,2-Dibromoethane ^a	ND	1.6	0.51	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.6	0.48	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.6	0.57	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.6	0.54	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	7.9	1.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.6	0.61	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.6	0.74	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.6	1.0	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.6	1.5	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.6	1.1	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.2	0.64	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.2	0.56	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.2	0.52	ug/kg	
100-41-4	Ethylbenzene	ND	1.6	0.87	ug/kg	
76-13-1	Freon 113	ND	7.9	1.2	ug/kg	
591-78-6	2-Hexanone	ND	7.9	2.0	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TP-63R (7-9)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-10	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	77.1
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.2	1.1	ug/kg	
79-20-9	Methyl Acetate	ND	7.9	2.2	ug/kg	
108-87-2	Methylcyclohexane	ND	3.2	1.1	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.6	0.56	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	7.9	2.5	ug/kg	
75-09-2	Methylene chloride	ND	7.9	4.0	ug/kg	
100-42-5	Styrene	ND	3.2	0.91	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.2	0.62	ug/kg	
127-18-4	Tetrachloroethene	ND	3.2	0.73	ug/kg	
108-88-3	Toluene	9.0	1.6	0.59	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	7.9	1.6	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	7.9	1.6	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.2	0.67	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.2	0.54	ug/kg	
79-01-6	Trichloroethene	ND	1.6	1.2	ug/kg	
75-69-4	Trichlorofluoromethane	ND	7.9	1.1	ug/kg	
75-01-4	Vinyl chloride	ND	3.2	0.74	ug/kg	
	m,p-Xylene	10	1.6	1.2	ug/kg	
95-47-6	o-Xylene	5.5	1.6	0.92	ug/kg	
1330-20-7	Xylene (total)	15.5	1.6	0.92	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		75-127%
17060-07-0	1,2-Dichloroethane-D4	116%		75-130%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	110%		79-127%

- (a) This compound in BS is outside in house QC limits bias high. Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID: TP-63R (7-9)		
Lab Sample ID: JC86716-10		Date Sampled: 04/18/19
Matrix: SO - Soil		Date Received: 04/19/19
Method: SW846 8270D SW846 3546		Percent Solids: 77.1
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	5P58952.D	2	04/26/19 20:40	CC	04/25/19 13:30	OP19971	E5P2787
Run #2	5P59009.D	20	04/29/19 12:10	CC	04/25/19 13:30	OP19971	E5P2789

Run #	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2	30.7 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	170	42	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	420	52	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	420	72	ug/kg	
105-67-9	2,4-Dimethylphenol ^b	ND	420	150	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	420	320	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	420	90	ug/kg	
95-48-7	2-Methylphenol	ND	170	54	ug/kg	
	3&4-Methylphenol	ND	170	69	ug/kg	
88-75-5	2-Nitrophenol	ND	420	56	ug/kg	
100-02-7	4-Nitrophenol ^b	ND	840	230	ug/kg	
87-86-5	Pentachlorophenol	ND	340	79	ug/kg	
108-95-2	Phenol	ND	170	44	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	420	56	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	420	63	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	420	50	ug/kg	
83-32-9	Acenaphthene	871	84	29	ug/kg	
208-96-8	Acenaphthylene	8910 ^c	840	430	ug/kg	D
98-86-2	Acetophenone	40.6	420	18	ug/kg	J
120-12-7	Anthracene	5900	84	52	ug/kg	
1912-24-9	Atrazine	ND	170	36	ug/kg	
56-55-3	Benzo(a)anthracene	30600 ^c	840	240	ug/kg	D
50-32-8	Benzo(a)pyrene	31200 ^c	840	380	ug/kg	
205-99-2	Benzo(b)fluoranthene	38500 ^c	840	370	ug/kg	
191-24-2	Benzo(g,h,i)perylene	19200 ^c	840	420	ug/kg	
207-08-9	Benzo(k)fluoranthene	14400 ^c	840	390	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	170	33	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	170	21	ug/kg	
92-52-4	1,1'-Biphenyl	79.3	170	12	ug/kg	J
100-52-7	Benzaldehyde	ND	420	21	ug/kg	
91-58-7	2-Chloronaphthalene	ND	170	20	ug/kg	
106-47-8	4-Chloroaniline	ND	420	30	ug/kg	
86-74-8	Carbazole	465	170	12	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TP-63R (7-9)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-10		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 77.1
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	170	33	ug/kg	
218-01-9	Chrysene	20900 ^c	840	270	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	170	18	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	170	36	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	170	30	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	170	27	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	84	26	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	84	42	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	170	70	ug/kg	
123-91-1	1,4-Dioxane	ND	84	56	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	5450	84	37	ug/kg	
132-64-9	Dibenzofuran	480	170	34	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	170	14	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	170	21	ug/kg	
84-66-2	Diethyl phthalate	ND	170	18	ug/kg	
131-11-3	Dimethyl phthalate	ND	170	15	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	170	20	ug/kg	
206-44-0	Fluoranthene	48400 ^c	840	380	ug/kg	D
86-73-7	Fluorene	1220	84	39	ug/kg	
118-74-1	Hexachlorobenzene	ND	170	21	ug/kg	
87-68-3	Hexachlorobutadiene	ND	84	34	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	840	34	ug/kg	
67-72-1	Hexachloroethane	ND	420	42	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	20800 ^c	840	400	ug/kg	D
78-59-1	Isophorone	ND	170	18	ug/kg	
91-57-6	2-Methylnaphthalene	150	84	19	ug/kg	
88-74-4	2-Nitroaniline	ND	420	20	ug/kg	
99-09-2	3-Nitroaniline	ND	420	21	ug/kg	
100-01-6	4-Nitroaniline	ND	420	22	ug/kg	
91-20-3	Naphthalene	581	84	24	ug/kg	
98-95-3	Nitrobenzene	ND	170	33	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	170	24	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	420	31	ug/kg	
85-01-8	Phenanthrene	6060	84	28	ug/kg	
129-00-0	Pyrene	39300 ^c	840	270	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	420	21	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	54%	42%	23-115%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TP-63R (7-9)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-10		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 77.1
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	55%	49%	27-114%
118-79-6	2,4,6-Tribromophenol	58%	54%	19-152%
4165-60-0	Nitrobenzene-d5	57%	53%	26-134%
321-60-8	2-Fluorobiphenyl	54%	56%	39-124%
1718-51-0	Terphenyl-d14	56%	52%	36-134%

- (a) Dilution required due to viscosity of the extract matrix.
- (b) Associated CCV outside of control limits high, sample was ND.
- (c) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TP-63R (7-9)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-10	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 77.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	3540	62	10	mg/kg	1	04/23/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Antimony	0.66 J	2.5	0.51	mg/kg	1	04/23/19	04/25/19	RP	SW846 6010D ²	SW846 3050B ⁴
Arsenic	9.4	2.5	0.35	mg/kg	1	04/23/19	04/25/19	RP	SW846 6010D ²	SW846 3050B ⁴
Barium	47.0	25	2.4	mg/kg	1	04/23/19	04/25/19	RP	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.45	0.25	0.10	mg/kg	1	04/23/19	04/25/19	RP	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.34 J	0.62	0.087	mg/kg	1	04/23/19	04/25/19	RP	SW846 6010D ²	SW846 3050B ⁴
Calcium	2750	620	55	mg/kg	1	04/23/19	04/25/19	RP	SW846 6010D ²	SW846 3050B ⁴
Chromium	10.9	1.2	0.46	mg/kg	1	04/23/19	04/25/19	RP	SW846 6010D ²	SW846 3050B ⁴
Cobalt	3.0 J	6.2	0.35	mg/kg	1	04/23/19	04/25/19	RP	SW846 6010D ²	SW846 3050B ⁴
Copper	86.9	3.1	1.0	mg/kg	1	04/23/19	04/25/19	RP	SW846 6010D ²	SW846 3050B ⁴
Iron	14400	62	24	mg/kg	1	04/23/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Lead	142 J	2.5	0.51	mg/kg	1	04/23/19	04/25/19	RP	SW846 6010D ²	SW846 3050B ⁴
Magnesium	579 J	620	17	mg/kg	1	04/23/19	04/25/19	RP	SW846 6010D ²	SW846 3050B ⁴
Manganese	42.1 J	1.9	0.51	mg/kg	1	04/23/19	04/25/19	RP	SW846 6010D ²	SW846 3050B ⁴
Mercury	0.29 J	0.040	0.018	mg/kg	1	04/23/19	04/23/19	LL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	9.9	5.0	0.44	mg/kg	1	04/23/19	04/25/19	RP	SW846 6010D ²	SW846 3050B ⁴
Potassium	485 J	1200	40	mg/kg	1	04/23/19	04/25/19	RP	SW846 6010D ²	SW846 3050B ⁴
Selenium	1.3 J	2.5	0.81	mg/kg	1	04/23/19	04/25/19	RP	SW846 6010D ²	SW846 3050B ⁴
Silver	0.21 U	0.62	0.21	mg/kg	1	04/23/19	04/25/19	RP	SW846 6010D ²	SW846 3050B ⁴
Sodium	97 U	1200	97	mg/kg	1	04/23/19	04/25/19	RP	SW846 6010D ²	SW846 3050B ⁴
Thallium	0.72 U	1.2	0.72	mg/kg	1	04/23/19	04/25/19	RP	SW846 6010D ²	SW846 3050B ⁴
Vanadium	13.8	6.2	0.24	mg/kg	1	04/23/19	04/25/19	RP	SW846 6010D ²	SW846 3050B ⁴
Zinc	113	6.2	2.9	mg/kg	1	04/23/19	04/25/19	RP	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46561
- (2) Instrument QC Batch: MA46589
- (3) Instrument QC Batch: MA46629
- (4) Prep QC Batch: MP14499
- (5) Prep QC Batch: MP14502

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: TP-63R (7-9)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-10	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 77.1
Project: National Grid, Philly Coke, Philadelphia, PA	

4.10
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	2.8 J	0.30	0.15	mg/kg	1	05/01/19 16:06 KI	SW846	9012B/LACHAT
Solids, Percent	77.1			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

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Client Sample ID: TP-63R (11-13)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-11		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 54.9
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	I225777.D	1	04/27/19 15:59	TDN	n/a	n/a	VI9096
Run #2							

Run #1	Initial Weight
Run #1	4.6 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	95.4	20	9.9	ug/kg	
71-43-2	Benzene	46.2	0.99	0.75	ug/kg	
74-97-5	Bromochloromethane	ND	9.9	0.85	ug/kg	
75-27-4	Bromodichloromethane	ND	4.0	0.88	ug/kg	
75-25-2	Bromoform	ND	9.9	0.80	ug/kg	
74-83-9	Bromomethane	ND	9.9	2.0	ug/kg	
78-93-3	2-Butanone (MEK)	11.3	20	7.4	ug/kg	J
75-15-0	Carbon disulfide	ND	4.0	1.8	ug/kg	
56-23-5	Carbon tetrachloride	ND	4.0	1.1	ug/kg	
108-90-7	Chlorobenzene	ND	4.0	0.70	ug/kg	
75-00-3	Chloroethane	ND	9.9	1.4	ug/kg	
67-66-3	Chloroform	ND	4.0	0.74	ug/kg	
74-87-3	Chloromethane	ND	9.9	3.9	ug/kg	
110-82-7	Cyclohexane	ND	4.0	0.80	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	4.0	1.7	ug/kg	
124-48-1	Dibromochloromethane	ND	4.0	0.67	ug/kg	
106-93-4	1,2-Dibromoethane ^a	ND	2.0	0.64	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	2.0	0.60	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	2.0	0.71	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	2.0	0.68	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	9.9	1.3	ug/kg	
75-34-3	1,1-Dichloroethane	ND	2.0	0.76	ug/kg	
107-06-2	1,2-Dichloroethane	ND	2.0	0.93	ug/kg	
75-35-4	1,1-Dichloroethene	ND	2.0	1.3	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	2.0	1.9	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	2.0	1.3	ug/kg	
78-87-5	1,2-Dichloropropane	ND	4.0	0.81	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	4.0	0.70	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	4.0	0.65	ug/kg	
100-41-4	Ethylbenzene	ND	2.0	1.1	ug/kg	
76-13-1	Freon 113	ND	9.9	1.5	ug/kg	
591-78-6	2-Hexanone	ND	9.9	2.5	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TP-63R (11-13)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-11		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 54.9
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	4.0	1.4	ug/kg	
79-20-9	Methyl Acetate	ND	9.9	2.8	ug/kg	
108-87-2	Methylcyclohexane	ND	4.0	1.4	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	2.0	0.70	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	9.9	3.1	ug/kg	
75-09-2	Methylene chloride	ND	9.9	4.9	ug/kg	
100-42-5	Styrene	ND	4.0	1.1	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	4.0	0.77	ug/kg	
127-18-4	Tetrachloroethene	ND	4.0	0.91	ug/kg	
108-88-3	Toluene	2.0	2.0	0.74	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	9.9	2.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	9.9	2.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	4.0	0.84	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	4.0	0.68	ug/kg	
79-01-6	Trichloroethene	ND	2.0	1.5	ug/kg	
75-69-4	Trichlorofluoromethane	ND	9.9	1.3	ug/kg	
75-01-4	Vinyl chloride	ND	4.0	0.93	ug/kg	
	m,p-Xylene	ND	2.0	1.5	ug/kg	
95-47-6	o-Xylene	ND	2.0	1.2	ug/kg	
1330-20-7	Xylene (total)	ND	2.0	1.2	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	109%		75-127%
17060-07-0	1,2-Dichloroethane-D4	123%		75-130%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	112%		79-127%

- (a) This compound in BS is outside in house QC limits bias high. Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

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Client Sample ID: TP-63R (11-13)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-11		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 54.9
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58943.D	1	04/26/19 17:16	CC	04/25/19 13:30	OP19971	E5P2787
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	120	30	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	300	37	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	300	51	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	300	110	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	300	230	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	300	65	ug/kg	
95-48-7	2-Methylphenol	ND	120	39	ug/kg	
	3&4-Methylphenol	ND	120	50	ug/kg	
88-75-5	2-Nitrophenol	ND	300	40	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	600	160	ug/kg	
87-86-5	Pentachlorophenol	ND	240	57	ug/kg	
108-95-2	Phenol	ND	120	31	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	300	40	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	300	45	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	300	36	ug/kg	
83-32-9	Acenaphthene	ND	60	21	ug/kg	
208-96-8	Acenaphthylene	ND	60	31	ug/kg	
98-86-2	Acetophenone	ND	300	13	ug/kg	
120-12-7	Anthracene	ND	60	37	ug/kg	
1912-24-9	Atrazine	ND	120	26	ug/kg	
56-55-3	Benzo(a)anthracene	25.5	60	17	ug/kg	J
50-32-8	Benzo(a)pyrene	30.2	60	27	ug/kg	J
205-99-2	Benzo(b)fluoranthene	32.4	60	27	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	ND	60	30	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	60	28	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	120	23	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	120	15	ug/kg	
92-52-4	1,1'-Biphenyl	ND	120	8.3	ug/kg	
100-52-7	Benzaldehyde	ND	300	15	ug/kg	
91-58-7	2-Chloronaphthalene	ND	120	14	ug/kg	
106-47-8	4-Chloroaniline	ND	300	22	ug/kg	
86-74-8	Carbazole	ND	120	8.7	ug/kg	

ND = Not detected MDL = Method Detection Limit

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B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TP-63R (11-13)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-11	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	54.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	120	24	ug/kg	
218-01-9	Chrysene	27.7	60	19	ug/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	120	13	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	120	26	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	120	22	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	120	20	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	60	19	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	60	30	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	120	50	ug/kg	
123-91-1	1,4-Dioxane	ND	60	40	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	60	27	ug/kg	
132-64-9	Dibenzofuran	ND	120	25	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	120	9.8	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	120	15	ug/kg	
84-66-2	Diethyl phthalate	ND	120	13	ug/kg	
131-11-3	Dimethyl phthalate	ND	120	11	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	120	14	ug/kg	
206-44-0	Fluoranthene	40.3	60	27	ug/kg	J
86-73-7	Fluorene	ND	60	28	ug/kg	
118-74-1	Hexachlorobenzene	ND	120	15	ug/kg	
87-68-3	Hexachlorobutadiene	ND	60	24	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	600	24	ug/kg	
67-72-1	Hexachloroethane	ND	300	30	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	60	28	ug/kg	
78-59-1	Isophorone	ND	120	13	ug/kg	
91-57-6	2-Methylnaphthalene	ND	60	14	ug/kg	
88-74-4	2-Nitroaniline	ND	300	14	ug/kg	
99-09-2	3-Nitroaniline	ND	300	15	ug/kg	
100-01-6	4-Nitroaniline	ND	300	16	ug/kg	
91-20-3	Naphthalene	ND	60	17	ug/kg	
98-95-3	Nitrobenzene	ND	120	23	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	120	17	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	300	22	ug/kg	
85-01-8	Phenanthrene	ND	60	20	ug/kg	
129-00-0	Pyrene	44.9	60	19	ug/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	300	15	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	54%		23-115%

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E = Indicates value exceeds calibration range

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B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TP-63R (11-13)	
Lab Sample ID: JC86716-11	Date Sampled: 04/18/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8270D SW846 3546	Percent Solids: 54.9
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	57%		27-114%
118-79-6	2,4,6-Tribromophenol	57%		19-152%
4165-60-0	Nitrobenzene-d5	61%		26-134%
321-60-8	2-Fluorobiphenyl	57%		39-124%
1718-51-0	Terphenyl-d14	52%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TP-63R (11-13)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-11	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 54.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	20500	93	15	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Antimony	0.76 U J	3.7	0.76	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Arsenic	37.2	3.7	0.52	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Barium	177	37	3.5	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Beryllium	1.3	0.37	0.15	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cadmium	1.6	0.93	0.13	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Calcium	4260	930	82	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Chromium	157	1.9	0.69	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cobalt	18.1	9.3	0.52	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Copper	99.8	4.6	1.6	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Iron	34400	93	36	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Lead	194 J	3.7	0.76	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Magnesium	5450 J	930	25	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Manganese	1250 J	2.8	0.76	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Mercury	1.6 J	0.12	0.051	mg/kg	2	04/23/19	04/23/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	35.1	7.4	0.65	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Potassium	2280	1900	59	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Selenium	1.2 U	3.7	1.2	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Silver	0.32 U	0.93	0.32	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Sodium	264 J	1900	140	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Thallium	1.1 U	1.9	1.1	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Vanadium	41.1	9.3	0.35	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Zinc	534	9.3	4.3	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³

- (1) Instrument QC Batch: MA46561
- (2) Instrument QC Batch: MA46589
- (3) Prep QC Batch: MP14499
- (4) Prep QC Batch: MP14502

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: TP-63R (11-13)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-11	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 54.9
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.82 J	0.52	0.26	mg/kg	1	05/01/19 16:08 KI	SW846	9012B/LACHAT
Solids, Percent	54.9			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

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Client Sample ID: S-124 (7-9)		
Lab Sample ID: JC86716-12		Date Sampled: 04/18/19
Matrix: SO - Soil		Date Received: 04/19/19
Method: SW846 8260C		Percent Solids: 68.2
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	D264127.D	1	04/29/19 20:29	TDN	n/a	n/a	VD10645
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	2.0 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone ^b	ND	3900	1900	ug/kg	
71-43-2	Benzene	38800	190	150	ug/kg	
74-97-5	Bromochloromethane	ND	1900	170	ug/kg	
75-27-4	Bromodichloromethane	ND	780	170	ug/kg	
75-25-2	Bromoform	ND	1900	160	ug/kg	
74-83-9	Bromomethane	ND	1900	390	ug/kg	
78-93-3	2-Butanone (MEK)	ND	3900	1500	ug/kg	
75-15-0	Carbon disulfide	1680	780	360	ug/kg	
56-23-5	Carbon tetrachloride	ND	780	210	ug/kg	
108-90-7	Chlorobenzene	1120	780	140	ug/kg	
75-00-3	Chloroethane	ND	1900	270	ug/kg	
67-66-3	Chloroform	ND	780	150	ug/kg	
74-87-3	Chloromethane	ND	1900	760	ug/kg	
110-82-7	Cyclohexane	ND	780	160	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	780	330	ug/kg	
124-48-1	Dibromochloromethane	ND	780	130	ug/kg	
106-93-4	1,2-Dibromoethane	ND	390	130	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	390	120	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	390	140	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	390	130	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	1900	250	ug/kg	
75-34-3	1,1-Dichloroethane	ND	390	150	ug/kg	
107-06-2	1,2-Dichloroethane ^c	ND	390	180	ug/kg	UJ
75-35-4	1,1-Dichloroethene	ND	390	260	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	390	370	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	390	260	ug/kg	
78-87-5	1,2-Dichloropropane	ND	780	160	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	780	140	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	780	130	ug/kg	
100-41-4	Ethylbenzene	3420	390	220	ug/kg	
76-13-1	Freon 113	ND	1900	300	ug/kg	
591-78-6	2-Hexanone	ND	1900	500	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-124 (7-9)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-12	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	68.2
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	780	270	ug/kg	
79-20-9	Methyl Acetate	ND	1900	540	ug/kg	
108-87-2	Methylcyclohexane	ND	780	280	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	390	140	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	1900	610	ug/kg	
75-09-2	Methylene chloride	ND	1900	970	ug/kg	
100-42-5	Styrene	ND	780	220	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	780	150	ug/kg	
127-18-4	Tetrachloroethene	ND	780	180	ug/kg	
108-88-3	Toluene	1670	390	150	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	1900	390	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	1900	390	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	780	170	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	780	130	ug/kg	
79-01-6	Trichloroethene	ND	390	300	ug/kg	
75-69-4	Trichlorofluoromethane	ND	1900	270	ug/kg	
75-01-4	Vinyl chloride	ND	780	180	ug/kg	
	m,p-Xylene	1560	390	290	ug/kg	
95-47-6	o-Xylene	634	390	230	ug/kg	
1330-20-7	Xylene (total)	2200	390	230	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		75-127%
17060-07-0	1,2-Dichloroethane-D4	89%		75-130%
2037-26-5	Toluene-D8	92%		80-120%
460-00-4	4-Bromofluorobenzene	94%		79-127%

- (a) Diluted due to high concentration of target compound.
 (b) Associated CCV outside of control limits high, sample was ND.
 (c) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID: S-124 (7-9)		
Lab Sample ID: JC86716-12		Date Sampled: 04/18/19
Matrix: SO - Soil		Date Received: 04/19/19
Method: SW846 8270D SW846 3546		Percent Solids: 68.2
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58947.D	1	04/26/19 18:47	CC	04/25/19 13:30	OP19971	E5P2787
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	97	24	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	240	30	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	240	41	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	240	86	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	240	180	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	240	52	ug/kg	
95-48-7	2-Methylphenol	ND	97	31	ug/kg	
	3&4-Methylphenol	ND	97	40	ug/kg	
88-75-5	2-Nitrophenol	ND	240	32	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	490	130	ug/kg	
87-86-5	Pentachlorophenol	ND	190	46	ug/kg	
108-95-2	Phenol	ND	97	25	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	240	32	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	240	36	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	240	29	ug/kg	
83-32-9	Acenaphthene	73.1	49	17	ug/kg	
208-96-8	Acenaphthylene	67.2	49	25	ug/kg	
98-86-2	Acetophenone	ND	240	10	ug/kg	
120-12-7	Anthracene	ND	49	30	ug/kg	
1912-24-9	Atrazine	ND	97	21	ug/kg	
56-55-3	Benzo(a)anthracene	24.9	49	14	ug/kg	J
50-32-8	Benzo(a)pyrene	27.4	49	22	ug/kg	J
205-99-2	Benzo(b)fluoranthene	44.8	49	21	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	41.7	49	24	ug/kg	J
207-08-9	Benzo(k)fluoranthene	ND	49	23	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	97	19	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	97	12	ug/kg	
92-52-4	1,1'-Biphenyl	35.1	97	6.7	ug/kg	J
100-52-7	Benzaldehyde	ND	240	12	ug/kg	
91-58-7	2-Chloronaphthalene	ND	97	12	ug/kg	
106-47-8	4-Chloroaniline	ND	240	17	ug/kg	
86-74-8	Carbazole	ND	97	7.0	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-124 (7-9)		
Lab Sample ID: JC86716-12		Date Sampled: 04/18/19
Matrix: SO - Soil		Date Received: 04/19/19
Method: SW846 8270D SW846 3546		Percent Solids: 68.2
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	97	19	ug/kg	
218-01-9	Chrysene	29.8	49	15	ug/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	97	10	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	97	21	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	97	17	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	97	16	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	49	15	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	49	24	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	97	40	ug/kg	
123-91-1	1,4-Dioxane	ND	49	32	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	49	21	ug/kg	
132-64-9	Dibenzofuran	ND	97	20	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	97	7.9	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	97	12	ug/kg	
84-66-2	Diethyl phthalate	ND	97	10	ug/kg	
131-11-3	Dimethyl phthalate	ND	97	8.6	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	97	11	ug/kg	
206-44-0	Fluoranthene	46.5	49	22	ug/kg	J
86-73-7	Fluorene	ND	49	22	ug/kg	
118-74-1	Hexachlorobenzene	ND	97	12	ug/kg	
87-68-3	Hexachlorobutadiene	ND	49	20	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	490	19	ug/kg	
67-72-1	Hexachloroethane	ND	240	24	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	40.9	49	23	ug/kg	J
78-59-1	Isophorone	ND	97	10	ug/kg	
91-57-6	2-Methylnaphthalene	60.1	49	11	ug/kg	
88-74-4	2-Nitroaniline	ND	240	11	ug/kg	
99-09-2	3-Nitroaniline	ND	240	12	ug/kg	
100-01-6	4-Nitroaniline	ND	240	13	ug/kg	
91-20-3	Naphthalene	176	49	14	ug/kg	
98-95-3	Nitrobenzene	ND	97	19	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	97	14	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	240	18	ug/kg	
85-01-8	Phenanthrene	ND	49	16	ug/kg	
129-00-0	Pyrene	56.4	49	16	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	240	12	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	52%		23-115%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-124 (7-9)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-12		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 68.2
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	53%		27-114%
118-79-6	2,4,6-Tribromophenol	60%		19-152%
4165-60-0	Nitrobenzene-d5	58%		26-134%
321-60-8	2-Fluorobiphenyl	59%		39-124%
1718-51-0	Terphenyl-d14	46%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-124 (7-9)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-12	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 68.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	14700	75	12	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Antimony	0.61 U J	3.0	0.61	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Arsenic	11.9	3.0	0.42	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Barium	103	30	2.8	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Beryllium	0.93	0.30	0.12	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cadmium	1.6	0.75	0.10	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Calcium	2430	750	66	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Chromium	25.9	1.5	0.55	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cobalt	15.7	7.5	0.42	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Copper	119	3.7	1.3	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Iron	20800	75	29	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Lead	225 J	3.0	0.61	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Magnesium	2700 J	750	20	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Manganese	189 J	2.2	0.61	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Mercury	0.49 J	0.042	0.019	mg/kg	1	04/23/19	04/23/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	39.5	6.0	0.52	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Potassium	2290	1500	48	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Selenium	1.5 J	3.0	0.97	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Silver	0.25 U	0.75	0.25	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Sodium	135 J	1500	120	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Thallium	0.88 J	1.5	0.87	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Vanadium	39.0	7.5	0.28	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Zinc	527	7.5	3.4	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³

- (1) Instrument QC Batch: MA46561
- (2) Instrument QC Batch: MA46589
- (3) Prep QC Batch: MP14499
- (4) Prep QC Batch: MP14502

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-124 (7-9)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-12	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 68.2
Project: National Grid, Philly Coke, Philadelphia, PA	

4.12
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	2.3 J	0.35	0.18	mg/kg	1	05/01/19 16:12 KI	SW846	9012B/LACHAT
Solids, Percent	68.2			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: S-124 (10-12)	
Lab Sample ID: JC86716-13	Date Sampled: 04/18/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8260C	Percent Solids: 58.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	I225779.D	1	04/27/19 16:58	TDN	n/a	n/a	VI9096

Run #1	Initial Weight
Run #2	4.8 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	124	18	8.9	ug/kg	
71-43-2	Benzene	33.7	0.89	0.67	ug/kg	
74-97-5	Bromochloromethane	ND	8.9	0.77	ug/kg	
75-27-4	Bromodichloromethane	ND	3.6	0.79	ug/kg	
75-25-2	Bromoform	ND	8.9	0.72	ug/kg	
74-83-9	Bromomethane	ND	8.9	1.8	ug/kg	
78-93-3	2-Butanone (MEK)	15.3	18	6.7	ug/kg	J
75-15-0	Carbon disulfide	ND	3.6	1.7	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.6	0.98	ug/kg	
108-90-7	Chlorobenzene	ND	3.6	0.63	ug/kg	
75-00-3	Chloroethane	ND	8.9	1.2	ug/kg	
67-66-3	Chloroform	ND	3.6	0.66	ug/kg	
74-87-3	Chloromethane	ND	8.9	3.5	ug/kg	
110-82-7	Cyclohexane	ND	3.6	0.73	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.6	1.5	ug/kg	
124-48-1	Dibromochloromethane	ND	3.6	0.60	ug/kg	
106-93-4	1,2-Dibromoethane ^a	ND	1.8	0.58	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.8	0.54	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.8	0.64	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.8	0.61	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	8.9	1.1	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.8	0.69	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.8	0.84	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.8	1.2	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.8	1.7	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.8	1.2	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.6	0.73	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.6	0.63	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.6	0.58	ug/kg	
100-41-4	Ethylbenzene	ND	1.8	0.99	ug/kg	
76-13-1	Freon 113	ND	8.9	1.4	ug/kg	
591-78-6	2-Hexanone	ND	8.9	2.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-124 (10-12)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-13	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	58.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.6	1.2	ug/kg	
79-20-9	Methyl Acetate	ND	8.9	2.5	ug/kg	
108-87-2	Methylcyclohexane	ND	3.6	1.3	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.8	0.63	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	8.9	2.8	ug/kg	
75-09-2	Methylene chloride	ND	8.9	4.5	ug/kg	
100-42-5	Styrene	ND	3.6	1.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.6	0.70	ug/kg	
127-18-4	Tetrachloroethene	ND	3.6	0.83	ug/kg	
108-88-3	Toluene	0.69	1.8	0.67	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	8.9	1.8	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	8.9	1.8	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.6	0.76	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.6	0.61	ug/kg	
79-01-6	Trichloroethene	ND	1.8	1.4	ug/kg	
75-69-4	Trichlorofluoromethane	ND	8.9	1.2	ug/kg	
75-01-4	Vinyl chloride	ND	3.6	0.84	ug/kg	
	m,p-Xylene	ND	1.8	1.3	ug/kg	
95-47-6	o-Xylene	ND	1.8	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.8	1.0	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	111%		75-127%
17060-07-0	1,2-Dichloroethane-D4	126%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	116%		79-127%

- (a) This compound in BS is outside in house QC limits bias high. Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID: S-124 (10-12)		
Lab Sample ID: JC86716-13		Date Sampled: 04/18/19
Matrix: SO - Soil		Date Received: 04/19/19
Method: SW846 8270D SW846 3546		Percent Solids: 58.3
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58945.D	1	04/26/19 18:01	CC	04/25/19 13:30	OP19971	E5P2787
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	110	28	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	280	34	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	280	48	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	280	99	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	280	210	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	280	60	ug/kg	
95-48-7	2-Methylphenol	ND	110	36	ug/kg	
	3&4-Methylphenol	ND	110	46	ug/kg	
88-75-5	2-Nitrophenol	ND	280	37	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	560	150	ug/kg	
87-86-5	Pentachlorophenol	ND	220	52	ug/kg	
108-95-2	Phenol	ND	110	29	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	280	37	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	280	42	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	280	33	ug/kg	
83-32-9	Acenaphthene	261	56	19	ug/kg	
208-96-8	Acenaphthylene	44.6	56	28	ug/kg	J
98-86-2	Acetophenone	ND	280	12	ug/kg	
120-12-7	Anthracene	74.6	56	34	ug/kg	
1912-24-9	Atrazine	ND	110	24	ug/kg	
56-55-3	Benzo(a)anthracene	126	56	16	ug/kg	
50-32-8	Benzo(a)pyrene	164	56	25	ug/kg	
205-99-2	Benzo(b)fluoranthene	170	56	25	ug/kg	
191-24-2	Benzo(g,h,i)perylene	91.4	56	28	ug/kg	
207-08-9	Benzo(k)fluoranthene	58.5	56	26	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	110	22	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	110	14	ug/kg	
92-52-4	1,1'-Biphenyl	ND	110	7.7	ug/kg	
100-52-7	Benzaldehyde	ND	280	14	ug/kg	
91-58-7	2-Chloronaphthalene	ND	110	13	ug/kg	
106-47-8	4-Chloroaniline	ND	280	20	ug/kg	
86-74-8	Carbazole	ND	110	8.1	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-124 (10-12)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-13	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	58.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	110	22	ug/kg	
218-01-9	Chrysene	145	56	18	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	110	12	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	110	24	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	110	20	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	110	18	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	56	17	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	56	28	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	110	47	ug/kg	
123-91-1	1,4-Dioxane	ND	56	37	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	56	25	ug/kg	
132-64-9	Dibenzofuran	ND	110	23	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	110	9.1	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	110	14	ug/kg	
84-66-2	Diethyl phthalate	ND	110	12	ug/kg	
131-11-3	Dimethyl phthalate	ND	110	9.9	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	110	13	ug/kg	
206-44-0	Fluoranthene	322	56	25	ug/kg	
86-73-7	Fluorene	151	56	26	ug/kg	
118-74-1	Hexachlorobenzene	ND	110	14	ug/kg	
87-68-3	Hexachlorobutadiene	ND	56	22	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	560	22	ug/kg	
67-72-1	Hexachloroethane	ND	280	28	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	98.3	56	26	ug/kg	
78-59-1	Isophorone	ND	110	12	ug/kg	
91-57-6	2-Methylnaphthalene	22.5	56	13	ug/kg	J
88-74-4	2-Nitroaniline	ND	280	13	ug/kg	
99-09-2	3-Nitroaniline	ND	280	14	ug/kg	
100-01-6	4-Nitroaniline	ND	280	14	ug/kg	
91-20-3	Naphthalene	50.3	56	16	ug/kg	J
98-95-3	Nitrobenzene	ND	110	22	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	110	16	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	280	20	ug/kg	
85-01-8	Phenanthrene	152	56	19	ug/kg	
129-00-0	Pyrene	302	56	18	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	280	14	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	59%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-124 (10-12)	
Lab Sample ID: JC86716-13	Date Sampled: 04/18/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8270D SW846 3546	Percent Solids: 58.3
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	60%		27-114%
118-79-6	2,4,6-Tribromophenol	63%		19-152%
4165-60-0	Nitrobenzene-d5	66%		26-134%
321-60-8	2-Fluorobiphenyl	63%		39-124%
1718-51-0	Terphenyl-d14	57%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-124 (10-12)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-13	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 58.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	17000	88	14	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Antimony	0.72 U J	3.5	0.72	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Arsenic	69.9	3.5	0.49	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Barium	193	35	3.3	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Beryllium	1.1	0.35	0.14	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cadmium	3.1	0.88	0.12	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Calcium	4750	880	77	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Chromium	296	1.8	0.65	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cobalt	17.4	8.8	0.49	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Copper	136	4.4	1.5	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Iron	28200	88	34	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Lead	280 J	3.5	0.72	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Magnesium	4510 J	880	24	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Manganese	868 J	2.6	0.72	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Mercury	2.4 J	0.27	0.12	mg/kg	5	04/23/19	04/23/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	31.8	7.0	0.61	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Potassium	1810	1800	56	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Selenium	1.1 U	3.5	1.1	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Silver	0.96	0.88	0.30	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Sodium	237 J	1800	140	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Thallium	1.0 U	1.8	1.0	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Vanadium	35.0	8.8	0.33	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Zinc	929	8.8	4.0	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³

- (1) Instrument QC Batch: MA46561
- (2) Instrument QC Batch: MA46589
- (3) Prep QC Batch: MP14499
- (4) Prep QC Batch: MP14502

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-124 (10-12)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-13	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 58.3
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.18 J	0.34	0.17	mg/kg	1	05/01/19 16:13 KI	SW846	9012B/LACHAT
Solids, Percent	58.3			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

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Client Sample ID: S-123 (7-9)		
Lab Sample ID: JC86716-14		Date Sampled: 04/18/19
Matrix: SO - Soil		Date Received: 04/19/19
Method: SW846 8260C		Percent Solids: 77.9
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	I225780.D	1	04/27/19 17:28	TDN	n/a	n/a	VI9096

Run #1	Initial Weight
Run #2	5.7 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	11	5.6	ug/kg	
71-43-2	Benzene	0.85	0.56	0.42	ug/kg	
74-97-5	Bromochloromethane	ND	5.6	0.48	ug/kg	
75-27-4	Bromodichloromethane	ND	2.3	0.50	ug/kg	
75-25-2	Bromoform	ND	5.6	0.45	ug/kg	
74-83-9	Bromomethane	ND	5.6	1.1	ug/kg	
78-93-3	2-Butanone (MEK)	ND	11	4.2	ug/kg	
75-15-0	Carbon disulfide	ND	2.3	1.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.3	0.62	ug/kg	
108-90-7	Chlorobenzene	ND	2.3	0.40	ug/kg	
75-00-3	Chloroethane	ND	5.6	0.77	ug/kg	
67-66-3	Chloroform	ND	2.3	0.42	ug/kg	
74-87-3	Chloromethane	ND	5.6	2.2	ug/kg	
110-82-7	Cyclohexane	ND	2.3	0.46	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.3	0.94	ug/kg	
124-48-1	Dibromochloromethane	ND	2.3	0.38	ug/kg	
106-93-4	1,2-Dibromoethane ^a	ND	1.1	0.37	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.1	0.34	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.1	0.40	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.1	0.39	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	5.6	0.72	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.1	0.43	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.1	0.53	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.1	0.74	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.1	1.1	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.1	0.75	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.3	0.46	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.3	0.40	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.3	0.37	ug/kg	
100-41-4	Ethylbenzene	ND	1.1	0.62	ug/kg	
76-13-1	Freon 113	ND	5.6	0.86	ug/kg	
591-78-6	2-Hexanone	ND	5.6	1.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-123 (7-9)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-14		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 77.9
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.3	0.78	ug/kg	
79-20-9	Methyl Acetate	ND	5.6	1.6	ug/kg	
108-87-2	Methylcyclohexane	ND	2.3	0.80	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.1	0.40	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.6	1.8	ug/kg	
75-09-2	Methylene chloride	ND	5.6	2.8	ug/kg	
100-42-5	Styrene	ND	2.3	0.65	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.3	0.44	ug/kg	
127-18-4	Tetrachloroethene	ND	2.3	0.52	ug/kg	
108-88-3	Toluene	ND	1.1	0.42	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.6	1.1	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.6	1.1	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.3	0.48	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.3	0.39	ug/kg	
79-01-6	Trichloroethene	ND	1.1	0.86	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.6	0.77	ug/kg	
75-01-4	Vinyl chloride	ND	2.3	0.53	ug/kg	
	m,p-Xylene	ND	1.1	0.84	ug/kg	
95-47-6	o-Xylene	ND	1.1	0.66	ug/kg	
1330-20-7	Xylene (total)	ND	1.1	0.66	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		75-127%
17060-07-0	1,2-Dichloroethane-D4	115%		75-130%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	112%		79-127%

- (a) Associated CCV and BS outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

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Client Sample ID: S-123 (7-9)		
Lab Sample ID: JC86716-14		Date Sampled: 04/18/19
Matrix: SO - Soil		Date Received: 04/19/19
Method: SW846 8270D SW846 3546		Percent Solids: 77.9
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58946.D	1	04/26/19 18:24	CC	04/25/19 13:30	OP19971	E5P2787
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	86	21	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	210	26	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	210	36	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	210	76	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	210	160	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	210	46	ug/kg	
95-48-7	2-Methylphenol	ND	86	27	ug/kg	
	3&4-Methylphenol	ND	86	35	ug/kg	
88-75-5	2-Nitrophenol	ND	210	28	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	430	110	ug/kg	
87-86-5	Pentachlorophenol	ND	170	40	ug/kg	
108-95-2	Phenol	ND	86	22	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	210	28	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	210	32	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	210	26	ug/kg	
83-32-9	Acenaphthene	62.8	43	15	ug/kg	
208-96-8	Acenaphthylene	95.6	43	22	ug/kg	
98-86-2	Acetophenone	ND	210	9.2	ug/kg	
120-12-7	Anthracene	151	43	26	ug/kg	
1912-24-9	Atrazine	ND	86	18	ug/kg	
56-55-3	Benzo(a)anthracene	496	43	12	ug/kg	
50-32-8	Benzo(a)pyrene	581	43	19	ug/kg	
205-99-2	Benzo(b)fluoranthene	753	43	19	ug/kg	
191-24-2	Benzo(g,h,i)perylene	415	43	21	ug/kg	
207-08-9	Benzo(k)fluoranthene	251	43	20	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	86	17	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	86	10	ug/kg	
92-52-4	1,1'-Biphenyl	9.6	86	5.9	ug/kg	J
100-52-7	Benzaldehyde	ND	210	11	ug/kg	
91-58-7	2-Chloronaphthalene	ND	86	10	ug/kg	
106-47-8	4-Chloroaniline	ND	210	15	ug/kg	
86-74-8	Carbazole	57.3	86	6.2	ug/kg	J

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-123 (7-9)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-14	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	77.9
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	86	17	ug/kg	
218-01-9	Chrysene	502	43	13	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	86	9.2	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	86	18	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	86	15	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	86	14	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	43	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	43	21	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	86	36	ug/kg	
123-91-1	1,4-Dioxane	ND	43	28	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	115	43	19	ug/kg	
132-64-9	Dibenzofuran	38.4	86	17	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	86	7.0	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	86	11	ug/kg	
84-66-2	Diethyl phthalate	ND	86	9.1	ug/kg	
131-11-3	Dimethyl phthalate	ND	86	7.6	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	86	10	ug/kg	
206-44-0	Fluoranthene	889	43	19	ug/kg	
86-73-7	Fluorene	59.4	43	20	ug/kg	
118-74-1	Hexachlorobenzene	ND	86	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	43	17	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	430	17	ug/kg	
67-72-1	Hexachloroethane	ND	210	21	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	437	43	20	ug/kg	
78-59-1	Isophorone	ND	86	9.2	ug/kg	
91-57-6	2-Methylnaphthalene	31.0	43	9.7	ug/kg	J
88-74-4	2-Nitroaniline	ND	210	10	ug/kg	
99-09-2	3-Nitroaniline	ND	210	11	ug/kg	
100-01-6	4-Nitroaniline	ND	210	11	ug/kg	
91-20-3	Naphthalene	141	43	12	ug/kg	
98-95-3	Nitrobenzene	ND	86	17	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	86	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	210	16	ug/kg	
85-01-8	Phenanthrene	517	43	14	ug/kg	
129-00-0	Pyrene	755	43	14	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	210	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	54%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-123 (7-9)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-14		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 77.9
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	56%		27-114%
118-79-6	2,4,6-Tribromophenol	59%		19-152%
4165-60-0	Nitrobenzene-d5	61%		26-134%
321-60-8	2-Fluorobiphenyl	58%		39-124%
1718-51-0	Terphenyl-d14	52%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-123 (7-9)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-14	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 77.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	17300	67	11	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Antimony	0.68 J	2.7	0.55	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Arsenic	11.9	2.7	0.37	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Barium	109	27	2.5	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Beryllium	0.74	0.27	0.11	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cadmium	0.28 J	0.67	0.094	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Calcium	2140	670	59	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Chromium	28.4	1.3	0.49	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cobalt	7.7	6.7	0.37	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Copper	92.0	3.3	1.1	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Iron	26300	67	26	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Lead	459 J	2.7	0.55	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Magnesium	2520 J	670	18	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Manganese	186 J	2.0	0.55	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Mercury	0.68 J	0.037	0.016	mg/kg	1	04/23/19	04/23/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	22.6	5.3	0.47	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Potassium	1900	1300	42	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Selenium	0.87 U	2.7	0.87	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Silver	0.23 U	0.67	0.23	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Sodium	109 J	1300	100	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Thallium	0.82 J	1.3	0.78	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Vanadium	38.5	6.7	0.25	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Zinc	569	6.7	3.1	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³

(1) Instrument QC Batch: MA46561

(2) Instrument QC Batch: MA46589

(3) Prep QC Batch: MP14499

(4) Prep QC Batch: MP14502

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.14
4

Report of Analysis

Client Sample ID: S-123 (7-9)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-14	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 77.9
Project: National Grid, Philly Coke, Philadelphia, PA	

4.14
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	2.9 J	0.35	0.18	mg/kg	1	05/01/19 16:14 KI	SW846	9012B/LACHAT
Solids, Percent	77.9			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: S-123 (13-15)	
Lab Sample ID: JC86716-15	Date Sampled: 04/18/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8260C	Percent Solids: 60.0
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	I225781.D	1	04/27/19 17:57	TDN	n/a	n/a	VI9096

Run #1	Initial Weight
Run #2	4.7 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	127	18	8.9	ug/kg	
71-43-2	Benzene	46.6	0.89	0.67	ug/kg	
74-97-5	Bromochloromethane	ND	8.9	0.76	ug/kg	
75-27-4	Bromodichloromethane	ND	3.5	0.79	ug/kg	
75-25-2	Bromoform	ND	8.9	0.71	ug/kg	
74-83-9	Bromomethane	ND	8.9	1.8	ug/kg	
78-93-3	2-Butanone (MEK)	17.4	18	6.6	ug/kg	J
75-15-0	Carbon disulfide	ND	3.5	1.6	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.5	0.98	ug/kg	
108-90-7	Chlorobenzene	ND	3.5	0.63	ug/kg	
75-00-3	Chloroethane	ND	8.9	1.2	ug/kg	
67-66-3	Chloroform	ND	3.5	0.66	ug/kg	
74-87-3	Chloromethane	ND	8.9	3.5	ug/kg	
110-82-7	Cyclohexane	ND	3.5	0.72	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.5	1.5	ug/kg	
124-48-1	Dibromochloromethane	ND	3.5	0.60	ug/kg	
106-93-4	1,2-Dibromoethane ^a	ND	1.8	0.58	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.8	0.54	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.8	0.64	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.8	0.61	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	8.9	1.1	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.8	0.68	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.8	0.83	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.8	1.2	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.8	1.7	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.8	1.2	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.5	0.72	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.5	0.62	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.5	0.58	ug/kg	
100-41-4	Ethylbenzene	ND	1.8	0.98	ug/kg	
76-13-1	Freon 113	ND	8.9	1.4	ug/kg	
591-78-6	2-Hexanone	ND	8.9	2.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-123 (13-15)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-15	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 60.0
Method: SW846 8260C	
Project: National Grid, Philly Coke, Philadelphia, PA	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.5	1.2	ug/kg	
79-20-9	Methyl Acetate	ND	8.9	2.5	ug/kg	
108-87-2	Methylcyclohexane	1.9	3.5	1.3	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.8	0.62	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	8.9	2.8	ug/kg	
75-09-2	Methylene chloride	ND	8.9	4.4	ug/kg	
100-42-5	Styrene	ND	3.5	1.0	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.5	0.69	ug/kg	
127-18-4	Tetrachloroethene	ND	3.5	0.82	ug/kg	
108-88-3	Toluene	0.92	1.8	0.67	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	8.9	1.8	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	8.9	1.8	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.5	0.76	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.5	0.61	ug/kg	
79-01-6	Trichloroethene	ND	1.8	1.4	ug/kg	
75-69-4	Trichlorofluoromethane	ND	8.9	1.2	ug/kg	
75-01-4	Vinyl chloride	ND	3.5	0.83	ug/kg	
	m,p-Xylene	ND	1.8	1.3	ug/kg	
95-47-6	o-Xylene	ND	1.8	1.0	ug/kg	
1330-20-7	Xylene (total)	ND	1.8	1.0	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	106%		75-127%
17060-07-0	1,2-Dichloroethane-D4	121%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	116%		79-127%

- (a) This compound in BS is outside in house QC limits bias high. Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	S-123 (13-15)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-15	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	60.0
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P58944.D	1	04/26/19 17:39	CC	04/25/19 13:30	OP19971	E5P2787
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.8 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	110	27	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	270	33	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	270	46	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	270	96	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	270	200	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	270	58	ug/kg	
95-48-7	2-Methylphenol	ND	110	35	ug/kg	
	3&4-Methylphenol	ND	110	44	ug/kg	
88-75-5	2-Nitrophenol	ND	270	36	ug/kg	
100-02-7	4-Nitrophenol ^a	ND	540	140	ug/kg	
87-86-5	Pentachlorophenol	ND	220	51	ug/kg	
108-95-2	Phenol	ND	110	28	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	270	36	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	270	41	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	270	32	ug/kg	
83-32-9	Acenaphthene	ND	54	19	ug/kg	
208-96-8	Acenaphthylene	ND	54	27	ug/kg	
98-86-2	Acetophenone	ND	270	12	ug/kg	
120-12-7	Anthracene	ND	54	33	ug/kg	
1912-24-9	Atrazine	ND	110	23	ug/kg	
56-55-3	Benzo(a)anthracene	30.2	54	15	ug/kg	J
50-32-8	Benzo(a)pyrene	42.6	54	25	ug/kg	J
205-99-2	Benzo(b)fluoranthene	50.5	54	24	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	38.0	54	27	ug/kg	J
207-08-9	Benzo(k)fluoranthene	ND	54	25	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	110	21	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	110	13	ug/kg	
92-52-4	1,1'-Biphenyl	ND	110	7.4	ug/kg	
100-52-7	Benzaldehyde	ND	270	13	ug/kg	
91-58-7	2-Chloronaphthalene	ND	110	13	ug/kg	
106-47-8	4-Chloroaniline	ND	270	19	ug/kg	
86-74-8	Carbazole	ND	110	7.8	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-123 (13-15)		
Lab Sample ID:	JC86716-15	Date Sampled:	04/18/19
Matrix:	SO - Soil	Date Received:	04/19/19
Method:	SW846 8270D SW846 3546	Percent Solids:	60.0
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	110	21	ug/kg	
218-01-9	Chrysene	34.2	54	17	ug/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	110	12	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	110	23	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	110	19	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	110	18	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	54	17	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	54	27	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	110	45	ug/kg	
123-91-1	1,4-Dioxane	ND	54	36	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	54	24	ug/kg	
132-64-9	Dibenzofuran	ND	110	22	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	110	8.8	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	110	13	ug/kg	
84-66-2	Diethyl phthalate	ND	110	12	ug/kg	
131-11-3	Dimethyl phthalate	ND	110	9.6	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	110	13	ug/kg	
206-44-0	Fluoranthene	56.0	54	24	ug/kg	
86-73-7	Fluorene	ND	54	25	ug/kg	
118-74-1	Hexachlorobenzene	ND	110	14	ug/kg	
87-68-3	Hexachlorobutadiene	ND	54	22	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	540	22	ug/kg	
67-72-1	Hexachloroethane	ND	270	27	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	36.5	54	25	ug/kg	J
78-59-1	Isophorone	ND	110	12	ug/kg	
91-57-6	2-Methylnaphthalene	ND	54	12	ug/kg	
88-74-4	2-Nitroaniline	ND	270	13	ug/kg	
99-09-2	3-Nitroaniline	ND	270	14	ug/kg	
100-01-6	4-Nitroaniline	ND	270	14	ug/kg	
91-20-3	Naphthalene	ND	54	15	ug/kg	
98-95-3	Nitrobenzene	ND	110	21	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	110	16	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	270	20	ug/kg	
85-01-8	Phenanthrene	24.3	54	18	ug/kg	J
129-00-0	Pyrene	61.3	54	17	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	270	14	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	57%		23-115%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.15
 4

Report of Analysis

Client Sample ID: S-123 (13-15)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-15		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 60.0
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

4.15
4

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	62%		27-114%
118-79-6	2,4,6-Tribromophenol	62%		19-152%
4165-60-0	Nitrobenzene-d5	68%		26-134%
321-60-8	2-Fluorobiphenyl	63%		39-124%
1718-51-0	Terphenyl-d14	54%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-123 (13-15)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-15	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 60.0
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	22700	84	14	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.69 U J	3.4	0.69	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Arsenic	46.9	3.4	0.47	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Barium	212	34	3.2	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Beryllium	1.6	0.34	0.13	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Cadmium	2.5	0.84	0.12	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Calcium	4290	840	74	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Chromium	187	1.7	0.62	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Cobalt	22.5	8.4	0.47	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Copper ^a	158	8.4	2.8	mg/kg	2	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Iron	39600	170	65	mg/kg	2	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Lead	288 J	3.4	0.69	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Magnesium	5210 J	840	23	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Manganese	1090 J	5.1	1.4	mg/kg	2	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Mercury	1.6 J	0.10	0.045	mg/kg	2	04/23/19	04/23/19 LL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	41.7	6.7	0.59	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Potassium	2370	1700	54	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Selenium ^a	3.5 J	6.7	2.2	mg/kg	2	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Silver ^a	2.2	1.7	0.57	mg/kg	2	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Sodium	264 J	1700	130	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Thallium ^a	2.0 U	3.4	2.0	mg/kg	2	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Vanadium	42.2	8.4	0.32	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Zinc	793	8.4	3.9	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46561
- (2) Instrument QC Batch: MA46589
- (3) Instrument QC Batch: MA46629
- (4) Prep QC Batch: MP14499
- (5) Prep QC Batch: MP14502

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.15
4

Report of Analysis

Client Sample ID: S-123 (13-15)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-15	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 60.0
Project: National Grid, Philly Coke, Philadelphia, PA	

4.15
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.1 J	0.50	0.25	mg/kg	1	05/01/19 16:16 KI	SW846	9012B/LACHAT
Solids, Percent	60			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: PSSTP-07R (0.5-2)	
Lab Sample ID: JC86716-16	Date Sampled: 04/18/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8260C	Percent Solids: 80.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184792.D	1	04/27/19 15:07	PS	n/a	n/a	VY8018
Run #2							

Run #1	Initial Weight
Run #1	6.0 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	5.2	ug/kg	
71-43-2	Benzene	0.89	0.52	0.39	ug/kg	J
74-97-5	Bromochloromethane	ND	5.2	0.45	ug/kg	
75-27-4	Bromodichloromethane	ND	2.1	0.46	ug/kg	
75-25-2	Bromoform	ND	5.2	0.42	ug/kg	
74-83-9	Bromomethane	ND	5.2	1.0	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	3.9	ug/kg	
75-15-0	Carbon disulfide	ND	2.1	0.96	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.1	0.57	ug/kg	
108-90-7	Chlorobenzene	ND	2.1	0.37	ug/kg	
75-00-3	Chloroethane	ND	5.2	0.71	ug/kg	
67-66-3	Chloroform	ND	2.1	0.39	ug/kg	
74-87-3	Chloromethane	ND	5.2	2.0	ug/kg	
110-82-7	Cyclohexane	ND	2.1	0.42	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.1	0.87	ug/kg	
124-48-1	Dibromochloromethane	ND	2.1	0.35	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	0.34	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.32	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.37	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.36	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.2	0.66	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	0.40	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.49	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	0.68	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.99	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.69	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.1	0.42	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.1	0.36	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.1	0.34	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.57	ug/kg	
76-13-1	Freon 113	ND	5.2	0.79	ug/kg	
591-78-6	2-Hexanone	ND	5.2	1.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-07R (0.5-2)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-16	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	80.5
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.1	0.72	ug/kg	
79-20-9	Methyl Acetate	ND	5.2	1.4	ug/kg	
108-87-2	Methylcyclohexane	ND	2.1	0.73	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.36	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.2	1.6	ug/kg	
75-09-2	Methylene chloride	ND	5.2	2.6	ug/kg	
100-42-5	Styrene	ND	2.1	0.60	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.1	0.40	ug/kg	
127-18-4	Tetrachloroethene	ND	2.1	0.48	ug/kg	
108-88-3	Toluene	ND	1.0	0.39	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.2	1.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.2	1.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.1	0.44	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.1	0.35	ug/kg	
79-01-6	Trichloroethene	ND	1.0	0.79	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.2	0.70	ug/kg	
75-01-4	Vinyl chloride	ND	2.1	0.49	ug/kg	
	m,p-Xylene	ND	1.0	0.77	ug/kg	
95-47-6	o-Xylene	ND	1.0	0.60	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.60	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		75-127%
17060-07-0	1,2-Dichloroethane-D4	102%		75-130%
2037-26-5	Toluene-D8	97%		80-120%
460-00-4	4-Bromofluorobenzene	95%		79-127%

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SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	PSSTP-07R (0.5-2)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-16	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	80.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P59081.D	1	04/30/19 21:03	CC	04/25/19 13:30	OP19972	E5P2792
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	83	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	210	25	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	210	35	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	210	74	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	210	160	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	210	44	ug/kg	
95-48-7	2-Methylphenol	ND	83	26	ug/kg	
	3&4-Methylphenol	ND	83	34	ug/kg	
88-75-5	2-Nitrophenol	ND	210	27	ug/kg	
100-02-7	4-Nitrophenol	ND	410	110	ug/kg	
87-86-5	Pentachlorophenol	ND	170	39	ug/kg	
108-95-2	Phenol	ND	83	22	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	210	27	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	210	31	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	210	25	ug/kg	
83-32-9	Acenaphthene	125	41	14	ug/kg	
208-96-8	Acenaphthylene	72.0	41	21	ug/kg	
98-86-2	Acetophenone	ND	210	8.9	ug/kg	
120-12-7	Anthracene	321	41	25	ug/kg	
1912-24-9	Atrazine	ND	83	18	ug/kg	
56-55-3	Benzo(a)anthracene	939	41	12	ug/kg	
50-32-8	Benzo(a)pyrene	979	41	19	ug/kg	
205-99-2	Benzo(b)fluoranthene	1210	41	18	ug/kg	
191-24-2	Benzo(g,h,i)perylene	626	41	21	ug/kg	
207-08-9	Benzo(k)fluoranthene	481	41	19	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	83	16	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	83	10	ug/kg	
92-52-4	1,1'-Biphenyl	10.7	83	5.7	ug/kg	J
100-52-7	Benzaldehyde	22.1	210	10	ug/kg	J
91-58-7	2-Chloronaphthalene	ND	83	9.9	ug/kg	
106-47-8	4-Chloroaniline	ND	210	15	ug/kg	
86-74-8	Carbazole	139	83	6.0	ug/kg	

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Report of Analysis

Client Sample ID:	PSSTP-07R (0.5-2)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-16	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	80.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	83	16	ug/kg	
218-01-9	Chrysene	847	41	13	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	83	8.9	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	83	18	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	83	15	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	83	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	41	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	41	21	ug/kg	
91-94-1	3,3'-Dichlorobenzidine ^a	ND	83	35	ug/kg	UJ
123-91-1	1,4-Dioxane	ND	41	27	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	132	41	18	ug/kg	
132-64-9	Dibenzofuran	67.6	83	17	ug/kg	J
84-74-2	Di-n-butyl phthalate	343	83	6.7	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	83	10	ug/kg	
84-66-2	Diethyl phthalate	ND	83	8.8	ug/kg	
131-11-3	Dimethyl phthalate	ND	83	7.4	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	191	83	9.7	ug/kg	
206-44-0	Fluoranthene	1710	41	18	ug/kg	
86-73-7	Fluorene	136	41	19	ug/kg	
118-74-1	Hexachlorobenzene	ND	83	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	41	17	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	410	16	ug/kg	
67-72-1	Hexachloroethane	ND	210	20	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	660	41	19	ug/kg	
78-59-1	Isophorone	ND	83	8.9	ug/kg	
91-57-6	2-Methylnaphthalene	19.5	41	9.4	ug/kg	J
88-74-4	2-Nitroaniline	ND	210	9.8	ug/kg	
99-09-2	3-Nitroaniline	ND	210	10	ug/kg	
100-01-6	4-Nitroaniline	ND	210	11	ug/kg	
91-20-3	Naphthalene	32.1	41	12	ug/kg	J
98-95-3	Nitrobenzene	ND	83	16	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	83	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	210	15	ug/kg	
85-01-8	Phenanthrene	1200	41	14	ug/kg	
129-00-0	Pyrene	1590	41	13	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	210	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	58%		23-115%

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Report of Analysis

Client Sample ID: PSSTP-07R (0.5-2)	
Lab Sample ID: JC86716-16	Date Sampled: 04/18/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8270D SW846 3546	Percent Solids: 80.5
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	62%		27-114%
118-79-6	2,4,6-Tribromophenol	59%		19-152%
4165-60-0	Nitrobenzene-d5	69%		26-134%
321-60-8	2-Fluorobiphenyl	65%		39-124%
1718-51-0	Terphenyl-d14	62%		36-134%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
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 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

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Client Sample ID:	PSSTP-07R (0.5-2)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-16	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	80.5
Method:	SW846 8081B SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G958741.D	1	05/01/19 15:32	MH	05/01/19 06:00	OP19993	G4G2741
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	15.6 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.80	0.66	ug/kg	
319-84-6	alpha-BHC	ND	0.80	0.65	ug/kg	
319-85-7	beta-BHC	ND	0.80	0.72	ug/kg	
319-86-8	delta-BHC	ND	0.80	0.76	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.80	0.59	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.80	0.64	ug/kg	
5103-74-2	gamma-Chlordane ^a	1.5	0.80	0.36	ug/kg	JN
60-57-1	Dieldrin	ND	0.80	0.55	ug/kg	
72-54-8	4,4'-DDD	2.5	0.80	0.73	ug/kg	
72-55-9	4,4'-DDE	ND	0.80	0.70	ug/kg	
50-29-3	4,4'-DDT	7.6	0.80	0.71	ug/kg	
72-20-8	Endrin	ND	0.80	0.62	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.80	0.62	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.80	0.45	ug/kg	
959-98-8	Endosulfan-I	ND	0.80	0.46	ug/kg	
33213-65-9	Endosulfan-II	ND	0.80	0.50	ug/kg	
76-44-8	Heptachlor	ND	0.80	0.69	ug/kg	
1024-57-3	Heptachlor epoxide ^a	1.2	0.80	0.56	ug/kg	J
72-43-5	Methoxychlor	ND	1.6	0.63	ug/kg	
53494-70-5	Endrin ketone	ND	0.80	0.58	ug/kg	
8001-35-2	Toxaphene	ND	20	19	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	60%		25-135%
877-09-8	Tetrachloro-m-xylene	62%		25-135%
2051-24-3	Decachlorobiphenyl	62%		10-156%
2051-24-3	Decachlorobiphenyl	113%		10-156%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

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N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID:	PSSTP-07R (0.5-2)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-16	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	80.5
Method:	SW846 8082A SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G88066.D	1	05/01/19 18:21	SK	05/01/19 06:00	OP19992	G5G2121
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	15.6 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	40	19	ug/kg	
11104-28-2	Aroclor 1221	ND	40	20	ug/kg	
11141-16-5	Aroclor 1232	ND	40	31	ug/kg	
53469-21-9	Aroclor 1242	ND	40	16	ug/kg	
12672-29-6	Aroclor 1248	ND	40	36	ug/kg	
11097-69-1	Aroclor 1254	ND	40	21	ug/kg	
11096-82-5	Aroclor 1260	ND	40	17	ug/kg	
11100-14-4	Aroclor 1268	ND	40	17	ug/kg	
37324-23-5	Aroclor 1262	ND	40	26	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	56%		31-146%
877-09-8	Tetrachloro-m-xylene	63%		31-146%
2051-24-3	Decachlorobiphenyl	101%		17-164%
2051-24-3	Decachlorobiphenyl	61%		17-164%

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 RL = Reporting Limit
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J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSSTP-07R (0.5-2)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-16	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 80.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	11100	65	11	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Antimony	0.54 U J	2.6	0.54	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Arsenic	6.6	2.6	0.37	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Barium	110	26	2.5	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Beryllium	0.52	0.26	0.10	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cadmium	0.39 J	0.65	0.092	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Calcium	22400	650	58	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Chromium	18.0	1.3	0.48	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cobalt	5.3 J	6.5	0.37	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Copper	17.7	3.3	1.1	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Iron	17000	65	25	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Lead	158 J	2.6	0.54	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Magnesium	4540 J	650	18	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Manganese	316 J	2.0	0.54	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Mercury	0.19 J	0.038	0.017	mg/kg	1	04/23/19	04/23/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	11.1	5.2	0.46	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Potassium	978 J	1300	42	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Selenium	0.85 U	2.6	0.85	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Silver	0.22 U	0.65	0.22	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Sodium	121 J	1300	100	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Thallium	0.76 U	1.3	0.76	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Vanadium	18.0	6.5	0.25	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Zinc	127	6.5	3.0	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³

(1) Instrument QC Batch: MA46561

(2) Instrument QC Batch: MA46589

(3) Prep QC Batch: MP14499

(4) Prep QC Batch: MP14502

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

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Report of Analysis

Client Sample ID: PSSTP-07R (0.5-2)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-16	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 80.5
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.33 J	0.31	0.16	mg/kg	1	05/01/19 16:17 KI	SW846	9012B/LACHAT
Solids, Percent	80.5			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

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Client Sample ID: SO-DUP-0418		
Lab Sample ID: JC86716-17		Date Sampled: 04/18/19
Matrix: SO - Soil		Date Received: 04/19/19
Method: SW846 8260C		Percent Solids: 86.2
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184793.D	1	04/27/19 15:36	PS	n/a	n/a	VY8018
Run #2							

Run #1	Initial Weight
Run #1	5.1 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	9.5	11	5.7	ug/kg	J
71-43-2	Benzene	3.4	0.57	0.43	ug/kg	J
74-97-5	Bromochloromethane	ND	5.7	0.49	ug/kg	
75-27-4	Bromodichloromethane	ND	2.3	0.50	ug/kg	
75-25-2	Bromoform	ND	5.7	0.46	ug/kg	
74-83-9	Bromomethane	ND	5.7	1.1	ug/kg	
78-93-3	2-Butanone (MEK)	ND	11	4.3	ug/kg	
75-15-0	Carbon disulfide	ND	2.3	1.1	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.3	0.63	ug/kg	
108-90-7	Chlorobenzene	ND	2.3	0.40	ug/kg	
75-00-3	Chloroethane	ND	5.7	0.78	ug/kg	
67-66-3	Chloroform	ND	2.3	0.42	ug/kg	
74-87-3	Chloromethane	ND	5.7	2.2	ug/kg	
110-82-7	Cyclohexane	ND	2.3	0.46	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.3	0.95	ug/kg	
124-48-1	Dibromochloromethane	ND	2.3	0.38	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.1	0.37	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.1	0.35	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.1	0.41	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.1	0.39	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.7	0.72	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.1	0.44	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.1	0.53	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.1	0.75	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.1	1.1	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.1	0.76	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.3	0.46	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.3	0.40	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.3	0.37	ug/kg	
100-41-4	Ethylbenzene	ND	1.1	0.63	ug/kg	
76-13-1	Freon 113	ND	5.7	0.87	ug/kg	
591-78-6	2-Hexanone	ND	5.7	1.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SO-DUP-0418		Date Sampled: 04/18/19
Lab Sample ID: JC86716-17		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 86.2
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.3	0.79	ug/kg	
79-20-9	Methyl Acetate	ND	5.7	1.6	ug/kg	
108-87-2	Methylcyclohexane	ND	2.3	0.80	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.1	0.40	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.7	1.8	ug/kg	
75-09-2	Methylene chloride	ND	5.7	2.8	ug/kg	
100-42-5	Styrene	ND	2.3	0.65	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.3	0.44	ug/kg	
127-18-4	Tetrachloroethene	ND	2.3	0.53	ug/kg	
108-88-3	Toluene	ND	1.1	0.43	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.7	1.1	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.7	1.1	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.3	0.48	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.3	0.39	ug/kg	
79-01-6	Trichloroethene	ND	1.1	0.87	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.7	0.77	ug/kg	
75-01-4	Vinyl chloride	ND	2.3	0.53	ug/kg	
	m,p-Xylene	ND	1.1	0.85	ug/kg	
95-47-6	o-Xylene	ND	1.1	0.66	ug/kg	
1330-20-7	Xylene (total)	ND	1.1	0.66	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	105%		75-127%
17060-07-0	1,2-Dichloroethane-D4	102%		75-130%
2037-26-5	Toluene-D8	99%		80-120%
460-00-4	4-Bromofluorobenzene	98%		79-127%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.17
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SGS North America Inc.

Report of Analysis

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Client Sample ID:	SO-DUP-0418	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-17	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	86.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P59082.D	1	04/30/19 21:25	CC	04/25/19 13:30	OP19972	E5P2792
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.8 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	75	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	32	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	190	67	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	190	40	ug/kg	
95-48-7	2-Methylphenol	ND	75	24	ug/kg	
	3&4-Methylphenol	ND	75	31	ug/kg	
88-75-5	2-Nitrophenol	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol	ND	380	100	ug/kg	
87-86-5	Pentachlorophenol	ND	150	35	ug/kg	
108-95-2	Phenol	ND	75	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	28	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	22	ug/kg	
83-32-9	Acenaphthene	90.6	38	13	ug/kg	
208-96-8	Acenaphthylene	88.6	38	19	ug/kg	
98-86-2	Acetophenone	ND	190	8.1	ug/kg	
120-12-7	Anthracene	346	38	23	ug/kg	
1912-24-9	Atrazine	ND	75	16	ug/kg	
56-55-3	Benzo(a)anthracene	983	38	11	ug/kg	
50-32-8	Benzo(a)pyrene	987	38	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	1210	38	17	ug/kg	
191-24-2	Benzo(g,h,i)perylene	558	38	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	401	38	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	75	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	75	9.2	ug/kg	
92-52-4	1,1'-Biphenyl	8.5	75	5.2	ug/kg	J
100-52-7	Benzaldehyde	17.7	190	9.3	ug/kg	J
91-58-7	2-Chloronaphthalene	ND	75	9.0	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	102	75	5.5	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

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N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SO-DUP-0418	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-17	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	86.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	75	15	ug/kg	
218-01-9	Chrysene	907	38	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	75	8.1	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	75	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	75	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	75	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	38	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	38	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine ^a	ND	75	31	ug/kg	UJ
123-91-1	1,4-Dioxane	ND	38	25	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	135	38	17	ug/kg	
132-64-9	Dibenzofuran	59.6	75	15	ug/kg	J
84-74-2	Di-n-butyl phthalate	294	75	6.1	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	75	9.4	ug/kg	
84-66-2	Diethyl phthalate	ND	75	8.0	ug/kg	
131-11-3	Dimethyl phthalate	ND	75	6.7	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	110	75	8.8	ug/kg	
206-44-0	Fluoranthene	1820	38	17	ug/kg	
86-73-7	Fluorene	128	38	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	75	9.5	ug/kg	
87-68-3	Hexachlorobutadiene	ND	38	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	380	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	633	38	18	ug/kg	
78-59-1	Isophorone	ND	75	8.1	ug/kg	
91-57-6	2-Methylnaphthalene	15.1	38	8.5	ug/kg	J
88-74-4	2-Nitroaniline	ND	190	8.9	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.4	ug/kg	
100-01-6	4-Nitroaniline	ND	190	9.8	ug/kg	
91-20-3	Naphthalene	19.2	38	11	ug/kg	J
98-95-3	Nitrobenzene	ND	75	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	75	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	1210	38	13	ug/kg	
129-00-0	Pyrene	1680	38	12	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.6	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	57%		23-115%

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N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SO-DUP-0418	
Lab Sample ID: JC86716-17	Date Sampled: 04/18/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8270D SW846 3546	Percent Solids: 86.2
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	61%		27-114%
118-79-6	2,4,6-Tribromophenol	59%		19-152%
4165-60-0	Nitrobenzene-d5	68%		26-134%
321-60-8	2-Fluorobiphenyl	62%		39-124%
1718-51-0	Terphenyl-d14	61%		36-134%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID:	SO-DUP-0418	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-17	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	86.2
Method:	SW846 8081B SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G958742.D	1	05/01/19 15:49	MH	05/01/19 06:00	OP19993	G4G2741
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	16.2 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.72	0.59	ug/kg	
319-84-6	alpha-BHC	ND	0.72	0.58	ug/kg	
319-85-7	beta-BHC	ND	0.72	0.65	ug/kg	
319-86-8	delta-BHC	ND	0.72	0.69	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.72	0.53	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.72	0.58	ug/kg	
5103-74-2	gamma-Chlordane ^a	1.2	0.72	0.32	ug/kg	J
60-57-1	Dieldrin	ND	0.72	0.49	ug/kg	
72-54-8	4,4'-DDD	1.6	0.72	0.66	ug/kg	
72-55-9	4,4'-DDE	ND	0.72	0.63	ug/kg	
50-29-3	4,4'-DDT	4.9	0.72	0.63	ug/kg	
72-20-8	Endrin	ND	0.72	0.56	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.72	0.56	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.72	0.41	ug/kg	
959-98-8	Endosulfan-I	ND	0.72	0.41	ug/kg	
33213-65-9	Endosulfan-II	ND	0.72	0.45	ug/kg	
76-44-8	Heptachlor	ND	0.72	0.62	ug/kg	
1024-57-3	Heptachlor epoxide	0.99	0.72	0.50	ug/kg	
72-43-5	Methoxychlor	ND	1.4	0.57	ug/kg	
53494-70-5	Endrin ketone	ND	0.72	0.52	ug/kg	
8001-35-2	Toxaphene	ND	18	17	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	56%		25-135%
877-09-8	Tetrachloro-m-xylene	59%		25-135%
2051-24-3	Decachlorobiphenyl	52%		10-156%
2051-24-3	Decachlorobiphenyl	95%		10-156%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID:	SO-DUP-0418	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-17	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	86.2
Method:	SW846 8082A SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G88067.D	1	05/01/19 18:54	SK	05/01/19 06:00	OP19992	G5G2121
Run #2							

Run #	Initial Weight	Final Volume
Run #1	16.2 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	36	17	ug/kg	
11104-28-2	Aroclor 1221	ND	36	18	ug/kg	
11141-16-5	Aroclor 1232	ND	36	27	ug/kg	
53469-21-9	Aroclor 1242	ND	36	15	ug/kg	
12672-29-6	Aroclor 1248	ND	36	32	ug/kg	
11097-69-1	Aroclor 1254	61.0	36	19	ug/kg	
11096-82-5	Aroclor 1260	ND	36	15	ug/kg	
11100-14-4	Aroclor 1268	ND	36	15	ug/kg	
37324-23-5	Aroclor 1262	ND	36	23	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	57%		31-146%
877-09-8	Tetrachloro-m-xylene	64%		31-146%
2051-24-3	Decachlorobiphenyl	92%		17-164%
2051-24-3	Decachlorobiphenyl	62%		17-164%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

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Report of Analysis

Client Sample ID: SO-DUP-0418	Date Sampled: 04/18/19
Lab Sample ID: JC86716-17	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 86.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	7460	60	9.6	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.49 U J	2.4	0.49	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Arsenic	6.9	2.4	0.33	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Barium	146	24	2.3	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.37	0.24	0.096	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.74	0.60	0.084	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Calcium	27600	1200	110	mg/kg	2	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Chromium	20.0	1.2	0.44	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Cobalt	5.0 J	6.0	0.33	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Copper	28.1	3.0	1.0	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Iron	16000	60	23	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Lead	201 J	2.4	0.49	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Magnesium	4260 J	600	16	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Manganese	297 J	1.8	0.49	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Mercury	0.23 J	0.035	0.015	mg/kg	1	04/23/19	04/23/19 LL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	11.6	4.8	0.42	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Potassium	895 J	1200	38	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Selenium	0.78 U	2.4	0.78	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Silver	0.20 U	0.60	0.20	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Sodium	118 J	1200	93	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Thallium	0.69 U	1.2	0.69	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Vanadium	15.3	6.0	0.23	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Zinc	164	6.0	2.8	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46561
- (2) Instrument QC Batch: MA46589
- (3) Instrument QC Batch: MA46629
- (4) Prep QC Batch: MP14499
- (5) Prep QC Batch: MP14502

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.17
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Report of Analysis

Client Sample ID: SO-DUP-0418	Date Sampled: 04/18/19
Lab Sample ID: JC86716-17	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 86.2
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.37 J	0.29	0.15	mg/kg	1	05/01/19 16:19 KI	SW846	9012B/LACHAT
Solids, Percent	86.2			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

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Report of Analysis

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Client Sample ID: PSSTP-07R (8-9)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-18		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 87.6
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184794.D	1	04/27/19 16:05	PS	n/a	n/a	VY8018
Run #2							

Run #1	Initial Weight
Run #1	5.9 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	9.7	4.8	ug/kg	
71-43-2	Benzene	6.1	0.48	0.36	ug/kg	
74-97-5	Bromochloromethane	ND	4.8	0.42	ug/kg	
75-27-4	Bromodichloromethane	ND	1.9	0.43	ug/kg	
75-25-2	Bromoform	ND	4.8	0.39	ug/kg	
74-83-9	Bromomethane	ND	4.8	0.96	ug/kg	
78-93-3	2-Butanone (MEK)	ND	9.7	3.6	ug/kg	
75-15-0	Carbon disulfide	ND	1.9	0.90	ug/kg	
56-23-5	Carbon tetrachloride	ND	1.9	0.53	ug/kg	
108-90-7	Chlorobenzene	ND	1.9	0.34	ug/kg	
75-00-3	Chloroethane	ND	4.8	0.66	ug/kg	
67-66-3	Chloroform	ND	1.9	0.36	ug/kg	
74-87-3	Chloromethane	ND	4.8	1.9	ug/kg	
110-82-7	Cyclohexane	ND	1.9	0.39	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.9	0.81	ug/kg	
124-48-1	Dibromochloromethane	ND	1.9	0.33	ug/kg	
106-93-4	1,2-Dibromoethane	ND	0.97	0.31	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	0.97	0.30	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	0.97	0.35	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	0.97	0.33	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	4.8	0.61	ug/kg	
75-34-3	1,1-Dichloroethane	ND	0.97	0.37	ug/kg	
107-06-2	1,2-Dichloroethane	ND	0.97	0.45	ug/kg	
75-35-4	1,1-Dichloroethene	ND	0.97	0.63	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	0.97	0.93	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	0.97	0.65	ug/kg	
78-87-5	1,2-Dichloropropane	ND	1.9	0.39	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	1.9	0.34	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	1.9	0.32	ug/kg	
100-41-4	Ethylbenzene	ND	0.97	0.53	ug/kg	
76-13-1	Freon 113	ND	4.8	0.74	ug/kg	
591-78-6	2-Hexanone	ND	4.8	1.2	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSSTP-07R (8-9)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-18		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 87.6
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	1.9	0.67	ug/kg	
79-20-9	Methyl Acetate	ND	4.8	1.3	ug/kg	
108-87-2	Methylcyclohexane	ND	1.9	0.68	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.97	0.34	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	4.8	1.5	ug/kg	
75-09-2	Methylene chloride	ND	4.8	2.4	ug/kg	
100-42-5	Styrene	ND	1.9	0.56	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.9	0.38	ug/kg	
127-18-4	Tetrachloroethene	ND	1.9	0.45	ug/kg	
108-88-3	Toluene	ND	0.97	0.36	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	4.8	0.97	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	4.8	0.97	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	1.9	0.41	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	1.9	0.33	ug/kg	
79-01-6	Trichloroethene	ND	0.97	0.74	ug/kg	
75-69-4	Trichlorofluoromethane	ND	4.8	0.66	ug/kg	
75-01-4	Vinyl chloride	ND	1.9	0.45	ug/kg	
	m,p-Xylene	ND	0.97	0.72	ug/kg	
95-47-6	o-Xylene	ND	0.97	0.56	ug/kg	
1330-20-7	Xylene (total)	ND	0.97	0.56	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		75-127%
17060-07-0	1,2-Dichloroethane-D4	97%		75-130%
2037-26-5	Toluene-D8	100%		80-120%
460-00-4	4-Bromofluorobenzene	97%		79-127%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PSSTP-07R (8-9)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-18	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	87.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P59071.D	1	04/30/19 17:16	CC	04/25/19 13:30	OP19972	E5P2792
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	74	18	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	32	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	190	66	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	190	40	ug/kg	
95-48-7	2-Methylphenol	ND	74	24	ug/kg	
	3&4-Methylphenol	ND	74	31	ug/kg	
88-75-5	2-Nitrophenol	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol	ND	370	99	ug/kg	
87-86-5	Pentachlorophenol	ND	150	35	ug/kg	
108-95-2	Phenol	ND	74	19	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	28	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	22	ug/kg	
83-32-9	Acenaphthene	ND	37	13	ug/kg	
208-96-8	Acenaphthylene	ND	37	19	ug/kg	
98-86-2	Acetophenone	ND	190	8.0	ug/kg	
120-12-7	Anthracene	ND	37	23	ug/kg	
1912-24-9	Atrazine	ND	74	16	ug/kg	
56-55-3	Benzo(a)anthracene	41.3	37	11	ug/kg	
50-32-8	Benzo(a)pyrene	45.3	37	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	50.4	37	16	ug/kg	
191-24-2	Benzo(g,h,i)perylene	28.6	37	19	ug/kg	J
207-08-9	Benzo(k)fluoranthene	19.6	37	17	ug/kg	J
101-55-3	4-Bromophenyl phenyl ether	ND	74	14	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	74	9.1	ug/kg	
92-52-4	1,1'-Biphenyl	ND	74	5.1	ug/kg	
100-52-7	Benzaldehyde	ND	190	9.2	ug/kg	
91-58-7	2-Chloronaphthalene	ND	74	8.8	ug/kg	
106-47-8	4-Chloroaniline	ND	190	13	ug/kg	
86-74-8	Carbazole	ND	74	5.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSSTP-07R (8-9)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-18		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 87.6
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	74	15	ug/kg	
218-01-9	Chrysene	44.4	37	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	74	8.0	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	74	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	74	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	74	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	37	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	37	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine ^a	ND	74	31	ug/kg	UJ
123-91-1	1,4-Dioxane	ND	37	25	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	37	16	ug/kg	
132-64-9	Dibenzofuran	ND	74	15	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	74	6.1	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	74	9.3	ug/kg	
84-66-2	Diethyl phthalate	ND	74	7.9	ug/kg	
131-11-3	Dimethyl phthalate	ND	74	6.6	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	74	8.7	ug/kg	
206-44-0	Fluoranthene	38.4	37	17	ug/kg	
86-73-7	Fluorene	ND	37	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	74	9.4	ug/kg	
87-68-3	Hexachlorobutadiene	ND	37	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	370	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	18	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	28.6	37	17	ug/kg	J
78-59-1	Isophorone	ND	74	8.0	ug/kg	
91-57-6	2-Methylnaphthalene	ND	37	8.4	ug/kg	
88-74-4	2-Nitroaniline	ND	190	8.8	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.3	ug/kg	
100-01-6	4-Nitroaniline	ND	190	9.6	ug/kg	
91-20-3	Naphthalene	ND	37	10	ug/kg	
98-95-3	Nitrobenzene	ND	74	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	74	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	16.3	37	12	ug/kg	J
129-00-0	Pyrene	58.7	37	12	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.4	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	62%		23-115%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: PSSTP-07R (8-9) Lab Sample ID: JC86716-18 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/18/19 Date Received: 04/19/19 Percent Solids: 87.6
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	66%		27-114%
118-79-6	2,4,6-Tribromophenol	59%		19-152%
4165-60-0	Nitrobenzene-d5	72%		26-134%
321-60-8	2-Fluorobiphenyl	66%		39-124%
1718-51-0	Terphenyl-d14	63%		36-134%

(a) Associated CCV outside of control limits low.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

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SGS North America Inc.

Report of Analysis

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Client Sample ID:	PSSTP-07R (8-9)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-18	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	87.6
Method:	SW846 8081B SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G958743.D	1	05/01/19 16:06	MH	05/01/19 06:00	OP19993	G4G2741
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	15.5 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.74	0.61	ug/kg	
319-84-6	alpha-BHC	ND	0.74	0.60	ug/kg	
319-85-7	beta-BHC	ND	0.74	0.67	ug/kg	
319-86-8	delta-BHC	ND	0.74	0.71	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.74	0.54	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.74	0.59	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.74	0.33	ug/kg	
60-57-1	Dieldrin	ND	0.74	0.51	ug/kg	
72-54-8	4,4' -DDD	ND	0.74	0.68	ug/kg	
72-55-9	4,4' -DDE	ND	0.74	0.65	ug/kg	
50-29-3	4,4' -DDT	ND	0.74	0.65	ug/kg	
72-20-8	Endrin	ND	0.74	0.57	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.74	0.58	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.74	0.42	ug/kg	
959-98-8	Endosulfan-I	ND	0.74	0.42	ug/kg	
33213-65-9	Endosulfan-II	ND	0.74	0.46	ug/kg	
76-44-8	Heptachlor	ND	0.74	0.63	ug/kg	
1024-57-3	Heptachlor epoxide	ND	0.74	0.52	ug/kg	
72-43-5	Methoxychlor	ND	1.5	0.59	ug/kg	
53494-70-5	Endrin ketone	ND	0.74	0.53	ug/kg	
8001-35-2	Toxaphene	ND	18	17	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	72%		25-135%
877-09-8	Tetrachloro-m-xylene	77%		25-135%
2051-24-3	Decachlorobiphenyl	79%		10-156%
2051-24-3	Decachlorobiphenyl	2183% ^a		10-156%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	PSSTP-07R (8-9)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-18	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	87.6
Method:	SW846 8082A SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G88068.D	1	05/01/19 19:27	SK	05/01/19 06:00	OP19992	G5G2121
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	15.5 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	37	17	ug/kg	
11104-28-2	Aroclor 1221	ND	37	19	ug/kg	
11141-16-5	Aroclor 1232	ND	37	28	ug/kg	
53469-21-9	Aroclor 1242	ND	37	15	ug/kg	
12672-29-6	Aroclor 1248	ND	37	33	ug/kg	
11097-69-1	Aroclor 1254	ND	37	20	ug/kg	
11096-82-5	Aroclor 1260	ND	37	16	ug/kg	
11100-14-4	Aroclor 1268	ND	37	16	ug/kg	
37324-23-5	Aroclor 1262	ND	37	24	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	72%		31-146%
877-09-8	Tetrachloro-m-xylene	80%		31-146%
2051-24-3	Decachlorobiphenyl	156%		17-164%
2051-24-3	Decachlorobiphenyl	83%		17-164%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSSTP-07R (8-9)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-18	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 87.6
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	8170	60	9.7	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.49 U J	2.4	0.49	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Arsenic	6.6	2.4	0.34	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Barium	43.5	24	2.3	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.36	0.24	0.096	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.084 U	0.60	0.084	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Calcium	661	600	53	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Chromium	11.2	1.2	0.44	mg/kg	1	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Cobalt	5.5 J	6.0	0.34	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Copper	33.1	3.0	1.0	mg/kg	1	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Iron	14500	60	23	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Lead	92.2 J	2.4	0.49	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Magnesium	1680 J	600	16	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Manganese	104 J	1.8	0.49	mg/kg	1	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Mercury	0.046 J	0.034	0.015	mg/kg	1	04/23/19	04/23/19 LL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	12.2	4.8	0.42	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Potassium	758 J	1200	38	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Selenium	0.78 U	2.4	0.78	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Silver	0.34 J	0.60	0.20	mg/kg	1	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Sodium	93 U	1200	93	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Thallium	0.70 U	1.2	0.70	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴
Vanadium	14.0	6.0	0.23	mg/kg	1	04/23/19	05/01/19 ND	SW846 6010D ³	SW846 3050B ⁴
Zinc	51.9	6.0	2.8	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46561
- (2) Instrument QC Batch: MA46589
- (3) Instrument QC Batch: MA46629
- (4) Prep QC Batch: MP14499
- (5) Prep QC Batch: MP14502

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PSSTP-07R (8-9)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-18	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 87.6
Project: National Grid, Philly Coke, Philadelphia, PA	

4.18
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.13 U J	0.26	0.13	mg/kg	1	05/01/19 16:20 KI	SW846	9012B/LACHAT
Solids, Percent	87.6			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: PSSTP-07R (20-22)	
Lab Sample ID: JC86716-19	Date Sampled: 04/18/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8260C	Percent Solids: 72.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	Y184795.D	1	04/27/19 16:33	PS	n/a	n/a	VY8018

Run #1	Initial Weight
Run #2	5.4 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	139	13	6.4	ug/kg	
71-43-2	Benzene	3.3	0.64	0.48	ug/kg	
74-97-5	Bromochloromethane	ND	6.4	0.55	ug/kg	
75-27-4	Bromodichloromethane	ND	2.5	0.56	ug/kg	
75-25-2	Bromoform	ND	6.4	0.51	ug/kg	
74-83-9	Bromomethane	ND	6.4	1.3	ug/kg	
78-93-3	2-Butanone (MEK)	39.8	13	4.8	ug/kg	
75-15-0	Carbon disulfide	92.9	2.5	1.2	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.5	0.70	ug/kg	
108-90-7	Chlorobenzene	ND	2.5	0.45	ug/kg	
75-00-3	Chloroethane	ND	6.4	0.87	ug/kg	
67-66-3	Chloroform	ND	2.5	0.47	ug/kg	
74-87-3	Chloromethane	ND	6.4	2.5	ug/kg	
110-82-7	Cyclohexane	ND	2.5	0.52	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.5	1.1	ug/kg	
124-48-1	Dibromochloromethane	ND	2.5	0.43	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.3	0.41	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.3	0.39	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.3	0.46	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.3	0.44	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.4	0.81	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.3	0.49	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.3	0.60	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.3	0.84	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.3	1.2	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.3	0.85	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.5	0.52	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.5	0.45	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.5	0.42	ug/kg	
100-41-4	Ethylbenzene	ND	1.3	0.70	ug/kg	
76-13-1	Freon 113	ND	6.4	0.97	ug/kg	
591-78-6	2-Hexanone	ND	6.4	1.6	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-07R (20-22)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-19	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	72.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.5	0.89	ug/kg	
79-20-9	Methyl Acetate	5.4	6.4	1.8	ug/kg	J
108-87-2	Methylcyclohexane	1.7	2.5	0.90	ug/kg	J
1634-04-4	Methyl Tert Butyl Ether	ND	1.3	0.45	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.4	2.0	ug/kg	
75-09-2	Methylene chloride	ND	6.4	3.2	ug/kg	
100-42-5	Styrene	ND	2.5	0.73	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.5	0.50	ug/kg	
127-18-4	Tetrachloroethene	ND	2.5	0.59	ug/kg	
108-88-3	Toluene	2.3	1.3	0.48	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.4	1.3	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.4	1.3	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.5	0.54	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.5	0.44	ug/kg	
79-01-6	Trichloroethene	ND	1.3	0.97	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.4	0.87	ug/kg	
75-01-4	Vinyl chloride	ND	2.5	0.60	ug/kg	
	m,p-Xylene	ND	1.3	0.95	ug/kg	
95-47-6	o-Xylene	ND	1.3	0.74	ug/kg	
1330-20-7	Xylene (total)	ND	1.3	0.74	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		75-127%
17060-07-0	1,2-Dichloroethane-D4	100%		75-130%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	100%		79-127%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	PSSTP-07R (20-22)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-19	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	72.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P59076.D	1	04/30/19 19:09	CC	04/25/19 13:30	OP19972	E5P2792
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.3 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	91	22	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	230	28	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	230	39	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	230	81	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	230	170	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	230	49	ug/kg	
95-48-7	2-Methylphenol	ND	91	29	ug/kg	
	3&4-Methylphenol	ND	91	37	ug/kg	
88-75-5	2-Nitrophenol	ND	230	30	ug/kg	
100-02-7	4-Nitrophenol	ND	450	120	ug/kg	
87-86-5	Pentachlorophenol	ND	180	43	ug/kg	
108-95-2	Phenol	ND	91	24	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	230	30	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	230	34	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	230	27	ug/kg	
83-32-9	Acenaphthene	101	45	16	ug/kg	
208-96-8	Acenaphthylene	27.5	45	23	ug/kg	J
98-86-2	Acetophenone	ND	230	9.8	ug/kg	
120-12-7	Anthracene	78.7	45	28	ug/kg	
1912-24-9	Atrazine	ND	91	19	ug/kg	
56-55-3	Benzo(a)anthracene	126	45	13	ug/kg	
50-32-8	Benzo(a)pyrene	145	45	21	ug/kg	
205-99-2	Benzo(b)fluoranthene	155	45	20	ug/kg	
191-24-2	Benzo(g,h,i)perylene	80.9	45	23	ug/kg	
207-08-9	Benzo(k)fluoranthene	61.2	45	21	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	91	18	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	91	11	ug/kg	
92-52-4	1,1'-Biphenyl	8.5	91	6.2	ug/kg	J
100-52-7	Benzaldehyde	ND	230	11	ug/kg	
91-58-7	2-Chloronaphthalene	ND	91	11	ug/kg	
106-47-8	4-Chloroaniline	ND	230	16	ug/kg	
86-74-8	Carbazole	20.1	91	6.6	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSSTP-07R (20-22)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-19	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	72.7
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	91	18	ug/kg	
218-01-9	Chrysene	133	45	14	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	91	9.7	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	91	20	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	91	16	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	91	15	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	45	14	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	45	23	ug/kg	
91-94-1	3,3'-Dichlorobenzidine ^a	ND	91	38	ug/kg	UJ
123-91-1	1,4-Dioxane	ND	45	30	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	45	20	ug/kg	
132-64-9	Dibenzofuran	21.5	91	18	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	91	7.4	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	91	11	ug/kg	
84-66-2	Diethyl phthalate	ND	91	9.7	ug/kg	
131-11-3	Dimethyl phthalate	ND	91	8.1	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	91	11	ug/kg	
206-44-0	Fluoranthene	207	45	20	ug/kg	
86-73-7	Fluorene	76.8	45	21	ug/kg	
118-74-1	Hexachlorobenzene	ND	91	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	45	18	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	450	18	ug/kg	
67-72-1	Hexachloroethane	ND	230	22	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	84.7	45	21	ug/kg	
78-59-1	Isophorone	ND	91	9.7	ug/kg	
91-57-6	2-Methylnaphthalene	16.3	45	10	ug/kg	J
88-74-4	2-Nitroaniline	ND	230	11	ug/kg	
99-09-2	3-Nitroaniline	ND	230	11	ug/kg	
100-01-6	4-Nitroaniline	ND	230	12	ug/kg	
91-20-3	Naphthalene	48.1	45	13	ug/kg	
98-95-3	Nitrobenzene	ND	91	18	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	91	13	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	230	17	ug/kg	
85-01-8	Phenanthrene	283	45	15	ug/kg	
129-00-0	Pyrene	231	45	15	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	230	12	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	68%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSSTP-07R (20-22)	
Lab Sample ID: JC86716-19	Date Sampled: 04/18/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8270D SW846 3546	Percent Solids: 72.7
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	70%		27-114%
118-79-6	2,4,6-Tribromophenol	74%		19-152%
4165-60-0	Nitrobenzene-d5	79%		26-134%
321-60-8	2-Fluorobiphenyl	69%		39-124%
1718-51-0	Terphenyl-d14	64%		36-134%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSSTP-07R (20-22)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-19	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 72.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	3780	66	11	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Antimony	0.54 U J	2.6	0.54	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Arsenic	4.8	2.6	0.37	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Barium	40.3	26	2.5	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Beryllium	0.21 J	0.26	0.11	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cadmium	0.16 J	0.66	0.093	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Calcium	1150	660	58	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Chromium	17.4	1.3	0.49	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cobalt	4.8 J	6.6	0.37	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Copper	13.1	3.3	1.1	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Iron	8320	66	25	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Lead	44.2 J	2.6	0.54	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Magnesium	1210 J	660	18	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Manganese	193 J	2.0	0.54	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Mercury	0.50 J	0.033	0.014	mg/kg	1	04/23/19	04/23/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	8.2	5.3	0.46	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Potassium	583 J	1300	42	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Selenium	0.86 U	2.6	0.86	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Silver	0.22 U	0.66	0.22	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Sodium	105 J	1300	100	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Thallium	0.77 U	1.3	0.77	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Vanadium	6.8	6.6	0.25	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Zinc	69.1	6.6	3.0	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³

- (1) Instrument QC Batch: MA46561
- (2) Instrument QC Batch: MA46589
- (3) Prep QC Batch: MP14499
- (4) Prep QC Batch: MP14502

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PSSTP-07R (20-22)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-19	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 72.7
Project: National Grid, Philly Coke, Philadelphia, PA	

4.19
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.4 J	0.33	0.17	mg/kg	1	05/01/19 16:21 KI	SW846	9012B/LACHAT
Solids, Percent	72.7			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: PCTP-51R (10-12)	
Lab Sample ID: JC86716-20	Date Sampled: 04/18/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8260C	Percent Solids: 76.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184796.D	1	04/27/19 17:02	PS	n/a	n/a	VY8018
Run #2							

Run #1	Initial Weight
Run #1	5.5 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	48.8	12	6.0	ug/kg	
71-43-2	Benzene	0.47	0.60	0.45	ug/kg	J
74-97-5	Bromochloromethane	ND	6.0	0.51	ug/kg	
75-27-4	Bromodichloromethane	ND	2.4	0.53	ug/kg	
75-25-2	Bromoform	ND	6.0	0.48	ug/kg	
74-83-9	Bromomethane	ND	6.0	1.2	ug/kg	
78-93-3	2-Butanone (MEK)	9.7	12	4.5	ug/kg	J
75-15-0	Carbon disulfide	ND	2.4	1.1	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.4	0.66	ug/kg	
108-90-7	Chlorobenzene	ND	2.4	0.42	ug/kg	
75-00-3	Chloroethane	ND	6.0	0.82	ug/kg	
67-66-3	Chloroform	ND	2.4	0.44	ug/kg	
74-87-3	Chloromethane	ND	6.0	2.3	ug/kg	
110-82-7	Cyclohexane	ND	2.4	0.48	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.4	1.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.4	0.40	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.2	0.39	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.2	0.36	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.2	0.43	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.2	0.41	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.0	0.76	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.2	0.46	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.2	0.56	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.2	0.78	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.2	1.1	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.2	0.80	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.4	0.49	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.4	0.42	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.4	0.39	ug/kg	
100-41-4	Ethylbenzene	ND	1.2	0.66	ug/kg	
76-13-1	Freon 113	ND	6.0	0.91	ug/kg	
591-78-6	2-Hexanone	ND	6.0	1.5	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-51R (10-12)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-20	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	76.2
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.4	0.83	ug/kg	
79-20-9	Methyl Acetate	2.7	6.0	1.7	ug/kg	J
108-87-2	Methylcyclohexane	ND	2.4	0.84	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.2	0.42	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.0	1.9	ug/kg	
75-09-2	Methylene chloride	ND	6.0	3.0	ug/kg	
100-42-5	Styrene	ND	2.4	0.69	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.4	0.47	ug/kg	
127-18-4	Tetrachloroethene	ND	2.4	0.55	ug/kg	
108-88-3	Toluene	0.77	1.2	0.45	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	6.0	1.2	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.0	1.2	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.4	0.51	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.4	0.41	ug/kg	
79-01-6	Trichloroethene	ND	1.2	0.91	ug/kg	
75-69-4	Trichlorofluoromethane	ND	6.0	0.81	ug/kg	
75-01-4	Vinyl chloride	ND	2.4	0.56	ug/kg	
	m,p-Xylene	ND	1.2	0.89	ug/kg	
95-47-6	o-Xylene	ND	1.2	0.70	ug/kg	
1330-20-7	Xylene (total)	ND	1.2	0.70	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		75-127%
17060-07-0	1,2-Dichloroethane-D4	92%		75-130%
2037-26-5	Toluene-D8	101%		80-120%
460-00-4	4-Bromofluorobenzene	94%		79-127%

ND = Not detected MDL = Method Detection Limit

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J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID: PCTP-51R (10-12)	
Lab Sample ID: JC86716-20	Date Sampled: 04/18/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8270D SW846 3546	Percent Solids: 76.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P59080.D	1	04/30/19 20:40	CC	04/25/19 13:30	OP19972	E5P2792
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	87	21	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	220	27	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	220	37	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	220	77	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	220	160	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	220	46	ug/kg	
95-48-7	2-Methylphenol	ND	87	28	ug/kg	
	3&4-Methylphenol	ND	87	36	ug/kg	
88-75-5	2-Nitrophenol	ND	220	29	ug/kg	
100-02-7	4-Nitrophenol	ND	430	120	ug/kg	
87-86-5	Pentachlorophenol	ND	170	41	ug/kg	
108-95-2	Phenol	ND	87	23	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	220	29	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	220	33	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	220	26	ug/kg	
83-32-9	Acenaphthene	155	43	15	ug/kg	
208-96-8	Acenaphthylene	285	43	22	ug/kg	
98-86-2	Acetophenone	ND	220	9.3	ug/kg	
120-12-7	Anthracene	344	43	27	ug/kg	
1912-24-9	Atrazine	ND	87	19	ug/kg	
56-55-3	Benzo(a)anthracene	936	43	12	ug/kg	
50-32-8	Benzo(a)pyrene	976	43	20	ug/kg	
205-99-2	Benzo(b)fluoranthene	1120	43	19	ug/kg	
191-24-2	Benzo(g,h,i)perylene	603	43	22	ug/kg	
207-08-9	Benzo(k)fluoranthene	452	43	20	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	87	17	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	87	11	ug/kg	
92-52-4	1,1'-Biphenyl	11.4	87	6.0	ug/kg	J
100-52-7	Benzaldehyde	ND	220	11	ug/kg	
91-58-7	2-Chloronaphthalene	ND	87	10	ug/kg	
106-47-8	4-Chloroaniline	ND	220	16	ug/kg	
86-74-8	Carbazole	72.0	87	6.3	ug/kg	J

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCTP-51R (10-12)	Date Sampled:	04/18/19
Lab Sample ID:	JC86716-20	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	76.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	87	17	ug/kg	
218-01-9	Chrysene	865	43	14	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	87	9.3	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	87	19	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	87	16	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	87	14	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	43	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	43	22	ug/kg	
91-94-1	3,3'-Dichlorobenzidine ^a	ND	87	36	ug/kg	UJ
123-91-1	1,4-Dioxane	ND	43	29	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	136	43	19	ug/kg	
132-64-9	Dibenzofuran	85.4	87	18	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	87	7.1	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	87	11	ug/kg	
84-66-2	Diethyl phthalate	ND	87	9.3	ug/kg	
131-11-3	Dimethyl phthalate	ND	87	7.7	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	87	10	ug/kg	
206-44-0	Fluoranthene	1800	43	19	ug/kg	
86-73-7	Fluorene	224	43	20	ug/kg	
118-74-1	Hexachlorobenzene	ND	87	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	43	17	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	430	17	ug/kg	
67-72-1	Hexachloroethane	ND	220	22	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	642	43	20	ug/kg	
78-59-1	Isophorone	ND	87	9.3	ug/kg	
91-57-6	2-Methylnaphthalene	23.4	43	9.8	ug/kg	J
88-74-4	2-Nitroaniline	ND	220	10	ug/kg	
99-09-2	3-Nitroaniline	ND	220	11	ug/kg	
100-01-6	4-Nitroaniline	ND	220	11	ug/kg	
91-20-3	Naphthalene	82.1	43	12	ug/kg	
98-95-3	Nitrobenzene	ND	87	17	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	87	13	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	220	16	ug/kg	
85-01-8	Phenanthrene	761	43	15	ug/kg	
129-00-0	Pyrene	1490	43	14	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	220	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	44%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

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N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCTP-51R (10-12)	
Lab Sample ID: JC86716-20	Date Sampled: 04/18/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8270D SW846 3546	Percent Solids: 76.2
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	51%		27-114%
118-79-6	2,4,6-Tribromophenol	53%		19-152%
4165-60-0	Nitrobenzene-d5	55%		26-134%
321-60-8	2-Fluorobiphenyl	53%		39-124%
1718-51-0	Terphenyl-d14	54%		36-134%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.20
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Report of Analysis

Client Sample ID: PCTP-51R (10-12)		Date Sampled: 04/18/19
Lab Sample ID: JC86716-20		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 76.2
Project: National Grid, Philly Coke, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	12000	68	11	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Antimony	0.55 U J	2.7	0.55	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Arsenic	12.2	2.7	0.38	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Barium	93.4	27	2.6	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Beryllium	2.2	0.27	0.11	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cadmium	0.60 J	0.68	0.095	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Calcium	3300	680	60	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Chromium	64.6	1.4	0.50	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Cobalt	11.0	6.8	0.38	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Copper	73.6	3.4	1.1	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Iron	13800	68	26	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Lead	107 J	2.7	0.55	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Magnesium	3320 J	680	18	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Manganese	140 J	2.0	0.55	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Mercury	0.49 J	0.038	0.017	mg/kg	1	04/23/19	04/23/19 LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	26.1	5.4	0.47	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Potassium	1570	1400	43	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Selenium	0.88 U	2.7	0.88	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Silver	0.23 U	0.68	0.23	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Sodium	139 J	1400	110	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Thallium	0.78 U	1.4	0.78	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Vanadium	22.1	6.8	0.26	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³
Zinc	278	6.8	3.1	mg/kg	1	04/23/19	04/25/19 RP	SW846 6010D ²	SW846 3050B ³

(1) Instrument QC Batch: MA46561

(2) Instrument QC Batch: MA46589

(3) Prep QC Batch: MP14499

(4) Prep QC Batch: MP14502

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCTP-51R (10-12)	Date Sampled: 04/18/19
Lab Sample ID: JC86716-20	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 76.2
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.1 J	0.33	0.16	mg/kg	1	05/01/19 16:23 KI	SW846	9012B/LACHAT
Solids, Percent	76.2			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: PCSB-30R (0.5-2)		
Lab Sample ID: JC86716-21		Date Sampled: 04/19/19
Matrix: SO - Soil		Date Received: 04/19/19
Method: SW846 8260C		Percent Solids: 73.3
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184791.D	1	04/27/19 14:39	PS	n/a	n/a	VY8018
Run #2							

Run #1	Initial Weight
Run #1	3.7 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	25.2	18	9.2	ug/kg	
71-43-2	Benzene	ND	0.92	0.70	ug/kg	
74-97-5	Bromochloromethane	ND	9.2	0.79	ug/kg	
75-27-4	Bromodichloromethane	ND	3.7	0.82	ug/kg	
75-25-2	Bromoform	ND	9.2	0.74	ug/kg	
74-83-9	Bromomethane	ND	9.2	1.8	ug/kg	
78-93-3	2-Butanone (MEK)	ND	18	6.9	ug/kg	
75-15-0	Carbon disulfide	ND	3.7	1.7	ug/kg	UJ
56-23-5	Carbon tetrachloride	ND	3.7	1.0	ug/kg	
108-90-7	Chlorobenzene	ND	3.7	0.65	ug/kg	
75-00-3	Chloroethane	ND	9.2	1.3	ug/kg	
67-66-3	Chloroform	ND	3.7	0.69	ug/kg	
74-87-3	Chloromethane	ND	9.2	3.6	ug/kg	
110-82-7	Cyclohexane	ND	3.7	0.75	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.7	1.5	ug/kg	
124-48-1	Dibromochloromethane	ND	3.7	0.62	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.8	0.60	ug/kg	UJ
95-50-1	1,2-Dichlorobenzene	ND	1.8	0.56	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.8	0.66	ug/kg	UJ
106-46-7	1,4-Dichlorobenzene	ND	1.8	0.63	ug/kg	UJ
75-71-8	Dichlorodifluoromethane	ND	9.2	1.2	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.8	0.71	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.8	0.87	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.8	1.2	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.8	1.8	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.8	1.2	ug/kg	UJ
78-87-5	1,2-Dichloropropane	ND	3.7	0.75	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.7	0.65	ug/kg	UJ
10061-02-6	trans-1,3-Dichloropropene	ND	3.7	0.60	ug/kg	UJ
100-41-4	Ethylbenzene	ND	1.8	1.0	ug/kg	
76-13-1	Freon 113	ND	9.2	1.4	ug/kg	
591-78-6	2-Hexanone	ND	9.2	2.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCSB-30R (0.5-2)	Date Sampled:	04/19/19
Lab Sample ID:	JC86716-21	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	73.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.7	1.3	ug/kg	
79-20-9	Methyl Acetate	ND	9.2	2.6	ug/kg	
108-87-2	Methylcyclohexane	ND	3.7	1.3	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.8	0.65	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	9.2	2.9	ug/kg	
75-09-2	Methylene chloride	ND	9.2	4.6	ug/kg	
100-42-5	Styrene	ND	3.7	1.1	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.7	0.72	ug/kg	
127-18-4	Tetrachloroethene	ND	3.7	0.85	ug/kg	
108-88-3	Toluene	ND	1.8	0.69	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	9.2	1.8	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	9.2	1.8	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.7	0.79	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.7	0.63	ug/kg	
79-01-6	Trichloroethene	ND	1.8	1.4	ug/kg	
75-69-4	Trichlorofluoromethane	ND	9.2	1.3	ug/kg	
75-01-4	Vinyl chloride	ND	3.7	0.86	ug/kg	
	m,p-Xylene	ND	1.8	1.4	ug/kg	
95-47-6	o-Xylene	ND	1.8	1.1	ug/kg	
1330-20-7	Xylene (total)	ND	1.8	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		75-127%
17060-07-0	1,2-Dichloroethane-D4	97%		75-130%
2037-26-5	Toluene-D8	96%		80-120%
460-00-4	4-Bromofluorobenzene	103%		79-127%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 3

Client Sample ID:	PCSB-30R (0.5-2)	Date Sampled:	04/19/19
Lab Sample ID:	JC86716-21	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	73.3
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P59077.D	1	04/30/19 19:32	CC	04/25/19 13:30	OP19972	E5P2792
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.5 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	89	22	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	220	27	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	220	38	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	220	80	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	220	170	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	220	48	ug/kg	
95-48-7	2-Methylphenol	ND	89	29	ug/kg	
	3&4-Methylphenol	ND	89	37	ug/kg	
88-75-5	2-Nitrophenol	ND	220	30	ug/kg	
100-02-7	4-Nitrophenol	ND	450	120	ug/kg	
87-86-5	Pentachlorophenol	ND	180	42	ug/kg	
108-95-2	Phenol	ND	89	23	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	220	30	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	220	34	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	220	27	ug/kg	
83-32-9	Acenaphthene	ND	45	15	ug/kg	
208-96-8	Acenaphthylene	ND	45	23	ug/kg	
98-86-2	Acetophenone	ND	220	9.6	ug/kg	
120-12-7	Anthracene	ND	45	27	ug/kg	
1912-24-9	Atrazine	ND	89	19	ug/kg	
56-55-3	Benzo(a)anthracene	28.3	45	13	ug/kg	J
50-32-8	Benzo(a)pyrene	33.9	45	20	ug/kg	J
205-99-2	Benzo(b)fluoranthene	47.8	45	20	ug/kg	
191-24-2	Benzo(g,h,i)perylene	28.1	45	22	ug/kg	J
207-08-9	Benzo(k)fluoranthene	ND	45	21	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	89	17	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	89	11	ug/kg	
92-52-4	1,1'-Biphenyl	ND	89	6.1	ug/kg	
100-52-7	Benzaldehyde	ND	220	11	ug/kg	
91-58-7	2-Chloronaphthalene	ND	89	11	ug/kg	
106-47-8	4-Chloroaniline	ND	220	16	ug/kg	
86-74-8	Carbazole	ND	89	6.5	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCSB-30R (0.5-2)	
Lab Sample ID: JC86716-21	Date Sampled: 04/19/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8270D SW846 3546	Percent Solids: 73.3
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	89	18	ug/kg	
218-01-9	Chrysene	27.2	45	14	ug/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	89	9.6	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	89	19	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	89	16	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	89	14	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	45	14	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	45	22	ug/kg	
91-94-1	3,3'-Dichlorobenzidine ^a	ND	89	37	ug/kg	UJ
123-91-1	1,4-Dioxane	ND	45	30	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	45	20	ug/kg	
132-64-9	Dibenzofuran	ND	89	18	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	89	7.3	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	89	11	ug/kg	
84-66-2	Diethyl phthalate	ND	89	9.5	ug/kg	
131-11-3	Dimethyl phthalate	ND	89	8.0	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	89	10	ug/kg	
206-44-0	Fluoranthene	45.2	45	20	ug/kg	
86-73-7	Fluorene	ND	45	21	ug/kg	
118-74-1	Hexachlorobenzene	ND	89	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	45	18	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	450	18	ug/kg	
67-72-1	Hexachloroethane	ND	220	22	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	28.6	45	21	ug/kg	J
78-59-1	Isophorone	ND	89	9.6	ug/kg	
91-57-6	2-Methylnaphthalene	ND	45	10	ug/kg	
88-74-4	2-Nitroaniline	ND	220	11	ug/kg	
99-09-2	3-Nitroaniline	ND	220	11	ug/kg	
100-01-6	4-Nitroaniline	ND	220	12	ug/kg	
91-20-3	Naphthalene	ND	45	13	ug/kg	
98-95-3	Nitrobenzene	ND	89	17	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	89	13	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	220	16	ug/kg	
85-01-8	Phenanthrene	21.5	45	15	ug/kg	J
129-00-0	Pyrene	41.3	45	14	ug/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	220	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	67%		23-115%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCSB-30R (0.5-2)	
Lab Sample ID: JC86716-21	Date Sampled: 04/19/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8270D SW846 3546	Percent Solids: 73.3
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	69%		27-114%
118-79-6	2,4,6-Tribromophenol	71%		19-152%
4165-60-0	Nitrobenzene-d5	78%		26-134%
321-60-8	2-Fluorobiphenyl	68%		39-124%
1718-51-0	Terphenyl-d14	67%		36-134%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PCSB-30R (0.5-2)	
Lab Sample ID: JC86716-21	Date Sampled: 04/19/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8081B SW846 3546	Percent Solids: 73.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G958744.D	1	05/01/19 16:23	MH	05/01/19 06:00	OP19993	G4G2741
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	16.4 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.83	0.69	ug/kg	
319-84-6	alpha-BHC	ND	0.83	0.68	ug/kg	
319-85-7	beta-BHC	ND	0.83	0.75	ug/kg	
319-86-8	delta-BHC	ND	0.83	0.80	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.83	0.61	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.83	0.67	ug/kg	
5103-74-2	gamma-Chlordane	0.59	0.83	0.38	ug/kg	J
60-57-1	Dieldrin	ND	0.83	0.57	ug/kg	
72-54-8	4,4'-DDD	3.7	0.83	0.76	ug/kg	
72-55-9	4,4'-DDE	2.9	0.83	0.73	ug/kg	
50-29-3	4,4'-DDT	15.5	0.83	0.74	ug/kg	
72-20-8	Endrin	ND	0.83	0.65	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.83	0.65	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.83	0.47	ug/kg	
959-98-8	Endosulfan-I	ND	0.83	0.48	ug/kg	
33213-65-9	Endosulfan-II	ND	0.83	0.52	ug/kg	
76-44-8	Heptachlor	ND	0.83	0.72	ug/kg	
1024-57-3	Heptachlor epoxide	ND	0.83	0.58	ug/kg	
72-43-5	Methoxychlor	ND	1.7	0.66	ug/kg	
53494-70-5	Endrin ketone	ND	0.83	0.60	ug/kg	
8001-35-2	Toxaphene	ND	21	19	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	64%		25-135%
877-09-8	Tetrachloro-m-xylene	68%		25-135%
2051-24-3	Decachlorobiphenyl	61%		10-156%
2051-24-3	Decachlorobiphenyl	67%		10-156%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

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J = Indicates an estimated value

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N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PCSB-30R (0.5-2)		
Lab Sample ID: JC86716-21		Date Sampled: 04/19/19
Matrix: SO - Soil		Date Received: 04/19/19
Method: SW846 8082A SW846 3546		Percent Solids: 73.3
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G88056.D	1	05/01/19 12:03	SK	05/01/19 06:00	OP19992	G5G2121
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	16.4 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	42	19	ug/kg	
11104-28-2	Aroclor 1221	ND	42	21	ug/kg	
11141-16-5	Aroclor 1232	ND	42	32	ug/kg	
53469-21-9	Aroclor 1242	ND	42	17	ug/kg	
12672-29-6	Aroclor 1248	ND	42	37	ug/kg	
11097-69-1	Aroclor 1254	ND	42	22	ug/kg	
11096-82-5	Aroclor 1260	ND	42	18	ug/kg	
11100-14-4	Aroclor 1268	ND	42	18	ug/kg	
37324-23-5	Aroclor 1262	ND	42	27	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	64%		31-146%
877-09-8	Tetrachloro-m-xylene	70%		31-146%
2051-24-3	Decachlorobiphenyl	68%		17-164%
2051-24-3	Decachlorobiphenyl	71%		17-164%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCSB-30R (0.5-2)	Date Sampled: 04/19/19
Lab Sample ID: JC86716-21	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 73.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	1140	65	10	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Antimony	0.53 U	2.6	0.53	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Arsenic	5.2	2.6	0.36	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Barium	7.1 J	26	2.5	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Beryllium	0.10 U	0.26	0.10	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Cadmium	0.091 U	0.65	0.091	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Calcium	430 J	650	57	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Chromium	1.6	1.3	0.48	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Cobalt	0.60 J	6.5	0.36	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Copper	6.7	3.2	1.1	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Iron	3720	65	25	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Lead	15.4	2.6	0.53	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Magnesium	297 J	650	18	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Manganese	11.1	1.9	0.53	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Mercury	0.037 J	0.042	0.019	mg/kg	1	04/23/19	04/23/19	LL	SW846 7471B ¹ SW846 7471B ⁴
Nickel	1.6 J	5.2	0.45	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Potassium	462 J	1300	41	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Selenium	0.84 U	2.6	0.84	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Silver	0.22 U	0.65	0.22	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Sodium	665 J	1300	100	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Thallium	0.75 U	1.3	0.75	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Vanadium	4.1 J	6.5	0.25	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³
Zinc	7.9	6.5	3.0	mg/kg	1	04/23/19	04/24/19	ND	SW846 6010D ² SW846 3050B ³

- (1) Instrument QC Batch: MA46561
- (2) Instrument QC Batch: MA46576
- (3) Prep QC Batch: MP14497
- (4) Prep QC Batch: MP14503

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCSB-30R (0.5-2)	Date Sampled: 04/19/19
Lab Sample ID: JC86716-21	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 73.3
Project: National Grid, Philly Coke, Philadelphia, PA	

4.21
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.18 U	0.36	0.18	mg/kg	1	05/01/19 16:24 KI	SW846	9012B/LACHAT
Solids, Percent	73.3			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

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Client Sample ID: PCSB-26R (0.5-2)	
Lab Sample ID: JC86716-22	Date Sampled: 04/19/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8260C	Percent Solids: 86.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184797.D	1	04/27/19 17:30	PS	n/a	n/a	VY8018
Run #2							

Run #1	Initial Weight
Run #1	5.0 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	8.7	12	5.8	ug/kg	J
71-43-2	Benzene	ND	0.58	0.44	ug/kg	
74-97-5	Bromochloromethane	ND	5.8	0.50	ug/kg	
75-27-4	Bromodichloromethane	ND	2.3	0.51	ug/kg	
75-25-2	Bromoform	ND	5.8	0.47	ug/kg	
74-83-9	Bromomethane	ND	5.8	1.2	ug/kg	
78-93-3	2-Butanone (MEK)	ND	12	4.3	ug/kg	
75-15-0	Carbon disulfide	ND	2.3	1.1	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.3	0.64	ug/kg	
108-90-7	Chlorobenzene	ND	2.3	0.41	ug/kg	
75-00-3	Chloroethane	ND	5.8	0.80	ug/kg	
67-66-3	Chloroform	ND	2.3	0.43	ug/kg	
74-87-3	Chloromethane	ND	5.8	2.3	ug/kg	
110-82-7	Cyclohexane	ND	2.3	0.47	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.3	0.97	ug/kg	
124-48-1	Dibromochloromethane	ND	2.3	0.39	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.2	0.38	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.2	0.35	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.2	0.42	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.2	0.40	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.8	0.74	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.2	0.45	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.2	0.55	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.2	0.76	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.2	1.1	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.2	0.77	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.3	0.47	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.3	0.41	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.3	0.38	ug/kg	
100-41-4	Ethylbenzene	ND	1.2	0.64	ug/kg	
76-13-1	Freon 113	ND	5.8	0.89	ug/kg	
591-78-6	2-Hexanone	ND	5.8	1.5	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCSB-26R (0.5-2)	Date Sampled:	04/19/19
Lab Sample ID:	JC86716-22	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	86.1
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.3	0.81	ug/kg	
79-20-9	Methyl Acetate	ND	5.8	1.6	ug/kg	
108-87-2	Methylcyclohexane	ND	2.3	0.82	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.2	0.41	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.8	1.8	ug/kg	
75-09-2	Methylene chloride	ND	5.8	2.9	ug/kg	
100-42-5	Styrene	ND	2.3	0.67	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.3	0.45	ug/kg	
127-18-4	Tetrachloroethene	ND	2.3	0.54	ug/kg	
108-88-3	Toluene	ND	1.2	0.44	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.8	1.2	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.8	1.2	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.3	0.49	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.3	0.40	ug/kg	
79-01-6	Trichloroethene	ND	1.2	0.89	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.8	0.79	ug/kg	
75-01-4	Vinyl chloride	ND	2.3	0.54	ug/kg	
	m,p-Xylene	ND	1.2	0.87	ug/kg	
95-47-6	o-Xylene	ND	1.2	0.68	ug/kg	
1330-20-7	Xylene (total)	ND	1.2	0.68	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		75-127%
17060-07-0	1,2-Dichloroethane-D4	97%		75-130%
2037-26-5	Toluene-D8	97%		80-120%
460-00-4	4-Bromofluorobenzene	94%		79-127%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
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J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	PCSB-26R (0.5-2)	Date Sampled:	04/19/19
Lab Sample ID:	JC86716-22	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	86.1
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P59074.D	1	04/30/19 18:24	CC	04/25/19 13:30	OP19972	E5P2792
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.3 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	77	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	33	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	190	68	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	190	41	ug/kg	
95-48-7	2-Methylphenol	ND	77	24	ug/kg	
	3&4-Methylphenol	ND	77	32	ug/kg	
88-75-5	2-Nitrophenol	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol	ND	380	100	ug/kg	
87-86-5	Pentachlorophenol	ND	150	36	ug/kg	
108-95-2	Phenol	ND	77	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	29	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	23	ug/kg	
83-32-9	Acenaphthene	ND	38	13	ug/kg	
208-96-8	Acenaphthylene	ND	38	19	ug/kg	
98-86-2	Acetophenone	ND	190	8.2	ug/kg	
120-12-7	Anthracene	ND	38	23	ug/kg	
1912-24-9	Atrazine	ND	77	16	ug/kg	
56-55-3	Benzo(a)anthracene	134	38	11	ug/kg	
50-32-8	Benzo(a)pyrene	154	38	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	211	38	17	ug/kg	
191-24-2	Benzo(g,h,i)perylene	102	38	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	70.2	38	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	77	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	77	9.4	ug/kg	
92-52-4	1,1'-Biphenyl	ND	77	5.3	ug/kg	
100-52-7	Benzaldehyde	ND	190	9.5	ug/kg	
91-58-7	2-Chloronaphthalene	ND	77	9.1	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	11.6	77	5.6	ug/kg	J

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCSB-26R (0.5-2)	
Lab Sample ID: JC86716-22	Date Sampled: 04/19/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8270D SW846 3546	Percent Solids: 86.1
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	77	15	ug/kg	
218-01-9	Chrysene	142	38	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	77	8.2	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	77	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	77	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	77	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	38	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	38	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine ^a	ND	77	32	ug/kg	UJ
123-91-1	1,4-Dioxane	ND	38	25	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	32.6	38	17	ug/kg	J
132-64-9	Dibenzofuran	ND	77	16	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	77	6.2	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	77	9.5	ug/kg	
84-66-2	Diethyl phthalate	ND	77	8.2	ug/kg	
131-11-3	Dimethyl phthalate	ND	77	6.8	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	77	9.0	ug/kg	
206-44-0	Fluoranthene	243	38	17	ug/kg	
86-73-7	Fluorene	ND	38	18	ug/kg	
118-74-1	Hexachlorobenzene	ND	77	9.7	ug/kg	
87-68-3	Hexachlorobutadiene	ND	38	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	380	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	107	38	18	ug/kg	
78-59-1	Isophorone	ND	77	8.2	ug/kg	
91-57-6	2-Methylnaphthalene	ND	38	8.7	ug/kg	
88-74-4	2-Nitroaniline	ND	190	9.0	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.6	ug/kg	
100-01-6	4-Nitroaniline	ND	190	9.9	ug/kg	
91-20-3	Naphthalene	ND	38	11	ug/kg	
98-95-3	Nitrobenzene	ND	77	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	77	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	121	38	13	ug/kg	
129-00-0	Pyrene	210	38	12	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.7	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	70%		23-115%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCSB-26R (0.5-2)	Date Sampled: 04/19/19
Lab Sample ID: JC86716-22	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 86.1
Method: SW846 8270D SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	72%		27-114%
118-79-6	2,4,6-Tribromophenol	68%		19-152%
4165-60-0	Nitrobenzene-d5	80%		26-134%
321-60-8	2-Fluorobiphenyl	70%		39-124%
1718-51-0	Terphenyl-d14	64%		36-134%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PCSB-26R (0.5-2)	
Lab Sample ID: JC86716-22	Date Sampled: 04/19/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8081B SW846 3546	Percent Solids: 86.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4G958747.D	1	05/01/19 17:14	MH	05/01/19 06:00	OP19993	G4G2741
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	15.4 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.75	0.62	ug/kg	
319-84-6	alpha-BHC	ND	0.75	0.61	ug/kg	
319-85-7	beta-BHC	ND	0.75	0.68	ug/kg	
319-86-8	delta-BHC	ND	0.75	0.72	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.75	0.56	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.75	0.61	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.75	0.34	ug/kg	
60-57-1	Dieldrin	ND	0.75	0.52	ug/kg	
72-54-8	4,4'-DDD	ND	0.75	0.69	ug/kg	
72-55-9	4,4'-DDE	ND	0.75	0.66	ug/kg	
50-29-3	4,4'-DDT	ND	0.75	0.67	ug/kg	
72-20-8	Endrin	ND	0.75	0.59	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.75	0.59	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.75	0.43	ug/kg	
959-98-8	Endosulfan-I	ND	0.75	0.43	ug/kg	
33213-65-9	Endosulfan-II	ND	0.75	0.47	ug/kg	
76-44-8	Heptachlor	ND	0.75	0.65	ug/kg	
1024-57-3	Heptachlor epoxide	ND	0.75	0.53	ug/kg	
72-43-5	Methoxychlor	ND	1.5	0.60	ug/kg	
53494-70-5	Endrin ketone	ND	0.75	0.55	ug/kg	
8001-35-2	Toxaphene	ND	19	18	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	59%		25-135%
877-09-8	Tetrachloro-m-xylene	58%		25-135%
2051-24-3	Decachlorobiphenyl	39%		10-156%
2051-24-3	Decachlorobiphenyl	144%		10-156%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

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B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID:	PCSB-26R (0.5-2)	Date Sampled:	04/19/19
Lab Sample ID:	JC86716-22	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	86.1
Method:	SW846 8082A SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5G88069.D	1	05/01/19 19:59	SK	05/01/19 06:00	OP19992	G5G2121
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	15.4 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	38	18	ug/kg	
11104-28-2	Aroclor 1221	ND	38	19	ug/kg	
11141-16-5	Aroclor 1232	ND	38	29	ug/kg	
53469-21-9	Aroclor 1242	ND	38	15	ug/kg	
12672-29-6	Aroclor 1248	ND	38	34	ug/kg	
11097-69-1	Aroclor 1254	ND	38	20	ug/kg	
11096-82-5	Aroclor 1260	ND	38	16	ug/kg	
11100-14-4	Aroclor 1268	ND	38	16	ug/kg	
37324-23-5	Aroclor 1262	ND	38	25	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	58%		31-146%
877-09-8	Tetrachloro-m-xylene	66%		31-146%
2051-24-3	Decachlorobiphenyl	133%		17-164%
2051-24-3	Decachlorobiphenyl	61%		17-164%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCSB-26R (0.5-2)	Date Sampled: 04/19/19
Lab Sample ID: JC86716-22	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 86.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	10800	58	9.4	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	2.4 U J	12	2.4	mg/kg	5	04/23/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Arsenic	15.2	12	1.6	mg/kg	5	04/23/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Barium	116	23	2.2	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.27	0.23	0.093	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	3.7	0.58	0.081	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	785	580	51	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	162	1.2	0.43	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	56.7	5.8	0.33	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Copper	250	15	4.9	mg/kg	5	04/23/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Iron	93300	290	110	mg/kg	5	04/23/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Lead	768 J	12	2.4	mg/kg	5	04/23/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Magnesium	522 J	580	16	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Manganese	536 J	8.7	2.4	mg/kg	5	04/23/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Mercury	0.44 J	0.037	0.016	mg/kg	1	04/23/19	04/23/19	LL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	243	4.6	0.41	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	682 J	1200	37	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	5.7 J	12	3.8	mg/kg	5	04/23/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Silver	2.4 J	2.9	0.99	mg/kg	5	04/23/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Sodium	90 U	1200	90	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Thallium	3.4 U	5.8	3.4	mg/kg	5	04/23/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Vanadium	26.1	5.8	0.22	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	2300	29	13	mg/kg	5	04/23/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46561
- (2) Instrument QC Batch: MA46577
- (3) Instrument QC Batch: MA46629
- (4) Prep QC Batch: MP14497
- (5) Prep QC Batch: MP14503

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCSB-26R (0.5-2)	Date Sampled: 04/19/19
Lab Sample ID: JC86716-22	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 86.1
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	1.1 J	0.33	0.17	mg/kg	1	05/01/19 16:28 KI	SW846	9012B/LACHAT
Solids, Percent	86.1			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

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Client Sample ID: PCSB-49R (3-5)		Date Sampled: 04/19/19
Lab Sample ID: JC86716-23		Date Received: 04/19/19
Matrix: SO - Soil		Percent Solids: 90.5
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184798.D	1	04/27/19 17:59	PS	n/a	n/a	VY8018
Run #2							

Run #1	Initial Weight
Run #1	5.3 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	17.9	10	5.2	ug/kg	
71-43-2	Benzene	ND	0.52	0.39	ug/kg	
74-97-5	Bromochloromethane	ND	5.2	0.45	ug/kg	
75-27-4	Bromodichloromethane	ND	2.1	0.46	ug/kg	
75-25-2	Bromoform	ND	5.2	0.42	ug/kg	
74-83-9	Bromomethane	ND	5.2	1.0	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	3.9	ug/kg	
75-15-0	Carbon disulfide	ND	2.1	0.97	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.1	0.57	ug/kg	
108-90-7	Chlorobenzene	ND	2.1	0.37	ug/kg	
75-00-3	Chloroethane	ND	5.2	0.72	ug/kg	
67-66-3	Chloroform	ND	2.1	0.39	ug/kg	
74-87-3	Chloromethane	ND	5.2	2.0	ug/kg	
110-82-7	Cyclohexane	ND	2.1	0.42	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.1	0.87	ug/kg	
124-48-1	Dibromochloromethane	ND	2.1	0.35	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	0.34	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.32	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.37	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.36	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.2	0.66	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	0.40	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.49	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	0.68	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	1.0	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.70	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.1	0.42	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.1	0.37	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.1	0.34	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.58	ug/kg	
76-13-1	Freon 113	ND	5.2	0.79	ug/kg	
591-78-6	2-Hexanone	ND	5.2	1.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCSB-49R (3-5)	Date Sampled:	04/19/19
Lab Sample ID:	JC86716-23	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	90.5
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.1	0.73	ug/kg	
79-20-9	Methyl Acetate	ND	5.2	1.4	ug/kg	
108-87-2	Methylcyclohexane	ND	2.1	0.74	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.37	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.2	1.6	ug/kg	
75-09-2	Methylene chloride	ND	5.2	2.6	ug/kg	
100-42-5	Styrene	ND	2.1	0.60	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.1	0.41	ug/kg	
127-18-4	Tetrachloroethene	ND	2.1	0.48	ug/kg	
108-88-3	Toluene	ND	1.0	0.39	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.2	1.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.2	1.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.1	0.44	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.1	0.36	ug/kg	
79-01-6	Trichloroethene	ND	1.0	0.79	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.2	0.71	ug/kg	
75-01-4	Vinyl chloride	ND	2.1	0.49	ug/kg	
	m,p-Xylene	ND	1.0	0.78	ug/kg	
95-47-6	o-Xylene	ND	1.0	0.61	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.61	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		75-127%
17060-07-0	1,2-Dichloroethane-D4	98%		75-130%
2037-26-5	Toluene-D8	97%		80-120%
460-00-4	4-Bromofluorobenzene	96%		79-127%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
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J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	PCSB-49R (3-5)	Date Sampled:	04/19/19
Lab Sample ID:	JC86716-23	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	90.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P59073.D	1	04/30/19 18:01	CC	04/25/19 13:30	OP19972	E5P2792
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	73	18	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	180	22	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	180	31	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	180	65	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	180	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	180	39	ug/kg	
95-48-7	2-Methylphenol	ND	73	23	ug/kg	
	3&4-Methylphenol	ND	73	30	ug/kg	
88-75-5	2-Nitrophenol	ND	180	24	ug/kg	
100-02-7	4-Nitrophenol	ND	360	97	ug/kg	
87-86-5	Pentachlorophenol	ND	150	34	ug/kg	
108-95-2	Phenol	ND	73	19	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	180	24	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	180	27	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	180	22	ug/kg	
83-32-9	Acenaphthene	ND	36	13	ug/kg	
208-96-8	Acenaphthylene	23.1	36	18	ug/kg	J
98-86-2	Acetophenone	ND	180	7.8	ug/kg	
120-12-7	Anthracene	43.0	36	22	ug/kg	
1912-24-9	Atrazine	ND	73	16	ug/kg	
56-55-3	Benzo(a)anthracene	185	36	10	ug/kg	
50-32-8	Benzo(a)pyrene	154	36	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	220	36	16	ug/kg	
191-24-2	Benzo(g,h,i)perylene	74.4	36	18	ug/kg	
207-08-9	Benzo(k)fluoranthene	82.6	36	17	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	73	14	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	73	8.9	ug/kg	
92-52-4	1,1'-Biphenyl	ND	73	5.0	ug/kg	
100-52-7	Benzaldehyde	ND	180	9.0	ug/kg	
91-58-7	2-Chloronaphthalene	ND	73	8.7	ug/kg	
106-47-8	4-Chloroaniline	ND	180	13	ug/kg	
86-74-8	Carbazole	12.1	73	5.3	ug/kg	J

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCSB-49R (3-5)	Date Sampled:	04/19/19
Lab Sample ID:	JC86716-23	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	90.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	73	14	ug/kg	
218-01-9	Chrysene	140	36	11	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	73	7.8	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	73	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	73	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	73	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	36	11	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	36	18	ug/kg	
91-94-1	3,3'-Dichlorobenzidine ^a	ND	73	30	ug/kg	UJ
123-91-1	1,4-Dioxane	ND	36	24	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	25.5	36	16	ug/kg	J
132-64-9	Dibenzofuran	ND	73	15	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	73	5.9	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	73	9.1	ug/kg	
84-66-2	Diethyl phthalate	ND	73	7.7	ug/kg	
131-11-3	Dimethyl phthalate	ND	73	6.5	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	73	8.5	ug/kg	
206-44-0	Fluoranthene	435	36	16	ug/kg	
86-73-7	Fluorene	ND	36	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	73	9.2	ug/kg	
87-68-3	Hexachlorobutadiene	ND	36	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	360	14	ug/kg	
67-72-1	Hexachloroethane	ND	180	18	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	84.7	36	17	ug/kg	
78-59-1	Isophorone	ND	73	7.8	ug/kg	
91-57-6	2-Methylnaphthalene	ND	36	8.2	ug/kg	
88-74-4	2-Nitroaniline	ND	180	8.6	ug/kg	
99-09-2	3-Nitroaniline	ND	180	9.1	ug/kg	
100-01-6	4-Nitroaniline	ND	180	9.4	ug/kg	
91-20-3	Naphthalene	ND	36	10	ug/kg	
98-95-3	Nitrobenzene	ND	73	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	73	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	180	13	ug/kg	
85-01-8	Phenanthrene	183	36	12	ug/kg	
129-00-0	Pyrene	343	36	12	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	180	9.2	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	66%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCSB-49R (3-5)	
Lab Sample ID: JC86716-23	Date Sampled: 04/19/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8270D SW846 3546	Percent Solids: 90.5
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	71%		27-114%
118-79-6	2,4,6-Tribromophenol	68%		19-152%
4165-60-0	Nitrobenzene-d5	77%		26-134%
321-60-8	2-Fluorobiphenyl	70%		39-124%
1718-51-0	Terphenyl-d14	67%		36-134%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCSB-49R (3-5)	Date Sampled: 04/19/19
Lab Sample ID: JC86716-23	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 90.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	7940	54	8.6	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Antimony	0.44 U J	2.1	0.44	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Arsenic	6.3	2.1	0.30	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Barium	29.5	21	2.0	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Beryllium	0.51	0.21	0.086	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Cadmium	0.075 U	0.54	0.075	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Calcium	408 J	540	47	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Chromium	14.8	1.1	0.40	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Cobalt	5.8	5.4	0.30	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Copper	11.9	2.7	0.90	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Iron	18200	54	21	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Lead	19.0 J	2.1	0.44	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Magnesium	1850 J	540	15	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Manganese	173 J	1.6	0.44	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Mercury	0.11 J	0.033	0.015	mg/kg	1	04/23/19	04/23/19	LL	SW846 7471B ¹ SW846 7471B ⁴
Nickel	12.6	4.3	0.38	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Potassium	853 J	1100	34	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Selenium	0.70 U	2.1	0.70	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Silver	0.18 U	0.54	0.18	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Sodium	83 U	1100	83	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Thallium	0.62 U	1.1	0.62	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Vanadium	19.4	5.4	0.20	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³
Zinc	41.3	5.4	2.5	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ² SW846 3050B ³

- (1) Instrument QC Batch: MA46561
- (2) Instrument QC Batch: MA46577
- (3) Prep QC Batch: MP14497
- (4) Prep QC Batch: MP14503

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PCSB-49R (3-5)	Date Sampled: 04/19/19
Lab Sample ID: JC86716-23	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 90.5
Project: National Grid, Philly Coke, Philadelphia, PA	

4.23
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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.22 J	0.25	0.13	mg/kg	1	05/01/19 16:29	KI	SW846 9012B/LACHAT
Solids, Percent	90.5			%	1	04/29/19 17:22	BG	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

SGS North America Inc.

Report of Analysis

Page 1 of 2

Client Sample ID: PCSB-49R (10-12)	
Lab Sample ID: JC86716-24	Date Sampled: 04/19/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8260C	Percent Solids: 88.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184799.D	1	04/27/19 18:28	PS	n/a	n/a	VY8018
Run #2							

Run #1	Initial Weight
Run #1	5.5 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	19.7	10	5.1	ug/kg	
71-43-2	Benzene	ND	0.51	0.39	ug/kg	
74-97-5	Bromochloromethane	ND	5.1	0.44	ug/kg	
75-27-4	Bromodichloromethane	ND	2.1	0.46	ug/kg	
75-25-2	Bromoform	ND	5.1	0.41	ug/kg	
74-83-9	Bromomethane	ND	5.1	1.0	ug/kg	
78-93-3	2-Butanone (MEK)	ND	10	3.8	ug/kg	
75-15-0	Carbon disulfide	ND	2.1	0.95	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.1	0.56	ug/kg	
108-90-7	Chlorobenzene	ND	2.1	0.36	ug/kg	
75-00-3	Chloroethane	ND	5.1	0.71	ug/kg	
67-66-3	Chloroform	ND	2.1	0.38	ug/kg	
74-87-3	Chloromethane	ND	5.1	2.0	ug/kg	
110-82-7	Cyclohexane	ND	2.1	0.42	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.1	0.86	ug/kg	
124-48-1	Dibromochloromethane	ND	2.1	0.35	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.0	0.33	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.0	0.31	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.0	0.37	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.0	0.35	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.1	0.65	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.0	0.40	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.48	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.0	0.67	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.0	0.98	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.0	0.69	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.1	0.42	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.1	0.36	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.1	0.34	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.57	ug/kg	
76-13-1	Freon 113	ND	5.1	0.78	ug/kg	
591-78-6	2-Hexanone	ND	5.1	1.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCSB-49R (10-12)	Date Sampled:	04/19/19
Lab Sample ID:	JC86716-24	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	88.5
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.1	0.72	ug/kg	
79-20-9	Methyl Acetate	2.1	5.1	1.4	ug/kg	J
108-87-2	Methylcyclohexane	ND	2.1	0.73	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.36	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.1	1.6	ug/kg	
75-09-2	Methylene chloride	ND	5.1	2.6	ug/kg	
100-42-5	Styrene	ND	2.1	0.59	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.1	0.40	ug/kg	
127-18-4	Tetrachloroethene	ND	2.1	0.47	ug/kg	
108-88-3	Toluene	ND	1.0	0.39	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	5.1	1.0	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.1	1.0	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.1	0.44	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.1	0.35	ug/kg	
79-01-6	Trichloroethene	ND	1.0	0.78	ug/kg	
75-69-4	Trichlorofluoromethane	ND	5.1	0.70	ug/kg	
75-01-4	Vinyl chloride	ND	2.1	0.48	ug/kg	
	m,p-Xylene	ND	1.0	0.77	ug/kg	
95-47-6	o-Xylene	ND	1.0	0.60	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.60	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		75-127%
17060-07-0	1,2-Dichloroethane-D4	96%		75-130%
2037-26-5	Toluene-D8	96%		80-120%
460-00-4	4-Bromofluorobenzene	97%		79-127%

ND = Not detected MDL = Method Detection Limit
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J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

SGS North America Inc.

Report of Analysis

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Client Sample ID:	PCSB-49R (10-12)	Date Sampled:	04/19/19
Lab Sample ID:	JC86716-24	Date Received:	04/19/19
Matrix:	SO - Soil	Percent Solids:	88.5
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5P59072.D	1	04/30/19 17:38	CC	04/25/19 13:30	OP19972	E5P2792
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	75	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	32	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	190	67	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	190	140	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	190	40	ug/kg	
95-48-7	2-Methylphenol	ND	75	24	ug/kg	
	3&4-Methylphenol	ND	75	31	ug/kg	
88-75-5	2-Nitrophenol	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol	ND	380	100	ug/kg	
87-86-5	Pentachlorophenol	ND	150	35	ug/kg	
108-95-2	Phenol	ND	75	20	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	28	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	22	ug/kg	
83-32-9	Acenaphthene	17.1	38	13	ug/kg	J
208-96-8	Acenaphthylene	ND	38	19	ug/kg	
98-86-2	Acetophenone	ND	190	8.1	ug/kg	
120-12-7	Anthracene	ND	38	23	ug/kg	
1912-24-9	Atrazine	ND	75	16	ug/kg	
56-55-3	Benzo(a)anthracene	ND	38	11	ug/kg	
50-32-8	Benzo(a)pyrene	ND	38	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	38	17	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	38	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	38	18	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	75	15	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	75	9.2	ug/kg	
92-52-4	1,1'-Biphenyl	8.1	75	5.2	ug/kg	J
100-52-7	Benzaldehyde	ND	190	9.3	ug/kg	
91-58-7	2-Chloronaphthalene	ND	75	9.0	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	ND	75	5.5	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PCSB-49R (10-12)	
Lab Sample ID: JC86716-24	Date Sampled: 04/19/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8270D SW846 3546	Percent Solids: 88.5
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	75	15	ug/kg	
218-01-9	Chrysene	ND	38	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	75	8.1	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	75	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	75	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	75	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	38	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	38	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine ^a	ND	75	31	ug/kg	UJ
123-91-1	1,4-Dioxane	ND	38	25	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	38	17	ug/kg	
132-64-9	Dibenzofuran	22.9	75	15	ug/kg	J
84-74-2	Di-n-butyl phthalate	ND	75	6.1	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	75	9.4	ug/kg	
84-66-2	Diethyl phthalate	ND	75	8.0	ug/kg	
131-11-3	Dimethyl phthalate	ND	75	6.7	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	75	8.8	ug/kg	
206-44-0	Fluoranthene	ND	38	17	ug/kg	
86-73-7	Fluorene	39.2	38	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	75	9.5	ug/kg	
87-68-3	Hexachlorobutadiene	ND	38	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	380	15	ug/kg	
67-72-1	Hexachloroethane	ND	190	19	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	38	18	ug/kg	
78-59-1	Isophorone	ND	75	8.1	ug/kg	
91-57-6	2-Methylnaphthalene	33.3	38	8.5	ug/kg	J
88-74-4	2-Nitroaniline	ND	190	8.9	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.4	ug/kg	
100-01-6	4-Nitroaniline	ND	190	9.8	ug/kg	
91-20-3	Naphthalene	15.8	38	11	ug/kg	J
98-95-3	Nitrobenzene	ND	75	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	75	11	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	99.0	38	13	ug/kg	
129-00-0	Pyrene	18.7	38	12	ug/kg	J
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.6	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	64%		23-115%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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 4

Report of Analysis

Client Sample ID: PCSB-49R (10-12)	
Lab Sample ID: JC86716-24	Date Sampled: 04/19/19
Matrix: SO - Soil	Date Received: 04/19/19
Method: SW846 8270D SW846 3546	Percent Solids: 88.5
Project: National Grid, Philly Coke, Philadelphia, PA	

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	67%		27-114%
118-79-6	2,4,6-Tribromophenol	61%		19-152%
4165-60-0	Nitrobenzene-d5	76%		26-134%
321-60-8	2-Fluorobiphenyl	65%		39-124%
1718-51-0	Terphenyl-d14	58%		36-134%

(a) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.24
4

Report of Analysis

Client Sample ID: PCSB-49R (10-12)	Date Sampled: 04/19/19
Lab Sample ID: JC86716-24	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 88.5
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	4490	56	9.1	mg/kg	1	04/23/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Antimony	0.46 U J	2.3	0.46	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic	2.8	2.3	0.32	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Barium	37.7	23	2.1	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.27	0.23	0.090	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	0.079 U	0.56	0.079	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	257 J	560	50	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	8.5	1.1	0.42	mg/kg	1	04/23/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Cobalt	4.2 J	5.6	0.32	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Copper	8.8	2.8	0.95	mg/kg	1	04/23/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Iron	11000	56	22	mg/kg	1	04/23/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Lead	72.4 J	2.3	0.46	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Magnesium	1050 J	560	15	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Manganese	88.3 J	1.7	0.46	mg/kg	1	04/23/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Mercury	0.19 J	0.031	0.014	mg/kg	1	04/23/19	04/23/19	LL	SW846 7471B ¹	SW846 7471B ⁵
Nickel	10.3	4.5	0.40	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	595 J	1100	36	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	0.73 U	2.3	0.73	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Silver	0.19 J	0.56	0.19	mg/kg	1	04/23/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Sodium	88 U	1100	88	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Thallium	0.66 U	1.1	0.66	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴
Vanadium	10.4	5.6	0.21	mg/kg	1	04/23/19	05/01/19	ND	SW846 6010D ³	SW846 3050B ⁴
Zinc	61.7	5.6	2.6	mg/kg	1	04/23/19	04/25/19	ND	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46561
- (2) Instrument QC Batch: MA46577
- (3) Instrument QC Batch: MA46629
- (4) Prep QC Batch: MP14497
- (5) Prep QC Batch: MP14503

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

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Report of Analysis

Client Sample ID: PCSB-49R (10-12)	Date Sampled: 04/19/19
Lab Sample ID: JC86716-24	Date Received: 04/19/19
Matrix: SO - Soil	Percent Solids: 88.5
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.16 U J	0.32	0.16	mg/kg	1	05/01/19 16:31 KI	SW846	9012B/LACHAT
Solids, Percent	88.5			%	1	04/29/19 17:22 BG	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

National Grid

Philly Coke

DATA REVIEW

Philadelphia, Pennsylvania

Volatile Organic Compound (VOC), Semivolatile Organic Compounds (SVOC), Pesticides, PCBs, Metals,
and Miscellaneous Analyses

SDG # JC86837

Analyses Reported By:
SGS Laboratories
Dayton, New Jersey

Report #33344R
Review Level: Tier II
Project: 30004026 (B0036790.0001) 00006

DATA REVIEW REPORT

SUMMARY

This data review report summarizes the review of Sample Delivery Group (SDG) # JC86837 for samples collected in association with the National Grid Philly Coke site in Philadelphia, Pennsylvania. The review was conducted as a Tier II evaluation and included review of laboratory analytical data package completeness. Field documentation was not included in this review. Included with this assessment are the post-validation annotated sample result sheets, and chain of custody (COC). Analyses were performed on the following samples

SDG Number	Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
						VOC	SVOC	PEST/PCB	Metals	MISC
JC86837	PSCB-41R(0.5-2) (04-22-2019)	JC86837-1	Soil	4/22/2019		X	X	X	X	X
	PSCB-41R(9-11) (04-22-2019)	JC86837-2	Soil	4/22/2019		X	X		X	X
	TP-44R(3-5) (04-22-2019)	JC86837-3	Soil	4/22/2019		X	X		X	X
	TP-44R(5-7) (04-22-2019)	JC86837-4	Soil	4/22/2019		X	X		X	X
	TP-44R(7-9) (04-22-2019)	JC86837-5	Soil	4/22/2019		X	X		X	X
	S-135(4-6) (04-22-2019)	JC86837-6	Soil	4/22/2019		X	X		X	X
	S-135(8-10) (04-22-2019)	JC86837-7	Soil	4/22/2019		X	X		X	X
	S-136(4-6) (04-22-2019)	JC86837-8	Soil	4/22/2019		X	X		X	X
	S-136(7-9) (04-22-2019)	JC86837-9	Soil	4/22/2019		X	X		X	X
	S-111(2-4) (04-23-2019)	JC86837-10	Soil	4/23/2019		X	X		X	X
	S-111(4.5-6.5) (04-23-2019)	JC86837-11	Soil	4/23/2019		X	X		X	X
	S-107(2-4) (04-23-2019)	JC86837-12	Soil	4/23/2019		X	X		X	X

Notes:

1. PEST/PCB = Pesticides and polychlorinated biphenyls
2. SVOC = Semivolatile Organic Compounds
3. VOC = Volatile Organic Compound
4. MISC = Miscellaneous (total cyanide)

DATA REVIEW REPORT

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of Quality Assurance (QA) or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

DATA REVIEW REPORT

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 8260C, 8270D, 8081A, and 8082A. Data were reviewed in accordance with the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Superfund Methods Data Review, EPA 540/R-2017-002, January 2017 and the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review, EPA540/R-99/008, October 1999 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is

DATA REVIEW REPORT

that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

1. Holding Times/Preservation

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260C	Water	14 days from collection to analysis (preserved) 7 days from collection to analysis (non-preserved)	Cool to <6 °C; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis	Cool to <6 °C.

Note:

s.u. Standard units

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

DATA REVIEW REPORT

The MS/MSD was not performed on a sample within this SDG.

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

All identified compounds met the specified criteria.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
C. Trip blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)	X				X
Matrix Spike Duplicate(MSD)	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

- %RSD Relative standard deviation
- %R Percent recovery
- RPD Relative percent difference
- %D Percent difference

DATA REVIEW REPORT

SEMIVOLATILE ORGANIC COMPOUND (SVOC) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8270D	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. SVOC analysis requires that two of the three SVOC surrogate compounds within each fraction exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

DATA REVIEW REPORT

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS/LCSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

Sample Locations	Compound
S-136(4-6) (04-22-2019)	3&4-Methylphenol
S-136(7-9) (04-22-2019)	Acetophenone
S-111(2-4) (04-23-2019)	Hexachloroethane
S-111(4.5-6.5) (04-23-2019)	N-Nitroso-di-n-propylamine
S-107(2-4) (04-23-2019)	

The criteria used to evaluate the RPD between the LCS/LCSD recoveries are presented in the following table. In the case of an RPD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	UJ
	Detect	J

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

7. Compound Identification

Compounds are identified on the GC/MS by using the analytes relative retention time and ion spectra.

Several samples were diluted to bring target compounds within linear range of the instrument. Sample results that were reported from a secondary dilution were qualified with a "D", indicating the result is diluted.

8. System Performance and Overall Assessment

The laboratory narrative indicates continuing calibration deviations. These deviations are normally not evaluated in a tier II data review. Sample results that had continuing calibration recoveries that exceed the control limit high and were non detect did not require qualification. Sample results where the calibration recoveries were high and the compound was detected or calibration recoveries were low were qualified as estimated (J or UJ).

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR SVOCs

SVOCs: SW-846 8270	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks		X		X	
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%RSD Relative standard deviation

%R Percent recovery

RPD Relative percent difference

%D Percent difference

DATA REVIEW REPORT

PESTICIDE ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8081A	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. Herbicide analysis requires that one of the two pesticide surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

DATA REVIEW REPORT

5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

Sample locations associated with LCS/LCSD analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	LCS Recovery	LCSD Recovery
PSCB-41R(0.5-2)	Aldrin	<LL but >10%	--
	alpha-BHC	<LL but >10%	--

The criteria used to evaluate the LCS/LCSD recoveries are presented in the following table. In the case of an LCS/LCSD deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 40% for water matrices and 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

7. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows for both the primary and confirmation columns. When dual column analysis is performed the percent difference (%D) of detected sample results must be less than 40%.

Sample locations associated with %D analysis exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Compound	%D
PSCB-41R(0.5-2)	4,4'-DDD	97.7%

DATA REVIEW REPORT

The criteria used to evaluate the %D are presented in the following table. In the case of a %D deviation, the sample results are qualified as documented in the table below.

Control Limit (%D)	Qualification
>40% to 70%	J
>70% to 100%	JN
>100% ¹	R
>100% to 200% (Interference detected) ²	J or JN
>50% (pesticide) sample results less than the RL)	U

When the pesticide sample results are less than the RL and the %D greater than 50% the sample result are raised to the RL and reported as non-detect.

Notes:

- 1: If the pattern is confirmed sample results will be qualified as estimated (J). If pattern exhibits interference or if the pesticide cannot be positively determined due to weathering the sample results will be qualified as tentative identification estimate (JN).
- 2: If interference is detected in either column the sample results will be qualified as tentative identification estimate (JN).

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR PESTICIDES

Pesticides; SW-846 8081	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks	X				X
Laboratory Control Sample (LCS)		X	X		
Laboratory Control Sample Duplicate(LCSD)	X				X
LCS/LCSD Precision (RPD)	X				X
Matrix Spike (MS)	X				X
Matrix Spike Duplicate(MSD)	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X		X	
Column %D \leq 40% (If dual column is performed for reporting-not confirmation)		X	X		
Dilution Factor		X		X	
Moisture Content		X		X	

Notes:

%RSD – relative standard deviation

%R - percent recovery

RPD - relative percent difference

%D – difference.

DATA REVIEW REPORT

POLYCHLORINATED BIPHENYLS (PCBs) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8082A	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to <6 °C

All samples were analyzed within the specified holding time criteria.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore, detected sample results were not associated with blank contamination.

3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. PCB analysis requires that one of the two PCB surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD was not performed on a sample within this SDG.

DATA REVIEW REPORT

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

6. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

7. Compound Identification

The retention times of all quantitated peaks must fall within the calculated retention time windows for both the primary and confirmation columns. When dual column analysis is performed the relative percent difference (%RPD) of detected sample results must be less than 40%.

No Aroclors were detected in the samples within this SDG.

8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR PCBs

PCBs; SW-846 8082A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/ECD)					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R	X				X
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)	X				X
Surrogate Spike Recoveries		X		X	
Column (%D) (If dual column is performed-not confirmation purposes only)		X		X	
Dilution Factor		X		X	
Moisture Content		X		X	

%R - percent recovery

RPD - relative percent difference

%D – difference

DATA REVIEW REPORT

INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6010D, 7471A, and 9012B. Data were reviewed in accordance with the USEPA CLP National Functional Guidelines for Inorganic Superfund Methods Data Review, EPA 540/R-2017-001, January 2017; and the USEPA CLP National Functional Guidelines for Inorganic Data Review, EPA 540-R-01-008, July 2002 (as applicable).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
 - J The reported value was obtained from a reading less than the reporting limit (RL), but greater than or equal to the method detection limit (MDL).
- Quantitation (Q) Qualifiers
 - E The reported value is estimated due to the presence of interference.
 - N Spiked sample recovery is not within control limits.
 - * Duplicate analysis is not within control limits.
- Validation Qualifiers
 - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The analyte was not detected above the reporting limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
 - UB Analyte considered non-detect at the listed value due to associated blank contamination.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

DATA REVIEW REPORT

METALS ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6010D	Water	180 days from collection to analysis	Preserved to a pH of less than 2.
	Soil	180 days from collection to analysis	Cool to <6 °C.
SW-846 7471A	Soil	28 days from collection to analysis	Cool to <6 °C.
SW-846 7470A	Water	28 days from collection to analysis	Cool to <6 °C; preserved to a pH of less than 2.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were detected in the associated QA blanks; however, the associated sample results were greater than the BAL and/or were non-detect. No qualification of the sample results was required.

3. Matrix Spike (MS)/Matrix Spike Duplicate(MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS/MSD recoveries were within control limits with the exception of the following analyte present in the table below.

DATA REVIEW REPORT

Sample Location	Analyte	MS Recovery	MSD Recovery
S-111(2-4) (04-23-2019)	Mercury	88.3%	54.1%

The criteria used to evaluate MS/MSD recoveries are presented in the following table. In the case of an MS/MSD deviation, the sample results are qualified. The qualifications for all metals are applied to all sample results associated with this SDG.

Control limit	Sample Result	Qualification
MS/MSD percent recovery 30% to 74%	Non-detect	UJ
	Detect	J
MS/MSD percent recovery <30%	Non-detect	R
	Detect	J
MS/MSD percent recovery >125%	Non-detect	No Action
	Detect	J

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

MS/MSD analysis was performed in replacement of the laboratory duplicate analysis. The MS/MSD analysis exhibited RPDs within the control limits.

4. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR METAL

METALS; SW846 6010D/7471A	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)					
Tier II Validation					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method Blanks		X		X	
B. Equipment/Field Blanks	X				X
Laboratory Control Sample (LCS)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate (MSD) %R		X	X		
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)	X				X
Total vs. Dissolved	X				X

Notes:

%R Percent recovery

RPD Relative percent difference

DATA REVIEW REPORT

GENERAL CHEMISTRY ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
Cyanide by SW-846 9012	Water	14 days from collection to analysis	Cool to <6 °C; preserved to a pH of greater than 12.
	Soil		Cool to <6 °C.

All samples were analyzed within the specified holding times.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Analytes were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

3.1 MS/MSD Analysis

All analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory flag will be removed.

All analytes associated with MS/MSD recoveries were within control limits.

3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the RL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of one times the RL is applied for water matrices and two times the RL for soil matrices.

The laboratory duplicate analysis exhibited RPD within control limits.

DATA REVIEW REPORT

4. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS analysis exhibited recoveries within the control limits.

5. Field Duplicate Analysis

Field duplicate analysis is used to assess the overall precision of the field sampling procedures and analytical method. A control limit of 50% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of three times the RL is applied for soil matrices.

A field duplicate was not performed on a sample within this SDG.

6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA REVIEW REPORT

DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: EPA 9012	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
Tier II Validation					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R		X	X		
Matrix Spike Duplicate(MSD) %R	X				X
MS/MSD Precision (RPD)	X				X
Field/Lab Duplicate (RPD)		X		X	
Dilution Factor		X		X	
Moisture Content					X

Notes:

%R - percent recovery

RPD - relative percent difference

DATA REVIEW REPORT

VALIDATION PERFORMED BY: Andrew Korycinski

SIGNATURE:



DATE: July 19, 2019

PEER REVIEW: Dennis Capria

DATE: July 22, 2019

CHAIN OF CUSTODY SAMPLE ANALYSIS DATA SHEETS





SLC

CHAIN OF CUSTODY

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Botle Order Control # ER-041619-205
SGS Guide # JCR6837

Client / Reporting Information, Project Information, Requested Analysis, Matrix Codes, LAB USE ONLY, Turn Around Time, Deliverable, Sample Custody, Ratioculated By, Date / Time, Received By

5.1
5

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Report of Analysis

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Client Sample ID:	PSCB-41R(0.5-2)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-1	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	80.9
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	I225838.D	1	04/30/19 17:18	TDN	n/a	n/a	VI9098
Run #2	I225861.D	1	05/01/19 10:27	TDN	n/a	n/a	VI9099

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.8 g	10.0 ml	100 ul
Run #2	4.8 g	10.0 ml	10.0 ul

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	1400	700	ug/kg	
71-43-2	Benzene	6320	70	53	ug/kg	
74-97-5	Bromochloromethane	ND	700	60	ug/kg	
75-27-4	Bromodichloromethane	ND	280	62	ug/kg	
75-25-2	Bromoform	ND	700	57	ug/kg	
74-83-9	Bromomethane	ND	700	140	ug/kg	
78-93-3	2-Butanone (MEK)	ND	1400	530	ug/kg	
75-15-0	Carbon disulfide	ND	280	130	ug/kg	
56-23-5	Carbon tetrachloride	ND	280	77	ug/kg	
108-90-7	Chlorobenzene	ND	280	50	ug/kg	
75-00-3	Chloroethane	ND	700	97	ug/kg	
67-66-3	Chloroform	ND	280	52	ug/kg	
74-87-3	Chloromethane	ND	700	280	ug/kg	
110-82-7	Cyclohexane	4890	280	57	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	280	120	ug/kg	
124-48-1	Dibromochloromethane	ND	280	48	ug/kg	
106-93-4	1,2-Dibromoethane	ND	140	46	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	140	43	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	140	50	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	140	48	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	700	89	ug/kg	
75-34-3	1,1-Dichloroethane	ND	140	54	ug/kg	
107-06-2	1,2-Dichloroethane	ND	140	66	ug/kg	
75-35-4	1,1-Dichloroethene	ND	140	92	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	140	130	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	140	94	ug/kg	
78-87-5	1,2-Dichloropropane	ND	280	57	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	280	49	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	280	46	ug/kg	
100-41-4	Ethylbenzene	12300	140	78	ug/kg	
76-13-1	Freon 113	ND	700	110	ug/kg	
591-78-6	2-Hexanone	ND	700	180	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSCB-41R(0.5-2) Lab Sample ID: JC86837-1 Matrix: SO - Soil Method: SW846 8260C Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/22/19 Date Received: 04/23/19 Percent Solids: 80.9
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VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	943	280	98	ug/kg	
79-20-9	Methyl Acetate	ND	700	200	ug/kg	
108-87-2	Methylcyclohexane	8780	280	99	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	140	49	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	700	220	ug/kg	
75-09-2	Methylene chloride	ND	700	350	ug/kg	
100-42-5	Styrene	ND	280	81	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	280	55	ug/kg	
127-18-4	Tetrachloroethene	ND	280	65	ug/kg	
108-88-3	Toluene	53400 ^c	1400	530	ug/kg	D
87-61-6	1,2,3-Trichlorobenzene	ND	700	140	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	700	140	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	280	60	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	280	48	ug/kg	
79-01-6	Trichloroethene	ND	140	110	ug/kg	
75-69-4	Trichlorofluoromethane	ND	700	96	ug/kg	
75-01-4	Vinyl chloride	ND	280	66	ug/kg	
	m,p-Xylene	51900	140	100	ug/kg	
95-47-6	o-Xylene	19100	140	82	ug/kg	
1330-20-7	Xylene (total)	71000	140	82	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%	104%	75-127%
17060-07-0	1,2-Dichloroethane-D4	105%	112%	75-130%
2037-26-5	Toluene-D8	103%	103%	80-120%
460-00-4	4-Bromofluorobenzene	115%	109%	79-127%

- (a) Diluted due to high concentration of target and non-target compound.
- (b) Associated CCV outside of control limits high, sample was ND.
- (c) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 3

Client Sample ID:	PSCB-41R(0.5-2)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-1	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	80.9
Method:	SW846 8270D SW846 8151/3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153945.D	1	05/01/19 18:57	CC	04/28/19 13:30	OP20021	EM6577
Run #2	M153987.D	10	05/02/19 19:25	CC	04/28/19 13:30	OP20021	EM6579
Run #3	M153986.D	100	05/02/19 18:57	CC	04/28/19 13:30	OP20021	EM6579

Run #	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2	30.7 g	1.0 ml
Run #3	30.7 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	81	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	25	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	34	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	72	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	200	150	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	200	43	ug/kg	
95-48-7	2-Methylphenol	ND	81	26	ug/kg	
	3&4-Methylphenol	ND	81	33	ug/kg	
88-75-5	2-Nitrophenol ^a	ND	200	27	ug/kg	
100-02-7	4-Nitrophenol	ND	400	110	ug/kg	
87-86-5	Pentachlorophenol ^a	ND	160	38	ug/kg	
108-95-2	Phenol	ND	81	21	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	27	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	30	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	24	ug/kg	
83-32-9	Acenaphthene	66200 ^b	4000	1400	ug/kg	DJ
208-96-8	Acenaphthylene	1150	40	20	ug/kg	
98-86-2	Acetophenone	ND	200	8.7	ug/kg	
120-12-7	Anthracene	28100 ^c	400	250	ug/kg	D
1912-24-9	Atrazine ^a	ND	81	17	ug/kg	
56-55-3	Benzo(a)anthracene	19400 ^c	400	110	ug/kg	D
50-32-8	Benzo(a)pyrene	14400 ^c	400	180	ug/kg	
205-99-2	Benzo(b)fluoranthene	17800 ^c	400	180	ug/kg	
191-24-2	Benzo(g,h,i)perylene	8460 ^c	400	200	ug/kg	
207-08-9	Benzo(k)fluoranthene	6970 ^c	400	190	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	81	16	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	81	9.8	ug/kg	
92-52-4	1,1'-Biphenyl	6430 ^c	810	55	ug/kg	D
100-52-7	Benzaldehyde	ND	200	10	ug/kg	
91-58-7	2-Chloronaphthalene	ND	81	9.6	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.1
4

Report of Analysis

Client Sample ID:	PSCB-41R(0.5-2)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-1	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	80.9
Method:	SW846 8270D SW846 8151/3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
106-47-8	4-Chloroaniline	ND	200	14	ug/kg	
86-74-8	Carbazole	9890 ^c	810	58	ug/kg	D
105-60-2	Caprolactam	ND	81	16	ug/kg	
218-01-9	Chrysene	17700 ^c	400	130	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	81	8.6	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	81	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	81	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	81	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	40	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	40	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	81	34	ug/kg	
123-91-1	1,4-Dioxane ^d	ND	40	27	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	2690	40	18	ug/kg	
132-64-9	Dibenzofuran	32500 ^c	810	160	ug/kg	D
84-74-2	Di-n-butyl phthalate	ND	81	6.6	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	81	10	ug/kg	
84-66-2	Diethyl phthalate	ND	81	8.6	ug/kg	
131-11-3	Dimethyl phthalate	ND	81	7.2	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	81	9.4	ug/kg	
206-44-0	Fluoranthene	97900 ^b	4000	1800	ug/kg	D
86-73-7	Fluorene	48500 ^b	4000	1800	ug/kg	D
118-74-1	Hexachlorobenzene	ND	81	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	40	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	400	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	20	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	9140 ^c	400	190	ug/kg	D
78-59-1	Isophorone	ND	81	8.6	ug/kg	
91-57-6	2-Methylnaphthalene	22800 ^c	400	91	ug/kg	D
88-74-4	2-Nitroaniline	ND	200	9.5	ug/kg	
99-09-2	3-Nitroaniline	ND	200	10	ug/kg	
100-01-6	4-Nitroaniline	ND	200	10	ug/kg	
91-20-3	Naphthalene	14100 ^c	400	110	ug/kg	D
98-95-3	Nitrobenzene	ND	81	16	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	81	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	200	15	ug/kg	
85-01-8	Phenanthrene	158000 ^b	4000	1400	ug/kg	D
129-00-0	Pyrene	61600 ^b	4000	1300	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	10	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSCB-41R(0.5-2) Lab Sample ID: JC86837-1 Matrix: SO - Soil Method: SW846 8270D SW846 8151/3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/22/19 Date Received: 04/23/19 Percent Solids: 80.9
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run# 3	Limits
367-12-4	2-Fluorophenol	57%	48%	0% ^e	23-115%
4165-62-2	Phenol-d5	51%	56%	0% ^e	27-114%
118-79-6	2,4,6-Tribromophenol	84%	86%	123%	19-152%
4165-60-0	Nitrobenzene-d5	67%	72%	83%	26-134%
321-60-8	2-Fluorobiphenyl	68%	72%	73%	39-124%
1718-51-0	Terphenyl-d14	60%	69%	69%	36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Result is from Run# 3
- (c) Result is from Run# 2
- (d) Associated CCV outside of control limits low.
- (e) Outside control limits due to dilution.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

4.1
4

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Report of Analysis

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Client Sample ID:	PSCB-41R(0.5-2)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-1	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	80.9
Method:	SW846 8081B SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6G64659.D	1	05/03/19 19:01	MH	05/02/19 10:30	OP20020	G6G2001
Run #2							

Run #	Initial Weight	Final Volume
Run #1	15.7 g	10.0 ml
Run #2		

Pesticide TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
309-00-2	Aldrin	ND	0.79	0.65	ug/kg	UJ
319-84-6	alpha-BHC	ND	0.79	0.64	ug/kg	UJ
319-85-7	beta-BHC	ND	0.79	0.71	ug/kg	
319-86-8	delta-BHC	ND	0.79	0.76	ug/kg	
58-89-9	gamma-BHC (Lindane)	ND	0.79	0.58	ug/kg	
5103-71-9	alpha-Chlordane	ND	0.79	0.64	ug/kg	
5103-74-2	gamma-Chlordane	ND	0.79	0.36	ug/kg	
60-57-1	Dieldrin	ND	0.79	0.54	ug/kg	
72-54-8	4,4'-DDD ^a	4.4	0.79	0.72	ug/kg	JN
72-55-9	4,4'-DDE	5.4	0.79	0.69	ug/kg	
50-29-3	4,4'-DDT	5.6	0.79	0.70	ug/kg	
72-20-8	Endrin	ND	0.79	0.61	ug/kg	
1031-07-8	Endosulfan sulfate	ND	0.79	0.61	ug/kg	
7421-93-4	Endrin aldehyde	ND	0.79	0.45	ug/kg	
959-98-8	Endosulfan-I	ND	0.79	0.45	ug/kg	
33213-65-9	Endosulfan-II	ND	0.79	0.49	ug/kg	
76-44-8	Heptachlor	ND	0.79	0.68	ug/kg	
1024-57-3	Heptachlor epoxide	ND	0.79	0.55	ug/kg	
72-43-5	Methoxychlor	ND	1.6	0.63	ug/kg	
53494-70-5	Endrin ketone	ND	0.79	0.57	ug/kg	
8001-35-2	Toxaphene	ND	20	18	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	89%		25-135%
877-09-8	Tetrachloro-m-xylene	63%		25-135%
2051-24-3	Decachlorobiphenyl	59%		10-156%
2051-24-3	Decachlorobiphenyl	171% ^b		10-156%

(a) More than 40 % RPD for detected concentrations between the two GC columns.

(b) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

Page 1 of 1

Client Sample ID: PSCB-41R(0.5-2)	Date Sampled: 04/22/19
Lab Sample ID: JC86837-1	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 80.9
Method: SW846 8082A SW846 3546	
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	XX2434623.D	1	05/04/19 17:47	TR	05/02/19 10:30	OP20019	GXX6680
Run #2							

Run #	Initial Weight	Final Volume
Run #1	15.7 g	10.0 ml
Run #2		

PCB List

CAS No.	Compound	Result	RL	MDL	Units	Q
12674-11-2	Aroclor 1016	ND	39	18	ug/kg	
11104-28-2	Aroclor 1221	ND	39	20	ug/kg	
11141-16-5	Aroclor 1232	ND	39	30	ug/kg	
53469-21-9	Aroclor 1242	ND	39	16	ug/kg	
12672-29-6	Aroclor 1248	ND	39	35	ug/kg	
11097-69-1	Aroclor 1254	ND	39	21	ug/kg	
11096-82-5	Aroclor 1260	ND	39	17	ug/kg	
11100-14-4	Aroclor 1268	ND	39	17	ug/kg	
37324-23-5	Aroclor 1262	ND	39	26	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
877-09-8	Tetrachloro-m-xylene	140%		31-146%
877-09-8	Tetrachloro-m-xylene	335% ^a		31-146%
2051-24-3	Decachlorobiphenyl	67%		17-164%
2051-24-3	Decachlorobiphenyl	210% ^a		17-164%

(a) Outside control limits due to matrix interference.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PSCB-41R(9-11)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-2	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	70.9
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151614.D	1	05/01/19 16:35	PS	n/a	n/a	V3C6814
Run #2							

Run #	Initial Weight
Run #1	5.4 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	184	13	6.5	ug/kg	
71-43-2	Benzene	1.5	0.65	0.49	ug/kg	
74-97-5	Bromochloromethane	ND	6.5	0.56	ug/kg	
75-27-4	Bromodichloromethane	ND	2.6	0.58	ug/kg	
75-25-2	Bromoform	ND	6.5	0.53	ug/kg	
74-83-9	Bromomethane	ND	6.5	1.3	ug/kg	
78-93-3	2-Butanone (MEK)	11.3	13	4.9	ug/kg	J
75-15-0	Carbon disulfide	ND	2.6	1.2	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.6	0.72	ug/kg	
108-90-7	Chlorobenzene	ND	2.6	0.46	ug/kg	
75-00-3	Chloroethane	ND	6.5	0.90	ug/kg	
67-66-3	Chloroform	ND	2.6	0.49	ug/kg	
74-87-3	Chloromethane	ND	6.5	2.6	ug/kg	
110-82-7	Cyclohexane	2.3	2.6	0.53	ug/kg	J
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.6	1.1	ug/kg	
124-48-1	Dibromochloromethane	ND	2.6	0.44	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.3	0.42	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.3	0.40	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.3	0.47	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.3	0.45	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.5	0.83	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.3	0.50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.3	0.61	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.3	0.86	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.3	1.2	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.3	0.87	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.6	0.53	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.6	0.46	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.6	0.43	ug/kg	
100-41-4	Ethylbenzene	7.7	1.3	0.72	ug/kg	
76-13-1	Freon 113	ND	6.5	1.0	ug/kg	
591-78-6	2-Hexanone	ND	6.5	1.7	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSCB-41R(9-11)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-2	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	70.9
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	1.1	2.6	0.91	ug/kg	J
79-20-9	Methyl Acetate	ND	6.5	1.8	ug/kg	
108-87-2	Methylcyclohexane	5.4	2.6	0.92	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.3	0.46	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK ^a)	ND	6.5	2.0	ug/kg	
75-09-2	Methylene chloride	ND	6.5	3.3	ug/kg	
100-42-5	Styrene	ND	2.6	0.75	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.6	0.51	ug/kg	
127-18-4	Tetrachloroethene	ND	2.6	0.60	ug/kg	
108-88-3	Toluene	12.4	1.3	0.49	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.5	1.3	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.5	1.3	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.6	0.56	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.6	0.45	ug/kg	
79-01-6	Trichloroethene	ND	1.3	1.0	ug/kg	
75-69-4	Trichlorofluoromethane ^b	ND	6.5	0.89	ug/kg	UJ
75-01-4	Vinyl chloride	ND	2.6	0.61	ug/kg	
	m,p-Xylene	73.5	1.3	0.97	ug/kg	
95-47-6	o-Xylene	31.6	1.3	0.76	ug/kg	
1330-20-7	Xylene (total)	105	1.3	0.76	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		75-127%
17060-07-0	1,2-Dichloroethane-D4	97%		75-130%
2037-26-5	Toluene-D8	108%		80-120%
460-00-4	4-Bromofluorobenzene	114%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	PSCB-41R(9-11)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-2	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	70.9
Method:	SW846 8270D SW846 8151/3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153938.D	1	05/01/19 15:10	CC	04/28/19 13:30	OP20021	EM6577
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	93	23	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	230	28	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	230	40	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	230	83	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	230	170	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	230	50	ug/kg	
95-48-7	2-Methylphenol	ND	93	30	ug/kg	
	3&4-Methylphenol	ND	93	38	ug/kg	
88-75-5	2-Nitrophenol ^a	ND	230	31	ug/kg	
100-02-7	4-Nitrophenol	ND	460	120	ug/kg	
87-86-5	Pentachlorophenol ^a	ND	190	44	ug/kg	
108-95-2	Phenol	ND	93	24	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	230	31	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	230	35	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	230	28	ug/kg	
83-32-9	Acenaphthene	ND	46	16	ug/kg	
208-96-8	Acenaphthylene	ND	46	24	ug/kg	
98-86-2	Acetophenone	ND	230	10	ug/kg	
120-12-7	Anthracene	ND	46	28	ug/kg	
1912-24-9	Atrazine ^a	ND	93	20	ug/kg	
56-55-3	Benzo(a)anthracene	ND	46	13	ug/kg	
50-32-8	Benzo(a)pyrene	ND	46	21	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	46	21	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	46	23	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	46	22	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	93	18	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	93	11	ug/kg	
92-52-4	1,1'-Biphenyl	ND	93	6.4	ug/kg	
100-52-7	Benzaldehyde	ND	230	12	ug/kg	
91-58-7	2-Chloronaphthalene	ND	93	11	ug/kg	
106-47-8	4-Chloroaniline	ND	230	17	ug/kg	
86-74-8	Carbazole	ND	93	6.7	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PSCB-41R(9-11)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-2	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	70.9
Method:	SW846 8270D SW846 8151/3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	93	18	ug/kg	
218-01-9	Chrysene	ND	46	15	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	93	9.9	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	93	20	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	93	17	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	93	15	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	46	14	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	46	23	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	93	39	ug/kg	
123-91-1	1,4-Dioxane ^b	ND	46	31	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	ND	46	21	ug/kg	
132-64-9	Dibenzofuran	ND	93	19	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	93	7.6	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	93	12	ug/kg	
84-66-2	Diethyl phthalate	ND	93	9.9	ug/kg	
131-11-3	Dimethyl phthalate	ND	93	8.3	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	93	11	ug/kg	
206-44-0	Fluoranthene	ND	46	21	ug/kg	
86-73-7	Fluorene	ND	46	21	ug/kg	
118-74-1	Hexachlorobenzene	ND	93	12	ug/kg	
87-68-3	Hexachlorobutadiene	ND	46	19	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	460	18	ug/kg	
67-72-1	Hexachloroethane	ND	230	23	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	46	22	ug/kg	
78-59-1	Isophorone	ND	93	9.9	ug/kg	
91-57-6	2-Methylnaphthalene	ND	46	10	ug/kg	
88-74-4	2-Nitroaniline	ND	230	11	ug/kg	
99-09-2	3-Nitroaniline	ND	230	12	ug/kg	
100-01-6	4-Nitroaniline	ND	230	12	ug/kg	
91-20-3	Naphthalene	ND	46	13	ug/kg	
98-95-3	Nitrobenzene	ND	93	18	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	93	13	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	230	17	ug/kg	
85-01-8	Phenanthrene	ND	46	16	ug/kg	
129-00-0	Pyrene	ND	46	15	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	230	12	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	62%		23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: PSCB-41R(9-11)		Date Sampled: 04/22/19
Lab Sample ID: JC86837-2		Date Received: 04/23/19
Matrix: SO - Soil		Percent Solids: 70.9
Method: SW846 8270D SW846 8151/3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	62%		27-114%
118-79-6	2,4,6-Tribromophenol	105%		19-152%
4165-60-0	Nitrobenzene-d5	76%		26-134%
321-60-8	2-Fluorobiphenyl	87%		39-124%
1718-51-0	Terphenyl-d14	81%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

4.2
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Report of Analysis

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Client Sample ID:	TP-44R(3-5)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-3	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	78.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	I225876.D	1	05/01/19 17:47	TDN	n/a	n/a	VI9099
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	3.4 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	2000	1000	ug/kg	
71-43-2	Benzene	494	100	76	ug/kg	
74-97-5	Bromochloromethane	ND	1000	86	ug/kg	
75-27-4	Bromodichloromethane	ND	400	89	ug/kg	
75-25-2	Bromoform	ND	1000	81	ug/kg	
74-83-9	Bromomethane	ND	1000	200	ug/kg	
78-93-3	2-Butanone (MEK)	ND	2000	750	ug/kg	
75-15-0	Carbon disulfide	ND	400	190	ug/kg	
56-23-5	Carbon tetrachloride	ND	400	110	ug/kg	
108-90-7	Chlorobenzene	ND	400	71	ug/kg	
75-00-3	Chloroethane	ND	1000	140	ug/kg	
67-66-3	Chloroform	ND	400	75	ug/kg	
74-87-3	Chloromethane ^b	ND	1000	390	ug/kg	
110-82-7	Cyclohexane	ND	400	81	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	400	170	ug/kg	
124-48-1	Dibromochloromethane	ND	400	68	ug/kg	
106-93-4	1,2-Dibromoethane	ND	200	65	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	200	61	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	200	72	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	200	69	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	1000	130	ug/kg	
75-34-3	1,1-Dichloroethane	ND	200	77	ug/kg	
107-06-2	1,2-Dichloroethane	ND	200	94	ug/kg	
75-35-4	1,1-Dichloroethene	ND	200	130	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	200	190	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	200	130	ug/kg	
78-87-5	1,2-Dichloropropane	ND	400	82	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	400	71	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	400	66	ug/kg	
100-41-4	Ethylbenzene	2290	200	110	ug/kg	
76-13-1	Freon 113	ND	1000	150	ug/kg	
591-78-6	2-Hexanone	ND	1000	250	ug/kg	

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TP-44R(3-5)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-3	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	78.7
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	400	140	ug/kg	
79-20-9	Methyl Acetate	ND	1000	280	ug/kg	
108-87-2	Methylcyclohexane	ND	400	140	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	200	71	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	1000	310	ug/kg	
75-09-2	Methylene chloride	ND	1000	500	ug/kg	
100-42-5	Styrene	ND	400	120	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	400	78	ug/kg	
127-18-4	Tetrachloroethene	ND	400	93	ug/kg	
108-88-3	Toluene	1040	200	75	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	1000	200	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	1000	200	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	400	85	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	400	69	ug/kg	
79-01-6	Trichloroethene	ND	200	150	ug/kg	
75-69-4	Trichlorofluoromethane	ND	1000	140	ug/kg	
75-01-4	Vinyl chloride ^b	ND	400	94	ug/kg	
	m,p-Xylene	2950	200	150	ug/kg	
95-47-6	o-Xylene	354	200	120	ug/kg	
1330-20-7	Xylene (total)	3300	200	120	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		75-127%
17060-07-0	1,2-Dichloroethane-D4	108%		75-130%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	113%		79-127%

(a) Diluted due to high concentration of non-target compound.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	TP-44R(3-5)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-3	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	78.7
Method:	SW846 8270D SW846 8151/3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153943.D	1	05/01/19 18:00	CC	04/28/19 13:30	OP20021	EM6577
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.8 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	83	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	210	25	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	210	35	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	210	73	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	210	160	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	210	44	ug/kg	
95-48-7	2-Methylphenol	ND	83	26	ug/kg	
	3&4-Methylphenol	ND	83	34	ug/kg	
88-75-5	2-Nitrophenol ^a	ND	210	27	ug/kg	
100-02-7	4-Nitrophenol	ND	410	110	ug/kg	
87-86-5	Pentachlorophenol ^a	ND	170	39	ug/kg	
108-95-2	Phenol	ND	83	22	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	210	27	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	210	31	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	210	25	ug/kg	
83-32-9	Acenaphthene	70.7	41	14	ug/kg	
208-96-8	Acenaphthylene	ND	41	21	ug/kg	
98-86-2	Acetophenone	ND	210	8.9	ug/kg	
120-12-7	Anthracene	35.1	41	25	ug/kg	J
1912-24-9	Atrazine ^a	ND	83	18	ug/kg	
56-55-3	Benzo(a)anthracene	16.5	41	12	ug/kg	J
50-32-8	Benzo(a)pyrene	ND	41	19	ug/kg	
205-99-2	Benzo(b)fluoranthene	19.2	41	18	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	ND	41	21	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	41	19	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	83	16	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	83	10	ug/kg	
92-52-4	1,1'-Biphenyl	227	83	5.7	ug/kg	
100-52-7	Benzaldehyde	ND	210	10	ug/kg	
91-58-7	2-Chloronaphthalene	ND	83	9.8	ug/kg	
106-47-8	4-Chloroaniline	ND	210	15	ug/kg	
86-74-8	Carbazole	63.2	83	6.0	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TP-44R(3-5)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-3	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	78.7
Method:	SW846 8270D SW846 8151/3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	83	16	ug/kg	
218-01-9	Chrysene	39.8	41	13	ug/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	83	8.8	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	83	18	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	83	15	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	83	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	41	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	41	21	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	83	34	ug/kg	
123-91-1	1,4-Dioxane ^b	ND	41	27	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	ND	41	18	ug/kg	
132-64-9	Dibenzofuran	219	83	17	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	83	6.7	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	83	10	ug/kg	
84-66-2	Diethyl phthalate	ND	83	8.8	ug/kg	
131-11-3	Dimethyl phthalate	ND	83	7.3	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	83	9.7	ug/kg	
206-44-0	Fluoranthene	23.2	41	18	ug/kg	J
86-73-7	Fluorene	161	41	19	ug/kg	
118-74-1	Hexachlorobenzene	ND	83	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	41	17	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	410	16	ug/kg	
67-72-1	Hexachloroethane	ND	210	20	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	31.6	41	19	ug/kg	J
78-59-1	Isophorone	ND	83	8.8	ug/kg	
91-57-6	2-Methylnaphthalene	4110	41	9.3	ug/kg	
88-74-4	2-Nitroaniline	ND	210	9.7	ug/kg	
99-09-2	3-Nitroaniline	ND	210	10	ug/kg	
100-01-6	4-Nitroaniline	ND	210	11	ug/kg	
91-20-3	Naphthalene	1420	41	12	ug/kg	
98-95-3	Nitrobenzene	ND	83	16	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	83	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	210	15	ug/kg	
85-01-8	Phenanthrene	284	41	14	ug/kg	
129-00-0	Pyrene	70.2	41	13	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	210	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	46%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TP-44R(3-5)		Date Sampled: 04/22/19
Lab Sample ID: JC86837-3		Date Received: 04/23/19
Matrix: SO - Soil		Percent Solids: 78.7
Method: SW846 8270D SW846 8151/3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	47%		27-114%
118-79-6	2,4,6-Tribromophenol	89%		19-152%
4165-60-0	Nitrobenzene-d5	62%		26-134%
321-60-8	2-Fluorobiphenyl	72%		39-124%
1718-51-0	Terphenyl-d14	60%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: TP-44R(5-7)		Date Sampled: 04/22/19
Lab Sample ID: JC86837-4		Date Received: 04/23/19
Matrix: SO - Soil		Percent Solids: 76.1
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	I225877.D	1	05/01/19 18:16	TDN	n/a	n/a	VI9099
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.7 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	1300	650	ug/kg	
71-43-2	Benzene	ND	65	49	ug/kg	
74-97-5	Bromochloromethane	ND	650	56	ug/kg	
75-27-4	Bromodichloromethane	ND	260	58	ug/kg	
75-25-2	Bromoform	ND	650	53	ug/kg	
74-83-9	Bromomethane	ND	650	130	ug/kg	
78-93-3	2-Butanone (MEK)	ND	1300	490	ug/kg	
75-15-0	Carbon disulfide	ND	260	120	ug/kg	
56-23-5	Carbon tetrachloride	ND	260	72	ug/kg	
108-90-7	Chlorobenzene	ND	260	46	ug/kg	
75-00-3	Chloroethane	ND	650	90	ug/kg	
67-66-3	Chloroform	ND	260	49	ug/kg	
74-87-3	Chloromethane ^b	ND	650	260	ug/kg	
110-82-7	Cyclohexane	ND	260	53	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	260	110	ug/kg	
124-48-1	Dibromochloromethane	ND	260	44	ug/kg	
106-93-4	1,2-Dibromoethane	ND	130	43	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	130	40	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	130	47	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	130	45	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	650	83	ug/kg	
75-34-3	1,1-Dichloroethane	ND	130	50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	130	62	ug/kg	
75-35-4	1,1-Dichloroethene	ND	130	86	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	130	130	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	130	87	ug/kg	
78-87-5	1,2-Dichloropropane	ND	260	53	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	260	46	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	260	43	ug/kg	
100-41-4	Ethylbenzene	ND	130	72	ug/kg	
76-13-1	Freon 113	ND	650	100	ug/kg	
591-78-6	2-Hexanone	ND	650	170	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TP-44R(5-7)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-4	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	76.1
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	260	91	ug/kg	
79-20-9	Methyl Acetate	ND	650	180	ug/kg	
108-87-2	Methylcyclohexane	ND	260	93	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	130	46	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	650	200	ug/kg	
75-09-2	Methylene chloride	ND	650	330	ug/kg	
100-42-5	Styrene	ND	260	75	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	260	51	ug/kg	
127-18-4	Tetrachloroethene	ND	260	61	ug/kg	
108-88-3	Toluene	68.4	130	49	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	650	130	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	650	130	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	260	56	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	260	45	ug/kg	
79-01-6	Trichloroethene	ND	130	100	ug/kg	
75-69-4	Trichlorofluoromethane	ND	650	89	ug/kg	
75-01-4	Vinyl chloride ^b	ND	260	61	ug/kg	
	m,p-Xylene	ND	130	98	ug/kg	
95-47-6	o-Xylene	ND	130	76	ug/kg	
1330-20-7	Xylene (total)	ND	130	76	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		75-127%
17060-07-0	1,2-Dichloroethane-D4	106%		75-130%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	116%		79-127%

(a) Diluted due to high concentration of non-target compound.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TP-44R(5-7)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-4	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	76.1
Method:	SW846 8270D SW846 8151/3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153940.D	1	05/01/19 16:07	CC	04/28/19 13:30	OP20021	EM6577
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	87	21	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	220	27	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	220	37	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	220	77	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	220	160	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	220	47	ug/kg	
95-48-7	2-Methylphenol	ND	87	28	ug/kg	
	3&4-Methylphenol	ND	87	36	ug/kg	
88-75-5	2-Nitrophenol ^a	ND	220	29	ug/kg	
100-02-7	4-Nitrophenol	ND	440	120	ug/kg	
87-86-5	Pentachlorophenol ^a	ND	170	41	ug/kg	
108-95-2	Phenol	ND	87	23	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	220	29	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	220	33	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	220	26	ug/kg	
83-32-9	Acenaphthene	671	44	15	ug/kg	
208-96-8	Acenaphthylene	ND	44	22	ug/kg	
98-86-2	Acetophenone	ND	220	9.4	ug/kg	
120-12-7	Anthracene	226	44	27	ug/kg	
1912-24-9	Atrazine ^a	ND	87	19	ug/kg	
56-55-3	Benzo(a)anthracene	32.7	44	12	ug/kg	J
50-32-8	Benzo(a)pyrene	ND	44	20	ug/kg	
205-99-2	Benzo(b)fluoranthene	21.8	44	19	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	ND	44	22	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	44	20	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	87	17	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	87	11	ug/kg	
92-52-4	1,1'-Biphenyl	ND	87	6.0	ug/kg	
100-52-7	Benzaldehyde	ND	220	11	ug/kg	
91-58-7	2-Chloronaphthalene	ND	87	10	ug/kg	
106-47-8	4-Chloroaniline	ND	220	16	ug/kg	
86-74-8	Carbazole	ND	87	6.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TP-44R(5-7)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-4	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	76.1
Method:	SW846 8270D SW846 8151/3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	87	17	ug/kg	
218-01-9	Chrysene	29.6	44	14	ug/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	87	9.3	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	87	19	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	87	16	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	87	14	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	44	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	44	22	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	87	36	ug/kg	
123-91-1	1,4-Dioxane ^b	ND	44	29	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	ND	44	19	ug/kg	
132-64-9	Dibenzofuran	600	87	18	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	87	7.1	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	87	11	ug/kg	
84-66-2	Diethyl phthalate	ND	87	9.3	ug/kg	
131-11-3	Dimethyl phthalate	ND	87	7.7	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	87	10	ug/kg	
206-44-0	Fluoranthene	134	44	19	ug/kg	
86-73-7	Fluorene	1210	44	20	ug/kg	
118-74-1	Hexachlorobenzene	ND	87	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	44	17	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	440	17	ug/kg	
67-72-1	Hexachloroethane	ND	220	22	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	34.7	44	20	ug/kg	J
78-59-1	Isophorone	ND	87	9.3	ug/kg	
91-57-6	2-Methylnaphthalene	ND	44	9.8	ug/kg	
88-74-4	2-Nitroaniline	ND	220	10	ug/kg	
99-09-2	3-Nitroaniline	ND	220	11	ug/kg	
100-01-6	4-Nitroaniline	ND	220	11	ug/kg	
91-20-3	Naphthalene	ND	44	12	ug/kg	
98-95-3	Nitrobenzene	ND	87	17	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	87	13	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	220	16	ug/kg	
85-01-8	Phenanthrene	236	44	15	ug/kg	
129-00-0	Pyrene	154	44	14	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	220	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	65%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TP-44R(5-7)		Date Sampled: 04/22/19
Lab Sample ID: JC86837-4		Date Received: 04/23/19
Matrix: SO - Soil		Percent Solids: 76.1
Method: SW846 8270D SW846 8151/3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	60%		27-114%
118-79-6	2,4,6-Tribromophenol	112%		19-152%
4165-60-0	Nitrobenzene-d5	81%		26-134%
321-60-8	2-Fluorobiphenyl	95%		39-124%
1718-51-0	Terphenyl-d14	63%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: TP-44R(7-9)		Date Sampled: 04/22/19
Lab Sample ID: JC86837-5		Date Received: 04/23/19
Matrix: SO - Soil		Percent Solids: 77.9
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151615.D	1	05/01/19 16:58	PS	n/a	n/a	V3C6814
Run #2							

Run #	Initial Weight
Run #1	5.3 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	44.9	12	6.1	ug/kg	
71-43-2	Benzene	1.2	0.61	0.46	ug/kg	
74-97-5	Bromochloromethane	ND	6.1	0.52	ug/kg	
75-27-4	Bromodichloromethane	ND	2.4	0.54	ug/kg	
75-25-2	Bromoform	ND	6.1	0.49	ug/kg	
74-83-9	Bromomethane	ND	6.1	1.2	ug/kg	
78-93-3	2-Butanone (MEK)	ND	12	4.5	ug/kg	
75-15-0	Carbon disulfide	ND	2.4	1.1	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.4	0.67	ug/kg	
108-90-7	Chlorobenzene	ND	2.4	0.43	ug/kg	
75-00-3	Chloroethane	ND	6.1	0.83	ug/kg	
67-66-3	Chloroform	ND	2.4	0.45	ug/kg	
74-87-3	Chloromethane	ND	6.1	2.4	ug/kg	
110-82-7	Cyclohexane	ND	2.4	0.49	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.4	1.0	ug/kg	
124-48-1	Dibromochloromethane	ND	2.4	0.41	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.2	0.39	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.2	0.37	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.2	0.43	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.2	0.42	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.1	0.77	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.2	0.47	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.2	0.57	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.2	0.79	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.2	1.2	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.2	0.81	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.4	0.49	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.4	0.43	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.4	0.40	ug/kg	
100-41-4	Ethylbenzene	ND	1.2	0.67	ug/kg	
76-13-1	Freon 113	ND	6.1	0.92	ug/kg	
591-78-6	2-Hexanone	ND	6.1	1.5	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TP-44R(7-9)		Date Sampled: 04/22/19
Lab Sample ID: JC86837-5		Date Received: 04/23/19
Matrix: SO - Soil		Percent Solids: 77.9
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.4	0.84	ug/kg	
79-20-9	Methyl Acetate	ND	6.1	1.7	ug/kg	
108-87-2	Methylcyclohexane	ND	2.4	0.86	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.2	0.43	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK ^a)	ND	6.1	1.9	ug/kg	
75-09-2	Methylene chloride	ND	6.1	3.0	ug/kg	
100-42-5	Styrene	ND	2.4	0.70	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.4	0.47	ug/kg	
127-18-4	Tetrachloroethene	ND	2.4	0.56	ug/kg	
108-88-3	Toluene	2.3	1.2	0.46	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.1	1.2	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.1	1.2	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.4	0.52	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.4	0.41	ug/kg	
79-01-6	Trichloroethene	ND	1.2	0.92	ug/kg	
75-69-4	Trichlorofluoromethane ^b	ND	6.1	0.82	ug/kg	UJ
75-01-4	Vinyl chloride	ND	2.4	0.57	ug/kg	
	m,p-Xylene	ND	1.2	0.90	ug/kg	
95-47-6	o-Xylene	ND	1.2	0.71	ug/kg	
1330-20-7	Xylene (total)	ND	1.2	0.71	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		75-127%
17060-07-0	1,2-Dichloroethane-D4	95%		75-130%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	102%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	TP-44R(7-9)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-5	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	77.9
Method:	SW846 8270D SW846 8151/3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153939.D	1	05/01/19 15:38	CC	04/28/19 13:30	OP20021	EM6577
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.6 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	84	21	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	210	26	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	210	36	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	210	75	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	210	160	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	210	45	ug/kg	
95-48-7	2-Methylphenol	ND	84	27	ug/kg	
	3&4-Methylphenol	ND	84	34	ug/kg	
88-75-5	2-Nitrophenol ^a	ND	210	28	ug/kg	
100-02-7	4-Nitrophenol	ND	420	110	ug/kg	
87-86-5	Pentachlorophenol ^a	ND	170	39	ug/kg	
108-95-2	Phenol	ND	84	22	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	210	28	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	210	31	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	210	25	ug/kg	
83-32-9	Acenaphthene	29.3	42	14	ug/kg	J
208-96-8	Acenaphthylene	ND	42	21	ug/kg	
98-86-2	Acetophenone	ND	210	9.0	ug/kg	
120-12-7	Anthracene	ND	42	26	ug/kg	
1912-24-9	Atrazine ^a	ND	84	18	ug/kg	
56-55-3	Benzo(a)anthracene	ND	42	12	ug/kg	
50-32-8	Benzo(a)pyrene	ND	42	19	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	42	19	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	42	21	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	42	20	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	84	16	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	84	10	ug/kg	
92-52-4	1,1'-Biphenyl	6.7	84	5.7	ug/kg	J
100-52-7	Benzaldehyde	ND	210	10	ug/kg	
91-58-7	2-Chloronaphthalene	ND	84	10	ug/kg	
106-47-8	4-Chloroaniline	ND	210	15	ug/kg	
86-74-8	Carbazole	ND	84	6.1	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TP-44R(7-9)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-5	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	77.9
Method:	SW846 8270D SW846 8151/3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	84	17	ug/kg	
218-01-9	Chrysene	ND	42	13	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	84	9.0	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	84	18	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	84	15	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	84	14	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	42	13	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	42	21	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	84	35	ug/kg	
123-91-1	1,4-Dioxane ^b	ND	42	28	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	ND	42	19	ug/kg	
132-64-9	Dibenzofuran	ND	84	17	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	84	6.8	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	84	10	ug/kg	
84-66-2	Diethyl phthalate	ND	84	8.9	ug/kg	
131-11-3	Dimethyl phthalate	ND	84	7.5	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	84	9.8	ug/kg	
206-44-0	Fluoranthene	ND	42	19	ug/kg	
86-73-7	Fluorene	ND	42	19	ug/kg	
118-74-1	Hexachlorobenzene	ND	84	11	ug/kg	
87-68-3	Hexachlorobutadiene	ND	42	17	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	420	17	ug/kg	
67-72-1	Hexachloroethane	ND	210	21	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	42	20	ug/kg	
78-59-1	Isophorone	ND	84	9.0	ug/kg	
91-57-6	2-Methylnaphthalene	14.7	42	9.5	ug/kg	J
88-74-4	2-Nitroaniline	ND	210	9.9	ug/kg	
99-09-2	3-Nitroaniline	ND	210	10	ug/kg	
100-01-6	4-Nitroaniline	ND	210	11	ug/kg	
91-20-3	Naphthalene	ND	42	12	ug/kg	
98-95-3	Nitrobenzene	ND	84	16	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	84	12	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	210	15	ug/kg	
85-01-8	Phenanthrene	ND	42	14	ug/kg	
129-00-0	Pyrene	ND	42	13	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	210	11	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	63%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: TP-44R(7-9)		Date Sampled: 04/22/19
Lab Sample ID: JC86837-5		Date Received: 04/23/19
Matrix: SO - Soil		Percent Solids: 77.9
Method: SW846 8270D SW846 8151/3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	63%		27-114%
118-79-6	2,4,6-Tribromophenol	109%		19-152%
4165-60-0	Nitrobenzene-d5	77%		26-134%
321-60-8	2-Fluorobiphenyl	86%		39-124%
1718-51-0	Terphenyl-d14	79%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-135(4-6)	
Lab Sample ID: JC86837-6	Date Sampled: 04/22/19
Matrix: SO - Soil	Date Received: 04/23/19
Method: SW846 8260C	Percent Solids: 71.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	I225878.D	1	05/01/19 18:45	TDN	n/a	n/a	VI9099
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.8 g	10.0 ml	100 ul
Run #2			

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	1700	830	ug/kg	
71-43-2	Benzene	ND	83	63	ug/kg	
74-97-5	Bromochloromethane	ND	830	71	ug/kg	
75-27-4	Bromodichloromethane	ND	330	74	ug/kg	
75-25-2	Bromoform	ND	830	67	ug/kg	
74-83-9	Bromomethane	ND	830	170	ug/kg	
78-93-3	2-Butanone (MEK)	ND	1700	620	ug/kg	
75-15-0	Carbon disulfide	ND	330	150	ug/kg	
56-23-5	Carbon tetrachloride	ND	330	91	ug/kg	
108-90-7	Chlorobenzene	ND	330	59	ug/kg	
75-00-3	Chloroethane	ND	830	110	ug/kg	
67-66-3	Chloroform	ND	330	62	ug/kg	
74-87-3	Chloromethane ^b	ND	830	330	ug/kg	
110-82-7	Cyclohexane	ND	330	67	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	330	140	ug/kg	
124-48-1	Dibromochloromethane	ND	330	56	ug/kg	
106-93-4	1,2-Dibromoethane	ND	170	54	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	170	51	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	170	60	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	170	57	ug/kg	
75-71-8	Dichlorodifluoromethane ^b	ND	830	110	ug/kg	
75-34-3	1,1-Dichloroethane	ND	170	64	ug/kg	
107-06-2	1,2-Dichloroethane	ND	170	78	ug/kg	
75-35-4	1,1-Dichloroethene	ND	170	110	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	170	160	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	170	110	ug/kg	
78-87-5	1,2-Dichloropropane	ND	330	68	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	330	59	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	330	54	ug/kg	
100-41-4	Ethylbenzene	119	170	92	ug/kg	J
76-13-1	Freon 113	ND	830	130	ug/kg	
591-78-6	2-Hexanone	ND	830	210	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-135(4-6)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-6	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	71.3
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	330	120	ug/kg	
79-20-9	Methyl Acetate	ND	830	230	ug/kg	
108-87-2	Methylcyclohexane	ND	330	120	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	170	59	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	830	260	ug/kg	
75-09-2	Methylene chloride	ND	830	420	ug/kg	
100-42-5	Styrene	ND	330	96	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	330	65	ug/kg	
127-18-4	Tetrachloroethene	ND	330	77	ug/kg	
108-88-3	Toluene	2070	170	62	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	830	170	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	830	170	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	330	71	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	330	57	ug/kg	
79-01-6	Trichloroethene	ND	170	130	ug/kg	
75-69-4	Trichlorofluoromethane	ND	830	110	ug/kg	
75-01-4	Vinyl chloride ^b	ND	330	78	ug/kg	
	m,p-Xylene	212	170	120	ug/kg	
95-47-6	o-Xylene	ND	170	97	ug/kg	
1330-20-7	Xylene (total)	212	170	97	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	103%		75-127%
17060-07-0	1,2-Dichloroethane-D4	100%		75-130%
2037-26-5	Toluene-D8	103%		80-120%
460-00-4	4-Bromofluorobenzene	124%		79-127%

(a) Diluted due to high concentration of target and non-target compound.

(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-135(4-6)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-6	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	71.3
Method:	SW846 8270D SW846 8151/3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153942.D	1	05/01/19 17:32	CC	04/28/19 13:30	OP20021	EM6577
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	93	23	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	230	28	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	230	40	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	230	83	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	230	170	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	230	50	ug/kg	
95-48-7	2-Methylphenol	ND	93	30	ug/kg	
	3&4-Methylphenol	82.7	93	38	ug/kg	J
88-75-5	2-Nitrophenol ^a	ND	230	31	ug/kg	
100-02-7	4-Nitrophenol	ND	460	120	ug/kg	
87-86-5	Pentachlorophenol ^a	ND	190	44	ug/kg	
108-95-2	Phenol	ND	93	24	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	230	31	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	230	35	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	230	28	ug/kg	
83-32-9	Acenaphthene	216	46	16	ug/kg	
208-96-8	Acenaphthylene	ND	46	24	ug/kg	
98-86-2	Acetophenone	ND	230	10	ug/kg	
120-12-7	Anthracene	114	46	28	ug/kg	
1912-24-9	Atrazine ^a	ND	93	20	ug/kg	
56-55-3	Benzo(a)anthracene	126	46	13	ug/kg	
50-32-8	Benzo(a)pyrene	143	46	21	ug/kg	
205-99-2	Benzo(b)fluoranthene	152	46	21	ug/kg	
191-24-2	Benzo(g,h,i)perylene	96.6	46	23	ug/kg	
207-08-9	Benzo(k)fluoranthene	62.3	46	22	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	93	18	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	93	11	ug/kg	
92-52-4	1,1'-Biphenyl	ND	93	6.4	ug/kg	
100-52-7	Benzaldehyde	ND	230	12	ug/kg	
91-58-7	2-Chloronaphthalene	ND	93	11	ug/kg	
106-47-8	4-Chloroaniline	ND	230	17	ug/kg	
86-74-8	Carbazole	ND	93	6.7	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-135(4-6)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-6	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	71.3
Method:	SW846 8270D SW846 8151/3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	93	18	ug/kg	
218-01-9	Chrysene	150	46	15	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	93	9.9	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	93	20	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	93	17	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	93	15	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	46	14	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	46	23	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	93	39	ug/kg	
123-91-1	1,4-Dioxane ^b	ND	46	31	ug/kg	UJ
53-70-3	Dibenzo(a,h)anthracene	28.7	46	21	ug/kg	J
132-64-9	Dibenzofuran	131	93	19	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	93	7.6	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	93	12	ug/kg	
84-66-2	Diethyl phthalate	ND	93	9.9	ug/kg	
131-11-3	Dimethyl phthalate	ND	93	8.3	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	93	11	ug/kg	
206-44-0	Fluoranthene	305	46	21	ug/kg	
86-73-7	Fluorene	302	46	21	ug/kg	
118-74-1	Hexachlorobenzene	ND	93	12	ug/kg	
87-68-3	Hexachlorobutadiene	ND	46	19	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	460	18	ug/kg	
67-72-1	Hexachloroethane	ND	230	23	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	105	46	22	ug/kg	
78-59-1	Isophorone	ND	93	9.9	ug/kg	
91-57-6	2-Methylnaphthalene	108	46	10	ug/kg	
88-74-4	2-Nitroaniline	ND	230	11	ug/kg	
99-09-2	3-Nitroaniline	ND	230	12	ug/kg	
100-01-6	4-Nitroaniline	ND	230	12	ug/kg	
91-20-3	Naphthalene	104	46	13	ug/kg	
98-95-3	Nitrobenzene	ND	93	18	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	93	13	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	230	17	ug/kg	
85-01-8	Phenanthrene	142	46	16	ug/kg	
129-00-0	Pyrene	274	46	15	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	230	12	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	59%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-135(4-6) Lab Sample ID: JC86837-6 Matrix: SO - Soil Method: SW846 8270D SW846 8151/3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/22/19 Date Received: 04/23/19 Percent Solids: 71.3
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	56%		27-114%
118-79-6	2,4,6-Tribromophenol	100%		19-152%
4165-60-0	Nitrobenzene-d5	75%		26-134%
321-60-8	2-Fluorobiphenyl	89%		39-124%
1718-51-0	Terphenyl-d14	70%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-135(8-10)		Date Sampled: 04/22/19
Lab Sample ID: JC86837-7		Date Received: 04/23/19
Matrix: SO - Soil		Percent Solids: 69.9
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151616.D	1	05/01/19 17:21	PS	n/a	n/a	V3C6814
Run #2							

Run #	Initial Weight
Run #1	5.6 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	105	13	6.4	ug/kg	
71-43-2	Benzene	ND	0.64	0.48	ug/kg	
74-97-5	Bromochloromethane	ND	6.4	0.55	ug/kg	
75-27-4	Bromodichloromethane	ND	2.6	0.57	ug/kg	
75-25-2	Bromoform	ND	6.4	0.51	ug/kg	
74-83-9	Bromomethane	ND	6.4	1.3	ug/kg	
78-93-3	2-Butanone (MEK)	9.6	13	4.8	ug/kg	J
75-15-0	Carbon disulfide	ND	2.6	1.2	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.6	0.70	ug/kg	
108-90-7	Chlorobenzene	ND	2.6	0.45	ug/kg	
75-00-3	Chloroethane	ND	6.4	0.88	ug/kg	
67-66-3	Chloroform	ND	2.6	0.48	ug/kg	
74-87-3	Chloromethane	ND	6.4	2.5	ug/kg	
110-82-7	Cyclohexane	ND	2.6	0.52	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.6	1.1	ug/kg	
124-48-1	Dibromochloromethane	ND	2.6	0.43	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.3	0.42	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.3	0.39	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.3	0.46	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.3	0.44	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.4	0.81	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.3	0.49	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.3	0.60	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.3	0.84	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.3	1.2	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.3	0.85	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.6	0.52	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.6	0.45	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.6	0.42	ug/kg	
100-41-4	Ethylbenzene	ND	1.3	0.71	ug/kg	
76-13-1	Freon 113	ND	6.4	0.97	ug/kg	
591-78-6	2-Hexanone	ND	6.4	1.6	ug/kg	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-135(8-10)		Date Sampled: 04/22/19
Lab Sample ID: JC86837-7		Date Received: 04/23/19
Matrix: SO - Soil		Percent Solids: 69.9
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.6	0.89	ug/kg	
79-20-9	Methyl Acetate	ND	6.4	1.8	ug/kg	
108-87-2	Methylcyclohexane	ND	2.6	0.90	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.3	0.45	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK ^a)	ND	6.4	2.0	ug/kg	
75-09-2	Methylene chloride	ND	6.4	3.2	ug/kg	
100-42-5	Styrene	ND	2.6	0.73	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.6	0.50	ug/kg	
127-18-4	Tetrachloroethene	ND	2.6	0.59	ug/kg	
108-88-3	Toluene	0.80	1.3	0.48	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	6.4	1.3	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.4	1.3	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.6	0.54	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.6	0.44	ug/kg	
79-01-6	Trichloroethene	ND	1.3	0.97	ug/kg	
75-69-4	Trichlorofluoromethane ^b	ND	6.4	0.87	ug/kg	UJ
75-01-4	Vinyl chloride	ND	2.6	0.60	ug/kg	
	m,p-Xylene	ND	1.3	0.95	ug/kg	
95-47-6	o-Xylene	ND	1.3	0.74	ug/kg	
1330-20-7	Xylene (total)	ND	1.3	0.74	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		75-127%
17060-07-0	1,2-Dichloroethane-D4	95%		75-130%
2037-26-5	Toluene-D8	105%		80-120%
460-00-4	4-Bromofluorobenzene	112%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-135(8-10)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-7	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	69.9
Method:	SW846 8270D SW846 8151/3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	M153941.D	1	05/01/19 16:35	CC	04/28/19 13:30	OP20021	EM6577
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	95	23	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	240	29	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	240	40	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	240	84	ug/kg	
51-28-5	2,4-Dinitrophenol	ND	240	180	ug/kg	
534-52-1	4,6-Dinitro-o-cresol	ND	240	51	ug/kg	
95-48-7	2-Methylphenol	ND	95	30	ug/kg	
	3&4-Methylphenol	ND	95	39	ug/kg	
88-75-5	2-Nitrophenol ^a	ND	240	31	ug/kg	
100-02-7	4-Nitrophenol	ND	470	130	ug/kg	
87-86-5	Pentachlorophenol ^a	ND	190	44	ug/kg	
108-95-2	Phenol	ND	95	25	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	240	31	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	240	35	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	240	28	ug/kg	
83-32-9	Acenaphthene	ND	47	16	ug/kg	
208-96-8	Acenaphthylene	ND	47	24	ug/kg	
98-86-2	Acetophenone	ND	240	10	ug/kg	
120-12-7	Anthracene	ND	47	29	ug/kg	
1912-24-9	Atrazine ^a	ND	95	20	ug/kg	
56-55-3	Benzo(a)anthracene	42.2	47	13	ug/kg	J
50-32-8	Benzo(a)pyrene	40.8	47	22	ug/kg	J
205-99-2	Benzo(b)fluoranthene	49.2	47	21	ug/kg	
191-24-2	Benzo(g,h,i)perylene	29.1	47	24	ug/kg	J
207-08-9	Benzo(k)fluoranthene	ND	47	22	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	95	18	ug/kg	
85-68-7	Butyl benzyl phthalate	ND	95	12	ug/kg	
92-52-4	1,1'-Biphenyl	9.1	95	6.5	ug/kg	J
100-52-7	Benzaldehyde	ND	240	12	ug/kg	
91-58-7	2-Chloronaphthalene	ND	95	11	ug/kg	
106-47-8	4-Chloroaniline	ND	240	17	ug/kg	
86-74-8	Carbazole	7.1	95	6.9	ug/kg	J

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-135(8-10)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-7	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	69.9
Method:	SW846 8270D SW846 8151/3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	95	19	ug/kg	
218-01-9	Chrysene	39.1	47	15	ug/kg	J
111-91-1	bis(2-Chloroethoxy)methane	ND	95	10	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	95	20	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	95	17	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	95	15	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	47	15	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	47	24	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	95	40	ug/kg	
123-91-1	1,4-Dioxane ^b	ND	47	31	ug/kg	UU
53-70-3	Dibenzo(a,h)anthracene	ND	47	21	ug/kg	
132-64-9	Dibenzofuran	ND	95	19	ug/kg	
84-74-2	Di-n-butyl phthalate	ND	95	7.7	ug/kg	
117-84-0	Di-n-octyl phthalate	ND	95	12	ug/kg	
84-66-2	Diethyl phthalate	ND	95	10	ug/kg	
131-11-3	Dimethyl phthalate	ND	95	8.4	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate	ND	95	11	ug/kg	
206-44-0	Fluoranthene	48.1	47	21	ug/kg	
86-73-7	Fluorene	ND	47	22	ug/kg	
118-74-1	Hexachlorobenzene	ND	95	12	ug/kg	
87-68-3	Hexachlorobutadiene	ND	47	19	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	470	19	ug/kg	
67-72-1	Hexachloroethane	ND	240	23	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	46.4	47	22	ug/kg	J
78-59-1	Isophorone	ND	95	10	ug/kg	
91-57-6	2-Methylnaphthalene	ND	47	11	ug/kg	
88-74-4	2-Nitroaniline	ND	240	11	ug/kg	
99-09-2	3-Nitroaniline	ND	240	12	ug/kg	
100-01-6	4-Nitroaniline	ND	240	12	ug/kg	
91-20-3	Naphthalene	25.8	47	13	ug/kg	J
98-95-3	Nitrobenzene	ND	95	18	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	95	14	ug/kg	
86-30-6	N-Nitrosodiphenylamine	ND	240	17	ug/kg	
85-01-8	Phenanthrene	34.3	47	16	ug/kg	J
129-00-0	Pyrene	57.4	47	15	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	240	12	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	59%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-135(8-10) Lab Sample ID: JC86837-7 Matrix: SO - Soil Method: SW846 8270D SW846 8151/3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/22/19 Date Received: 04/23/19 Percent Solids: 69.9
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	58%		27-114%
118-79-6	2,4,6-Tribromophenol	102%		19-152%
4165-60-0	Nitrobenzene-d5	75%		26-134%
321-60-8	2-Fluorobiphenyl	81%		39-124%
1718-51-0	Terphenyl-d14	73%		36-134%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: S-136(4-6)		Date Sampled: 04/22/19
Lab Sample ID: JC86837-8		Date Received: 04/23/19
Matrix: SO - Soil		Percent Solids: 72.6
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y184888.D	1	05/02/19 14:26	PS	n/a	n/a	VY8023
Run #2							

Run #1	Initial Weight
Run #1	4.7 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	176	15	7.3	ug/kg	
71-43-2	Benzene	2.2	0.73	0.55	ug/kg	
74-97-5	Bromochloromethane	ND	7.3	0.63	ug/kg	
75-27-4	Bromodichloromethane	ND	2.9	0.65	ug/kg	
75-25-2	Bromoform	ND	7.3	0.59	ug/kg	
74-83-9	Bromomethane	ND	7.3	1.5	ug/kg	
78-93-3	2-Butanone (MEK)	22.9	15	5.5	ug/kg	
75-15-0	Carbon disulfide	ND	2.9	1.4	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.9	0.81	ug/kg	
108-90-7	Chlorobenzene	ND	2.9	0.52	ug/kg	
75-00-3	Chloroethane	ND	7.3	1.0	ug/kg	
67-66-3	Chloroform	ND	2.9	0.55	ug/kg	
74-87-3	Chloromethane	ND	7.3	2.9	ug/kg	
110-82-7	Cyclohexane	ND	2.9	0.59	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.9	1.2	ug/kg	
124-48-1	Dibromochloromethane	ND	2.9	0.50	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.5	0.48	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.5	0.45	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.5	0.53	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.5	0.50	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	7.3	0.93	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.5	0.56	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.5	0.69	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.5	0.96	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.5	1.4	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.5	0.98	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.9	0.60	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.9	0.52	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.9	0.48	ug/kg	
100-41-4	Ethylbenzene	ND	1.5	0.81	ug/kg	
76-13-1	Freon 113 ^a	ND	7.3	1.1	ug/kg	
591-78-6	2-Hexanone	ND	7.3	1.9	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-136(4-6)		Date Sampled: 04/22/19
Lab Sample ID: JC86837-8		Date Received: 04/23/19
Matrix: SO - Soil		Percent Solids: 72.6
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.9	1.0	ug/kg	
79-20-9	Methyl Acetate	ND	7.3	2.0	ug/kg	
108-87-2	Methylcyclohexane	ND	2.9	1.0	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.5	0.52	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	7.3	2.3	ug/kg	
75-09-2	Methylene chloride	ND	7.3	3.7	ug/kg	
100-42-5	Styrene	ND	2.9	0.84	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.9	0.57	ug/kg	
127-18-4	Tetrachloroethene	ND	2.9	0.68	ug/kg	
108-88-3	Toluene	1.3	1.5	0.55	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	7.3	1.5	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	7.3	1.5	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.9	0.62	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.9	0.50	ug/kg	
79-01-6	Trichloroethene	ND	1.5	1.1	ug/kg	
75-69-4	Trichlorofluoromethane	ND	7.3	1.0	ug/kg	
75-01-4	Vinyl chloride	ND	2.9	0.69	ug/kg	
	m,p-Xylene	ND	1.5	1.1	ug/kg	
95-47-6	o-Xylene	ND	1.5	0.85	ug/kg	
1330-20-7	Xylene (total)	ND	1.5	0.85	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	110%		75-127%
17060-07-0	1,2-Dichloroethane-D4	105%		75-130%
2037-26-5	Toluene-D8	96%		80-120%
460-00-4	4-Bromofluorobenzene	96%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-136(4-6)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-8	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	72.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P481465.D	1	04/29/19 14:02	AR	04/28/19 13:30	OP20035	E6P2576
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	91	23	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	230	28	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	230	39	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	230	81	ug/kg	
51-28-5	2,4-Dinitrophenol ^a	ND	230	170	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol ^a	ND	230	49	ug/kg	UJ
95-48-7	2-Methylphenol	ND	91	29	ug/kg	
	3&4-Methylphenol	ND	91	37	ug/kg	UJ
88-75-5	2-Nitrophenol	ND	230	30	ug/kg	
100-02-7	4-Nitrophenol	ND	460	120	ug/kg	
87-86-5	Pentachlorophenol	ND	180	43	ug/kg	
108-95-2	Phenol	ND	91	24	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	230	30	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	230	34	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	230	27	ug/kg	
83-32-9	Acenaphthene	37.5	46	16	ug/kg	J
208-96-8	Acenaphthylene	47.3	46	23	ug/kg	
98-86-2	Acetophenone	ND	230	9.8	ug/kg	UJ
120-12-7	Anthracene	61.6	46	28	ug/kg	
1912-24-9	Atrazine	ND	91	20	ug/kg	
56-55-3	Benzo(a)anthracene	79.9	46	13	ug/kg	
50-32-8	Benzo(a)pyrene	99.0	46	21	ug/kg	
205-99-2	Benzo(b)fluoranthene	102	46	20	ug/kg	
191-24-2	Benzo(g,h,i)perylene	73.1	46	23	ug/kg	
207-08-9	Benzo(k)fluoranthene	44.1	46	21	ug/kg	J
101-55-3	4-Bromophenyl phenyl ether	ND	91	18	ug/kg	
85-68-7	Butyl benzyl phthalate ^b	ND	91	11	ug/kg	
92-52-4	1,1'-Biphenyl	24.2	91	6.2	ug/kg	J
100-52-7	Benzaldehyde	14.9	230	11	ug/kg	J
91-58-7	2-Chloronaphthalene	ND	91	11	ug/kg	
106-47-8	4-Chloroaniline	ND	230	16	ug/kg	
86-74-8	Carbazole	ND	91	6.6	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-136(4-6)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-8	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	72.6
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	91	18	ug/kg	
218-01-9	Chrysene	84.1	46	14	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	91	9.8	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	91	20	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	91	16	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	91	15	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	46	14	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	46	23	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	91	38	ug/kg	
123-91-1	1,4-Dioxane	ND	46	30	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	46	20	ug/kg	
132-64-9	Dibenzofuran	ND	91	19	ug/kg	
84-74-2	Di-n-butyl phthalate ^b	ND	91	7.4	ug/kg	
117-84-0	Di-n-octyl phthalate ^b	ND	91	11	ug/kg	
84-66-2	Diethyl phthalate	ND	91	9.7	ug/kg	
131-11-3	Dimethyl phthalate	ND	91	8.1	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate ^b	ND	91	11	ug/kg	
206-44-0	Fluoranthene	111	46	20	ug/kg	
86-73-7	Fluorene	33.1	46	21	ug/kg	J
118-74-1	Hexachlorobenzene	ND	91	12	ug/kg	
87-68-3	Hexachlorobutadiene	ND	46	18	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	460	18	ug/kg	
67-72-1	Hexachloroethane	ND	230	23	ug/kg	UJ
193-39-5	Indeno(1,2,3-cd)pyrene	53.7	46	21	ug/kg	
78-59-1	Isophorone	ND	91	9.8	ug/kg	
91-57-6	2-Methylnaphthalene	76.5	46	10	ug/kg	
88-74-4	2-Nitroaniline	ND	230	11	ug/kg	
99-09-2	3-Nitroaniline	ND	230	11	ug/kg	
100-01-6	4-Nitroaniline	ND	230	12	ug/kg	
91-20-3	Naphthalene	395	46	13	ug/kg	
98-95-3	Nitrobenzene	ND	91	18	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	91	13	ug/kg	UJ
86-30-6	N-Nitrosodiphenylamine	ND	230	17	ug/kg	
85-01-8	Phenanthrene	72.2	46	15	ug/kg	
129-00-0	Pyrene	156	46	15	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	230	12	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	86%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-136(4-6)		Date Sampled: 04/22/19
Lab Sample ID: JC86837-8		Date Received: 04/23/19
Matrix: SO - Soil		Percent Solids: 72.6
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	79%		27-114%
118-79-6	2,4,6-Tribromophenol	75%		19-152%
4165-60-0	Nitrobenzene-d5	74%		26-134%
321-60-8	2-Fluorobiphenyl	78%		39-124%
1718-51-0	Terphenyl-d14	84%		36-134%

- (a) Associated CCV outside of control limits low.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-136(7-9)	
Lab Sample ID: JC86837-9	Date Sampled: 04/22/19
Matrix: SO - Soil	Date Received: 04/23/19
Method: SW846 8260C	Percent Solids: 81.4
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	3C151617.D	1	05/01/19 17:44	PS	n/a	n/a	V3C6814

Run #1	Initial Weight
Run #2	5.4 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	66.4	11	5.7	ug/kg	
71-43-2	Benzene	ND	0.57	0.43	ug/kg	
74-97-5	Bromochloromethane	ND	5.7	0.49	ug/kg	
75-27-4	Bromodichloromethane	ND	2.3	0.50	ug/kg	
75-25-2	Bromoform	ND	5.7	0.46	ug/kg	
74-83-9	Bromomethane	ND	5.7	1.1	ug/kg	
78-93-3	2-Butanone (MEK)	ND	11	4.3	ug/kg	
75-15-0	Carbon disulfide	ND	2.3	1.1	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.3	0.63	ug/kg	
108-90-7	Chlorobenzene	ND	2.3	0.40	ug/kg	
75-00-3	Chloroethane	ND	5.7	0.78	ug/kg	
67-66-3	Chloroform	ND	2.3	0.42	ug/kg	
74-87-3	Chloromethane	ND	5.7	2.2	ug/kg	
110-82-7	Cyclohexane	ND	2.3	0.46	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.3	0.95	ug/kg	
124-48-1	Dibromochloromethane	ND	2.3	0.38	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.1	0.37	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.1	0.35	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.1	0.41	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.1	0.39	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.7	0.72	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.1	0.44	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.1	0.53	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.1	0.75	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.1	1.1	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.1	0.76	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.3	0.46	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.3	0.40	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.3	0.37	ug/kg	
100-41-4	Ethylbenzene	ND	1.1	0.63	ug/kg	
76-13-1	Freon 113	ND	5.7	0.87	ug/kg	
591-78-6	2-Hexanone	ND	5.7	1.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-136(7-9)		Date Sampled: 04/22/19
Lab Sample ID: JC86837-9		Date Received: 04/23/19
Matrix: SO - Soil		Percent Solids: 81.4
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.3	0.79	ug/kg	
79-20-9	Methyl Acetate	ND	5.7	1.6	ug/kg	
108-87-2	Methylcyclohexane	ND	2.3	0.80	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.1	0.40	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK ^a)	ND	5.7	1.8	ug/kg	
75-09-2	Methylene chloride	ND	5.7	2.8	ug/kg	
100-42-5	Styrene	ND	2.3	0.65	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.3	0.44	ug/kg	
127-18-4	Tetrachloroethene	ND	2.3	0.53	ug/kg	
108-88-3	Toluene	0.68	1.1	0.43	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	5.7	1.1	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.7	1.1	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.3	0.48	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.3	0.39	ug/kg	
79-01-6	Trichloroethene	ND	1.1	0.87	ug/kg	
75-69-4	Trichlorofluoromethane ^b	ND	5.7	0.77	ug/kg	UJ
75-01-4	Vinyl chloride	ND	2.3	0.53	ug/kg	
	m,p-Xylene	ND	1.1	0.85	ug/kg	
95-47-6	o-Xylene	ND	1.1	0.66	ug/kg	
1330-20-7	Xylene (total)	ND	1.1	0.66	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		75-127%
17060-07-0	1,2-Dichloroethane-D4	95%		75-130%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	103%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-136(7-9)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-9	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	81.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P481475.D	1	04/29/19 18:48	AR	04/28/19 13:30	OP20035	E6P2576
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.9 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	80	20	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	200	24	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	200	34	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	200	71	ug/kg	
51-28-5	2,4-Dinitrophenol ^a	ND	200	150	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol ^a	ND	200	43	ug/kg	UJ
95-48-7	2-Methylphenol	ND	80	25	ug/kg	
	3&4-Methylphenol	ND	80	33	ug/kg	UJ
88-75-5	2-Nitrophenol	ND	200	26	ug/kg	
100-02-7	4-Nitrophenol	ND	400	110	ug/kg	
87-86-5	Pentachlorophenol	ND	160	37	ug/kg	
108-95-2	Phenol	ND	80	21	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	200	26	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	200	30	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	200	24	ug/kg	
83-32-9	Acenaphthene	ND	40	14	ug/kg	
208-96-8	Acenaphthylene	ND	40	20	ug/kg	
98-86-2	Acetophenone	ND	200	8.5	ug/kg	UJ
120-12-7	Anthracene	ND	40	24	ug/kg	
1912-24-9	Atrazine	ND	80	17	ug/kg	
56-55-3	Benzo(a)anthracene	ND	40	11	ug/kg	
50-32-8	Benzo(a)pyrene	ND	40	18	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	40	18	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	40	20	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	40	19	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	80	15	ug/kg	
85-68-7	Butyl benzyl phthalate ^b	ND	80	9.7	ug/kg	
92-52-4	1,1'-Biphenyl	ND	80	5.4	ug/kg	
100-52-7	Benzaldehyde	ND	200	9.9	ug/kg	
91-58-7	2-Chloronaphthalene	ND	80	9.5	ug/kg	
106-47-8	4-Chloroaniline	ND	200	14	ug/kg	
86-74-8	Carbazole	ND	80	5.8	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-136(7-9)	Date Sampled:	04/22/19
Lab Sample ID:	JC86837-9	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	81.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	80	16	ug/kg	
218-01-9	Chrysene	ND	40	13	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	80	8.5	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	80	17	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	80	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	80	13	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	40	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	40	20	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	80	33	ug/kg	
123-91-1	1,4-Dioxane	ND	40	26	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	40	18	ug/kg	
132-64-9	Dibenzofuran	ND	80	16	ug/kg	
84-74-2	Di-n-butyl phthalate ^b	ND	80	6.5	ug/kg	
117-84-0	Di-n-octyl phthalate ^b	ND	80	9.9	ug/kg	
84-66-2	Diethyl phthalate	ND	80	8.5	ug/kg	
131-11-3	Dimethyl phthalate	ND	80	7.1	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate ^b	ND	80	9.3	ug/kg	
206-44-0	Fluoranthene	ND	40	18	ug/kg	
86-73-7	Fluorene	ND	40	18	ug/kg	
118-74-1	Hexachlorobenzene	ND	80	10	ug/kg	
87-68-3	Hexachlorobutadiene	ND	40	16	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	400	16	ug/kg	
67-72-1	Hexachloroethane	ND	200	20	ug/kg	UJ
193-39-5	Indeno(1,2,3-cd)pyrene	ND	40	19	ug/kg	
78-59-1	Isophorone	ND	80	8.5	ug/kg	
91-57-6	2-Methylnaphthalene	ND	40	9.0	ug/kg	
88-74-4	2-Nitroaniline	ND	200	9.4	ug/kg	
99-09-2	3-Nitroaniline	ND	200	9.9	ug/kg	
100-01-6	4-Nitroaniline	ND	200	10	ug/kg	
91-20-3	Naphthalene	ND	40	11	ug/kg	
98-95-3	Nitrobenzene	ND	80	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	80	11	ug/kg	UJ
86-30-6	N-Nitrosodiphenylamine	ND	200	15	ug/kg	
85-01-8	Phenanthrene	ND	40	13	ug/kg	
129-00-0	Pyrene	ND	40	13	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	200	10	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	80%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-136(7-9) Lab Sample ID: JC86837-9 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/22/19 Date Received: 04/23/19 Percent Solids: 81.4
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	79%		27-114%
118-79-6	2,4,6-Tribromophenol	71%		19-152%
4165-60-0	Nitrobenzene-d5	95%		26-134%
321-60-8	2-Fluorobiphenyl	79%		39-124%
1718-51-0	Terphenyl-d14	85%		36-134%

- (a) Associated CCV outside of control limits low.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-111(2-4)		
Lab Sample ID: JC86837-10		Date Sampled: 04/23/19
Matrix: SO - Soil		Date Received: 04/23/19
Method: SW846 8260C		Percent Solids: 86.2
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151618.D	1	05/01/19 18:07	PS	n/a	n/a	V3C6814
Run #2							

Run #1	Initial Weight
Run #1	4.5 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	13	6.4	ug/kg	
71-43-2	Benzene	ND	0.64	0.49	ug/kg	
74-97-5	Bromochloromethane	ND	6.4	0.55	ug/kg	
75-27-4	Bromodichloromethane	ND	2.6	0.57	ug/kg	
75-25-2	Bromoform	ND	6.4	0.52	ug/kg	
74-83-9	Bromomethane	ND	6.4	1.3	ug/kg	
78-93-3	2-Butanone (MEK)	ND	13	4.8	ug/kg	
75-15-0	Carbon disulfide	1.3	2.6	1.2	ug/kg	J
56-23-5	Carbon tetrachloride	ND	2.6	0.71	ug/kg	
108-90-7	Chlorobenzene	ND	2.6	0.46	ug/kg	
75-00-3	Chloroethane	ND	6.4	0.89	ug/kg	
67-66-3	Chloroform	ND	2.6	0.48	ug/kg	
74-87-3	Chloromethane	ND	6.4	2.5	ug/kg	
110-82-7	Cyclohexane	ND	2.6	0.52	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.6	1.1	ug/kg	
124-48-1	Dibromochloromethane	ND	2.6	0.44	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.3	0.42	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.3	0.39	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.3	0.46	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.3	0.44	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	6.4	0.82	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.3	0.50	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.3	0.61	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.3	0.85	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.3	1.2	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.3	0.86	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.6	0.52	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.6	0.45	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.6	0.42	ug/kg	
100-41-4	Ethylbenzene	ND	1.3	0.71	ug/kg	
76-13-1	Freon 113	ND	6.4	0.98	ug/kg	
591-78-6	2-Hexanone	ND	6.4	1.6	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-111(2-4)		Date Sampled: 04/23/19
Lab Sample ID: JC86837-10		Date Received: 04/23/19
Matrix: SO - Soil		Percent Solids: 86.2
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.6	0.90	ug/kg	
79-20-9	Methyl Acetate	ND	6.4	1.8	ug/kg	
108-87-2	Methylcyclohexane	ND	2.6	0.91	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.3	0.45	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK ^a)	ND	6.4	2.0	ug/kg	
75-09-2	Methylene chloride	ND	6.4	3.2	ug/kg	
100-42-5	Styrene	ND	2.6	0.74	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.6	0.50	ug/kg	
127-18-4	Tetrachloroethene	ND	2.6	0.60	ug/kg	
108-88-3	Toluene	ND	1.3	0.48	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	6.4	1.3	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	6.4	1.3	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.6	0.55	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.6	0.44	ug/kg	
79-01-6	Trichloroethene	ND	1.3	0.98	ug/kg	
75-69-4	Trichlorofluoromethane ^b	ND	6.4	0.88	ug/kg	UJ
75-01-4	Vinyl chloride	ND	2.6	0.60	ug/kg	
	m,p-Xylene	ND	1.3	0.96	ug/kg	
95-47-6	o-Xylene	ND	1.3	0.75	ug/kg	
1330-20-7	Xylene (total)	ND	1.3	0.75	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		75-127%
17060-07-0	1,2-Dichloroethane-D4	96%		75-130%
2037-26-5	Toluene-D8	112%		80-120%
460-00-4	4-Bromofluorobenzene	120%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: S-111(2-4)	
Lab Sample ID: JC86837-10	Date Sampled: 04/23/19
Matrix: SO - Soil	Date Received: 04/23/19
Method: SW846 8270D SW846 3546	Percent Solids: 86.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P481545.D	1	05/01/19 21:02	AR	04/28/19 13:30	OP20035	E6P2578
Run #2	6P481539.D	5	05/01/19 18:37	AR	04/28/19 13:30	OP20035	E6P2578

Run #1	Initial Weight	Final Volume
Run #1	30.7 g	1.0 ml
Run #2	30.7 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	76	19	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	190	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	190	32	ug/kg	
105-67-9	2,4-Dimethylphenol ^a	ND	190	67	ug/kg	
51-28-5	2,4-Dinitrophenol ^b	ND	190	140	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol	ND	190	40	ug/kg	
95-48-7	2-Methylphenol	ND	76	24	ug/kg	
	3&4-Methylphenol	53.3	76	31	ug/kg	J
88-75-5	2-Nitrophenol	ND	190	25	ug/kg	
100-02-7	4-Nitrophenol	ND	380	100	ug/kg	
87-86-5	Pentachlorophenol	ND	150	35	ug/kg	
108-95-2	Phenol	49.0	76	20	ug/kg	J
58-90-2	2,3,4,6-Tetrachlorophenol	ND	190	25	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	190	28	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	190	23	ug/kg	
83-32-9	Acenaphthene	121	38	13	ug/kg	
208-96-8	Acenaphthylene	3140	38	19	ug/kg	
98-86-2	Acetophenone	31.8	190	8.1	ug/kg	J
120-12-7	Anthracene	2210	38	23	ug/kg	
1912-24-9	Atrazine	ND	76	16	ug/kg	
56-55-3	Benzo(a)anthracene	4480 ^c	190	53	ug/kg	D
50-32-8	Benzo(a)pyrene	7110 ^c	190	86	ug/kg	
205-99-2	Benzo(b)fluoranthene	8790 ^c	190	84	ug/kg	
191-24-2	Benzo(g,h,i)perylene	5670 ^c	190	94	ug/kg	
207-08-9	Benzo(k)fluoranthene	2720 ^c	190	88	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	76	15	ug/kg	
85-68-7	Butyl benzyl phthalate ^a	ND	76	9.2	ug/kg	
92-52-4	1,1'-Biphenyl	101	76	5.2	ug/kg	
100-52-7	Benzaldehyde	ND	190	9.4	ug/kg	
91-58-7	2-Chloronaphthalene	ND	76	9.0	ug/kg	
106-47-8	4-Chloroaniline	ND	190	14	ug/kg	
86-74-8	Carbazole	354	76	5.5	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.10
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Report of Analysis

Client Sample ID:	S-111(2-4)	Date Sampled:	04/23/19
Lab Sample ID:	JC86837-10	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	86.2
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	76	15	ug/kg	
218-01-9	Chrysene	4260 ^c	190	60	ug/kg	D
111-91-1	bis(2-Chloroethoxy)methane	ND	76	8.1	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	76	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	76	14	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	76	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	38	12	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	38	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	76	32	ug/kg	
123-91-1	1,4-Dioxane	ND	38	25	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	2020	38	17	ug/kg	
132-64-9	Dibenzofuran	387	76	15	ug/kg	
84-74-2	Di-n-butyl phthalate ^a	ND	76	6.2	ug/kg	
117-84-0	Di-n-octyl phthalate ^a	ND	76	9.4	ug/kg	
84-66-2	Diethyl phthalate	ND	76	8.0	ug/kg	
131-11-3	Dimethyl phthalate	ND	76	6.7	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate ^a	ND	76	8.8	ug/kg	
206-44-0	Fluoranthene	6890 ^c	190	84	ug/kg	
86-73-7	Fluorene	448	38	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	76	9.6	ug/kg	
87-68-3	Hexachlorobutadiene	ND	38	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene ^b	ND	380	15	ug/kg	UJ
67-72-1	Hexachloroethane	ND	190	19	ug/kg	UJ
193-39-5	Indeno(1,2,3-cd)pyrene	4870 ^c	190	89	ug/kg	D
78-59-1	Isophorone	ND	76	8.1	ug/kg	
91-57-6	2-Methylnaphthalene	447	38	8.5	ug/kg	
88-74-4	2-Nitroaniline ^a	ND	190	8.9	ug/kg	
99-09-2	3-Nitroaniline	ND	190	9.4	ug/kg	
100-01-6	4-Nitroaniline	ND	190	9.8	ug/kg	
91-20-3	Naphthalene	1470	38	11	ug/kg	
98-95-3	Nitrobenzene	ND	76	15	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	76	11	ug/kg	UJ
86-30-6	N-Nitrosodiphenylamine	ND	190	14	ug/kg	
85-01-8	Phenanthrene	3220	38	13	ug/kg	
129-00-0	Pyrene	6440 ^c	190	60	ug/kg	D
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	190	9.6	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	78%	69%	23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-111(2-4) Lab Sample ID: JC86837-10 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/23/19 Date Received: 04/23/19 Percent Solids: 86.2
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	80%	74%	27-114%
118-79-6	2,4,6-Tribromophenol	79%	73%	19-152%
4165-60-0	Nitrobenzene-d5	94%	88%	26-134%
321-60-8	2-Fluorobiphenyl	84%	82%	39-124%
1718-51-0	Terphenyl-d14	78%	79%	36-134%

- (a) Associated CCV outside of control limits high, sample was ND.
- (b) Associated CCV outside of control limits low.
- (c) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID:	S-111(4.5-6.5)	Date Sampled:	04/23/19
Lab Sample ID:	JC86837-11	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	87.4
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3C151619.D	1	05/01/19 18:30	PS	n/a	n/a	V3C6814
Run #2							

Run #	Initial Weight
Run #1	5.2 g
Run #2	

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	64.3	11	5.5	ug/kg	
71-43-2	Benzene	ND	0.55	0.41	ug/kg	
74-97-5	Bromochloromethane	ND	5.5	0.47	ug/kg	
75-27-4	Bromodichloromethane	ND	2.2	0.49	ug/kg	
75-25-2	Bromoform	ND	5.5	0.44	ug/kg	
74-83-9	Bromomethane	ND	5.5	1.1	ug/kg	
78-93-3	2-Butanone (MEK)	ND	11	4.1	ug/kg	
75-15-0	Carbon disulfide	ND	2.2	1.0	ug/kg	
56-23-5	Carbon tetrachloride	ND	2.2	0.61	ug/kg	
108-90-7	Chlorobenzene	ND	2.2	0.39	ug/kg	
75-00-3	Chloroethane	ND	5.5	0.76	ug/kg	
67-66-3	Chloroform	ND	2.2	0.41	ug/kg	
74-87-3	Chloromethane	ND	5.5	2.2	ug/kg	
110-82-7	Cyclohexane	ND	2.2	0.45	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.2	0.92	ug/kg	
124-48-1	Dibromochloromethane	ND	2.2	0.37	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.1	0.36	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.1	0.34	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.1	0.39	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.1	0.38	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	5.5	0.70	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.1	0.42	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.1	0.52	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.1	0.72	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.1	1.1	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.1	0.73	ug/kg	
78-87-5	1,2-Dichloropropane	ND	2.2	0.45	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	2.2	0.39	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	2.2	0.36	ug/kg	
100-41-4	Ethylbenzene	ND	1.1	0.61	ug/kg	
76-13-1	Freon 113	ND	5.5	0.84	ug/kg	
591-78-6	2-Hexanone	ND	5.5	1.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-111(4.5-6.5)		Date Sampled: 04/23/19
Lab Sample ID: JC86837-11		Date Received: 04/23/19
Matrix: SO - Soil		Percent Solids: 87.4
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	2.2	0.77	ug/kg	
79-20-9	Methyl Acetate	ND	5.5	1.5	ug/kg	
108-87-2	Methylcyclohexane	ND	2.2	0.78	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.1	0.39	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK ^a)	ND	5.5	1.7	ug/kg	
75-09-2	Methylene chloride	ND	5.5	2.8	ug/kg	
100-42-5	Styrene	ND	2.2	0.63	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	2.2	0.43	ug/kg	
127-18-4	Tetrachloroethene	ND	2.2	0.51	ug/kg	
108-88-3	Toluene	0.60	1.1	0.41	ug/kg	J
87-61-6	1,2,3-Trichlorobenzene	ND	5.5	1.1	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	5.5	1.1	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	2.2	0.47	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	2.2	0.38	ug/kg	
79-01-6	Trichloroethene	ND	1.1	0.84	ug/kg	
75-69-4	Trichlorofluoromethane ^b	ND	5.5	0.75	ug/kg	UJ
75-01-4	Vinyl chloride	ND	2.2	0.52	ug/kg	
	m,p-Xylene	ND	1.1	0.82	ug/kg	
95-47-6	o-Xylene	ND	1.1	0.64	ug/kg	
1330-20-7	Xylene (total)	ND	1.1	0.64	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	95%		75-127%
17060-07-0	1,2-Dichloroethane-D4	98%		75-130%
2037-26-5	Toluene-D8	102%		80-120%
460-00-4	4-Bromofluorobenzene	101%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: S-111(4.5-6.5)		
Lab Sample ID: JC86837-11		Date Sampled: 04/23/19
Matrix: SO - Soil		Date Received: 04/23/19
Method: SW846 8270D SW846 3546		Percent Solids: 87.4
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P481476.D	1	04/29/19 19:12	AR	04/28/19 13:30	OP20035	E6P2576
Run #2							

Run #1	Initial Weight	Final Volume
Run #1	31.0 g	1.0 ml
Run #2		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	74	18	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	180	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	180	31	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	180	66	ug/kg	
51-28-5	2,4-Dinitrophenol ^a	ND	180	140	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol ^a	ND	180	39	ug/kg	UJ
95-48-7	2-Methylphenol	ND	74	24	ug/kg	
	3&4-Methylphenol	ND	74	30	ug/kg	UJ
88-75-5	2-Nitrophenol	ND	180	24	ug/kg	
100-02-7	4-Nitrophenol	ND	370	99	ug/kg	
87-86-5	Pentachlorophenol	ND	150	35	ug/kg	
108-95-2	Phenol	ND	74	19	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	180	24	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	180	28	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	180	22	ug/kg	
83-32-9	Acenaphthene	ND	37	13	ug/kg	
208-96-8	Acenaphthylene	104	37	19	ug/kg	
98-86-2	Acetophenone	ND	180	7.9	ug/kg	UJ
120-12-7	Anthracene	33.0	37	23	ug/kg	J
1912-24-9	Atrazine	ND	74	16	ug/kg	
56-55-3	Benzo(a)anthracene	42.7	37	10	ug/kg	
50-32-8	Benzo(a)pyrene	312	37	17	ug/kg	
205-99-2	Benzo(b)fluoranthene	353	37	16	ug/kg	
191-24-2	Benzo(g,h,i)perylene	233	37	18	ug/kg	
207-08-9	Benzo(k)fluoranthene	131	37	17	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	74	14	ug/kg	
85-68-7	Butyl benzyl phthalate ^b	ND	74	9.0	ug/kg	
92-52-4	1,1'-Biphenyl	ND	74	5.1	ug/kg	
100-52-7	Benzaldehyde	ND	180	9.2	ug/kg	
91-58-7	2-Chloronaphthalene	ND	74	8.8	ug/kg	
106-47-8	4-Chloroaniline	ND	180	13	ug/kg	
86-74-8	Carbazole	ND	74	5.4	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-111(4.5-6.5)	Date Sampled:	04/23/19
Lab Sample ID:	JC86837-11	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	87.4
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	74	15	ug/kg	
218-01-9	Chrysene	76.5	37	12	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	74	7.9	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	74	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	74	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	74	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	37	11	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	37	19	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	74	31	ug/kg	
123-91-1	1,4-Dioxane	ND	37	24	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	58.9	37	16	ug/kg	
132-64-9	Dibenzofuran	ND	74	15	ug/kg	
84-74-2	Di-n-butyl phthalate ^b	ND	74	6.0	ug/kg	
117-84-0	Di-n-octyl phthalate ^b	ND	74	9.2	ug/kg	
84-66-2	Diethyl phthalate	ND	74	7.9	ug/kg	
131-11-3	Dimethyl phthalate	ND	74	6.6	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate ^b	ND	74	8.6	ug/kg	
206-44-0	Fluoranthene	16.8	37	16	ug/kg	J
86-73-7	Fluorene	ND	37	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	74	9.3	ug/kg	
87-68-3	Hexachlorobutadiene	ND	37	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	370	15	ug/kg	
67-72-1	Hexachloroethane	ND	180	18	ug/kg	UJ
193-39-5	Indeno(1,2,3-cd)pyrene	207	37	17	ug/kg	
78-59-1	Isophorone	ND	74	7.9	ug/kg	
91-57-6	2-Methylnaphthalene	ND	37	8.3	ug/kg	
88-74-4	2-Nitroaniline	ND	180	8.7	ug/kg	
99-09-2	3-Nitroaniline	ND	180	9.2	ug/kg	
100-01-6	4-Nitroaniline	ND	180	9.6	ug/kg	
91-20-3	Naphthalene	13.3	37	10	ug/kg	J
98-95-3	Nitrobenzene	ND	74	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	74	11	ug/kg	UJ
86-30-6	N-Nitrosodiphenylamine	ND	180	14	ug/kg	
85-01-8	Phenanthrene	ND	37	12	ug/kg	
129-00-0	Pyrene	45.4	37	12	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	180	9.4	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	76%		23-115%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-111(4.5-6.5) Lab Sample ID: JC86837-11 Matrix: SO - Soil Method: SW846 8270D SW846 3546 Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/23/19 Date Received: 04/23/19 Percent Solids: 87.4
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ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	75%		27-114%
118-79-6	2,4,6-Tribromophenol	64%		19-152%
4165-60-0	Nitrobenzene-d5	89%		26-134%
321-60-8	2-Fluorobiphenyl	74%		39-124%
1718-51-0	Terphenyl-d14	85%		36-134%

- (a) Associated CCV outside of control limits low.
- (b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected	MDL = Method Detection Limit	J = Indicates an estimated value
RL = Reporting Limit		B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range		N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-107(2-4)		Date Sampled: 04/23/19
Lab Sample ID: JC86837-12		Date Received: 04/23/19
Matrix: SO - Soil		Percent Solids: 87.0
Method: SW846 8260C		
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	3C151620.D	1	05/01/19 18:54	PS	n/a	n/a	V3C6814

Run #1	Initial Weight
Run #2	3.5 g

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	16	8.2	ug/kg	
71-43-2	Benzene	ND	0.82	0.62	ug/kg	
74-97-5	Bromochloromethane	ND	8.2	0.71	ug/kg	
75-27-4	Bromodichloromethane	ND	3.3	0.73	ug/kg	
75-25-2	Bromoform	ND	8.2	0.66	ug/kg	
74-83-9	Bromomethane	ND	8.2	1.6	ug/kg	
78-93-3	2-Butanone (MEK)	ND	16	6.1	ug/kg	
75-15-0	Carbon disulfide	ND	3.3	1.5	ug/kg	
56-23-5	Carbon tetrachloride	ND	3.3	0.90	ug/kg	
108-90-7	Chlorobenzene	ND	3.3	0.58	ug/kg	
75-00-3	Chloroethane	ND	8.2	1.1	ug/kg	
67-66-3	Chloroform	ND	3.3	0.61	ug/kg	
74-87-3	Chloromethane	ND	8.2	3.2	ug/kg	
110-82-7	Cyclohexane	ND	3.3	0.67	ug/kg	
96-12-8	1,2-Dibromo-3-chloropropane	ND	3.3	1.4	ug/kg	
124-48-1	Dibromochloromethane	ND	3.3	0.56	ug/kg	
106-93-4	1,2-Dibromoethane	ND	1.6	0.53	ug/kg	
95-50-1	1,2-Dichlorobenzene	ND	1.6	0.50	ug/kg	
541-73-1	1,3-Dichlorobenzene	ND	1.6	0.59	ug/kg	
106-46-7	1,4-Dichlorobenzene	ND	1.6	0.56	ug/kg	
75-71-8	Dichlorodifluoromethane	ND	8.2	1.0	ug/kg	
75-34-3	1,1-Dichloroethane	ND	1.6	0.63	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.6	0.77	ug/kg	
75-35-4	1,1-Dichloroethene	ND	1.6	1.1	ug/kg	
156-59-2	cis-1,2-Dichloroethene	ND	1.6	1.6	ug/kg	
156-60-5	trans-1,2-Dichloroethene	ND	1.6	1.1	ug/kg	
78-87-5	1,2-Dichloropropane	ND	3.3	0.67	ug/kg	
10061-01-5	cis-1,3-Dichloropropene	ND	3.3	0.58	ug/kg	
10061-02-6	trans-1,3-Dichloropropene	ND	3.3	0.54	ug/kg	
100-41-4	Ethylbenzene	ND	1.6	0.91	ug/kg	
76-13-1	Freon 113	ND	8.2	1.3	ug/kg	
591-78-6	2-Hexanone	ND	8.2	2.1	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-107(2-4)	Date Sampled:	04/23/19
Lab Sample ID:	JC86837-12	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	87.0
Method:	SW846 8260C		
Project:	National Grid, Philly Coke, Philadelphia, PA		

VOA TCL List

CAS No.	Compound	Result	RL	MDL	Units	Q
98-82-8	Isopropylbenzene	ND	3.3	1.1	ug/kg	
79-20-9	Methyl Acetate	ND	8.2	2.3	ug/kg	
108-87-2	Methylcyclohexane	ND	3.3	1.2	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.6	0.58	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK ^a)	ND	8.2	2.6	ug/kg	
75-09-2	Methylene chloride	ND	8.2	4.1	ug/kg	
100-42-5	Styrene	ND	3.3	0.94	ug/kg	
79-34-5	1,1,2,2-Tetrachloroethane	ND	3.3	0.64	ug/kg	
127-18-4	Tetrachloroethene	ND	3.3	0.76	ug/kg	
108-88-3	Toluene	ND	1.6	0.62	ug/kg	
87-61-6	1,2,3-Trichlorobenzene	ND	8.2	1.6	ug/kg	
120-82-1	1,2,4-Trichlorobenzene	ND	8.2	1.6	ug/kg	
71-55-6	1,1,1-Trichloroethane	ND	3.3	0.70	ug/kg	
79-00-5	1,1,2-Trichloroethane	ND	3.3	0.56	ug/kg	
79-01-6	Trichloroethene	ND	1.6	1.3	ug/kg	
75-69-4	Trichlorofluoromethane ^b	ND	8.2	1.1	ug/kg	UJ
75-01-4	Vinyl chloride	ND	3.3	0.77	ug/kg	
	m,p-Xylene	ND	1.6	1.2	ug/kg	
95-47-6	o-Xylene	ND	1.6	0.96	ug/kg	
1330-20-7	Xylene (total)	ND	1.6	0.96	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		75-127%
17060-07-0	1,2-Dichloroethane-D4	99%		75-130%
2037-26-5	Toluene-D8	109%		80-120%
460-00-4	4-Bromofluorobenzene	111%		79-127%

(a) Associated CCV outside of control limits high, sample was ND.

(b) Associated CCV outside of control limits low.

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Report of Analysis

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Client Sample ID: S-107(2-4)		
Lab Sample ID: JC86837-12		Date Sampled: 04/23/19
Matrix: SO - Soil		Date Received: 04/23/19
Method: SW846 8270D SW846 3546		Percent Solids: 87.0
Project: National Grid, Philly Coke, Philadelphia, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6P481481.D	1	04/29/19 21:14	AR	04/28/19 13:30	OP20035	E6P2576
Run #2	6P481536.D	10	05/01/19 17:25	AR	04/28/19 13:30	OP20035	E6P2578

Run #	Initial Weight	Final Volume
Run #1	31.2 g	1.0 ml
Run #2	31.2 g	1.0 ml

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
95-57-8	2-Chlorophenol	ND	74	18	ug/kg	
59-50-7	4-Chloro-3-methyl phenol	ND	180	23	ug/kg	
120-83-2	2,4-Dichlorophenol	ND	180	31	ug/kg	
105-67-9	2,4-Dimethylphenol	ND	180	66	ug/kg	
51-28-5	2,4-Dinitrophenol ^a	ND	180	140	ug/kg	UJ
534-52-1	4,6-Dinitro-o-cresol ^a	ND	180	39	ug/kg	UJ
95-48-7	2-Methylphenol	ND	74	24	ug/kg	
	3&4-Methylphenol	ND	74	30	ug/kg	UJ
88-75-5	2-Nitrophenol	ND	180	24	ug/kg	
100-02-7	4-Nitrophenol	ND	370	98	ug/kg	
87-86-5	Pentachlorophenol	ND	150	35	ug/kg	
108-95-2	Phenol	ND	74	19	ug/kg	
58-90-2	2,3,4,6-Tetrachlorophenol	ND	180	24	ug/kg	
95-95-4	2,4,5-Trichlorophenol	ND	180	28	ug/kg	
88-06-2	2,4,6-Trichlorophenol	ND	180	22	ug/kg	
83-32-9	Acenaphthene	146	37	13	ug/kg	
208-96-8	Acenaphthylene	1610	37	19	ug/kg	
98-86-2	Acetophenone	ND	180	7.9	ug/kg	UJ
120-12-7	Anthracene	3960 ^b	370	230	ug/kg	D
1912-24-9	Atrazine	ND	74	16	ug/kg	
56-55-3	Benzo(a)anthracene	6510 ^b	370	100	ug/kg	D
50-32-8	Benzo(a)pyrene	5540 ^b	370	170	ug/kg	D
205-99-2	Benzo(b)fluoranthene	6860 ^b	370	160	ug/kg	D
191-24-2	Benzo(g,h,i)perylene	3600 ^b	370	180	ug/kg	D
207-08-9	Benzo(k)fluoranthene	3070	37	17	ug/kg	
101-55-3	4-Bromophenyl phenyl ether	ND	74	14	ug/kg	
85-68-7	Butyl benzyl phthalate ^c	ND	74	9.0	ug/kg	
92-52-4	1,1'-Biphenyl	143	74	5.0	ug/kg	
100-52-7	Benzaldehyde	ND	180	9.1	ug/kg	
91-58-7	2-Chloronaphthalene	ND	74	8.8	ug/kg	
106-47-8	4-Chloroaniline	ND	180	13	ug/kg	
86-74-8	Carbazole	459	74	5.3	ug/kg	

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	S-107(2-4)	Date Sampled:	04/23/19
Lab Sample ID:	JC86837-12	Date Received:	04/23/19
Matrix:	SO - Soil	Percent Solids:	87.0
Method:	SW846 8270D SW846 3546		
Project:	National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Compound	Result	RL	MDL	Units	Q
105-60-2	Caprolactam	ND	74	15	ug/kg	
218-01-9	Chrysene	5800 ^b	370	120	ug/kg	
111-91-1	bis(2-Chloroethoxy)methane	ND	74	7.9	ug/kg	
111-44-4	bis(2-Chloroethyl)ether	ND	74	16	ug/kg	
108-60-1	2,2'-Oxybis(1-chloropropane)	ND	74	13	ug/kg	
7005-72-3	4-Chlorophenyl phenyl ether	ND	74	12	ug/kg	
121-14-2	2,4-Dinitrotoluene	ND	37	11	ug/kg	
606-20-2	2,6-Dinitrotoluene	ND	37	18	ug/kg	
91-94-1	3,3'-Dichlorobenzidine	ND	74	31	ug/kg	
123-91-1	1,4-Dioxane	ND	37	24	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	1450	37	16	ug/kg	
132-64-9	Dibenzofuran	989	74	15	ug/kg	
84-74-2	Di-n-butyl phthalate ^c	ND	74	6.0	ug/kg	
117-84-0	Di-n-octyl phthalate ^c	ND	74	9.2	ug/kg	
84-66-2	Diethyl phthalate	ND	74	7.8	ug/kg	
131-11-3	Dimethyl phthalate	ND	74	6.6	ug/kg	
117-81-7	bis(2-Ethylhexyl)phthalate ^c	ND	74	8.6	ug/kg	
206-44-0	Fluoranthene	14400 ^b	370	160	ug/kg	
86-73-7	Fluorene	2280	37	17	ug/kg	
118-74-1	Hexachlorobenzene	ND	74	9.3	ug/kg	
87-68-3	Hexachlorobutadiene	ND	37	15	ug/kg	
77-47-4	Hexachlorocyclopentadiene	ND	370	15	ug/kg	
67-72-1	Hexachloroethane	ND	180	18	ug/kg	UJ
193-39-5	Indeno(1,2,3-cd)pyrene	2990 ^b	370	170	ug/kg	
78-59-1	Isophorone	ND	74	7.9	ug/kg	
91-57-6	2-Methylnaphthalene	359	37	8.3	ug/kg	
88-74-4	2-Nitroaniline	ND	180	8.7	ug/kg	
99-09-2	3-Nitroaniline	ND	180	9.2	ug/kg	
100-01-6	4-Nitroaniline	ND	180	9.5	ug/kg	
91-20-3	Naphthalene	627	37	10	ug/kg	
98-95-3	Nitrobenzene	ND	74	14	ug/kg	
621-64-7	N-Nitroso-di-n-propylamine	ND	74	11	ug/kg	UJ
86-30-6	N-Nitrosodiphenylamine	ND	180	13	ug/kg	
85-01-8	Phenanthrene	11300 ^b	370	120	ug/kg	
129-00-0	Pyrene	10500 ^b	370	120	ug/kg	
95-94-3	1,2,4,5-Tetrachlorobenzene	ND	180	9.4	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
367-12-4	2-Fluorophenol	73%	59%	23-115%

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: S-107(2-4)		Date Sampled: 04/23/19
Lab Sample ID: JC86837-12		Date Received: 04/23/19
Matrix: SO - Soil		Percent Solids: 87.0
Method: SW846 8270D SW846 3546		
Project: National Grid, Philly Coke, Philadelphia, PA		

ABN TCL List (SOM0 2.0)

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-62-2	Phenol-d5	77%	68%	27-114%
118-79-6	2,4,6-Tribromophenol	70%	64%	19-152%
4165-60-0	Nitrobenzene-d5	84%	75%	26-134%
321-60-8	2-Fluorobiphenyl	72%	66%	39-124%
1718-51-0	Terphenyl-d14	63%	70%	36-134%

- (a) Associated CCV outside of control limits low.
- (b) Result is from Run# 2
- (c) Associated CCV outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
 RL = Reporting Limit B = Indicates analyte found in associated method blank
 E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

4.12
4

Report of Analysis

Client Sample ID: PSCB-41R(0.5-2) Lab Sample ID: JC86837-1 Matrix: SO - Soil Project: National Grid, Philly Coke, Philadelphia, PA	Date Sampled: 04/22/19 Date Received: 04/23/19 Percent Solids: 80.9
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Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	7590	61	9.8	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Antimony	20.6	2.4	0.50	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Arsenic ^a	19.5	4.8	0.68	mg/kg	2	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Barium	175	24	2.3	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Beryllium	0.91	0.24	0.097	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Cadmium	1.4	0.61	0.085	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Calcium	11500	610	54	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Chromium	26.0	1.2	0.45	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Cobalt	7.8	6.1	0.34	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Copper ^a	193	6.1	2.0	mg/kg	2	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Iron	28300	120	47	mg/kg	2	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Lead ^a	986	4.8	0.99	mg/kg	2	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Magnesium	4570	610	17	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Manganese ^a	552	3.6	0.99	mg/kg	2	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Mercury	0.34	J 0.037	0.016	mg/kg	1	04/25/19	04/25/19	LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	38.4	4.8	0.42	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Potassium	1120 J	1200	39	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Selenium ^a	1.6 U	4.8	1.6	mg/kg	2	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Silver ^a	0.41 U	1.2	0.41	mg/kg	2	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Sodium	208 J	1200	94	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Thallium ^a	1.4 U	2.4	1.4	mg/kg	2	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Vanadium	32.1	6.1	0.23	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Zinc	530	6.1	2.8	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46581
- (2) Instrument QC Batch: MA46628
- (3) Instrument QC Batch: MA46638
- (4) Prep QC Batch: MP14565
- (5) Prep QC Batch: MP14579

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: PSCB-41R(0.5-2)	Date Sampled: 04/22/19
Lab Sample ID: JC86837-1	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 80.9
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.53	0.32	0.16	mg/kg	1	05/03/19 14:14	KI	SW846 9012B/LACHAT
Solids, Percent	80.9			%	1	04/30/19 14:13	JMP	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.1
4

Report of Analysis

Client Sample ID: PSCB-41R(9-11)		Date Sampled: 04/22/19
Lab Sample ID: JC86837-2		Date Received: 04/23/19
Matrix: SO - Soil		Percent Solids: 70.9
Project: National Grid, Philly Coke, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	16700	69	11	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	0.57 U	2.8	0.57	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	5.5	2.8	0.39	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	117	28	2.6	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.83	0.28	0.11	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	0.097 J	0.69	0.097	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	2630	690	61	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	38.5	1.4	0.51	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	9.8	6.9	0.39	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	9.0	3.5	1.2	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	19800	69	27	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	19.4	2.8	0.57	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	4730	690	19	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	341	2.1	0.57	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	0.019 U J	0.043	0.019	mg/kg	1	04/25/19	04/25/19	LL	SW846 7471B ¹ SW846 7471B ³
Nickel	24.2	5.5	0.48	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	2010	1400	44	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	0.90 U	2.8	0.90	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	0.24 U	0.69	0.24	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	256 J	1400	110	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	0.80 U	1.4	0.80	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	34.8	6.9	0.26	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	59.4	6.9	3.2	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴

(1) Instrument QC Batch: MA46581

(2) Instrument QC Batch: MA46628

(3) Prep QC Batch: MP14565

(4) Prep QC Batch: MP14579

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

4.2
4

Report of Analysis

Client Sample ID: PSCB-41R(9-11)	Date Sampled: 04/22/19
Lab Sample ID: JC86837-2	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 70.9
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.15 U	0.29	0.15	mg/kg	1	05/03/19 14:15	KI	SW846 9012B/LACHAT
Solids, Percent	70.9			%	1	04/30/19 14:13	JMP	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.2
4

Report of Analysis

Client Sample ID: TP-44R(3-5)	Date Sampled: 04/22/19
Lab Sample ID: JC86837-3	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 78.7
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	2730	62	9.9	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	2.5	2.5	0.51	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	17.0	2.5	0.35	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	57.7	25	2.3	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.38	0.25	0.099	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	0.086 U	0.62	0.086	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	852	620	54	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	8.9	1.2	0.46	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	3.5 J	6.2	0.35	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	154	3.1	1.0	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	10700	62	24	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	220	2.5	0.51	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	332 J	620	17	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	23.0	1.9	0.51	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	0.23 J	0.041	0.018	mg/kg	1	04/25/19	04/25/19	LL	SW846 7471B ¹ SW846 7471B ³
Nickel	8.2	4.9	0.43	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	361 J	1200	39	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	1.2 J	2.5	0.80	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	0.21 U	0.62	0.21	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	96 U	1200	96	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	0.72 U	1.2	0.72	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	11.2	6.2	0.23	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	19.5	6.2	2.8	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴

- (1) Instrument QC Batch: MA46581
- (2) Instrument QC Batch: MA46628
- (3) Prep QC Batch: MP14565
- (4) Prep QC Batch: MP14579

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: TP-44R(3-5)	Date Sampled: 04/22/19
Lab Sample ID: JC86837-3	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 78.7
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	2.7	0.32	0.16	mg/kg	1	05/03/19 14:16	KI	SW846 9012B/LACHAT
Solids, Percent	78.7			%	1	04/30/19 14:13	JMP	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: TP-44R(5-7)	Date Sampled: 04/22/19
Lab Sample ID: JC86837-4	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 76.1
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	4720	66	11	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵
Antimony	0.92 J	2.7	0.54	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵
Arsenic	7.0	2.7	0.37	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵
Barium	407	27	2.5	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵
Beryllium	0.20 J	0.27	0.11	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵
Cadmium	0.093 U	0.66	0.093	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵
Calcium	640 J	660	59	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵
Chromium	14.3	1.3	0.49	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵
Cobalt	3.4 J	6.6	0.37	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵
Copper	17.8	3.3	1.1	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵
Iron	9770	66	25	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵
Lead	2840	13	2.7	mg/kg	5	04/26/19	05/02/19	MET	SW846 6010D ³ SW846 3050B ⁵
Magnesium	1810	660	18	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵
Manganese	95.2	2.0	0.54	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵
Mercury	0.67 J	0.035	0.015	mg/kg	1	04/25/19	04/25/19	LL	SW846 7471B ¹ SW846 7471B ⁴
Nickel	8.1	5.3	0.46	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵
Potassium	1220 J	1300	42	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵
Selenium	0.86 U	2.7	0.86	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵
Silver	0.23 U	0.66	0.23	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵
Sodium	100 U	1300	100	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵
Thallium	0.77 U	1.3	0.77	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵
Vanadium	8.4	6.6	0.25	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵
Zinc	79.1	6.6	3.1	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁵

- (1) Instrument QC Batch: MA46581
- (2) Instrument QC Batch: MA46628
- (3) Instrument QC Batch: MA46638
- (4) Prep QC Batch: MP14565
- (5) Prep QC Batch: MP14579

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.4
 4

Report of Analysis

Client Sample ID: TP-44R(5-7)	Date Sampled: 04/22/19
Lab Sample ID: JC86837-4	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 76.1
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.16 U	0.33	0.16	mg/kg	1	05/03/19 14:18	KI	SW846 9012B/LACHAT
Solids, Percent	76.1			%	1	04/30/19 14:13	JMP	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.4
4

Report of Analysis

Client Sample ID: TP-44R(7-9)	Date Sampled: 04/22/19
Lab Sample ID: JC86837-5	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 77.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	5920	64	10	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	0.53 U	2.6	0.53	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	5.9	2.6	0.36	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	35.2	26	2.4	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.35	0.26	0.10	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	0.46 J	0.64	0.090	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	484 J	640	57	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	13.5	1.3	0.47	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	4.7 J	6.4	0.36	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	8.4	3.2	1.1	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	11300	64	25	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	18.8	2.6	0.53	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	1580	640	18	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	83.7	1.9	0.53	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	0.026 J	0.041	0.018	mg/kg	1	04/25/19	04/25/19	LL	SW846 7471B ¹ SW846 7471B ³
Nickel	9.0	5.1	0.45	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	985 J	1300	41	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	0.83 U	2.6	0.83	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	0.22 U	0.64	0.22	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	100 U	1300	100	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	0.74 U	1.3	0.74	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	12.3	6.4	0.24	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	167	6.4	3.0	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴

- (1) Instrument QC Batch: MA46581
- (2) Instrument QC Batch: MA46628
- (3) Prep QC Batch: MP14565
- (4) Prep QC Batch: MP14579

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.5
 4

Report of Analysis

Client Sample ID: TP-44R(7-9)	Date Sampled: 04/22/19
Lab Sample ID: JC86837-5	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 77.9
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.17 U	0.33	0.17	mg/kg	1	05/03/19 14:19	KI	SW846 9012B/LACHAT
Solids, Percent	77.9			%	1	04/30/19 14:13	JMP	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-135(4-6)	Date Sampled: 04/22/19
Lab Sample ID: JC86837-6	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 71.3
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	12300	70	11	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.58 U	2.8	0.58	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic	52.2	2.8	0.39	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Barium	136	28	2.7	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.95	0.28	0.11	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	1.6	0.70	0.098	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	2810	700	62	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	125	1.4	0.52	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	13.2	7.0	0.39	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Copper	104	3.5	1.2	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Iron	23100	70	27	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Lead	189	2.8	0.58	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Magnesium	3340	700	19	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Manganese	557	2.1	0.58	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Mercury	0.99 J	0.040	0.017	mg/kg	1	04/25/19	04/25/19	LL	SW846 7471B ¹	SW846 7471B ³
Nickel	24.2	5.6	0.49	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	1530	1400	45	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	1.3 J	2.8	0.91	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Silver	0.79	0.70	0.24	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Sodium	121 J	1400	110	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Thallium	0.81 U	1.4	0.81	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Vanadium	24.7	7.0	0.27	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	531	7.0	3.2	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴

- (1) Instrument QC Batch: MA46581
- (2) Instrument QC Batch: MA46628
- (3) Prep QC Batch: MP14565
- (4) Prep QC Batch: MP14579

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-135(4-6)	Date Sampled: 04/22/19
Lab Sample ID: JC86837-6	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 71.3
Project: National Grid, Philly Coke, Philadelphia, PA	

4.6
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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.67	0.38	0.19	mg/kg	1	05/03/19 14:21	KI	SW846 9012B/LACHAT
Solids, Percent	71.3			%	1	04/30/19 14:13	JMP	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-135(8-10)	Date Sampled: 04/22/19
Lab Sample ID: JC86837-7	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 69.9
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	7510	70	11	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	0.58 U	2.8	0.58	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	4.6	2.8	0.39	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	46.6	28	2.7	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.36	0.28	0.11	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	0.14 J	0.70	0.098	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	1940	700	62	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	23.7	1.4	0.52	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	6.8 J	7.0	0.39	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	10.1	3.5	1.2	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	13500	70	27	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	25.6	2.8	0.58	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	3200	700	19	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	401	2.1	0.58	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	0.051 J	0.043	0.019	mg/kg	1	04/25/19	04/25/19	LL	SW846 7471B ¹ SW846 7471B ³
Nickel	15.3	5.6	0.49	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	1150 J	1400	45	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	0.91 U	2.8	0.91	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	0.24 U	0.70	0.24	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	116 J	1400	110	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	0.81 U	1.4	0.81	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	15.9	7.0	0.27	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	61.9	7.0	3.2	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴

- (1) Instrument QC Batch: MA46581
- (2) Instrument QC Batch: MA46628
- (3) Prep QC Batch: MP14565
- (4) Prep QC Batch: MP14579

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.7
4

Report of Analysis

Client Sample ID: S-135(8-10)	Date Sampled: 04/22/19
Lab Sample ID: JC86837-7	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 69.9
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.19 U	0.37	0.19	mg/kg	1	05/03/19 14:22	KI	SW846 9012B/LACHAT
Solids, Percent	69.9			%	1	04/30/19 14:13	JMP	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.7
4

Report of Analysis

Client Sample ID: S-136(4-6)		Date Sampled: 04/22/19
Lab Sample ID: JC86837-8		Date Received: 04/23/19
Matrix: SO - Soil		Percent Solids: 72.6
Project: National Grid, Philly Coke, Philadelphia, PA		

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	10400	71	11	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Antimony	0.58 U	2.8	0.58	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Arsenic	20.8	2.8	0.40	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Barium	123	28	2.7	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Beryllium	0.70	0.28	0.11	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cadmium	2.1	0.71	0.099	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Calcium	1820	710	63	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Chromium	79.0	1.4	0.53	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Cobalt	8.0	7.1	0.40	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Copper	74.3	3.6	1.2	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Iron	17600	71	27	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Lead	137	2.8	0.58	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Magnesium	2690	710	19	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Manganese	144	2.1	0.58	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Mercury	0.80 J	0.040	0.018	mg/kg	1	04/25/19	04/25/19	LL	SW846 7471B ¹	SW846 7471B ³
Nickel	21.4	5.7	0.50	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Potassium	1230 J	1400	45	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Selenium	1.1 J	2.8	0.92	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Silver	0.43 J	0.71	0.24	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Sodium	121 J	1400	110	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Thallium	0.82 U	1.4	0.82	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Vanadium	22.0	7.1	0.27	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴
Zinc	332	7.1	3.3	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁴

(1) Instrument QC Batch: MA46581

(2) Instrument QC Batch: MA46628

(3) Prep QC Batch: MP14565

(4) Prep QC Batch: MP14579

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-136(4-6)	Date Sampled: 04/22/19
Lab Sample ID: JC86837-8	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 72.6
Project: National Grid, Philly Coke, Philadelphia, PA	

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General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	2.7	0.33	0.17	mg/kg	1	05/03/19 14:23	KI	SW846 9012B/LACHAT
Solids, Percent	72.6			%	1	04/30/19 14:13	JMP	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-136(7-9)	Date Sampled: 04/22/19
Lab Sample ID: JC86837-9	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 81.4
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	4850	63	10	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Antimony	0.52 U	2.5	0.52	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Arsenic	5.7	2.5	0.35	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Barium	29.3	25	2.4	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Beryllium	0.22 J	0.25	0.10	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Cadmium	0.10 J	0.63	0.089	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Calcium	1040	630	56	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Chromium	12.4	1.3	0.47	mg/kg	1	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Cobalt	6.2 J	6.3	0.35	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Copper	6.8	3.2	1.1	mg/kg	1	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Iron	10400	63	24	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Lead	9.0	2.5	0.52	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Magnesium	1820	630	17	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Manganese	304	1.9	0.52	mg/kg	1	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Mercury	0.037 J	0.038	0.017	mg/kg	1	04/25/19	04/25/19	LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	10.1	5.1	0.44	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Potassium	774 J	1300	40	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Selenium	0.82 U	2.5	0.82	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Silver	0.22 U	0.63	0.22	mg/kg	1	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Sodium	99 U	1300	99	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Thallium	0.73 U	1.3	0.73	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Vanadium	8.1	6.3	0.24	mg/kg	1	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Zinc	86.6	6.3	2.9	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46581
- (2) Instrument QC Batch: MA46628
- (3) Instrument QC Batch: MA46638
- (4) Prep QC Batch: MP14565
- (5) Prep QC Batch: MP14579

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-136(7-9)	Date Sampled: 04/22/19
Lab Sample ID: JC86837-9	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 81.4
Project: National Grid, Philly Coke, Philadelphia, PA	

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.72	0.32	0.16	mg/kg	1	05/03/19 14:27	KI	SW846 9012B/LACHAT
Solids, Percent	81.4			%	1	04/30/19 14:13	JMP	SM2540 G 18TH ED MOD

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-111(2-4)	Date Sampled: 04/23/19
Lab Sample ID: JC86837-10	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 86.2
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	5750	59	9.5	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	0.65 J	2.4	0.49	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	6.7	2.4	0.33	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	66.5	24	2.2	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	0.41	0.24	0.095	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	0.50 J	0.59	0.083	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	6330	590	52	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	16.2	1.2	0.44	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	5.2 J	5.9	0.33	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	49.0	3.0	0.99	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	15400	59	23	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	137	2.4	0.49	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	3330	590	16	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	143	1.8	0.49	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	0.44 J	0.035	0.015	mg/kg	1	04/25/19	04/25/19	LL	SW846 7471B ¹ SW846 7471B ³
Nickel	16.6	4.7	0.41	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	697 J	1200	38	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	0.77 U	2.4	0.77	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	0.20 U	0.59	0.20	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	92 U	1200	92	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	0.69 U	1.2	0.69	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	27.1	5.9	0.22	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	126	5.9	2.7	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴

- (1) Instrument QC Batch: MA46581
- (2) Instrument QC Batch: MA46628
- (3) Prep QC Batch: MP14565
- (4) Prep QC Batch: MP14579

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-111(2-4)	Date Sampled: 04/23/19
Lab Sample ID: JC86837-10	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 86.2
Project: National Grid, Philly Coke, Philadelphia, PA	

4.10
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	0.78	0.30	0.15	mg/kg	1	05/03/19 14:29	KI	SW846 9012B/LACHAT
Solids, Percent	86.2			%	1	04/30/19 08:30	RC	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-111(4.5-6.5)	Date Sampled: 04/23/19
Lab Sample ID: JC86837-11	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 87.4
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Aluminum	8310	58	9.3	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Antimony	0.47 U	2.3	0.47	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Arsenic	4.5	2.3	0.32	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Barium	23.9	23	2.2	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Beryllium	1.0	0.23	0.092	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Cadmium	0.34 J	0.58	0.081	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Calcium	358 J	580	51	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Chromium	31.0	1.2	0.43	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Cobalt	6.8	5.8	0.32	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Copper	41.5	2.9	0.97	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Iron	19600	58	22	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Lead	44.8	2.3	0.47	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Magnesium	1410	580	16	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Manganese	89.5	1.7	0.47	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Mercury	0.16 J	0.029	0.013	mg/kg	1	04/25/19	04/25/19	LL	SW846 7471B ¹ SW846 7471B ³
Nickel	15.1	4.6	0.40	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Potassium	872 J	1200	37	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Selenium	0.75 U	2.3	0.75	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Silver	0.20 U	0.58	0.20	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Sodium	90 U	1200	90	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Thallium	0.67 U	1.2	0.67	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Vanadium	18.7	5.8	0.22	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴
Zinc	144	5.8	2.7	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ² SW846 3050B ⁴

- (1) Instrument QC Batch: MA46581
- (2) Instrument QC Batch: MA46628
- (3) Prep QC Batch: MP14565
- (4) Prep QC Batch: MP14579

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

4.11
4

Report of Analysis

Client Sample ID: S-111(4.5-6.5)	Date Sampled: 04/23/19
Lab Sample ID: JC86837-11	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 87.4
Project: National Grid, Philly Coke, Philadelphia, PA	

4.11
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	2.8	0.29	0.14	mg/kg	1	05/03/19 14:30 KI	SW846	9012B/LACHAT
Solids, Percent	87.4			%	1	04/30/19 14:13 JMP	SM2540 G	18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-107(2-4)	Date Sampled: 04/23/19
Lab Sample ID: JC86837-12	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 87.0
Project: National Grid, Philly Coke, Philadelphia, PA	

Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method	
Aluminum	8800	57	9.2	mg/kg	1	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Antimony	2.7	2.3	0.47	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Arsenic	57.7	2.3	0.32	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Barium	85.0	23	2.2	mg/kg	1	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Beryllium	0.63	0.23	0.091	mg/kg	1	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Cadmium	0.46 J	0.57	0.080	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Calcium	757	570	50	mg/kg	1	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Chromium	15.4	1.1	0.42	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Cobalt	5.0 J	5.7	0.32	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Copper	52.7	2.8	0.96	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Iron	18500	57	22	mg/kg	1	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Lead	683	2.3	0.47	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Magnesium	1490	570	16	mg/kg	1	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Manganese	131	1.7	0.47	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Mercury	0.36 J	0.038	0.017	mg/kg	1	04/25/19	04/25/19	LL	SW846 7471B ¹	SW846 7471B ⁴
Nickel	13.4	4.6	0.40	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Potassium	660 J	1100	36	mg/kg	1	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Selenium	0.74 U	2.3	0.74	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Silver	0.19 U	0.57	0.19	mg/kg	1	04/26/19	05/02/19	MET	SW846 6010D ³	SW846 3050B ⁵
Sodium	89 U	1100	89	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Thallium	0.66 U	1.1	0.66	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Vanadium	16.7	5.7	0.22	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵
Zinc	144	5.7	2.6	mg/kg	1	04/26/19	05/01/19	ND	SW846 6010D ²	SW846 3050B ⁵

- (1) Instrument QC Batch: MA46581
- (2) Instrument QC Batch: MA46628
- (3) Instrument QC Batch: MA46638
- (4) Prep QC Batch: MP14565
- (5) Prep QC Batch: MP14579

RL = Reporting Limit
 MDL = Method Detection Limit

U = Indicates a result < MDL
 J = Indicates a result > = MDL but < RL

Report of Analysis

Client Sample ID: S-107(2-4)	Date Sampled: 04/23/19
Lab Sample ID: JC86837-12	Date Received: 04/23/19
Matrix: SO - Soil	Percent Solids: 87.0
Project: National Grid, Philly Coke, Philadelphia, PA	

4.12
4

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Cyanide	12.3	0.29	0.14	mg/kg	1	05/02/19 16:39	KI	SW846 9012B/LACHAT
Solids, Percent	87			%	1	04/30/19 14:13	JMP	SM2540 G 18TH ED MOD

RL = Reporting Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
J = Indicates a result > = MDL but < RL

APPENDIX I

Local Well Details Per the Pennsylvania Groundwater Information System



Remedial Investigation Report
National Grid Former Philadelphia Coke Plant
Philadelphia, Pennsylvania

PA Well ID	Figure 11 Designation	Depth to Bedrock	Well Yield	Static Water Level	Water Level	Yield Measurement Type	Formation	Paper Image
506243	MONITORING WELL LOCATION							
506244	MONITORING WELL LOCATION							
506245	MONITORING WELL LOCATION							
506268	UNKNOWN WITHDRAWAL WELL LOCATION					UNKNOWN		
645775	UNUSED/ABANDONED/DESTROYED WELL LOCATION							
645924	UNUSED/ABANDONED/DESTROYED WELL LOCATION							
645926	UNUSED/ABANDONED/DESTROYED WELL LOCATION							
645923	UNUSED/ABANDONED/DESTROYED WELL LOCATION							
645925	UNUSED/ABANDONED/DESTROYED WELL LOCATION							
645568	UNUSED/ABANDONED/DESTROYED WELL LOCATION							
645773	UNUSED/ABANDONED/DESTROYED WELL LOCATION							
645774	UNUSED/ABANDONED/DESTROYED WELL LOCATION							
645776	UNUSED/ABANDONED/DESTROYED WELL LOCATION							
645777	UNUSED/ABANDONED/DESTROYED WELL LOCATION							
605188	UNUSED/ABANDONED/DESTROYED WELL LOCATION							
605189	UNUSED/ABANDONED/DESTROYED WELL LOCATION							
30526	UNUSED/ABANDONED/DESTROYED WELL LOCATION		3.3			VOLUMETRIC WATCH & BUCKET	MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT	
30195	UNUSED/ABANDONED/DESTROYED WELL LOCATION						MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT	
30230	UNUSED/ABANDONED/DESTROYED WELL LOCATION		450			REPORTED METHOD NOT KNOWN	TRENTON GRAVEL	
	UNUSED/ABANDONED/DESTROYED WELL LOCATION		450			REPORTED METHOD NOT KNOWN	TRENTON GRAVEL	
30229	UNUSED/ABANDONED/DESTROYED WELL LOCATION		0.01	1.85		VOLUMETRIC WATCH & BUCKET	TRENTON GRAVEL	
30212	UNUSED/ABANDONED/DESTROYED WELL LOCATION		0.07	2.62		VOLUMETRIC WATCH & BUCKET	TRENTON GRAVEL	
30530	UNUSED/ABANDONED/DESTROYED WELL LOCATION		0.36	3.65	5.15	VOLUMETRIC WATCH & BUCKET	TRENTON GRAVEL	
30143	UNUSED/ABANDONED/DESTROYED WELL LOCATION		60	4		REPORTED METHOD NOT KNOWN	WISSAHICKON FORMATION	
30211	UNUSED/ABANDONED/DESTROYED WELL LOCATION		0.5	13.6			TRENTON GRAVEL	
	UNUSED/ABANDONED/DESTROYED WELL LOCATION			19.2			TRENTON GRAVEL	
30199	UNUSED/ABANDONED/DESTROYED WELL LOCATION		2			VOLUMETRIC WATCH & BUCKET	TRENTON GRAVEL	
30189	UNUSED/ABANDONED/DESTROYED WELL LOCATION		0.5	12.3		VOLUMETRIC WATCH & BUCKET	TRENTON GRAVEL	
30198	UNUSED/ABANDONED/DESTROYED WELL LOCATION		1.5	12.8		VOLUMETRIC WATCH & BUCKET	TRENTON GRAVEL	
30213	UNUSED/ABANDONED/DESTROYED WELL LOCATION		1	5.65		VOLUMETRIC WATCH & BUCKET	TRENTON GRAVEL	
30206	UNUSED/ABANDONED/DESTROYED WELL LOCATION		0.5	11.9		VOLUMETRIC WATCH & BUCKET	TRENTON GRAVEL	
	UNUSED/ABANDONED/DESTROYED WELL LOCATION			11.4				
30139	UNUSED/ABANDONED/DESTROYED WELL LOCATION		430	2.222222	50	ORIFICE	MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT	
	UNUSED/ABANDONED/DESTROYED WELL LOCATION		200			REPORTED METHOD NOT KNOWN	MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT	
30220	UNUSED/ABANDONED/DESTROYED WELL LOCATION		200			REPORTED METHOD NOT KNOWN	TRENTON GRAVEL	
	UNUSED/ABANDONED/DESTROYED WELL LOCATION						TRENTON GRAVEL	
30214	UNUSED/ABANDONED/DESTROYED WELL LOCATION			8			MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT	
	UNUSED/ABANDONED/DESTROYED WELL LOCATION			8			MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT	
30205	UNUSED/ABANDONED/DESTROYED WELL LOCATION			20			MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT	
	UNUSED/ABANDONED/DESTROYED WELL LOCATION			20			MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT	
30210	UNUSED/ABANDONED/DESTROYED WELL LOCATION			20			MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT	
	UNUSED/ABANDONED/DESTROYED WELL LOCATION			20			MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT	
30186	UNUSED/ABANDONED/DESTROYED WELL LOCATION			20			MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT	
	UNUSED/ABANDONED/DESTROYED WELL LOCATION			20			MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT	
30226	UNUSED/ABANDONED/DESTROYED WELL LOCATION		200			REPORTED METHOD NOT KNOWN	TRENTON GRAVEL	
	UNUSED/ABANDONED/DESTROYED WELL LOCATION		200			REPORTED METHOD NOT KNOWN	TRENTON GRAVEL	
30221	UNUSED/ABANDONED/DESTROYED WELL LOCATION		175			REPORTED METHOD NOT KNOWN	TRENTON GRAVEL	
	UNUSED/ABANDONED/DESTROYED WELL LOCATION		175			REPORTED METHOD NOT KNOWN	TRENTON GRAVEL	
136057	MONITORING WELL LOCATION	20		4	4		TRENTON GRAVEL	
601611	MONITORING WELL LOCATION		1	8		BAILER		
30231	UNUSED/ABANDONED/DESTROYED WELL LOCATION		225	28		REPORTED METHOD NOT KNOWN	TRENTON GRAVEL	
30517	UNUSED/ABANDONED/DESTROYED WELL LOCATION						WISSAHICKON FORMATION	
30516	UNUSED/ABANDONED/DESTROYED WELL LOCATION		53	8.74	14.5	VOLUMETRIC WATCH & BUCKET	TRENTON GRAVEL	
	UNUSED/ABANDONED/DESTROYED WELL LOCATION		66			REPORTED METHOD NOT KNOWN	TRENTON GRAVEL	
30515	UNUSED/ABANDONED/DESTROYED WELL LOCATION			12			WISSAHICKON FORMATION	
680160	OTHER WITHDRAWAL WELL LOCATION		1	9.05				
	OTHER WITHDRAWAL WELL LOCATION		1	9.05				
663786	UNUSED/ABANDONED/DESTROYED WELL LOCATION							
663785	UNUSED/ABANDONED/DESTROYED WELL LOCATION							
663750	UNUSED/ABANDONED/DESTROYED WELL LOCATION							
663749	UNUSED/ABANDONED/DESTROYED WELL LOCATION							
663741	UNUSED/ABANDONED/DESTROYED WELL LOCATION							
663699	UNUSED/ABANDONED/DESTROYED WELL LOCATION							
663698	UNUSED/ABANDONED/DESTROYED WELL LOCATION							
605522	MONITORING WELL LOCATION		1	5		UNKNOWN		http://www.iframeapps.dcnr.state.pa.us/topogeo/PaGWIS_sea_rch/DisplayReportImage.aspx?id=IM226628
	DOMESTIC WITHDRAWAL WELL LOCATION ³		1	5		UNKNOWN		http://www.iframeapps.dcnr.state.pa.us/topogeo/PaGWIS_sea_rch/DisplayReportImage.aspx?id=IM226628

Remedial Investigation Report
National Grid Former Philadelphia Coke Plant
Philadelphia, Pennsylvania

PA Well ID	Figure 11 Designation	Remarks
506243	MONITORING WELL LOCATION	Backfilled monitoring well with bentonite chips. removed flush mount cover and repaired street surface.
506244	MONITORING WELL LOCATION	Backfilled monitoring well with bentonite chips removed flush mount cover and repaired street surface.
506245	MONITORING WELL LOCATION	Backfilled monitoring well with bentonite chips removed the flush mount cover and repaired the street surface.
506268	UNKNOWN WITHDRAWAL WELL LOCATION	Backfilled monitoring well with bentonite chips removed flush mount cover and repaired street surface.
645775	UNUSED/ABANDONED/DESTROYED WELL LOCATION	Abandoned 6 inch diameter well with bentonite chips to grade.
645924	UNUSED/ABANDONED/DESTROYED WELL LOCATION	Abandoned 6 inch diameter well with bentonite chips to grade.
645926	UNUSED/ABANDONED/DESTROYED WELL LOCATION	Abandoned 6 inch diameter well with bentonite chips to grade.
645923	UNUSED/ABANDONED/DESTROYED WELL LOCATION	Abandoned 2 inch diameter well with cement grout to grade.
645925	UNUSED/ABANDONED/DESTROYED WELL LOCATION	Abandoned 6 inch diameter well with bentonite chips to grade.
645568	UNUSED/ABANDONED/DESTROYED WELL LOCATION	Abandoned 6" diameter well with bentonite chips to grade.
645773	UNUSED/ABANDONED/DESTROYED WELL LOCATION	Abandoned 2 inch diameter well with cement grout to grade.
645774	UNUSED/ABANDONED/DESTROYED WELL LOCATION	Abandoned 6 inch diameter well with bentonite chips to grade.
645776	UNUSED/ABANDONED/DESTROYED WELL LOCATION	Abandoned 6 inch diameter well with bentonite chips to grade.
645777	UNUSED/ABANDONED/DESTROYED WELL LOCATION	Abandoned 6 inch diameter well with bentonite chips to grade.
605188	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
605189	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30526	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30195	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30230	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30229	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30212	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30530	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30143	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30211	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30199	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30189	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30198	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30213	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30206	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30139	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30220	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30214	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30205	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30210	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30186	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30226	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30221	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
136057	MONITORING WELL LOCATION	TEMPORARY RECOVERY WELL; DIA1=26"; ROCK TYPE=ASPHALT FILL
601611	MONITORING WELL LOCATION	MW-6R - 2-inch Diam. PVC x 14' Deep Monitoring Well. Well located in the asphalt parking lot of the 7-Eleven Convenience Store. The well was completed with a flush mount protective manhole in a 2'x2'x2' concrete pad.
30231	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30517	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30516	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
30515	UNUSED/ABANDONED/DESTROYED WELL LOCATION	
680160	OTHER WITHDRAWAL WELL LOCATION	Double Cased Well OFF-20D - 6-inch PVC Outer Casing and 2-inch PVC x 26-foot BGS with 10-foot .010 Screen.
663786	OTHER WITHDRAWAL WELL LOCATION	Double Cased Well OFF-20D - 6-inch PVC Outer Casing and 2-inch PVC x 26-foot BGS with 10-foot .010 Screen.
663785	UNUSED/ABANDONED/DESTROYED WELL LOCATION	monitoring well abandonment. restore surface to match existing.
663750	UNUSED/ABANDONED/DESTROYED WELL LOCATION	monitoring well abandonment. restore surface to match existing.
663749	UNUSED/ABANDONED/DESTROYED WELL LOCATION	Monitoring well abandonment. restore surface to match existing.
663741	UNUSED/ABANDONED/DESTROYED WELL LOCATION	monitoring well abandonment. restore surface to match existing.
663699	UNUSED/ABANDONED/DESTROYED WELL LOCATION	Monitoring well abandonment. Restore surface to match existing.
663698	UNUSED/ABANDONED/DESTROYED WELL LOCATION	Monitoring well abandonment. restore surface to match existing.
605522	MONITORING WELL LOCATION	MW6. LAT-LONG IS APPROXIMATE BASED ON SEVERAL LOCATIONS SHOWN ON DEP'S EMAP-EFACTS DATABASE.
	DOMESTIC WITHDRAWAL WELL LOCATION ³	MW6. LAT-LONG IS APPROXIMATE BASED ON SEVERAL LOCATIONS SHOWN ON DEP'S EMAP-EFACTS DATABASE.

Remedial Investigation Report
National Grid Former Philadelphia Coke Plant
Philadelphia, Pennsylvania

Notes:

1. Well Data from the Pennsylvania Topographic & Geologic Survey Database (accessed via web on October 13, 2020).
2. Per the Philadelphia Water Department Records, residents around the Site consume City water.
3. According to the Pennsylvania Groundwater Information System Website, the one domestic well located near the Site is also listed for monitoring.
The one domestic well is located on a property where there is a historical diesel release. Therefore, it is likely that this well was used for and/or continues to be used for Monitoring Purposes only. More information is available in Subsection 3.2.2.1 of the Remedial Investigation Report.

APPENDIX J

Toxic Substances Control Act Applicability Evaluation



TSCA PCB EVALUATION SUMMARY



**TSCA PCB Evaluation Summary
Remedial Investigation
Philadelphia Coke Co., Inc. Site
Philadelphia, Pennsylvania**

This document evaluates whether polychlorinated biphenyls (PCBs) identified in soil at the Philadelphia Coke Co., Inc. site (the Site) by previous environmental investigations are regulated under the Toxic Substances Control Act (TSCA) presented in Title 40 of the Code of Federal Regulation (40 CFR) Part 761. As explained below, PCBs identified in soil samples collected at the Site are related to pre-April 1978 release(s) and the concentrations are therefore not regulated under TSCA.

A brief history of the TSCA regulations and historical Site use are presented below, followed by a soil sampling summary and evaluation of the PCB soil analytical data.

TSCA Regulations Summary and Site History

PCBs were commercially manufactured in the United States from approximately 1930 until 1979, when their production was banned under the TSCA regulations found in 40 CFR Part 761. As defined in 40 CFR Part 761.3, soil that contains PCBs (based on in-place sampling prior to excavation) at a concentration less than 50 parts per million (ppm) as the result of a release that occurred before the effective date of the TSCA regulations (April 1978) is not regulated under TSCA.

Site operations began in the 1920s with a manufactured gas plant (MGP) producing gas for the City of Philadelphia for heating or lighting. Metallurgical coke production replaced the MGP operation and continued until 1982, encompassing all but the easternmost section of the Site (i.e., 2.5 acres east of the existing utility corridor). PCBs were not a raw material, product, or byproduct of either MGP or coking operations. Although historical facility mapping shows an electrical substation building in the west-central portion of the Site, aerial photos do not show electrical equipment outside of the building. There are no known or suspected releases from equipment inside the electrical substation building. All but the easternmost section of the Site has not been used since 1982. This means that there was only a four-year period of operations where PCB releases at most of the Site could be regulated under TSCA.

Fuel blending operations were performed in the easternmost section of the Site for a 20-year period from 1969 to 1989 and consisted of storing/blending #2 and #6 fuel oils brought to the Site by barge and subsequently distributing the oil locally by tanker truck. The fuel blending operation, like the MGP and coking operations, did not use or produce PCBs.

PCB Soil Sampling Summary

As part of previous Remedial Investigations at the Site, a total of 177 soil samples have been collected from 89 sampling locations distributed across the Site and analyzed for PCBs. The analytical results are summarized as follows:

- PCBs were not identified in any of the samples at concentrations greater than 50 ppm.
- PCBs concentrations identified in the samples are well-below Pennsylvania Department of Environmental Protection (PADEP) medium-specific concentrations for soil (i.e., 20 ppm to 770 ppm, depending on Aroclor).
- The highest total PCB concentration detected was 13 ppm (in a sample collected at the northwestern corner of the Site near the intersection of Richmond Street and Buckius Street). This was the only location where PCBs were detected at a concentration greater than 10 ppm.

- PCBs were detected at concentrations greater than 1 ppm in only 11 of the 89 sampling locations.

The Site layout and soil sampling locations where PCBs have been identified at concentrations greater than 1 ppm are shown on Figure 1. The soil analytical results for total PCBs are presented in Table 1. PCB soil analytical results greater than 1 ppm and corresponding sampling locations/depths are summarized in Table 2 along with an evaluation of the data, consistent with that presented below.

PCB Soil Data Evaluation

The PCB soil analytical data are evaluated by area of the Site; as explained below, it is highly unlikely that PCBs at the Site are related to a post-1978 release.

- ***Northern Portion of Site (Historical Coal and Coke Storage Areas):*** As shown on Figure 1, PCBs have been identified at concentrations >1 ppm in four sampling locations in this area (PSSTP-01/01R, PSSTP-02, PCTP-73/73R, and PSSTP-04/04R). These locations are within the footprint of former coal and coke piles that are visible on aerial photographs starting in 1929 until at least 1981 (refer to Attachment 1 for the aerial photographs). Aerial photographs show that the coke storage area footprint covered sampling locations PSSTP-02 and PCTP-73/73R as early as 1929. Aerial photographs by the 1950s show that the coke storage area footprint had expanded westward to the edge of a building located on Richmond Street (extending over sampling location PSSTP-01/01R) and the coal storage area footprint had expanded eastward to the existing utility corridor (extending over sampling location PSSTP-04/04R). It is highly unlikely that PCBs in the coal and coke storage areas could be related to a post-1978 release given that the last available aerial photograph before the end of coke production (which is dated 1981) shows site conditions consistent with earlier photos, in which the coal and coke piles consistently covered these sampling locations. Given that the coal and coke piles covered the areas where PCBs were detected for several years after 1978, these detections are not TSCA-regulated. PCBs in this area are likely related to historic fill but not Site-related releases post-1978.
- ***Eastern Part of Site Near Philadelphia Beltway Railroad:*** PCBs have been identified at a concentration >1 ppm in only one sampling location in this area of the Site (PCSB-56). This sampling location is between the existing railroad tracks and a utility corridor, outside the former dikes surrounding the two southernmost tanks of the former fuel blending area. PCBs were not detected above 1 ppm in soil samples collected from nearby sampling locations within the former fuel blending area, indicating that PCBs at location PCSB-56 are isolated. Fuel blending operations immediately adjacent to this part of the Site continued until 1989 using #2 and #6 fuel oils (there is no documentation of PCB oil use in this area). Aerial photographs taken between the mid-1960s and 1981 show no development in the immediate vicinity of PCSB-56, and the southernmost tanks of the fuel blending area appear to have been removed by 1988. PCBs in this area are likely related to historic fill or nearby railroad operations but not Site-related releases post-1978.
- ***Southeast Corner of Site – Historical Tar Plains/Fill Area:*** PCBs have been identified at a concentration >1 ppm in four sampling locations in this area of the Site (PSSTP-08, PSSTP-09, PSSTP-19, and PCTP-61). Soil and debris were removed from this area to an average depth of approximately 11 feet during excavation as part of Resource Conservation and Recycling Act (RCRA) closure between 1982 and 1988. Approval to backfill was provided in 1989 by the agency preceding PADEP. The samples from this area that contained PCBs at concentrations >1 ppm were collected during the 2005/2006 Remedial Investigation at depths of 6-7 feet, which would be within the area where fill was placed to backfill the excavations. Therefore, PCBs in this area are attributed to regrading of historic fill at the site to remove the depressions formed by the RCRA soil excavations.

The random and low levels of PCBs identified in soil across this area (and the Site as a whole), both spatially and at various depths, are also indicative of historic fill grading and not a historic point-source release.

West-Central Portion of Site – Near Former Facilities and Buildings: PCBs have been identified at a concentration >1 ppm in two sampling locations in this area of the Site (PCTP-68 and PCTP-69), as indicated below.

- *PCTP-68:* PCBs were detected at a concentration of 1.9 ppm in a subsurface soil sample collected at a depth of 6 feet below ground surface at sampling location PCTP-68, within a concrete driveway approximately 50 feet southwest of a former electrical substation building that housed electrical equipment indoors. However, PCBs were not detected above laboratory detection limits in surface soil at this location or other surface soil sampling locations around this area. The data suggest that PCBs at this location were unrelated to a release from the ground surface in this area. Since development in this area occurred before 1978, the limited PCB presence in the subsurface would also have occurred before 1978.
- *PCTP-69:* PCBs were detected at a concentration of 1.3 ppm in surface soil at sampling location PCTP-68, which is below a former concrete pad associated with a scale house that was constructed before 1978. Since this area was capped with concrete before 1978, the limited PCB presence in the subsurface would also have occurred before 1978.

PCBs in this area are likely related to historic fill but not Site-related releases post-1978.

Table 1
Soil Analytical Results for Total PCBs (mg/kg)

Former Philadelphia Coke Co. Inc. Site
Philadelphia, Pennsylvania

Location ID:	Sample Depth (ft):	Date Collected:	Total PCBs
MW-102	12-13	5/16/18	<0.058
MW-103	6-7	5/16/18	0.2
	15-16	5/16/18	<0.043
PCSB-26	0.5	7/26/05	<0.028
	6	7/26/05	<0.036
PCSB-26R	8	7/26/05	<0.036
	0.5-2	4/19/19	<0.038
PCSB-27	0.5	7/26/05	<0.029
	1.5	7/26/05	<0.028
	10.5	7/26/05	<0.042
PCSB-28	0.5	7/26/05	<0.03
	2	7/26/05	<0.027
	15	7/26/05	<0.047
PCSB-29	0.5	7/26/05	<0.028
	2	7/26/05	<0.027
PCSB-30	11.5	7/26/05	<0.037
	0.5	7/26/05	<0.028
PCSB-30R	2	7/26/05	<0.038
	15	7/26/05	<0.048
	0.5-2	4/19/19	<0.042
PCSB-31	0.5	7/28/05	<0.035
PCSB-32	0.5	7/28/05	<0.033
PCSB-33	0.5	7/28/05	<0.031
PCSB-34	0.5	7/27/05	0.084
	5	7/27/05	<0.037
	16.5	7/27/05	<0.04
PCSB-35	0.5	8/2/05	0.066
PCSB-36	0.5	7/27/05	0.18
	4	7/27/05	<0.03
	16	7/27/05	<0.036
PCSB-37	0.5	8/3/05	1
PCSB-38	0.5	7/27/05	0.11
	3.5	7/27/05	<0.028
	9.5	7/27/05	<0.044
PCSB-39	0.5	7/27/05	<0.032
PCSB-40	0.5	7/28/05	0.053
PCSB-41	0.5	7/28/05	0.43
PCSB-41R	0.5-2	4/22/19	<0.039
PCSB-42	0.5	8/1/05	0.051 [<0.026]
PCSB-43	0.5	8/1/05	0.16
PCSB-44	0.5	8/3/05	0.12
PCSB-45	0.5	8/3/05	0.13 [0.13]
PCSB-46	0.5	7/27/05	0.046
PCSB-47	0.5	8/3/05	0.34
PCSB-48	0.5	8/3/05	<0.026
PCSB-49	0.5	8/3/05	0.053
PCSB-50	0.5	8/3/05	0.14
PCSB-51	0.5	8/3/05	0.12
PCSB-52	0.5	8/2/05	0.12
PCSB-54	0.5	8/3/05	0.32
PCSB-55	0.5	8/3/05	0.069
PCSB-56	0.5	8/15/05	1.7
PCSB-57	0.5	8/15/05	0.11
PCSB-58	0.5	8/15/05	0.13

Location ID:	Sample Depth (ft):	Date Collected:	Total PCBs
PCSB-59	0.5	8/15/05	0.21
PCSB-60	0.5	8/15/05	0.5 [0.25]
PCTP-61	0.5	9/8/05	1.3 [0.54]
	7.5	9/8/05	<0.027
PCTP-62	0.5	9/8/05	0.58
	10.5	9/8/05	<0.042
PCTP-63	0.5	9/8/05	0.23
	10.5	9/8/05	<0.035
PCTP-64	0.5	9/8/05	0.36
	7	9/8/05	<0.03
PCTP-65	0.5	9/8/05	<0.028
	7.5	9/8/05	<0.033
PCTP-66	0.5	9/8/05	<0.017
	7.5	9/8/05	<0.037
PCTP-66R	0-0.5	4/24/19	0.249 [0.336]
	0.5-2	4/24/19	<0.035
	8-10	4/24/19	<0.052
PCTP-66R-HC	0-2	4/4/19	0.369
	2-4	4/4/19	<0.16
PCTP-67	0.5	9/12/05	0.25 [0.2]
	8	9/12/05	<0.037
PCTP-68	0.5	9/9/05	<0.018
	6	9/9/05	1.85
PCTP-69	0.5	9/9/05	1.3
	17.5	9/9/05	<0.029
PCTP-70	0.5	9/9/05	<0.028
	18	9/9/05	<0.027
PCTP-71	0.5	9/9/05	0.21
	17.5	9/9/05	<0.027
PCTP-72	0.5	9/9/05	0.3
	12	9/9/05	<0.032
PCTP-73	0.5	9/9/05	7.9
	9.5	9/9/05	0.85
PCTP-73R	0-0.5	4/10/19	0.932
PCTP-74	0.5	9/9/05	<0.027
	12.5	9/9/05	<0.025
PCTP-75	0.5	9/9/05	0.055
	11	9/9/05	<0.019
PCTP-76	0.5	9/12/05	0.37
	6.5	9/12/05	0.7
PCTP-77	0.5	9/12/05	0.443
	10.5	9/12/05	<0.038
PCTP-78	0.5	9/12/05	<0.027
	9.5	9/12/05	<0.034
PCTP-79	0.5	9/12/05	0.27
	10	9/12/05	<0.033
PCTP-80	8	9/12/05	0.31
PSSTP-01A	1-2	3/11/03	0.08
	5-6	3/11/03	13
PSSTP-01R	5-6	4/10/19	1.51
PSSTP-02A	1-2	3/11/03	0.43
	5-6	3/11/03	1.14
PSSTP-03A	1-2	3/11/03	0.214
	8-9	3/11/03	0.106

Table 1
Soil Analytical Results for Total PCBs (mg/kg)

Former Philadelphia Coke Co. Inc. Site
Philadelphia, Pennsylvania

Location ID:	Sample Depth (ft):	Date Collected:	Total PCBs
PSSTP-04A	1-2	3/11/03	0.61
	8-9	3/11/03	0.47
PSSTP-04R	1-2	4/11/19	1.27
	7-8	4/11/19	<0.12
	8-9	4/11/19	<0.043
	16-17	4/11/19	<0.038
PSSTP-05A	1-2	3/11/03	0.83
	5-6	3/11/03	<0.02
PSSTP-06A	1-2	3/11/03	0.11
	5-6	3/11/03	<0.021
PSSTP-07A	1-2	3/11/03	0.18
	8-9	3/11/03	<0.021
PSSTP-07R	0.5-2	4/18/19	<0.04 [0.0610]
	8-9	4/18/19	<0.037
PSSTP-08A	1-2	3/11/03	0.12
	6-7	3/11/03	1.2
PSSTP-09A	1-2	3/12/03	0.05
	6-7	3/12/03	8.9
PSSTP-10A	1-2	3/12/03	<0.019
	8-9	3/12/03	<0.028
PSSTP-10R	1-2	4/16/19	<0.037
	8-9	4/16/19	<0.04
PSSTP-11A	1-2	3/12/03	<0.019
	8-9	3/12/03	<0.021
PSSTP-12A	1-2	3/12/03	0.418
	7-8	3/12/03	<0.023
PSSTP-13A	1-2	3/12/03	<0.019
	7-8	3/12/03	<0.023
PSSTP-14A	1-2	3/12/03	<0.024
	7-8	3/12/03	<0.024
PSSTP-15A	1-2	3/12/03	0.096
	8-9	3/12/03	<0.019
PSSTP-16A	1-2	3/12/03	0.63
	5-6	3/12/03	<0.023

Location ID:	Sample Depth (ft):	Date Collected:	Total PCBs
PSSTP-17A	1-2	3/12/03	0.25
	8-9	3/12/03	0.073
PSSTP-18A	1-2	3/12/03	0.12
	6-7	3/12/03	<0.021
PSSTP-19A	1-2	3/12/03	0.23
	7-8	3/12/03	1.08
PSSTP-20A	1-2	3/13/03	0.11
	8-9	3/13/03	<0.019
PSSTP-21A	1-2	3/13/03	0.25
	8-9	3/13/03	<0.03
PSSTP-22A	1-2	3/13/03	<0.019
	6-7	3/13/03	<0.027
PSSTP-22R	0.5-2	4/24/19	<0.037
PSSTP-23A	1-2	3/13/03	<0.02
	7-8	3/13/03	<0.019
PSSTP-24A	1-2	3/13/03	<0.02
	7-8	3/13/03	<0.029
PSSTP-25A	1-2	3/13/03	0.081
	7-8	3/13/03	<0.023
PSSTP-26A	1-2	3/13/03	0.092
	7-8	3/13/03	<0.023
PSSTP-27A	1-2	3/13/03	0.2
	5-6	3/13/03	<0.023
PSSTP-28A	1-2	3/13/03	<0.019
	5-6	3/13/03	<0.022
PSSTP-29A	1-2	3/13/03	0.077
	5-6	3/13/03	<0.019
PSSTP-30A	1-2	3/13/03	<0.023
	5-6	3/13/03	<0.022
S-138	0-0.5	4/5/19	0.159
	0.5-2	4/5/19	0.426
S-139	0-0.5	4/10/19	0.406
	0.5-2	4/10/19	0.171
S-140	0-0.5	4/10/19	0.0256
	0.5-2	4/10/19	<0.038

Notes:

1. Samples prior to 2019 were collected by Paulus, Sokolowski, and Sartor Engineering, PC on the dates indicated. Samples in 2019 were collected by Arcadis on the dates indicated.
2. Sample depth is reported in feet below ground surface.
3. 2003 and 2005 samples were analyzed by Hampton-Clarke, Veritech Laboratories of Fairfield, New Jersey.
4. 2019 samples were analyzed by SGS North America Incorporated Laboratories of Dayton, New Jersey.
5. Samples were analyzed for polychlorinated biphenyls (PCBs) using USEPA SW-846 Method 8082.
6. < = No PCB Aroclors detected at a concentration above the reported detection limit. These results are also reported in gray.
7. Concentrations reported in milligrams per kilogram (mg/kg) or parts per million (ppm).
8. Brackets indicate the reported concentration of a duplicate sample.
9. Data from 2019 have undergone a Tier II validation. Data prior to 2019 have not been validated.

Table 2
Evaluation of TSCA PCB Regulations Applicability

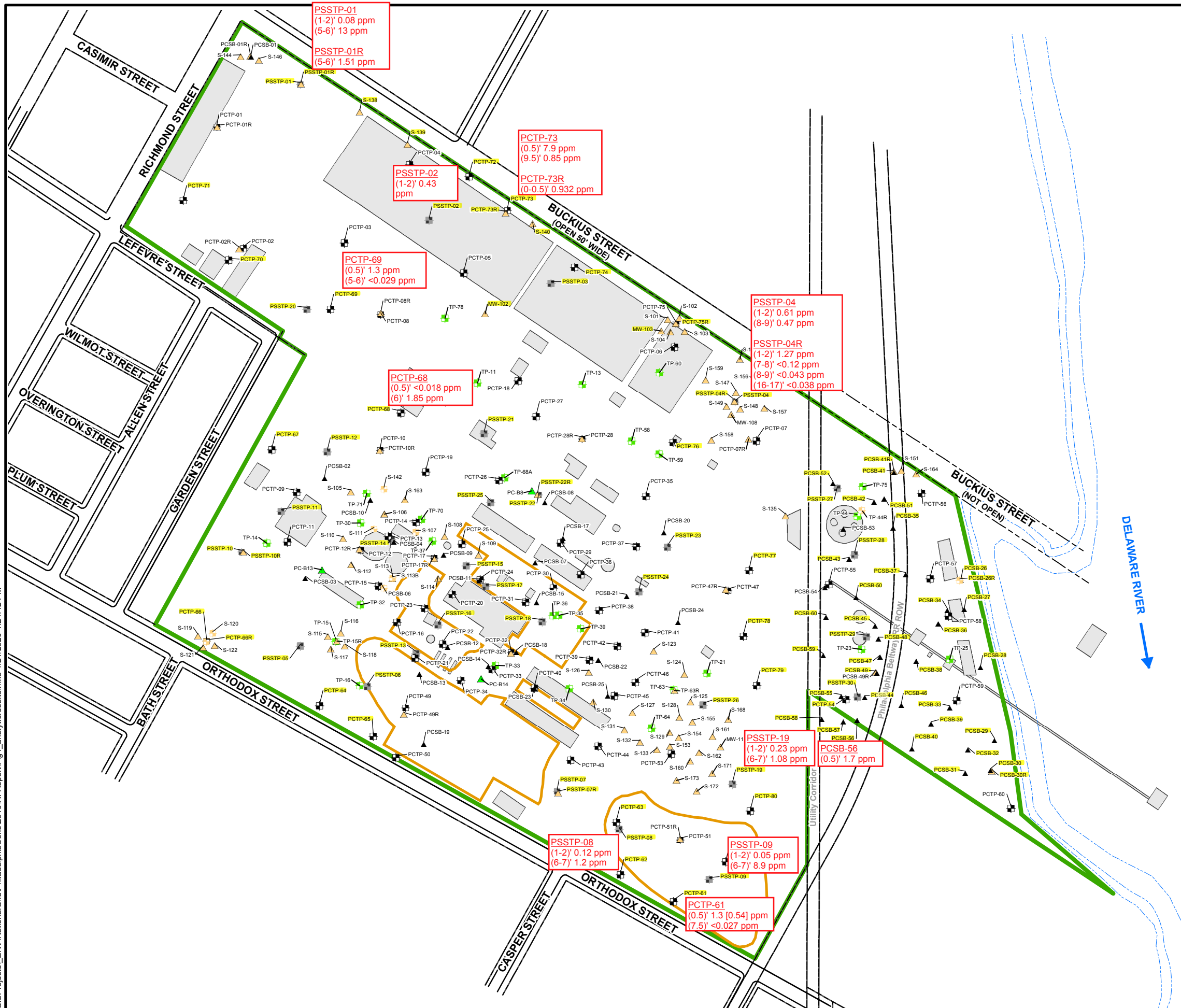
Former Philadelphia Coke Co., Inc. Site
Philadelphia, Pennsylvania

Sample Locations with PCBs >1 ppm	General Area	Sample Date	Sample Depth (feet)	Total PCBs (ppm)	Location-Specific Rationale that TSCA Does Not Apply
Northern Portion of Site - Historical Coal and Coke Storage Areas					
<i>(these sampling locations are all along/near the northern property boundary that extends along Buckius Street)</i>					
PSSTP-01	~200 feet east of Richmond Street	3/11/03	1-2	0.08	<p>Polychlorinated biphenyls (PCBs) were commercially manufactured in the United States from approximately 1930 until 1979, when their production was banned under the Toxic Substances Control Act (TSCA) regulations found in Title 40 of the Code of Federal Regulation (40CFR) Part 761. PCBs are not a byproduct of coking operations.</p> <p>As defined in 40 CFR Part 761.3, soil that contains PCBs (based on in-place sampling prior to excavation) at a concentration less than 50 parts per million (ppm) as the result of a release that occurred prior to the effective date of the TSCA regulations (1978) is not regulated under TSCA. PCBs were not identified in soil within this area (and the overall Site) at concentrations greater than 50 ppm. PCB concentrations in soil within this area are relatively low (generally around 1 ppm or less) with one result >10 ppm. The PCB concentrations in soil in this area are well-below those outlined in Pennsylvania Department of Environmental Protection (PADEP) medium-specific concentrations for soil. In general, low-level PCBs are widespread, but random, in soil across this area and found at various depths. This is not indicative of a historic point-source release, but may be related to grading of historic fill.</p> <p>PCBs have been identified at concentrations >1 ppm in four sampling locations in this area. These locations are within the footprint of former coal piles that are visible on aerial photographs from 1929 until at least 1981. Aerial photographs show that the coke storage area footprint covered sampling locations PSSTP-02 and PCTP-73/73R as early as 1929. Aerial photographs by the 1950s show that the coke storage area footprint had expanded westward to the edge of a building located on Richmond Street (extending over sampling location PSSTP-01/01R) and the coal storage area footprint had expanded eastward to the existing utility corridor (extending over sampling location PSSTP-04/04R). It is highly unlikely that PCBs in the coal and coke storage areas would be related to a post-1978 release given that the last aerial photograph before the end of coke production (which is dated 1981) shows site conditions consistent with earlier photos in which the coal and coke piles consistently covered these sampling locations. Given that the coal and coke piles covered the areas where PCBs were detected for several years after 1978, these detections are not TSCA regulated.</p>
			5-6	13	
PSSTP-01R		4/10/19	5-6	1.51	
PSSTP-02	~650 feet east of Richmond Street	3/11/03	1-2	0.43	
			5-6	1.14	
PCTP-73	~800 feet east of Richmond Street	9/9/05	0.5	7.9	
PCTP-73R			4/10/19	0-0.5	
PSSTP-04	~1,550 feet east of Richmond Street	3/11/03	1-2	0.61	
			8-9	0.47	
PSSTP-04R		4/11/19	1-2	1.27	
			7/8/2021	< 0.12	
		8-9	< 0.043		
			16-17	< 0.038	
Eastern Part of Site Near Philadelphia Beltway Railroad					
PCSB-56	~30 feet west of railroad	8/15/2005	0.5	1.7	<p>Soil boring PCSB-56 was drilled between the existing railroad tracks and a utility corridor, outside the former dikes surrounding the two southernmost tanks of the former fuel blending area. PCBs were not detected above 1 ppm in soil samples collected from nearby sampling locations within the former fuel blending area, indicating that PCBs at location PCSB-56 are isolated. Fuel blending operations immediately adjacent to this part of the site continued until 1989 and used No. 2 and No. 6 fuel oil brought in by barge (no documentation of PCB oil use in this area). Aerial photographs taken between the mid-1960s and 1981 show no development in the immediate vicinity of PCSB-56, and the southernmost tanks of the fuel blending area appear to have been removed by 1988. PCBs in this area are likely related to historical fill or nearby railroad operations, but not Site-related releases post 1978.</p>

Table 2
Evaluation of TSCA PCB Regulations Applicability

Former Philadelphia Coke Co., Inc. Site
Philadelphia, Pennsylvania

Sample Locations with PCBs >1 ppm	General Area	Sample Date	Sample Depth (feet)	Total PCBs (ppm)	Location-Specific Rationale that TSCA Does Not Apply
Southeast Corner of Site - Historical Tar Plains/Fill Area					
PSSTP-19	~230 feet west of utility corridor	3/12/03	1-2	0.23	These four former test pits were excavated within the historical tar plains/fill area. Soil and debris were removed from this area to an average depth of approximately 11 feet during excavation as part of Resource Conservation and Recycling Act (RCRA) closure between 1982 and 1988. Approval to backfill was provided in 1989 by the agency preceding PADEP. The samples from this area that contained PCBs at concentrations >1 ppm were collected during the 2005/2006 Remedial Investigation at depths of 6-7 feet, which would be within or near the bottom of the fill placed to backfill the excavations. Therefore, PCBs in this area are attributed to regrading of historic fill at the site to remove the depressions formed by the RCRA soil excavations. The random and low levels of PCBs identified in soil across this area (and the site as a whole), both spatially and at various depths, are also indicative of historic fill grading and not a historic point-source release.
			7-8	1.08	
PSSTP-08	~185 feet west of southeast corner of site	3/11/03	1-2	0.12	
			6-7	1.2	
PSSTP-09	~250 feet west of southeast corner of site	3/12/03	1-2	0.05	
			6-7	8.9	
PCTP-61	~450 feet west of southeast corner of site	9/8/05	0.5	1.3 [0.54]	
			7.5	< 0.027	
West-Central Portion of Site - Near Former Facilities and Buildings					
PCTP-68	~145 feet northeast of the LeFevre & Garden Street intersection	9/9/05	0.5	<0.018	PCBs have been identified at a concentration >1 ppm in two sampling locations in this area of the Site (PCTP-68 and PCTP-69), as indicated below. - <i>PCTP-68</i> : PCBs were detected at a concentration of 1.9 ppm in a subsurface soil sample collected at a depth of 6 feet below ground surface at sampling location PCTP-68, adjacent to a former electrical substation building that housed electrical equipment indoors. However, PCBs were not detected above laboratory detection limits in surface soil at this location or other surface soil sampling locations around this area. The data suggest that PCBs at this location were unrelated to a release from the ground surface in this area. Since development in this area occurred before 1978, the limited PCB presence in the subsurface would also have occurred before 1978. - <i>PCTP-69</i> : PCBs were detected at a concentration of 1.3 ppm in surface soil at sampling location PCTP-68, which is below a former concrete pad associated with a scale house that was constructed before 1978. Since this area was capped with concrete before 1978, the limited PCB presence in the subsurface would also have occurred before 1978. PCBs in this area are likely related to historical fill but not Site-related releases post-1978.
			6	1.85	
PCTP-69	~350 feet east of the LeFevre & Garden Street intersection	9/9/05	0.5	1.3	
			17.5	< 0.029	



Yellow highlighting indicates that one or more soil samples from this sampling location were analyzed for polychlorinated biphenyls (PCBs).

LEGEND:

- ▲ (S-101) 2019 SOIL BORING LOCATION (2019)
- (S-120) 2019 TEST PIT LOCATION (2019)
- ▲ (PCSB-04) PSS ENVIRONMENTAL SOIL BORINGS (2005)
- (PSSTP-23) PSS ENVIRONMENTAL TEST PITS (2003)
- (PCTP-01) PSS ENVIRONMENTAL TEST PITS (2005)
- (TP-46) EEI GEOTECHNICAL TEST PITS (2005)
- ▲ (PC-B6) EEI GEOTECHNICAL SOIL BORINGS (2005)
- RCRA EXCAVATION
- FORMER STRUCTURE/OPERATION
- SITE BOUNDARY
- SHORELINE

NOTES:

1. BASE MAP OBTAINED FROM FIGURE PREPARED BY PAULUS SOKOLOSKI AND SARTOR ENGINEERING, PC, TITLED "GENERAL SITE PLAN", DRAWING 2A, DATED APRIL 9, 2007 AT A SCALE OF 1"=250'.
2. FIGURE ONLY SHOWS SAMPLE LOCATIONS WHERE SOIL SAMPLES WERE COLLECTED FOR LABORATORY ANALYSIS.



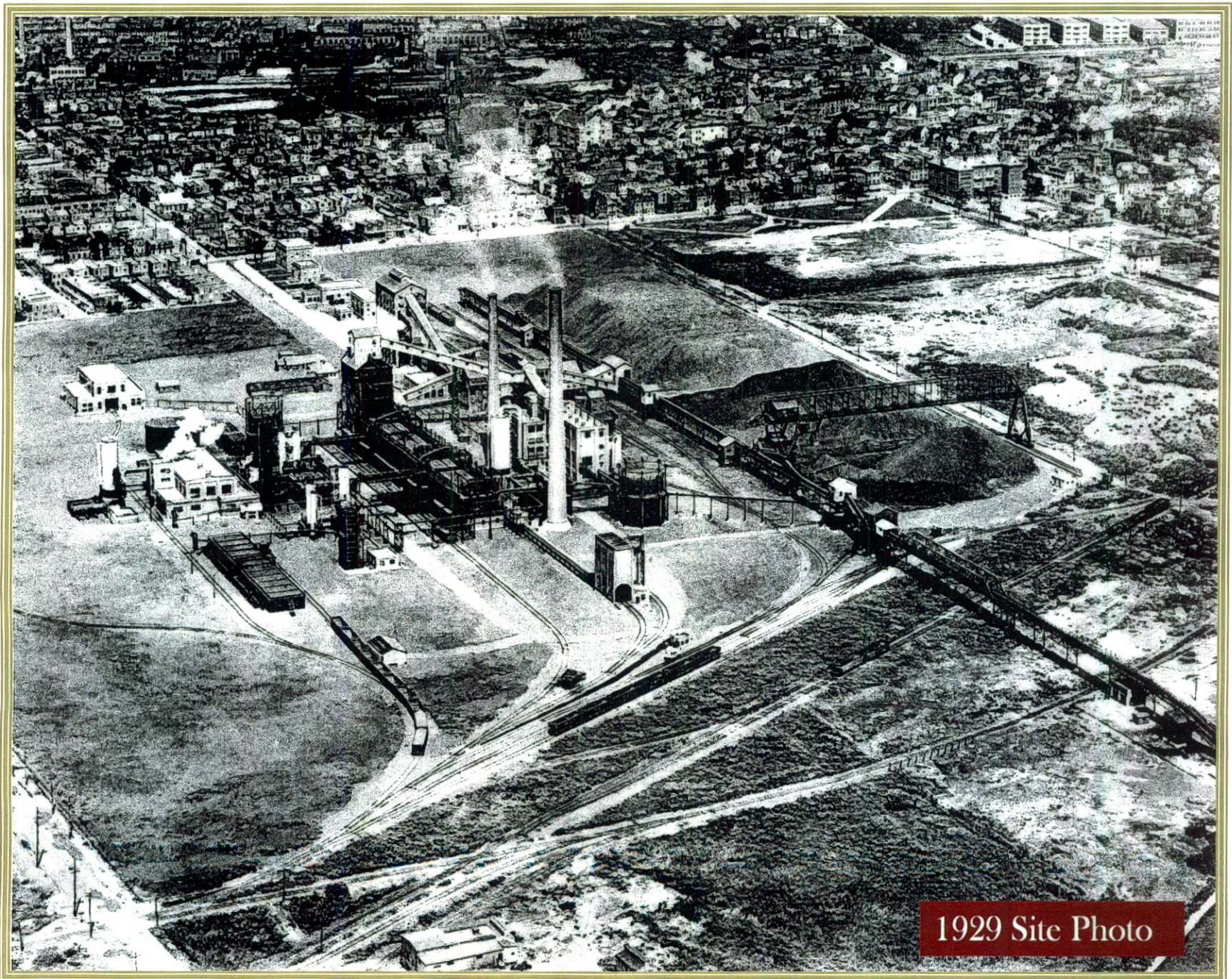
NATIONAL GRID
 FORMER PHILADELPHIA COKE PLANT
 PHILADELPHIA, PENNSYLVANIA
 RI REPORT

TOTAL PCB CONCENTRATIONS > 1 PPM

ATTACHMENT 1

Historical Aerial Photographs



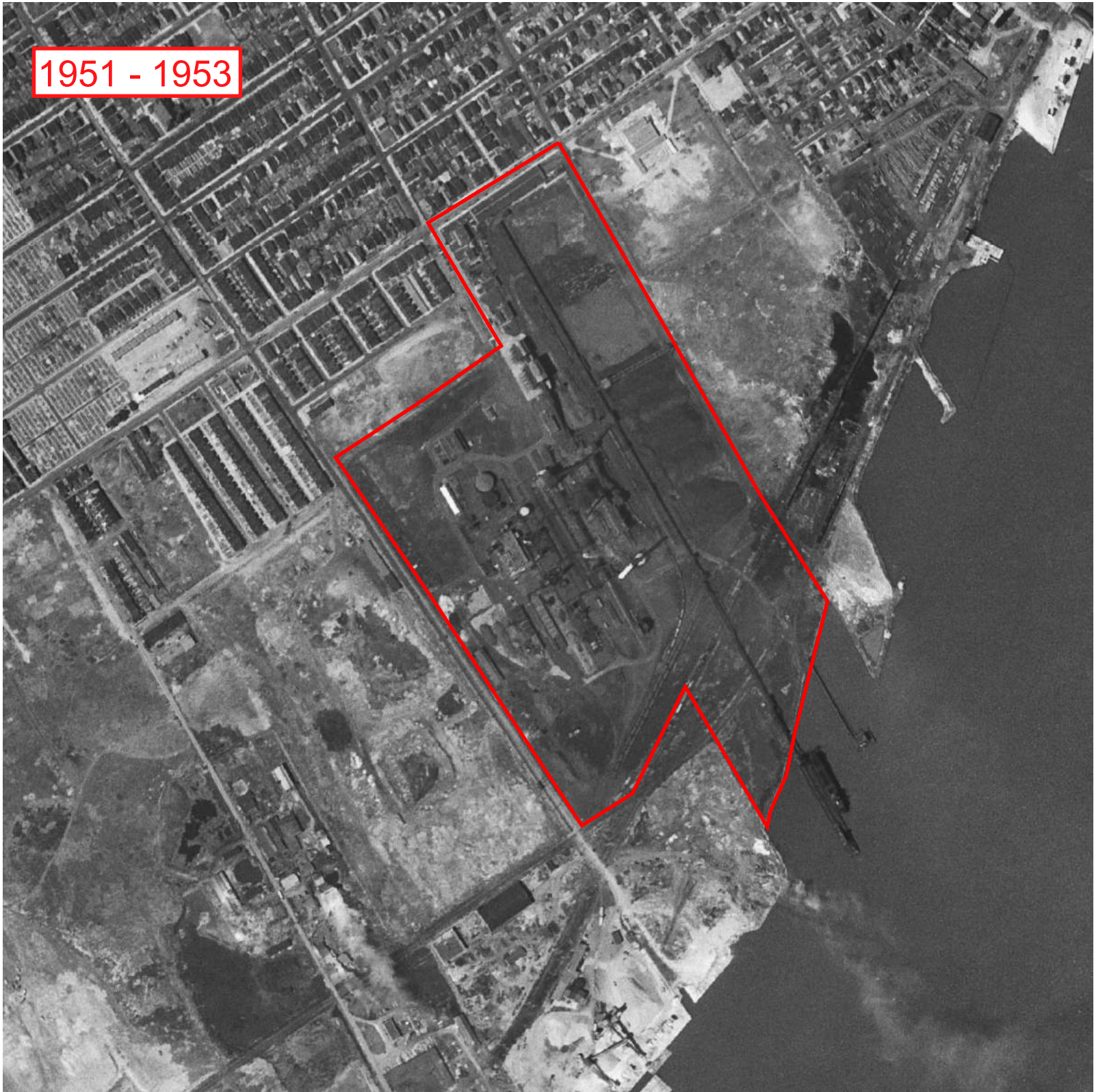


1929 Site Photo

Pre-1951



1951 - 1953

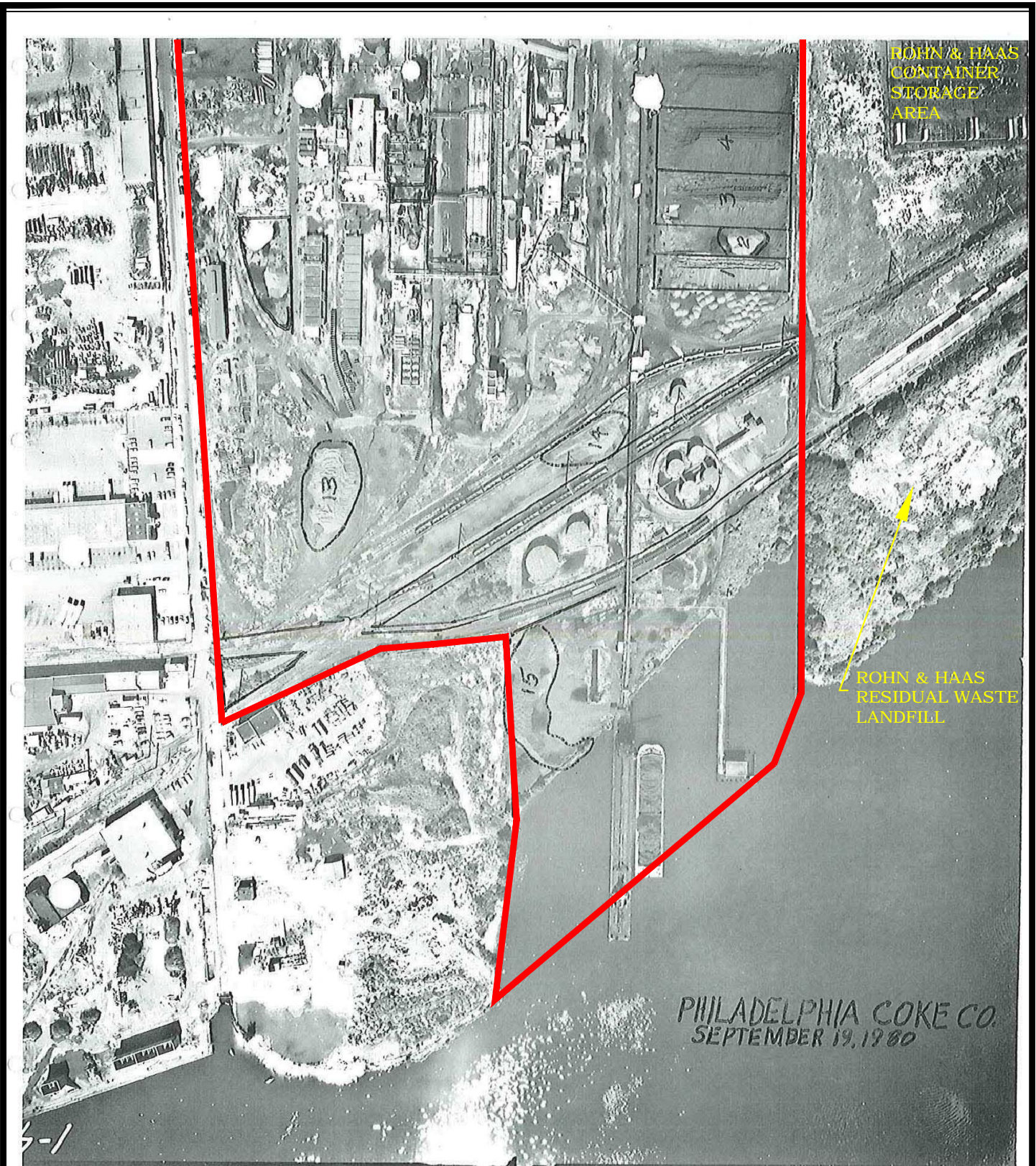


1962 - 1965



1965 - 1974





Source:
 WASTE PERMIT APPLICATION
 NOVEMBER 18, 1980 (BASEMAP)
 PADEP INSPECTION, AUGUST 1990

FIGURE 4
 FACILITY LAYOUT, SOUTH AREA
 PHILADELPHIA COKE COMPANY
 4501 RICHMOND STREET
 PHILADELPHIA, PENNSYLVANIA 19137

SCALE: NOT TO SCALE
 S.O. NO.: 120686
 DSN/DWN:MM/RRR

DATE:NOVEMBER 2011
 FILE: 120686-PCC-06
 CHK: SRF

Baker
 Michael Baker Jr., Inc.

MICHAEL BAKER JR., INC.
 MOON TOWNSHIP, PENNSYLVANIA

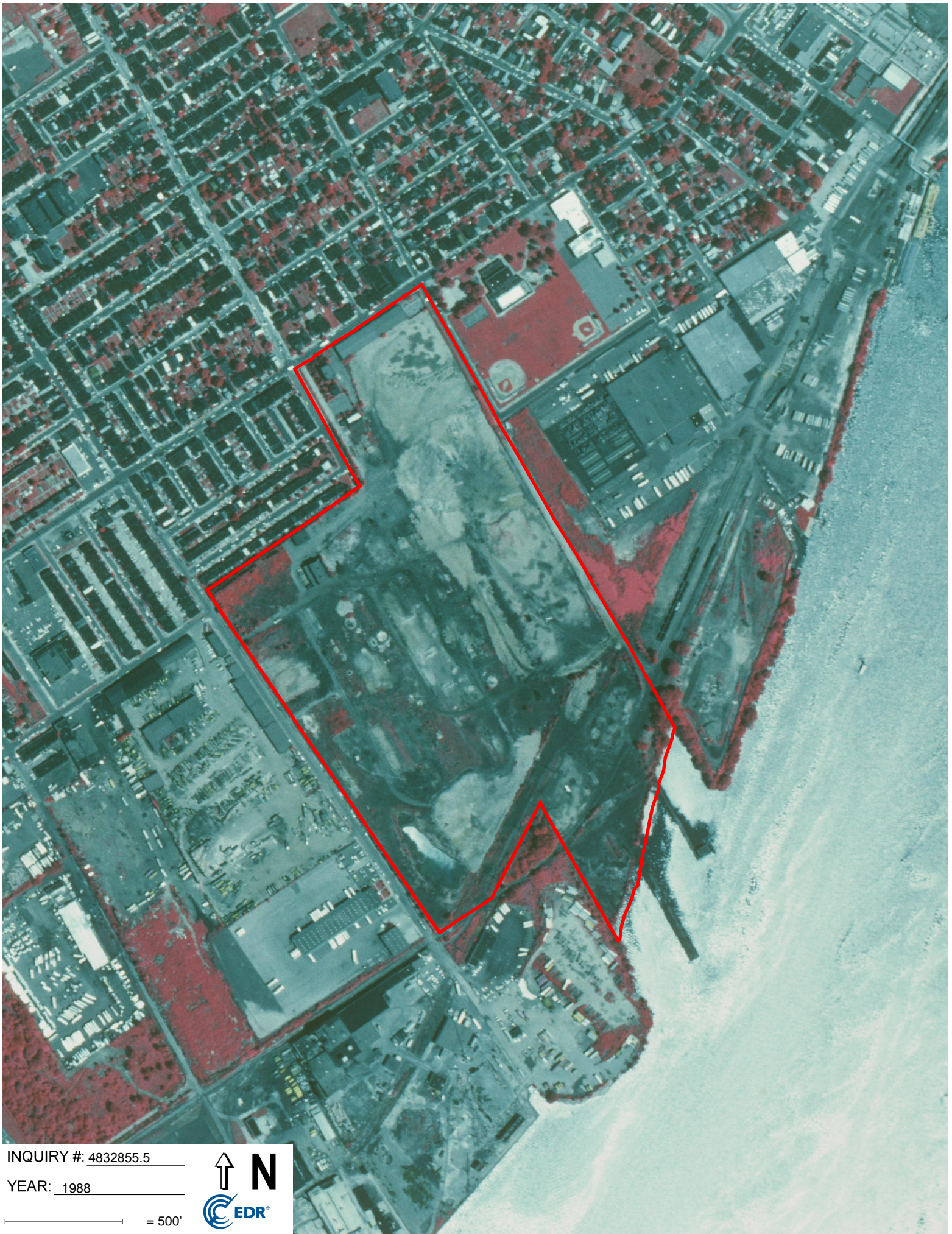


INQUIRY #: 4832855.5

YEAR: 1981

— = 500'





INQUIRY #: 4832855.5

YEAR: 1988

— = 500'





INQUIRY #: 4832855.5

YEAR: 1991

— = 500'



1982 - 1993



EPA RESPONSE TO TSCA PCB NOTIFICATION





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029
July 8, 2021

VIA Email

John C. Brussel, P.E.
Principal Engineer/Certified Project Manager
Arcadis of New York, Inc.
One Lincoln Center, 110 West Fayette Street, Suite 300
Syracuse, NY 13202

**Re: TSCA PCB Evaluation Summary
Philadelphia Coke Co., Inc. Site**

Dear Mr. Brussel,

The U.S. Environmental Protection Agency (EPA) has received and reviewed the TSCA PCB Evaluation Summary for soil at the Philadelphia Coke Site submitted via email on May 12, 2021 on behalf of National Grid. In conclusion, it was proposed that the Polychlorinated Biphenyls (PCBs) identified in soil samples collected at the Site are related to pre-1978 releases and are not regulated under the Toxic Substances Control Act (TSCA).

EPA does not agree with the conclusion that soils in the Southeastern Corner of the Site – Historic Tar Plains/Fill Area are related to pre-1978 releases. This is due to the fact that samples collected in 2005/2006 containing PCBs >1 ppm were related to backfilling activities that occurred in 1989 which constitutes a release under TSCA. Therefore, PCB releases to soils in this area are subject to TSCA regulations. EPA requests that National Grid prepare and submit a cleanup proposal in accordance with 40 C.F.R. 761.61.

EPA does agree with the conclusion that the soils in the remaining areas evaluated (Northern Portion of the Site (Historical Coke and Coal Storage Area), Eastern Part of the Site near Philadelphia Beltway Railroad, and West-Central Portion of Site – Near Former Facilities and Buildings) are related to pre-1978 releases and are not regulated under TSCA. PCB concentrations in these areas should be addressed in conjunction with the cleanup activities being performed under the One Cleanup Program.

Please contact me at (215) 814-2796 or bilash.kevin@epa.gov if you have any questions or concerns.

Sincerely,

Kevin Bilash, Remedial Project Manager
Land, Chemicals and Redevelopment Division
U.S. EPA Region III

Healy, Lawrence

From: Bilash, Kevin <Bilash.Kevin@epa.gov>
Sent: Thursday, July 8, 2021 11:59 AM
To: Brussel, John
Cc: Stearns, Brian M. (Brian.Stearns@nationalgrid.com); Sheehan, Daniel P.; Healy, Lawrence
Subject: RE: Question for Kevin - For EPA Review: TSCA PCB Evaluation - Philadelphia Coke Site, 4501 Richmond Street, Philadelphia, PA (eFACTS PF No. 831308)
Attachments: EPA PCB eval response 7_8_21.pdf
Categories: Business

Good morning John,

Thank you for the follow up and patience while going through this evaluation in coordination with my TSCA contact. I have attached EPA's response to the TSCA PCB Evaluation Summary for the Philadelphia Coke Site submitted on May 12, 2021.

As you correctly summarized, EPA agrees that PCB releases were pre-1978 except in the southeast corner.

Regarding the capping and covenant proposal in the southeast corner, I have no initial concerns and think that is an acceptable plan.

As you know though, TSCA is not the primary Act I work under and you will see in the letter a request to prepare and submit a cleanup proposal in accordance with 40 C.F.R. 761.61.

I will look into it further and discuss the proposed cleanup with my coordinator but suggest to review 40 C.F.R. 761.61 and make sure you meet the requirements.

My thoughts are mostly related to assuring you meet the "cap" requirements as they may be different than what I'd expect under RCRA or Act 2.

Thinking forward, I am ok if you submit the cleanup proposal under separate cover when you are ready to submit the Act 2 cleanup plan unless you prefer to do so earlier.

In the meantime I will let you know any comments received from discussing this with my TSCA coordinator.

If you have any questions or concerns about the letter or contents of this email, please let me know.

Thank you,
Kevin Bilash
US EPA Region III
Land, Chemicals & Redevelopment Division 3LD20
1650 Arch Street
Philadelphia, PA 19103
Tel: 215-814-2796
Fax: 215-814-3113

From: Brussel, John [mailto:John.Brussel@arcadis.com]
Sent: Thursday, July 08, 2021 9:37 AM
To: Bilash, Kevin <Bilash.Kevin@epa.gov>
Cc: Stearns, Brian M. (Brian.Stearns@nationalgrid.com) <Brian.Stearns@nationalgrid.com>; Sheehan, Daniel P. <Daniel.Sheehan@arcadis.com>; Healy, Lawrence <Lawrence.Healy@arcadis.com>
Subject: Question for Kevin - For EPA Review: TSCA PCB Evaluation - Philadelphia Coke Site, 4501 Richmond Street, Philadelphia, PA (eFACTS PF No. 831308)

Kevin,

As a follow-up to the voice-mail message I left you yesterday afternoon, we wanted to check with you on the status of the letter you mentioned during our June 16, 2021 Teams meeting regarding the TSCA PCB evaluation for the Philadelphia Coke site and EPA's position.

Per our discussions during the call, we understand EPA agrees that PCB releases were pre-1978, except in the southeast corner of the site near the former tar plains, where soil excavation was performed as part of the RCRA corrective action in the 1988-1993 timeframe.

You had mentioned that the PCBs in soil within the southeast corner could be addressed via Covenants and Restrictions, with no further excavation or capping necessary provided that this area is designated "low occupancy" (PCBs <25 ppm).

As indicated in the call and confirmed in follow-up discussion with the developer, they are planning to cap the entire southeast corner of the site (concrete, asphalt, 2-feet of clean soil) as part of their redevelopment and have an environmental covenant as part of the overall pathway elimination cleanup approach. This planned approach would allow a "high occupancy" area designation (with PCBs >1 and <10 ppm below the cap) for the southeast corner of the site and support potential future land conveyance and public uses associated with the Delaware Avenue extension and railroad relocation in this area.

Feel free to call Brian Stearns of National Grid (315.461.7892), Dan Sheehan of Arcadis (302.884.6919), or me (315.671.9441) if you have any questions or need additional information.

Thank you.

John

From: Bilash, Kevin <Bilash.Kevin@epa.gov>

Sent: Wednesday, June 16, 2021 2:07 PM

To: Brussel, John <John.Brussel@arcadis.com>

Cc: Stearns, Brian M. (Brian.Stearns@nationalgrid.com) <Brian.Stearns@nationalgrid.com>; Sheehan, Daniel P. <Daniel.Sheehan@arcadis.com>; Healy, Lawrence <Lawrence.Healy@arcadis.com>

Subject: RE: For EPA Review: TSCA PCB Evaluation - Philadelphia Coke Site, 4501 Richmond Street, Philadelphia, PA (eFACTS PF No. 831308)

Good afternoon John,

We have and I received a first round of comments from the PCB coordinator which prompted additional questions from me back to TSCA.

I expect a response from them soon, likely by the end of this week. I will then prepare the EPA response.

Let's set up a call for next week to discuss the findings prior to our official response. Currently, I have availability Tuesday AM or all day Wednesday.

Thank you,

Kevin Bilash

US EPA Region III

Land, Chemicals & Redevelopment Division 3LD20

1650 Arch Street

Philadelphia, PA 19103

Tel: 215-814-2796

Fax: 215-814-3113

From: Brussel, John [<mailto:John.Brussel@arcadis.com>]

Sent: Monday, June 14, 2021 11:52 AM

To: Bilash, Kevin <Bilash.Kevin@epa.gov>

Cc: Stearns, Brian M. (Brian.Stearns@nationalgrid.com) <Brian.Stearns@nationalgrid.com>; Sheehan, Daniel P. <Daniel.Sheehan@arcadis.com>; Healy, Lawrence <Lawrence.Healy@arcadis.com>

Subject: RE: For EPA Review: TSCA PCB Evaluation - Philadelphia Coke Site, 4501 Richmond Street, Philadelphia, PA (eFACTS PF No. 831308)

Kevin,

Good morning. We were wondering if you had a chance to review the TSCA PCB Evaluation summary yet.

Please let us know if you agree with the conclusions or have any questions.

Thank you.

John

From: Brussel, John

Sent: Friday, May 28, 2021 8:49 AM

To: Bilash, Kevin <Bilash.Kevin@epa.gov>

Cc: Stearns, Brian M. (Brian.Stearns@nationalgrid.com) <Brian.Stearns@nationalgrid.com>; Sheehan, Daniel P. <Daniel.Sheehan@arcadis.com>; Healy, Lawrence <Lawrence.Healy@arcadis.com>

Subject: RE: For EPA Review: TSCA PCB Evaluation - Philadelphia Coke Site, 4501 Richmond Street, Philadelphia, PA (eFACTS PF No. 831308)

Thanks for the update Kevin.

John

From: Bilash, Kevin <Bilash.Kevin@epa.gov>

Sent: Thursday, May 27, 2021 10:11 AM

To: Brussel, John <John.Brussel@arcadis.com>

Cc: Stearns, Brian M. (Brian.Stearns@nationalgrid.com) <Brian.Stearns@nationalgrid.com>; Sheehan, Daniel P. <Daniel.Sheehan@arcadis.com>; Healy, Lawrence <Lawrence.Healy@arcadis.com>

Subject: RE: For EPA Review: TSCA PCB Evaluation - Philadelphia Coke Site, 4501 Richmond Street, Philadelphia, PA (eFACTS PF No. 831308)

John,

I just wanted to let you know I am going to start reviewing this information now. I have not forgotten about it or missed your email.

Coincidentally, over the last month+ there was an internal national PCB training that just occurred that I attended so I thought it prudent to have the latest up to date info before assessing your submittal.

Thank you,

Kevin Bilash

US EPA Region III

Land, Chemicals & Redevelopment Division 3LD20

1650 Arch Street

Philadelphia, PA 19103

Tel: 215-814-2796

Fax: 215-814-3113

From: Brussel, John [<mailto:John.Brussel@arcadis.com>]

Sent: Wednesday, May 12, 2021 11:56 AM

To: Bilash, Kevin <Bilash.Kevin@epa.gov>

Cc: Stearns, Brian M. (Brian.Stearns@nationalgrid.com) <Brian.Stearns@nationalgrid.com>; Sheehan, Daniel P. <Daniel.Sheehan@arcadis.com>; Healy, Lawrence <Lawrence.Healy@arcadis.com>

Subject: For EPA Review: TSCA PCB Evaluation - Philadelphia Coke Site, 4501 Richmond Street, Philadelphia, PA (eFACTS PF No. 831308)

Kevin,

On behalf of National Grid and as a follow-up to the virtual meeting that you, Dan Sheehan, and I had on April 2, 2021, please find the attached "TSCA PCB Evaluation Summary" for soil at the Philadelphia Coke Site, including the tables, figure, and historical aerial photographs that we previewed during the meeting.

As explained in the summary, the PCBs identified in soil samples collected at the Site are related to pre-1978 release(s) and the concentrations are therefore not regulated under TSCA.

Please review the attached and let us know if EPA concurs with our conclusion.

Feel free to call Dan Sheehan (our PA engineer-of-record for the project) at 302.884.6919 or me at 315.671.9441 if you have any questions or need additional information.

Thank you.

John

John C. Brussel P.E.

Principal Engineer/Certified Project Manager

Arcadis of New York, Inc.

One Lincoln Center, 110 West Fayette Street, Suite 300 | Syracuse, NY | 13202 | USA

T +1 315 671 9441 | M +1 315 317 8104

www.arcadis.com



Professional Registration / PE-NY, #075208

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APPENDIX K

Fate and Transport Analysis



Calibration Between MW-111 and MW-112 (March 19, 2018 Contours)



Appendix K
Fate and Transport Analysis

Remedial Investigation Report
National Grid Philadelphia Coke Plant
Philadelphia, Pennsylvania

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL							
Project:	Calibration Between MW-111 and MW-112						
Date:	3/3/2021	Prepared by:	LCH				
		Contaminant:	Benzene				
SOURCE	Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	Time (days)
CONC	(ft)	(ft)	(ft)	day-1	WIDTH	THICKNESS	(days)
(ug/L)	686	2.04E+01	2.04E+00	1.00E-03	0.00096	200	10
13505							
Hydraulic Cond	Hydraulic Gradient	Porosity	Soil Bulk Density	KOC	Frac. Org. Carb.	Retardation	V
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm ³)			(R)	(=K*i/n*R)
1.19E+00	0.0101	0.519	1.19	58	5.00E-03	1.664932563	0.013850827

NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES" P.A. Domenico (1987) Modified to include Retardation

Point Concentration	x(ft)	y(ft)	z(ft)
	204	38	0
Conc. At	204	38	0
at	13505	days =	0.250
			(ug/L)

Centerline Plot (linear)

Centerline Plot (log)

	20.4	40.8	61.2	81.6	102	122.4	142.8	163.2	183.6	204
38	311.359	141.318	64.138	29.102	13.198	5.980	2.708	1.225	0.554	0.250
19	311.359	141.318	64.141	29.112	13.213	5.996	2.721	1.234	0.560	0.254
0	311.359	141.318	64.141	29.112	13.213	5.997	2.722	1.235	0.560	0.254
-19	311.359	141.318	64.141	29.112	13.213	5.996	2.721	1.234	0.560	0.254
-38	311.359	141.318	64.138	29.102	13.198	5.980	2.708	1.225	0.554	0.250

Field Data:	Centerline C Concentration	Distance from Source
	0.254	204

Modeled MW-112 Concentration Per 3/19/18 Contours - Actual Concentration is <0.50

Appendix K
Fate and Transport Analysis

Remedial Investigation Report
National Grid Philadelphia Coke Plant
Philadelphia, Pennsylvania

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL																																																																																																																
Project:	Calibration Between MW-111 and MW-112																																																																																																															
Date:	3/3/2021	Prepared by: LCH																																																																																																														
		Contaminant: Benzene																																																																																																														
SOURCE	Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	Time (days)																																																																																																									
CONC	(ft)	(ft)	(ft)	day-1	WIDTH	THICKNESS	(days)																																																																																																									
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NEW QUICK_DOMENICO.XLS
SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES" P.A. Domenico (1987) Modified to include Retardation

Modeled MW-113 Concentration Per 3/19/18 Contours - Actual Concentration is <0.50

Calibration Between MW-111 and MW-112 (October 3, 2019 Contour)

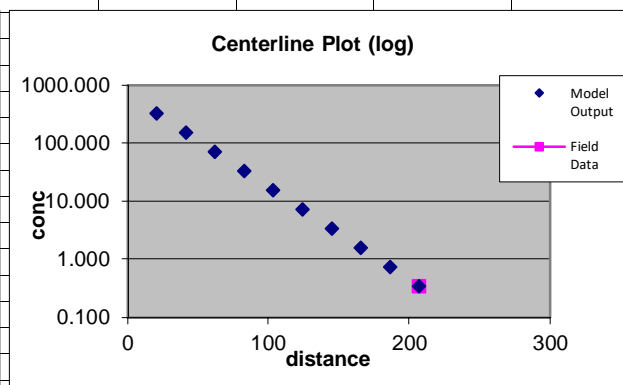
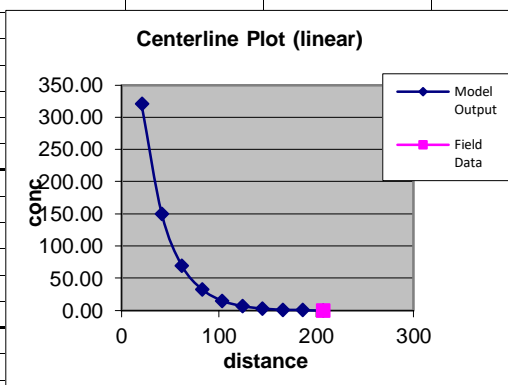


Appendix K
Fate and Transport Analysis

Remedial Investigation Report
National Grid Philadelphia Coke Plant
Philadelphia, Pennsylvania

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL							
Project:	Calibration Between MW-111 and MW-112						
Date:	3/3/2021	Prepared by:	LCH				
		Contaminant:	Benzene				
SOURCE	Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	Time (days)
CONC	(ft)	(ft)	(ft)	(ft)	WIDTH	THICKNESS	(days)
(ug/L)			>=.001	day-1	(ft)	(ft)	
	686	2.04E+01	2.04E+00	1.00E-03	0.00096	200	10
13505							
Hydraulic Cond (ft/day)	Hydraulic Gradient (ft/ft)	Porosity (dec. frac.)	Soil Bulk Density (g/cm ³)	KOC	Frac. Org. Carb.	Retardation (R)	V (=K*i/n*R) (ft/day)
1.32E+00	0.0098	0.519	1.19	58	5.00E-03	1.664932563	0.014936466
Point Concentration							
x(ft)	y(ft)	z(ft)					
207	82	0					
Conc. At		x(ft)	y(ft)	z(ft)			
at		207	82	0			
		13505	days =	0.250			
				(ug/L)			
AREAL CALCULATION MODEL DOMAIN							
Length (ft)		207					
Width (ft)		82					
	20.7	41.4	62.1	82.8	103.5	124.2	144.9
82	312.623	137.446	61.022	27.390	12.392	5.639	2.577
41	320.664	149.891	70.058	32.730	15.278	7.125	3.319
0	320.664	149.892	70.065	32.751	15.309	7.156	3.345
-41	320.664	149.891	70.058	32.730	15.278	7.125	3.319
-82	312.623	137.446	61.022	27.390	12.392	5.639	2.577
165.6	1.182	0.543	0.250				
186.3	0.719	0.334					
207	0.731	0.341					
Field Data:	Centerline C Concentration			0.341			
	Distance from Source			207			

NEW QUICK_DOMENICO.XLS
SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES" P.A. Domenico (1987) Modified to include Retardation



Modeled MW-112 Concentration Per 10/3/19 Contours - Actual Concentration is <0.50

Trichloroethene at MW-5



Appendix K
Fate and Transport Analysis

Remedial Investigation Report
National Grid Philadelphia Coke Plant
Philadelphia, Pennsylvania

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL										
Project:	Philly Coke (MW-5)									
Date:	3/4/2021	Prepared by:	LCH							
		Contaminant:	Trichloroethene							
SOURCE	Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	Time (days)			
CONC	(ft)	(ft)	(ft)	(ft)	WIDTH	THICKNESS	(days)			
(MG/L)			>=.001	day-1	(ft)	(ft)				
	0.0061	1.38E+01	1.38E+00	1.00E-03	0.0000548	200	10	1825		
Hydraulic Cond	Hydraulic Gradient	Porosity	Soil Bulk Density	KOC	Frac. Org. Carb.	Retardation	V			
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm ³)			(R)	($=K*i/n*R$)			
	1.32E+00	0.00855	0.519	1.19	93	5.00E-03	2.066184971	0.010500629		
Point Concentration										
x(ft)	y(ft)	z(ft)								
	138	0								
		x(ft)	y(ft)	z(ft)						
Conc. At	138		0							
at	1825		days =							
					0.000					
					mg/l					
AREAL MODEL		CALCULATION DOMAIN								
Length (ft)		138								
Width (ft)		30								
	13.8	27.6	41.4	55.2	69	82.8	96.6	110.4	124.2	138
30	0.004	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15	0.004	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.004	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-15	0.004	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-30	0.004	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data:	Centerline C Concentration									
	Distance from Source									

NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF
"AN ANALYTICAL MODEL FOR
MULTIDIMENSIONAL TRANSPORT OF A
DECAYING CONTAMINANT SPECIES"
P.A. Domenico (1987)
Modified to Include Retardation

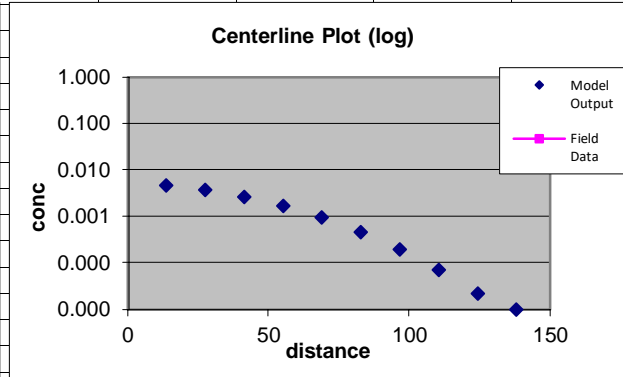
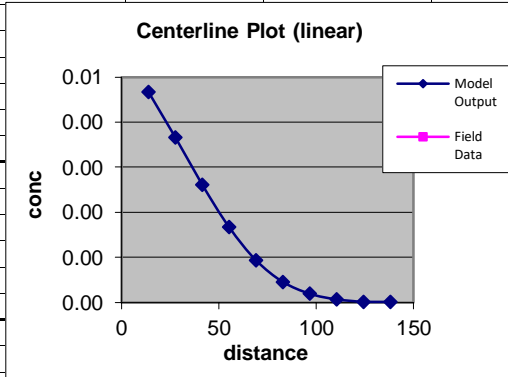
Centerline Plot (linear)

Centerline Plot (log)

Appendix K
Fate and Transport Analysis

Remedial Investigation Report
National Grid Philadelphia Coke Plant
Philadelphia, Pennsylvania

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL							
Project:	Philly Coke (MW-5)						
Date:	3/4/2021	Prepared by:	LCH				
		Contaminant:	Trichloroethene				
SOURCE	Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	Time (days)
CONC	(ft)	(ft)	(ft)	(ft)	WIDTH	THICKNESS	(days)
(MG/L)			>=.001	day-1	(ft)	(ft)	
	0.0061	1.38E+01	1.38E+00	1.00E-03	0.0000548	200	10
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	V
Cond	Gradient	Porosity	Density	KOC	Org. Carb.	ation	(=K*i/n*R)
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm ³)			(R)	(ft/day)
	1.32E+00	0.00855	0.519	1.19	93	5.00E-03	2.066184971
							0.010500629
<p>NEW QUICK_DOMENICO.XLS</p> <p>SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES" P.A. Domenico (1987) Modified to Include Retardation</p>							
Point Concentration							
x(ft)	y(ft)	z(ft)					
	138	0	0				
	x(ft)	y(ft)	z(ft)				
Conc. At	138	0	0				
at	3650	days =					
							0.000
							mg/l
	AREAL	CALCULATION					
	MODEL	DOMAIN					
	Length (ft)	138					
	Width (ft)	30					
	13.8	27.6	41.4	55.2	69	82.8	96.6
							110.4
							124.2
							138
30	0.005	0.004	0.003	0.002	0.001	0.000	0.000
15	0.005	0.004	0.003	0.002	0.001	0.000	0.000
0	0.005	0.004	0.003	0.002	0.001	0.000	0.000
-15	0.005	0.004	0.003	0.002	0.001	0.000	0.000
-30	0.005	0.004	0.003	0.002	0.001	0.000	0.000
Field Data:	Centerline C Concentration						
	Distance from Source						



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Date:	3/4/2021	Prepared by:	LCH																																																		
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CONC	(ft)	(ft)	(ft)	(ft)	WIDTH	THICKNESS	(days)																																														
(MG/L)			>=.001	day-1	(ft)	(ft)																																															
	0.0061	1.38E+01	1.38E+00	1.00E-03	0.0000548	200	10	5475																																													
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	V																																														
Cond	Gradient	Porosity	Density	KOC	Org. Carb.	ation	(=K*i/n*R)																																														
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm ³)			(R)	(ft/day)																																														
	1.32E+00	0.00855	0.519	1.19	93	5.00E-03	2.066184971	0.010500629																																													
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Appendix K
Fate and Transport Analysis

Remedial Investigation Report
National Grid Philadelphia Coke Plant
Philadelphia, Pennsylvania

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL											
Project:	Philly Coke (MW-5)										
Date:	3/4/2021	Prepared by:	LCH								
		Contaminant:	Trichloroethene								
SOURCE	Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	Time (days)				
CONC	(ft)	(ft)	(ft)	(ft)	WIDTH	THICKNESS	(days)				
(MG/L)			>=.001	day-1	(ft)	(ft)					
	0.0061	1.38E+01	1.38E+00	1.00E-03	0.0000548	200	10				
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	V				
Cond	Gradient	Porosity	Density	KOC	Org. Carb.	ation	(=K*i/n*R)				
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm ³)			(R)	(ft/day)				
	1.32E+00	0.00855	0.519	1.19	93	5.00E-03	2.066184971				
<p>NEW QUICK_DOMENICO.XLS</p> <p>SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES" P.A. Domenico (1987) Modified to Include Retardation</p>											
Point Concentration				Centerline Plot (linear)				Centerline Plot (log)			
x(ft)	y(ft)	z(ft)									
138	0	0									
	x(ft)	y(ft)	z(ft)								
Conc. At	138	0	0								
at	10950	days =									
			0.001								
			mg/l								
	AREAL	CALCULATION									
	MODEL	DOMAIN									
	Length (ft)	138									
	Width (ft)	30									
	13.8	27.6	41.4	55.2	69	82.8	96.6	110.4	124.2	138	
30	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.001	
15	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.001	
0	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.001	
-15	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.001	
-30	0.006	0.005	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.001	
Field Data:	Centerline C Concentration										
	Distance from Source										

Bis(2-ethylhexyl)phthalate at MW-102



Appendix K
Fate and Transport Analysis

Remedial Investigation Report
National Grid Philadelphia Coke Plant
Philadelphia, Pennsylvania

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL							
Project:	Philly Coke (MW-102)						
Date:	3/4/2021	Prepared by:	LCH				
		Contaminant:	bis(2-Ethylhexyl)phthalate				
SOURCE	Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	Time (days)
CONC	(ft)	(ft)	(ft)		WIDTH	THICKNESS	(days)
(MG/L)			>=.001	day-1	(ft)	(ft)	
0.0113	3.00E+01	3.00E+00	1.00E-03	0.00178082	200	10	1825
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	V
Cond	Gradient	Porosity	Density	KOC	Org. Carb.	ation	(=K*i/n*R)
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm ³)			(R)	(ft/day)
1.32E+00	0.00506	0.519	1.19	87000	5.00E-03	998.3988439	1.28607E-05
Point Concentration							
x(ft)	y(ft)	z(ft)					
300	0	0					
			x(ft)	y(ft)	z(ft)		
Conc. At	300	0	0				
at	1825	days =	0.000				
			mg/l				
AREAL CALCULATION							
MODEL DOMAIN							
	Length (ft)	25					
	Width (ft)	1					
	2.5	5	7.5	10	12.5	15	17.5
1	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-0.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-1	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data:	Centerline C Concentration						
	Distance from Source						

NEW QUICK_DOMENICO.XLS

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MULTIDIMENSIONAL TRANSPORT OF A
DECAYING CONTAMINANT SPECIES"
P.A. Domenico (1987)
Modified to Include Retardation

Centerline Plot (linear)

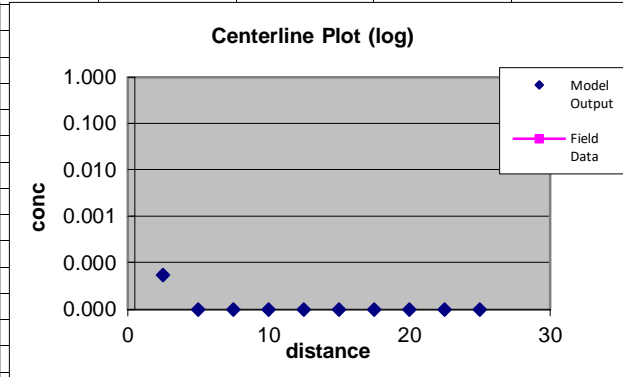
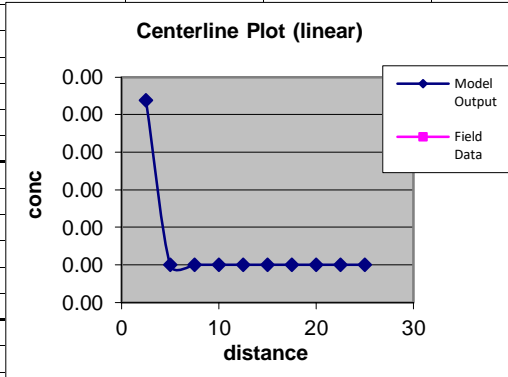
Centerline Plot (log)

Appendix K
Fate and Transport Analysis

Remedial Investigation Report
National Grid Philadelphia Coke Plant
Philadelphia, Pennsylvania

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL																																																	
Project:	Philly Coke (MW-102)																																																
Date:	3/4/2021	Prepared by:	LCH																																														
		Contaminant:	bis(2-Ethylhexyl)phthalate																																														
SOURCE	Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	Time (days)																																										
CONC	(ft)	(ft)	(ft)	(ft)	WIDTH	THICKNESS	(days)																																										
(MG/L)			>=.001	day-1	(ft)	(ft)																																											
	0.0113	3.00E+01	3.00E+00	1.00E-03	0.00178082	200	10	3650																																									
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	V																																										
Cond	Gradient	Porosity	Density	KOC	Org. Carb.	ation	(=K*i/n*R)																																										
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm ³)			(R)	(ft/day)																																										
	1.32E+00	0.00506	0.519	1.19	87000	5.00E-03	998.3988439	1.28607E-05																																									
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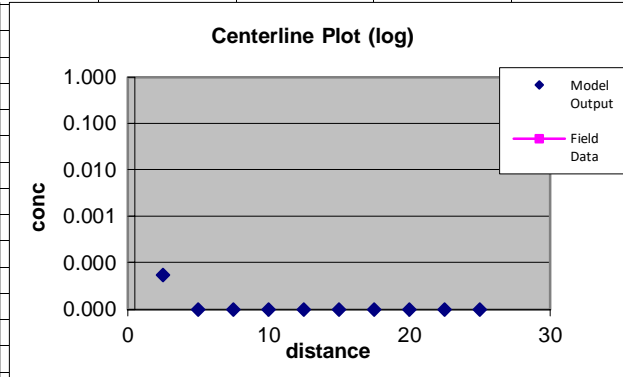
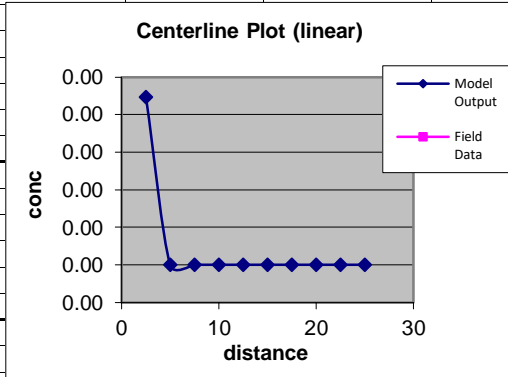


Appendix K
Fate and Transport Analysis

Remedial Investigation Report
National Grid Philadelphia Coke Plant
Philadelphia, Pennsylvania

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL																																																	
Project:	Philly Coke (MW-102)																																																
Date:	3/4/2021	Prepared by:	LCH																																														
		Contaminant:	bis(2-Ethylhexyl)phthalate																																														
SOURCE	Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	Time (days)																																										
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	0.0113	3.00E+01	3.00E+00	1.00E-03	0.00178082	200	10	5475																																									
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	V																																										
Cond	Gradient	Porosity	Density	KOC	Org. Carb.	ation	(=K*i/n*R)																																										
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm ³)			(R)	(ft/day)																																										
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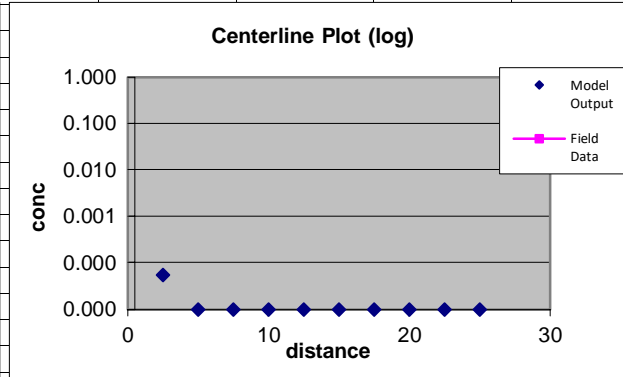
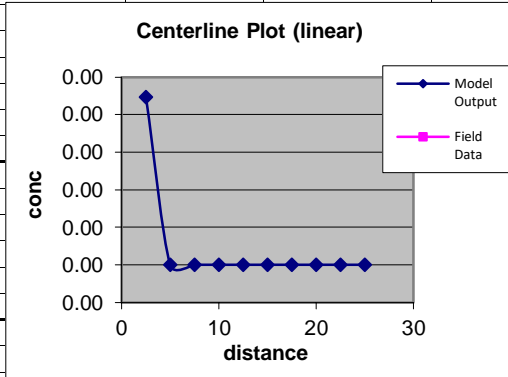


Appendix K
Fate and Transport Analysis

Remedial Investigation Report
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Philadelphia, Pennsylvania

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL																																																	
Project:	Philly Coke (MW-102)																																																
Date:	3/4/2021	Prepared by:	LCH																																														
		Contaminant:	bis(2-Ethylhexyl)phthalate																																														
SOURCE	Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	Time (days)																																										
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**Benzo(a)pyrene and
benzo(b)fluoranthene at MW-107**



Appendix K
Fate and Transport Analysis

Remedial Investigation Report
National Grid Philadelphia Coke Plant
Philadelphia, Pennsylvania

METHOD FOR ESTIMATING FLOW, AVERAGE CONCENTRATION AND MASS LOADING TO SURFACE WATER FROM GROUNDWATER																		
Project:	Philly Coke (MW-107)																	
Date:	3/4/2021																	
Contaminant:	Benz(a)pyrene					Prepared by:	LCH											
SOURCE																		
CONC (units)	Ax (ft)	Ay (ft)	Az (ft)	LAMBDA	SOURCE WIDTH (ft)	SOURCE THICKNESS (ft)	Time (days)											
ug/L	>.0001	>.0001	>=.0001	day-1	(ft)	(ft)	(days)											
1.2	7	0.7	1.00E-03	0.000658	160	10	1.00E+99											
Hydraulic Cond (ft/day)	Hydraulic Gradient (ft/ft)	Porosity (dec. frac.)	Soil Bulk Density (g/cm³)	KOC	Frac. Org. Carb.	Retard-ation (R)	V (=K*i/n*R) (ft/day)											
1.32E+00	0.00294	0.519	1.19	910000	5.00E-03	10433.56	7.15E-07											
								-80	-64	-48	-32	-16	0	16	32	48	64	80
Edge Criterion (ug/L)	0.0001		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Higest modeled conc.	0		-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SURFACE WATER LOADING GRID			-3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Distance to Stream (ft)	70		-4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Plume View Width (ft)	160		-5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Plume View Depth (ft)	10		-6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			-7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			-8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PENTOX NOT NEEDED			-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
				Average Groundwater Concentration			#DIV/0!	mg/l										
				Plume Flow			0.00000	cts	0	MGD								
				Mass Loading to Stream			#DIV/0!	mg/day										

PA DEPARTMENT
OF ENVIRONMENTAL PROTECTION
SWLOAD5B.XLS
A METHOD FOR ESTIMATING
COMTAMINANT LOADING TO SURFACE
WATER
based on
P.A. Domenico (1987)
Modified to Include Retardation

Appendix K
Fate and Transport Analysis

Remedial Investigation Report
National Grid Philadelphia Coke Plant
Philadelphia, Pennsylvania

METHOD FOR ESTIMATING FLOW, AVERAGE CONCENTRATION AND MASS LOADING TO SURFACE WATER FROM GROUNDWATER																		
Project:	Philly Coke (MWV-107)																	
Date:	3/4/2021																	
Contaminant:	Benzo(b)fluoranthene																	
Prepared by:	LCH																	
SOURCE																		
CONC (units)	Ax (ft)	Ay (ft)	Az (ft)	LAMBDA	SOURCE WIDTH (ft)	SOURCE THICKNESS (ft)	Time (days)											
(ug/L)	>.0001	>.0001	>=.0001	day-1														
1.7	7	0.7	1.00E-03	0.000575	160	10	1.00E+99											
Hydraulic Cond (ft/day)	Hydraulic Gradient (ft/ft)	Porosity (dec. frac.)	Soil Bulk Density (g/cm³)	KOC	Frac. Org. Carb.	Retard-ation (R)	V (=K*i/n*R) (ft/day)											
1.32E+00	0.00294	0.519	1.19	550000	5.00E-03	6306.395	1.183E-06											
								-80	-64	-48	-32	-16	0	16	32	48	64	80
Edge Criterion (ug/L)	0.001		0	5.9E-252	1.11E-251	1.2E-251	1.17E-251	1.173E-251	1.173E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.1E-251	5.9E-252	
Highest modeled conc.	1E-251		-1	5.9E-252	1.11E-251	1.2E-251	1.17E-251	1.173E-251	1.173E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.1E-251	5.9E-252	
			-2	5.9E-252	1.11E-251	1.2E-251	1.17E-251	1.173E-251	1.173E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.1E-251	5.9E-252	
SURFACE WATER LOADING GRID				-3	5.9E-252	1.11E-251	1.2E-251	1.17E-251	1.173E-251	1.173E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.1E-251	5.9E-252	
Distance to Stream (ft)	70		-4	5.9E-252	1.11E-251	1.2E-251	1.17E-251	1.173E-251	1.173E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.1E-251	5.9E-252	
Plume View Width (ft)	160		-5	5.9E-252	1.11E-251	1.2E-251	1.17E-251	1.173E-251	1.173E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.1E-251	5.9E-252	
Plume View Depth (ft)	10		-6	5.9E-252	1.11E-251	1.2E-251	1.17E-251	1.173E-251	1.173E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.1E-251	5.9E-252	
			-7	5.9E-252	1.11E-251	1.2E-251	1.17E-251	1.173E-251	1.173E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.1E-251	5.9E-252	
			-8	5.9E-252	1.11E-251	1.2E-251	1.17E-251	1.173E-251	1.173E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.1E-251	5.9E-252	
PENTOX NOT NEEDED				-9	5.8E-252	1.11E-251	1.2E-251	1.17E-251	1.169E-251	1.169E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.17E-251	1.1E-251	5.8E-252	
			-10	2.9E-252	5.56E-252	5.9E-252	5.87E-252	5.867E-252	5.867E-252	5.87E-252	5.87E-252	5.87E-252	5.87E-252	5.87E-252	5.86E-252	5.6E-252	2.9E-252	
Average Groundwater Concentration							#DIV/0!	mg/l										
Plume Flow							0.00000	cts	0		MGD							
Mass Loading to Stream							#DIV/0!	mg/day										

PA DEPARTMENT
OF ENVIRONMENTAL PROTECTION
SWLOAD5B.XLS
A METHOD FOR ESTIMATING
COMTAMINANT LOADING TO SURFACE
WATER
based on
P.A. Domenico (1987)
Modified to Include Retardation

APPENDIX L

Threatened and Endangered Species Consultation Correspondence



Initial PADNR Consultation Planning Report Request and Response





Former Philadelphia Coke Plant Site (PNDI-628950)

- View**
- Edit Details/Finalize
- Edit/View Shape
- Generate Receipt

Project Review Results

Revision date	Receipt Status	Payment Status	Receipt File	Boundary Shapefile
4/26/2017 01:27:02 PM	Generated	Payment Not Required	project_receipt_former_philadelphia_coke_plant_628950_2.pdf	Shapefile (ZIP)
4/18/2017 12:24:02 PM	Generated	Payment Complete	project_receipt_former_philadelphia_coke_plant_628950_1.pdf	Shapefile (ZIP)

Submitted by dave.buys_17392 on Tue, 04/18/2017 - 12:21

Project Type:

- [Hazardous Waste Clean-up, Site Remediation, and Reclamation](#)
 - [Spill \(e.g., oil, chemical\)](#)

Project ID: PNDI-628950

Project Size: Standard

Project Edit Status: Draft

Document Upload Opt-Out: Not Selected

No Documents Required: Not Selected

User Project Number: B0036790

Project Description: Former Philadelphia Coke Plant Site. National Grid. Proposed Supplemental Investigation.

Contact Name: David Buys

Organization: Arcadis

Address: 110 West Fayette Street

Address line 2: Suite 300

City: Syracuse

State/Province: New York

ZIP Code: 13202

Phone number: 315-263-6192

Email: dave.buys@arcadis.com

Introduction

This Conservation Planning Report compiles names, descriptions, maps, locations, measurements, links and references for Natural Heritage Areas (core and supporting habitats), Important Bird Areas, State Lands, and agency designated water resources that are coincident with an area of interest defined by the user of the Pennsylvania Conservation Explorer tool. For an overview and additional details, please be sure to visit the website at www.naturalheritage.state.pa.us and download the applicable County Natural Heritage Inventory report(s).

Site Area: 66.96 acres

County(s): Philadelphia

Township/Municipality(s): PHILADELPHIA

Quadrangle Name(s): CAMDEN

Watersheds HUC 8: Lower Delaware

Watersheds HUC 12: Pompeston Creek-Delaware River; Tacony Creek-Frankford Creek

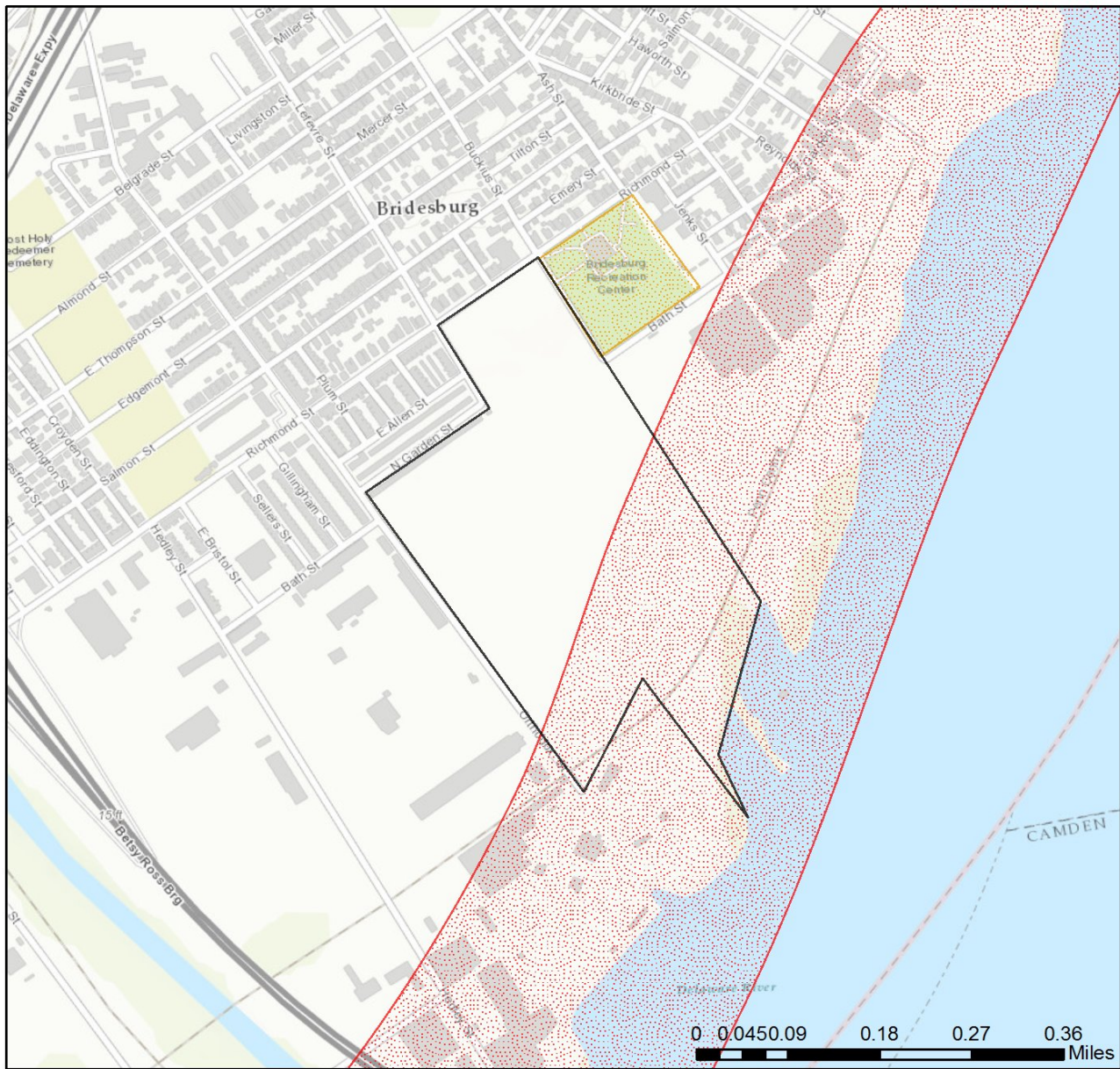
Decimal Degrees: 39.995448 N, -75.068600 W


Degrees Minutes Seconds: 39° 59' 43.6144" N, 75° 4' 6.9583" W

SEARCH RESULT SUMMARY

Conservation Planning Category	Detected Area Summary
Natural Heritage Areas	1 site

Former Philadelphia Coke Plant Site



-  Project Boundary
-  Core Habitats
-  Local Parks



Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo,

Natural Heritage Areas

Natural Heritage Areas (NHAs) are sites that have been identified as critical habitat for species or natural communities of concern. This dataset is designed to identify, map and discuss areas that support species of concern, exemplary natural communities, and broad expanses of intact natural ecosystems that support components of Pennsylvania's native species biodiversity. These areas are prioritized based upon their ecological qualities and provided with recommendations regarding their management and protection. Most of the existing NHAs have been developed through PNHPs County Natural Heritage Inventories -- systematic studies of the critical biological resources of a county.

Natural Heritage Site Name	Description	Reference
Delaware River Shoreline	The species of concern noted within this site are only found in specific areas where tidal habitat remains protected and in a few of the more naturally managed park areas.	Link

Local Parks

A local park is a publicly owned and publicly accessible park or natural area that engages participants of all ages in outdoor recreational experiences. Local parks and open spaces connect citizens to close-to-home outdoor recreation opportunities for play and physical activities; promote health and wellness, and environmental stewardship.

Local Park	Park Type	County	State or Federal Grant Funding
Bridesburg Recreation Center	Neighborhood Parks	Philadelphia	Yes, click here for more information

For additional information about the Pennsylvania Natural Heritage Program, visit the website at www.naturalheritage.state.pa.us or you can email your questions and comments to RA-HeritageReview@pa.gov.

1. PROJECT INFORMATION

Project Name: **Former Philadelphia Coke Plant Site**

Date of Review: **4/26/2017 01:27:38 PM**

Project Category: **Hazardous Waste Clean-up, Site Remediation, and Reclamation, Spill (e.g., oil, chemical)**

Project Area: **64.82 acres**

County(s): **Philadelphia**

Township/Municipality(s): **PHILADELPHIA**

ZIP Code: **19137**

Quadrangle Name(s): **CAMDEN**

Watersheds HUC 8: **Lower Delaware**

Watersheds HUC 12: **Pompeston Creek-Delaware River; Tacony Creek-Frankford Creek**

Decimal Degrees: **39.995443, -75.068641**

Degrees Minutes Seconds: **39° 59' 43.5965" N, 75° 4' 7.1084" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	Potential Impact	FURTHER REVIEW IS REQUIRED, See Agency Response
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Former Philadelphia Coke Plant Site

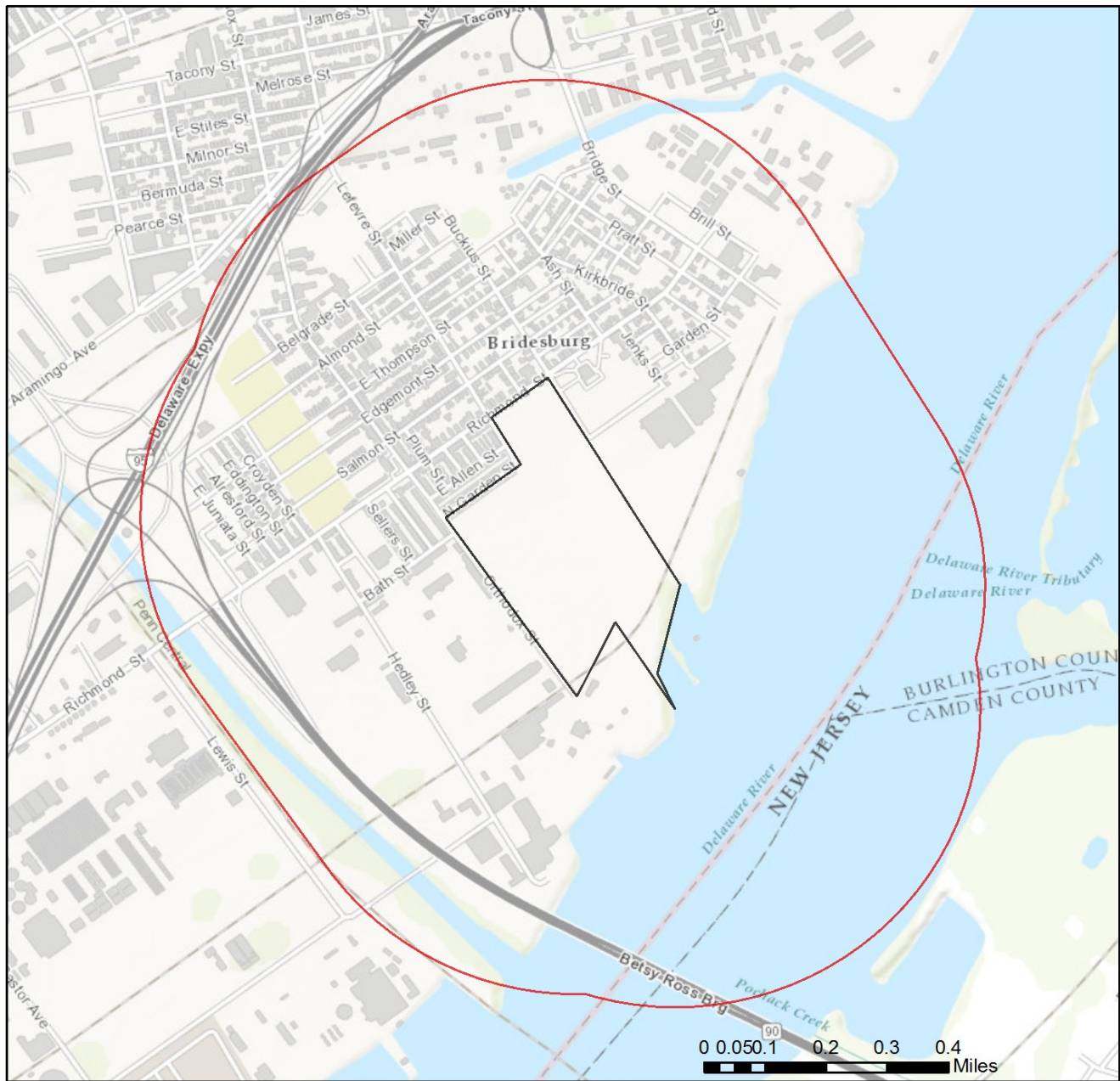


- Project Boundary
- Buffered Project Boundary



Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user

Former Philadelphia Coke Plant Site



- Project Boundary
- Buffered Project Boundary

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community



RESPONSE TO QUESTION(S) ASKED

Q1: Aquatic habitat (stream, river, lake, pond, etc.) is located on or adjacent to the subject property and project activities (including discharge) may occur within 300 feet of these habitats?

Your answer is: Yes

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The Pennsylvania Conservation Explorer tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)

Scientific Name	Common Name	Current Status
Sensitive Species**		Endangered
Sensitive Species**		Endangered
Sensitive Species**		Threatened

U.S. Fish and Wildlife Service

RESPONSE:

No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq. is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.

** Sensitive Species - Species identified by the jurisdictional agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, upload* or email* the following information to the agency(s). Instructions for uploading project materials can be found [here](#). This option provides the applicant with the convenience of sending project materials to a single location accessible to all three state agencies. Alternatively, applicants may email or mail their project materials (see AGENCY CONTACT INFORMATION).

***Note:** U.S.Fish and Wildlife Service requires applicants to mail project materials to the USFWS PA field office (see AGENCY CONTACT INFORMATION). USFWS will not accept project materials submitted electronically (by upload or email).

Check-list of Minimum Materials to be submitted:

___ Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.

___ A map with the project boundary and/or a basic site plan (particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)

In addition to the materials listed above, USFWS REQUIRES the following

___ **SIGNED** copy of a Final Project Environmental Review Receipt

The inclusion of the following information may expedite the review process.

___ Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)

___ Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <https://conservationexplorer.dcnr.pa.gov/content/resources>.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

U.S. Fish and Wildlife Service

Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
NO Faxes Please

PA Fish and Boat Commission

Division of Environmental Services
450 Robinson Lane, Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name: _____
Company/Business Name: _____
Address: _____
City, State, Zip: _____
Phone: (_____) _____ Fax: (_____) _____
Email: _____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

applicant/project proponent signature

date

**October 1, 2019: Electronic Submittal of Supporting Information for
PFBC Review for PDNI Draft Receipt #628950**



Proposed Remedial Investigation National Grid Philadelphia Coke Site, Philadelphia, PA

Project Narrative

Arcadis is proposing a Remedial Investigation (RI) to verify historical sampling results and delineate areas of known impact at the National Grid Philadelphia Coke Site (Philadelphia Coke Co., Inc. facility in Philadelphia, Pennsylvania). This work would support proposed redevelopment activities through the PA Department of Environmental Protection (PADEP) Act 2 Land Recycling Program (Administered in Title 25 Chapter 250 of the Pennsylvania Codes). National Grid will submit a Notice of Intent to Remediate to PADEP prior to performing investigation activities to enter the Act 2 program. Investigation activities will be proposed to PADEP prior to initialization and potentially include:

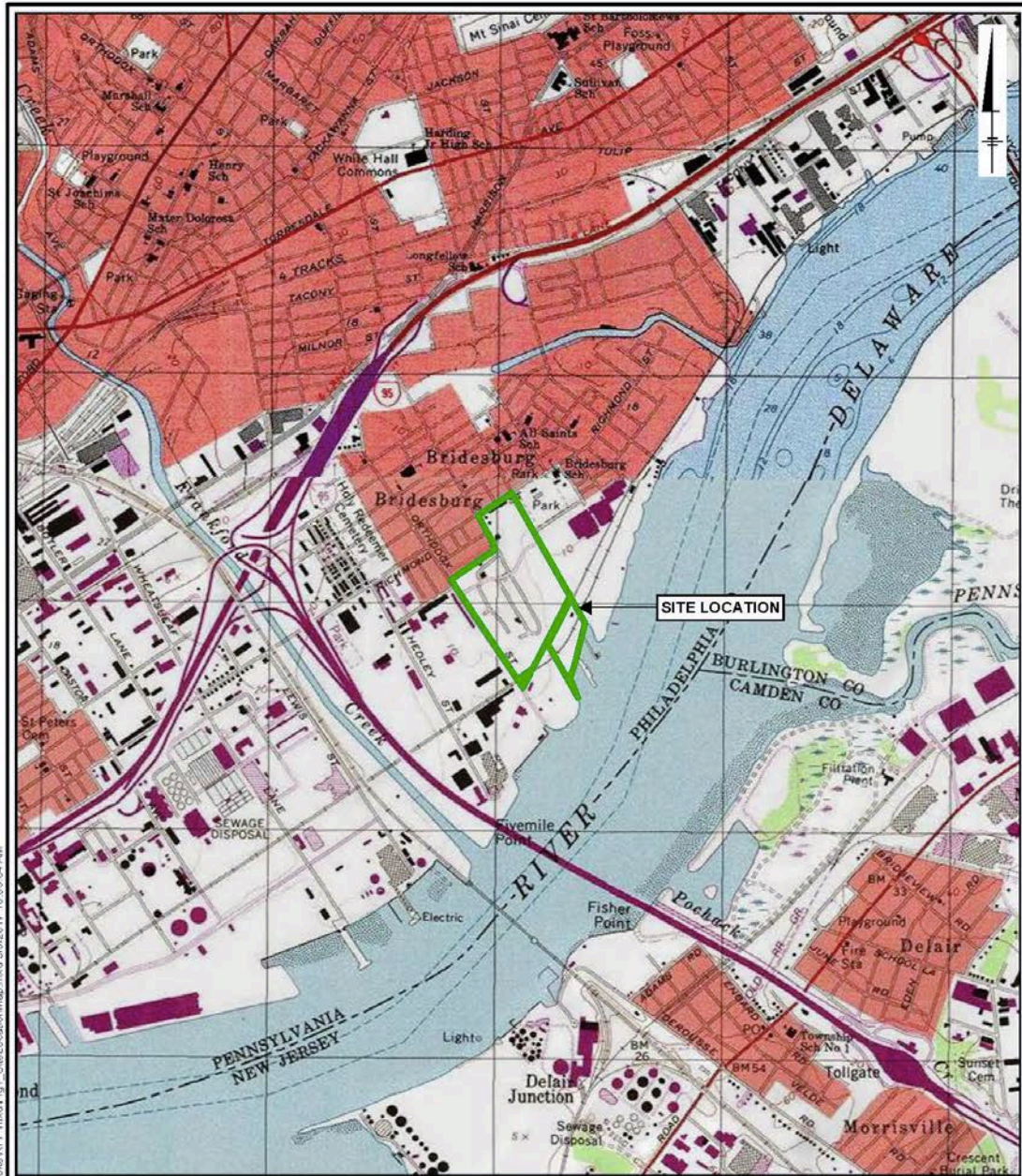
- Drilling approximately 80 soil borings.
- Excavating approximately 15 test pits.
- Installing 4 new groundwater monitoring wells and 8 new piezometers.
- Analyzing approximately 50 groundwater samples and 110 soil samples for TCL VOCs, TCL SVOCs, TAL inorganics, cyanide, pesticides, and/or PCBs.
- Surveying new and historical sample locations.
- Performing geophysical survey and vacuum excavation for utility clearance at each sampling location.
- Potentially clearing brush and trees as necessary to access proposed sampling locations.

The site is located on Richmond Street between Orthodox Street and Buckius Street in the Bridesburg section of Philadelphia, Pennsylvania. The Delaware River is immediately east of the site. The total site area is approximately 67 acres, with much of this area being accessed for the proposed sampling. Although the site is immediately adjacent to the Delaware River, no in-water work will occur and no off-site disturbances to the river and its habitats and/or environs are anticipated.

The site was developed in the mid-1920s to provide manufactured gas to the City of Philadelphia. Facility operations from January 1929 to May 1982 focused on the production of metallurgical coke and its associated by-products. Principal areas of the operation included coal and coke storage, coke production, tar storage, by-product operations, and iron oxide storage. The site also included an iron oxide waste area and tar plain area. A fuel oil blending facility operated on the eastern 2.5 acres of the site from approximately 1969 through 1989 by Patterson Oil Co. and Eastern Gas Co. All former structures at the site have been demolished to ground level, and the site is currently vacant with some existing foundations and roads occurring.

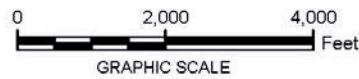
A description of the natural resources that occur at the site is contained in the Natural Heritage Inventory of Philadelphia County, Pennsylvania (December 2008) for the Delaware River Shoreline on pages 136-137 for the "Between Orthodox and Buckius Streets". In summary, the site is being reclaimed by a mix of herbaceous and woody vegetation, likely dominated by weedy introduced plant species and early successional native species. The riverfront contains a mix of rubble-armored seawall, dilapidated piers, a narrow sandy/gravel beach, and a small but well-developed tidal marsh.

Site Maps/Figures



City Syst Div/Group IMDOV Created By: K. Sinsabaugh Last Saved By: ksinisabaugh
 National Grid Philly Coke (B0038790.00000.000001)
 Z:\GIS\Projects\ENV\NationalGrid\PhiladelphiaCoke\FRM\Fig1_SiteLocationMap.mxd 3/6/2017 10:05:04 AM

NOTE:
 1. USGS TOPOGRAPHIC MAP
 PROVIDED BY ESRI.



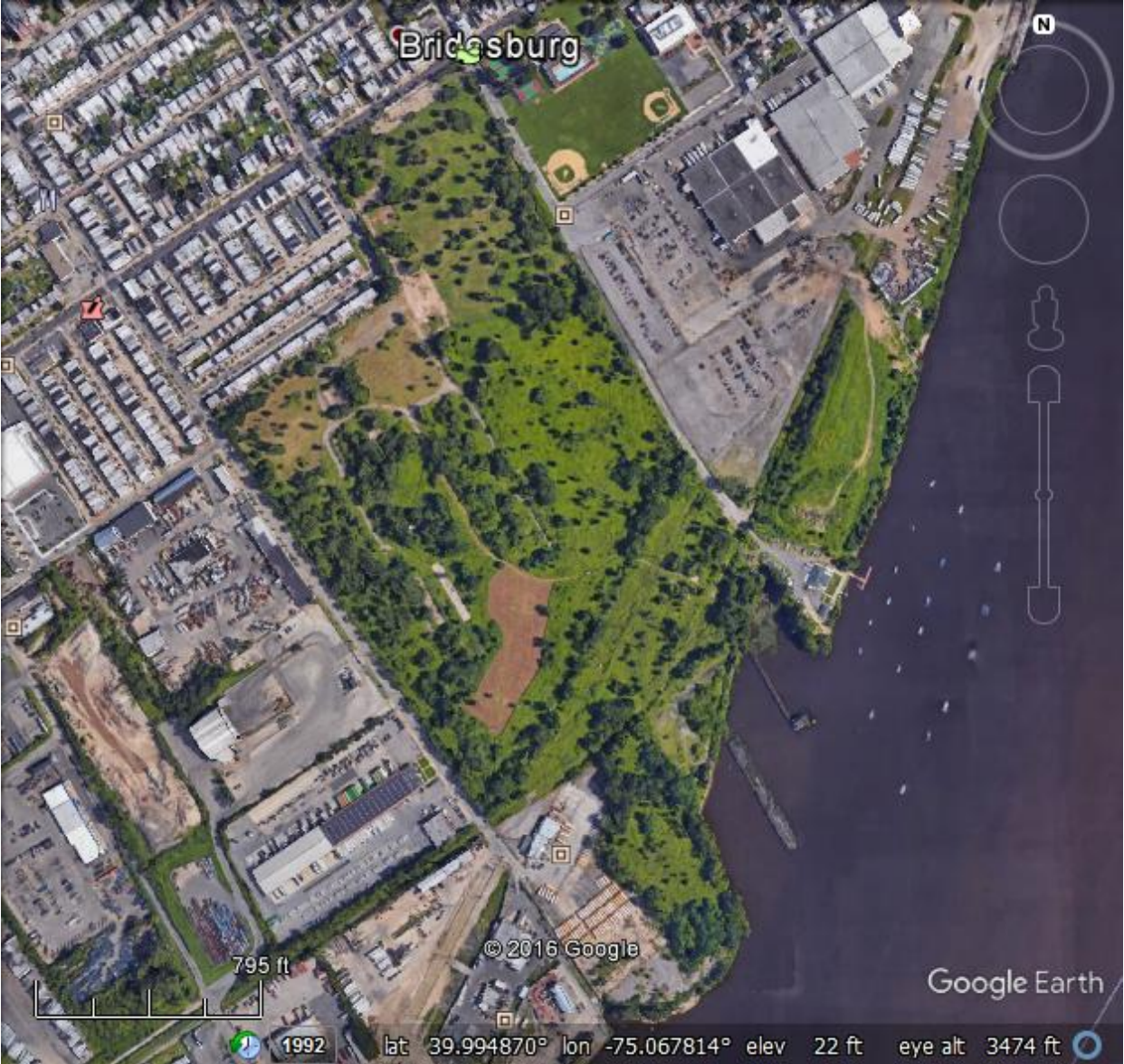
NATIONAL GRID
 FORMER PHILADELPHIA COKE PLANT SITE
 PHILADELPHIA, PENNSYLVANIA

SITE LOCATION MAP



FIGURE
1

DRAFT
PRIVILEGED AND CONFIDENTIAL



1. PROJECT INFORMATION

Project Name: **Former Philadelphia Coke Plant Site**

Date of Review: **4/26/2017 01:27:38 PM**

Project Category: **Hazardous Waste Clean-up, Site Remediation, and Reclamation, Spill (e.g., oil, chemical)**

Project Area: **64.82 acres**

County(s): **Philadelphia**

Township/Municipality(s): **PHILADELPHIA**

ZIP Code: **19137**

Quadrangle Name(s): **CAMDEN**

Watersheds HUC 8: **Lower Delaware**

Watersheds HUC 12: **Pompeston Creek-Delaware River; Tacony Creek-Frankford Creek**

Decimal Degrees: **39.995443, -75.068641**

Degrees Minutes Seconds: **39° 59' 43.5965" N, 75° 4' 7.1084" W**

2. SEARCH RESULTS

Agency	Results	Response
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Former Philadelphia Coke Plant Site

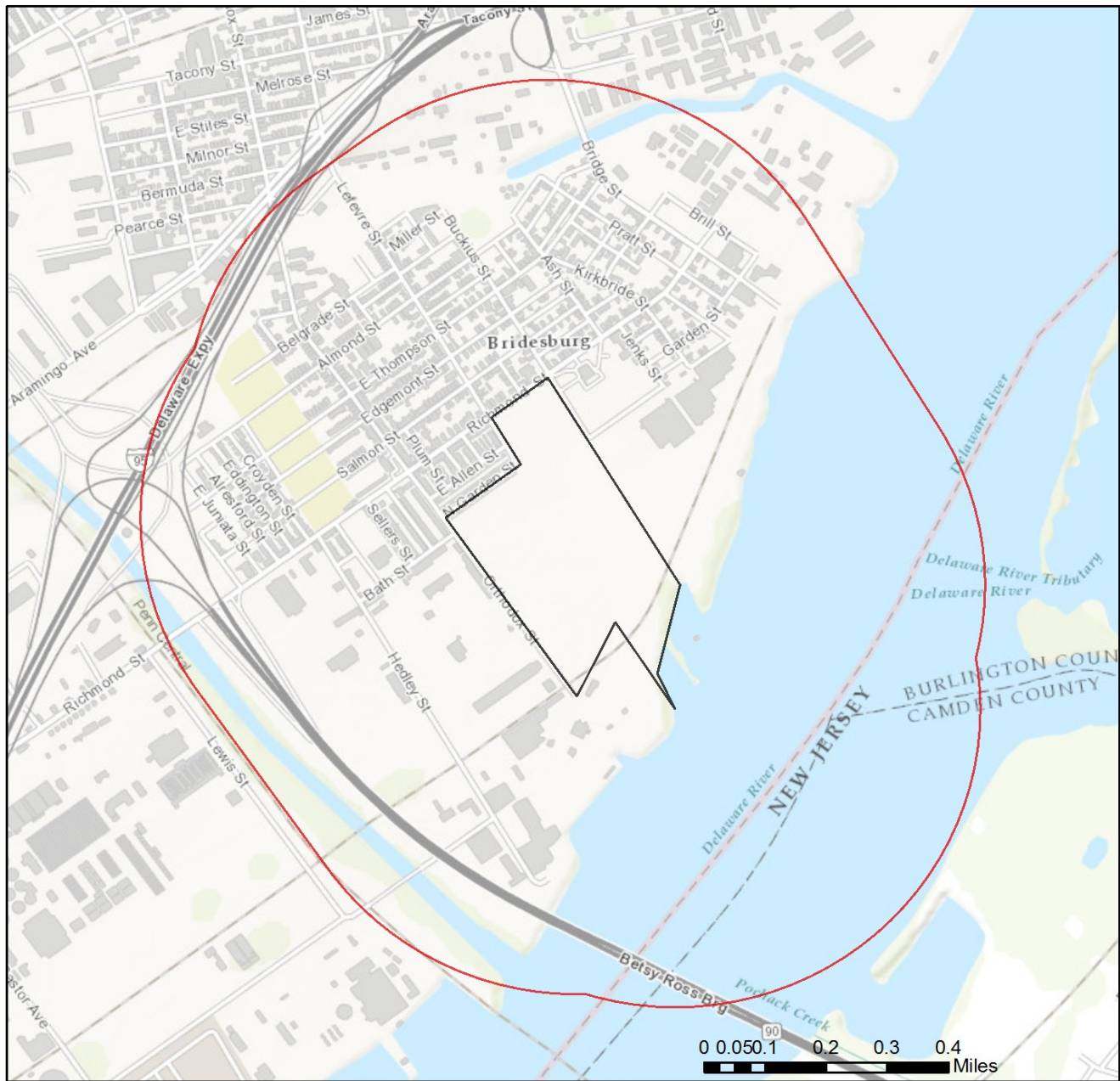


- Project Boundary
- Buffered Project Boundary

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user



Former Philadelphia Coke Plant Site



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RESPONSE TO QUESTION(S) ASKED

Q1: Aquatic habitat (stream, river, lake, pond, etc.) is located on or adjacent to the subject property and project activities (including discharge) may occur within 300 feet of these habitats?

Your answer is: Yes

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PA Fish and Boat Commission

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Scientific Name	Common Name	Current Status
Sensitive Species**		Endangered
Sensitive Species**		Endangered
Sensitive Species**		Threatened

U.S. Fish and Wildlife Service

RESPONSE:

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In addition to the materials listed above, USFWS REQUIRES the following

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5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

U.S. Fish and Wildlife Service

Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
NO Faxes Please

PA Fish and Boat Commission

Division of Environmental Services
450 Robinson Lane, Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name: David J Buys
Company/Business Name: Arcadis
Address: 110 W. Fayette St, Suite 300
City, State, Zip: Syracus, NY 13202
Phone: (315) 671-9400 Fax: (_____) _____
Email: dave.buys@arcadis.com

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.



applicant/project proponent signature

3/29/19

date

Introduction

This Conservation Planning Report compiles names, descriptions, maps, locations, measurements, links and references for Natural Heritage Areas (core and supporting habitats), Important Bird Areas, State Lands, and agency designated water resources that are coincident with an area of interest defined by the user of the Pennsylvania Conservation Explorer tool. For an overview and additional details, please be sure to visit the website at www.naturalheritage.state.pa.us and download the applicable County Natural Heritage Inventory report(s).

Site Area: 66.96 acres

County(s): Philadelphia

Township/Municipality(s): PHILADELPHIA

Quadrangle Name(s): CAMDEN

Watersheds HUC 8: Lower Delaware

Watersheds HUC 12: Pompeston Creek-Delaware River; Tacony Creek-Frankford Creek

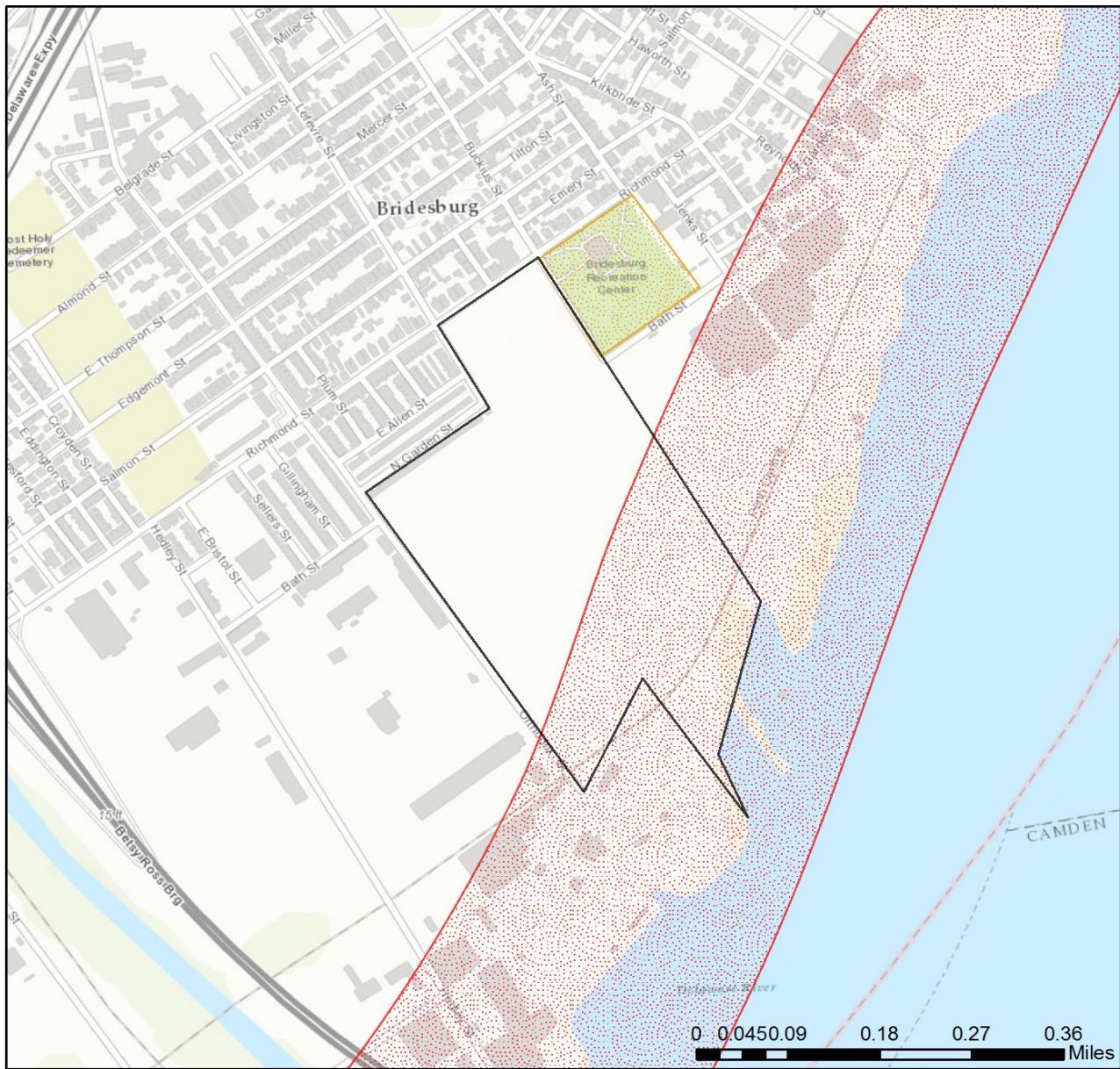
Decimal Degrees: 39.995448 N, -75.068600 W




Degrees Minutes Seconds: 39° 59' 43.6144" N, 75° 4' 6.9583" W

SEARCH RESULT SUMMARY

Conservation Planning Category	Detected Area Summary
Natural Heritage Areas	1 site

Former Philadelphia Coke Plant Site



-  Project Boundary
-  Core Habitats
-  Local Parks



Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo,

Natural Heritage Areas

Natural Heritage Areas (NHAs) are sites that have been identified as critical habitat for species or natural communities of concern. This dataset is designed to identify, map and discuss areas that support species of concern, exemplary natural communities, and broad expanses of intact natural ecosystems that support components of Pennsylvania's native species biodiversity. These areas are prioritized based upon their ecological qualities and provided with recommendations regarding their management and protection. Most of the existing NHAs have been developed through PNHPs County Natural Heritage Inventories -- systematic studies of the critical biological resources of a county.

Natural Heritage Site Name	Description	Reference
Delaware River Shoreline	The species of concern noted within this site are only found in specific areas where tidal habitat remains protected and in a few of the more naturally managed park areas.	Link

Local Parks

A local park is a publicly owned and publicly accessible park or natural area that engages participants of all ages in outdoor recreational experiences. Local parks and open spaces connect citizens to close-to-home outdoor recreation opportunities for play and physical activities; promote health and wellness, and environmental stewardship.

Local Park	Park Type	County	State or Federal Grant Funding
Bridesburg Recreation Center	Neighborhood Parks	Philadelphia	Yes, click here for more information

For additional information about the Pennsylvania Natural Heritage Program, visit the website at www.naturalheritage.state.pa.us or you can email your questions and comments to RA-HeritageReview@pa.gov.

Delaware River Shoreline

Immediate Conservation Priority and Notable Significance

Species of concern	Taxa ¹	PNHP Rank ²		State Legal Status ²	Last Seen	Quality ³
		Global	State			
Beggar-ticks (<i>Bidens laevis</i>)	P	G5	S3	TU	2008	E
Bugleweed (<i>Lycopus rubellus</i>)	P	G5	S1	PE	1998	BC
Freshwater intertidal marsh	C	G3G4	S1	N	1998	B
Golden club (<i>Orontium aquaticum</i>)	P	G5	S4	WATCH	1993	C
Multiflowered mud-plantain (<i>Heteranthera multiflora</i>)	P	G4	S1	PE	1998	BC
Osprey (<i>Pandion haliaetus</i>)	B	G5	S2B	PT	2003	E
Slaty skimmer (<i>Libellula incesta</i>)	O	G5	S3S4	N	2007	E
Subulate arrowhead (<i>Sagittaria subulata</i>)	P	G4	S3	PR	2007	AB
Swamp beggar-ticks (<i>Bidens bidentoides</i>)	P	G3G4	S1	PE	2008	BC
Swarthy skipper (<i>Nastra lherminier</i>)	L	G5	S3	N	2007	E
Salt-marsh water-hemp (<i>Amaranthus cannabinus</i>)	P	G5	S3	PR	2007	C

¹ A = Amphibian; B = Bird; C = Community; F = Fish; L = Lepidopteran; O = Odonate; P = Plant; M = Mammal; R = Reptile, U = Unionid (Mussel)

² Please refer to Appendix III (pg. 166) for an explanation of PNHP ranks and legal status

³ Please refer to Appendix IV (pg. 169) for an explanation of quality ranks

⁴ This species is not named at the request of the agency overseeing its protection

Most of the area between the I-95 freeway and the Delaware River has been greatly modified from the extensive system of tidal marshes that used to dominate the shoreline. Marshes were drained and filled to provide additional land for the expansion of Philadelphia and its ports. Most of this area is still within the floodplain of the river and is likely to be subject to future flooding from increasingly unpredictable weather patterns. The Delaware River shoreline in Philadelphia currently supports a mix of uses. Formerly, this area was a very active shipping and industrial hub of North America. While still an important entryway for sea freight, much of the riverfront has seen considerable change in the past few decades. Many areas that had been associated with shipping and industry have been demolished, leaving various large and small patches of vacant ground and their associated piers along the riverfront.

Since much of the Delaware River shoreline in Philadelphia is currently transitioning from past industrial and shipping activity, the city is presented with an excellent opportunity to recreate a continuous greenway corridor along this stretch of the river. This strip of land lends itself well to the reestablishment of a ribbon of native vegetation that will help provide habitat for native plants and animals while filtering and trapping runoff from the city before it enters the river. In addition, the linear corridor can function as a portion of a public greenway along the length of the Delaware riverfront. Such a public amenity would greatly improve the quality of life for all residents and visitors to the city. Future developments should be set back from the river shoreline to accommodate a 100-meter wide vegetated riparian buffer between the river's edge and development activity. The shoreline habitat can be improved by removing portions of the armored bulkheads and reconnecting the river to a portion of its natural floodplain. Replanting the riparian area in native trees and shrubs would enhance its ecological value.

The crumbling, paved footprints of past industrial activity are giving way to expanses of early successional vegetation. Vegetation has begun to colonize the unused piers and unpaved portions of the former industrial sites. Where the shoreline vegetation strip widens, it supports trees, shrubs, vines, and herbaceous vegetation between the rubble-armored hardened shoreline and the crumbling pavement of the former industrial sites. Along the periphery of the river, native species of plants and animals compete with introduced species for the limited space and resources available for their use. This disturbed strip of vegetation is frequently dominated by invasive non-native trees such as tree-of-heaven, princess tree, Norway maple, Siberian elm, white poplar, and white mulberry, but also contains native trees including sycamore, silver maple, pin oak, black cherry, hackberry, red maple, honey locust, walnut, red oak, green ash, tulip poplar, black willow, slippery elm, and box elder. Invasive shrubs

and vines frequently dominate the understory, including Japanese honeysuckle, porcelain berry, Asiatic bittersweet, multiflora rose, bush honeysuckles, common privet, barberry, paper mulberry, and autumn olive.



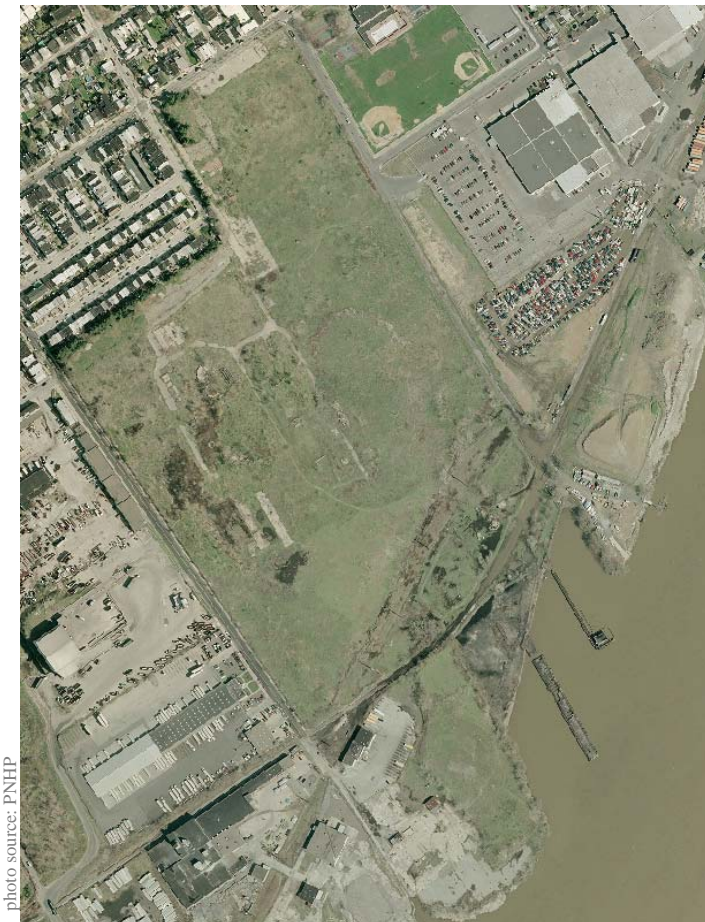
A view downriver along the Delaware River shoreline at the Benjamin Franklin Bridge.

The abandoned wooden pilings, piers, and ramps within the river help to diminish the impact on the river shoreline of wave action from passing ships and may help to encourage the formation of tidal mudflats along this portion of the river. Many of the formerly active piers have been neglected for long enough that trees, shrubs, and herbaceous vegetation have colonized them. Between the vacant piers are areas of shallow water and deep mud that in some cases already support tidal mudflat vegetation. These small estuaries help support young fish populations, an essential ecological function of shallow water habitats along the river.

The following is an assessment of the riverfront, its current ecological value, and its restoration potential beginning at the Benjamin Franklin Bridge and continuing upstream to the Bucks County line at

Poquessing Creek. The current threats and disturbances along with the conservation recommendation are within each site description.

Note: Information below is truncated to only show the Between Orthodox and Buckius Streets location (i.e. the site).



Parcel between Orthodox and Buckius Streets

Between **Orthodox and Buckius Streets** is a 70+ acre privately owned parcel of vacant land that extends from Richmond Street to the riverfront. This area bears a few footprints of previous structures, but for the most part is reverting to herbaceous and woody vegetation and appears from the air to already have begun to resemble a park. The vegetation is likely dominated by weedy introduced plants and early successional native species. A ground survey of this area was not conducted due to inability to obtain the necessary permission. The riverfront at this location contains a mix of rubble-armored seawall, dilapidated piers, and a few more natural looking habitats including a narrow sandy/gravel beach and a small but well-developed tidal marsh. The beach occurs along the river where the shoreline lacks armoring adjacent to two older piers. The tidal marsh occurs between one of the older piers and a small private boat launch. This mudflat habitat appears to contain common emergent aquatic vegetation like yellow pond-lily and pickerel-weed, but may also support less common tidal mudflat vegetation. Biological surveys of this area are recommended to determine its current ecological value and restoration potential. Future development should be excluded from the 100-year floodplain and set back from the river's edge at least 100 meters to provide a corridor of native terrestrial vegetation and public access as a

continuation of a Delaware River greenway through the area. In addition, the small tidal marsh could be enhanced by removing obstructions to flooding in this low lying area, increasing the potential for tidal marsh development.

Site Photographs









October 2, 2019: Automated Response for Former Philadelphia Coke Plant Site Final Receipt Complete from PDCNR



From: PA Conservation Explorer <RA-NRHeritageexplore@pa.gov>
Sent: Wednesday, October 2, 2019 10:42 AM
To: Buys, Dave
Subject: Former Philadelphia Coke Plant Site Final Receipt Complete

Dear David Buys,

This email is in response to the project you submitted via the PA Conservation Explorer entitled Former Philadelphia Coke Plant Site. A Final receipt has been generated based on the project boundary submitted and can be found at <https://conservationexplorer.dcnr.pa.gov/project/former-philadelphia-coke-plant-site-347357>. The receipt can be downloaded and/or printed for your files.

NOTE: You must be logged in to your account in order to review the report.

Final Receipt: A Final Receipt is generated under the following circumstances.

- **Finalizing a Project for Environmental Review.** A Final Receipt is created when an applicant finalizes a project in order to initiate the environmental review process. A signed copy of the Final Receipt should be sent to DEP along with any required recommendation or clearance letters from the jurisdictional agencies. See more detailed DEP instructions below.
- **Revising or Updating a Finalized Project.** A new version of the Final Receipt will be generated if an applicant resubmits the project either by editing the project footprint or selecting 'Update Receipt' option. Response letters from the jurisdictional agencies will specify the receipt version; if a new version of the PNDI receipt is generated, a new response letter will be required.

If the project requires consultation with the Department of Conservation and Natural Resources, PA Game Commission and/or PA Fish and Boat Commission, the agencies listed on the receipt have been automatically notified that the project is ready for environmental review. Agencies will not initiate the environmental review until all necessary documents have been uploaded or mailed. Direct correspondence with state agencies is not required to initiate a review, provided the minimum necessary materials are uploaded.

If you have opted to mail in your project documentation, please mail (or email) the documents to the agencies requiring consultation. The agency addresses are listed in Section 6 of the PNDI receipt.

Instructions for projects with potential impacts to the U.S. Fish and Wildlife Service (USFWS): If your project requires consultation with the USFWS, mail your project documents along with a signed copy of the final receipt to the USFWS address listed in Section 6 of the receipt.

DEP instructions for projects with Potential Impacts: The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter

from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at <https://conservationexplorer.dcnr.pa.gov/content/resources>.

If you have questions about the contents of the receipt or need further assistance, please visit the [contact us](#) page.

Sincerely,

Pennsylvania Department of Conservation and Natural Resources
<https://conservationexplorer.dcnr.pa.gov/>

**October 11, 2019, October 16, 2019, and October 25, 2019
Correspondence with PA Fish and Boat Commission for PNDI 628950**



From: Buys, Dave
Sent: Friday, October 25, 2019 3:15 PM
To: Gipe, Kathy
Subject: RE: [External] RE: PNDI 628950: Former Philadelphia Coke Plant site
Attachments: 2019.1022-Philly Coke 2018-2019 Sampling Locations.pdf

Hi Kathy,

Arcadis drilled soil borings and excavated test pits at the Philadelphia Coke site this year in March, April, and September as part of a Remedial Investigation. The attached figure shows the location of this year's soil borings (in orange) and test pits (in red). Historical soil boring and test pit locations are shown in black. This year's soil borings were drilled by a small track-mounted Geoprobe, and the test pits were excavated using a rubber-tire backhoe. The soil boring and test pit locations in the eastern portion of the site (east of the utility corridor, closest to the Delaware River) were reached via an existing access road (along which the grass is regularly mowed) and an abandoned railroad right-of-way (which is elevated and regularly mowed). No turtles were observed onsite by our soil sampling team during the work.

We will incorporate feedback from PFBC in the upcoming ecological evaluation and incorporate any ecological-related design aspects in the RI Report and Cleanup Plan to be submitted to PADEP.

Please let me know if you have any other questions.

Thank you. Dave

From: Gipe, Kathy <c-kgipe@pa.gov>
Sent: Wednesday, October 16, 2019 2:03 PM
To: Buys, Dave <Dave.Buys@arcadis.com>
Subject: RE: [External] RE: PNDI 628950: Former Philadelphia Coke Plant site

Thanks. I am thinking of turtle nesting habitat and whether or not a seasonal restriction or fenced work area would be needed without first doing a presence/absence survey.

--Kathy

From: Buys, Dave <Dave.Buys@arcadis.com>
Sent: Wednesday, October 16, 2019 1:56 PM
To: Gipe, Kathy <c-kgipe@pa.gov>
Subject: [External] RE: PNDI 628950: Former Philadelphia Coke Plant site

ATTENTION: *This email message is from an external sender. Do not open links or attachments from unknown sources. To report suspicious email, forward the message as an attachment to CWOPA_SPAM@pa.gov.*

Hi Kathy.

I will check to see if test pit and boring locations are available. Would a minimum work distance be needed from the river? Any species of concern in particular? Thank you.

Dave

David Buys, M.Sc. | Environmental Scientist | dave.buys@arcadis.com

Arcadis | Arcadis U.S., Inc.

One Lincoln Center, 110 West Fayette Street, Suite 300 | Syracuse, 13202 | NY, USA

T. +1 315 671 9400 | M. + 1 315 263 6192

Connect with us! www.arcadis.com | [LinkedIn](#) | [Twitter](#) | [Facebook](#)



Be green, leave it on the screen.

From: Gipe, Kathy <c-kgipe@pa.gov>
Sent: Friday, October 11, 2019 2:14 PM
To: Buys, Dave <Dave.Buys@arcadis.com>
Subject: PNDI 628950: Former Philadelphia Coke Plant site

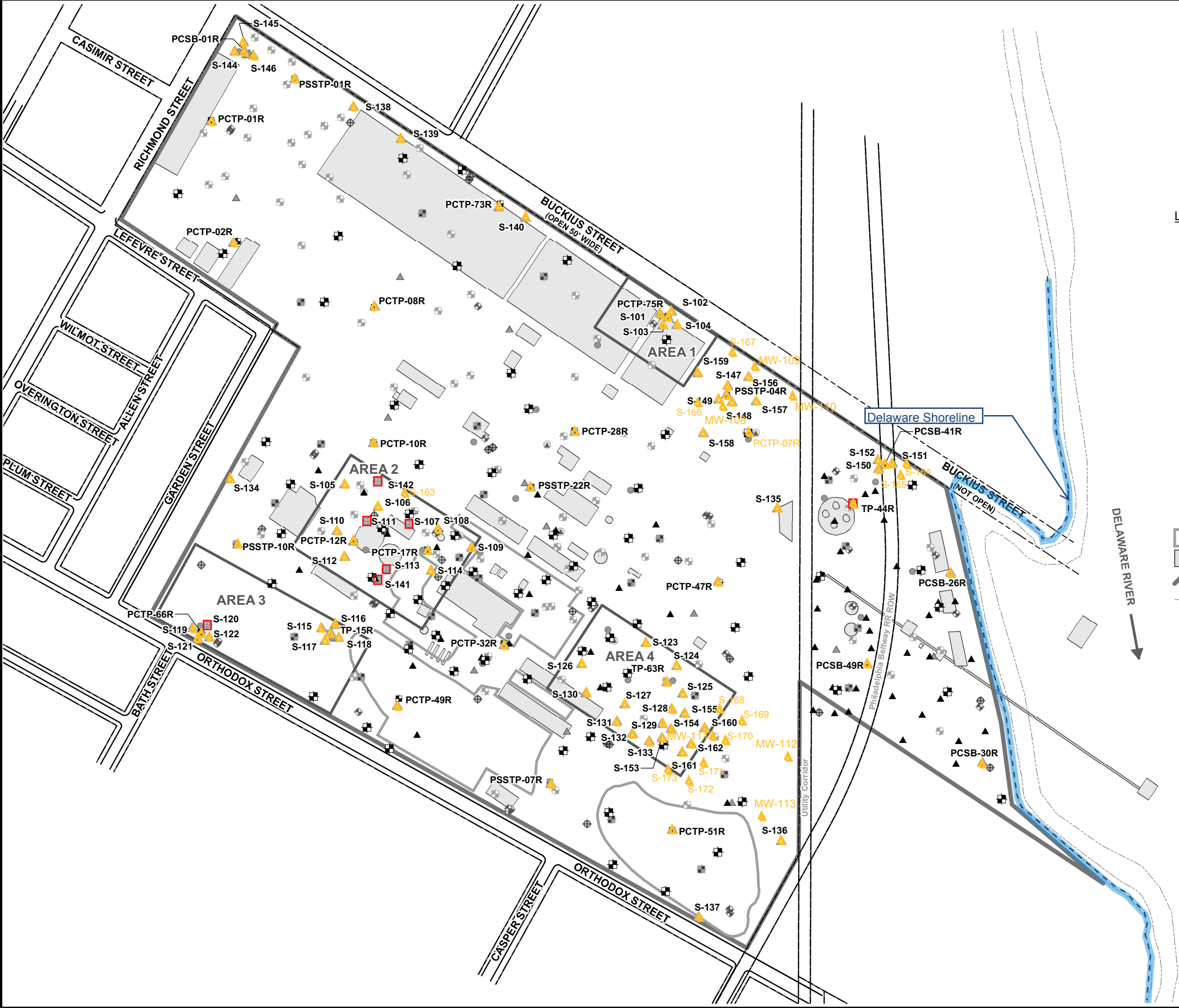
Dave,

I am currently reviewing the above-referenced project for the PA Fish and Boat Commission. Do you have a proposed layout of the test pits and borings available yet? I am wondering in particular about their proximity to the river shoreline habitats. Please let me know; thank you.

Kathy

Kathy Gipe
Herpetologist/Nongame Biologist
Natural Diversity Section, Environmental Services
PFBC Centre Region Office
595 E Rolling Ridge DR
Bellefonte, PA 16823
814-359-5186
c-kgipe@pa.gov

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LEGEND:

- ▲ 2019 ARCADIS SOIL BORING LOCATION
- 2019 ARCADIS TEST PIT LOCATION
- ▲ (PCSB-04) PSS ENVIRONMENTAL SOIL BORINGS
- (PCHP-03) PSS ENVIRONMENTAL HYDROPUNCHES
- ⊕ (PCTP-01) PSS ENVIRONMENTAL TEST PITS
- ⊕ (PSSTP-23) PSS ENVIRONMENTAL TEST PITS MARCH 2003
- ⊕ (TP-46) EEI GEOTECHNICAL TEST PITS
- ⊕ (MW-101) 2018 GROUNDWATER MONITORING WELL LOCATION
- ⊕ (PCMW-12S) PSS ENVIRONMENTAL GROUNDWATER MONITORING WELLS
- ⊕ MISSING/DESTROYED PSS ENVIRONMENTAL GROUNDWATER MONITORING WELLS
- ⊕ (MW-05) RCRA CLOSURE GROUNDWATER MONITORING WELL 1992 AND EARLIER
- ▲ (B-06) EEI GEOTECHNICAL SOIL BORINGS
- (PCSV-20) PSS SOIL VAPOR SAMPLING LOCATIONS
- RCRA EXCAVATION
- ▭ FORMER STRUCTURE/OPERATION
- SITE BOUNDARY
- - - SHORELINE

NOTE:

1. BASE MAP OBTAINED FROM FIGURE PREPARED BY PAULUS SOKOLOSKI AND SARTOR ENGINEERING, PC, TITLED "GENERAL SITE PLAN", DRAWING 2A, DATED APRIL 9, 2007 AT A SCALE OF 1"=250'.



NATIONAL GRID
 FORMER PHILADELPHIA COKE PLANT SITE
 PHILADELPHIA, PENNSYLVANIA

**2019 SAMPLING LOCATIONS AND
 HISTORICAL SAMPLING LOCATIONS**

ARCADIS Design & Consultancy
 for natural and
 built assets

**FIGURE
 2**

October 30, 2019 Species Impact Review (SIR) – Rare, Candidate,
Threatened and Endangered Species PNDI Search No. 628950_1; from
PAFBC





Pennsylvania Fish & Boat Commission

Division of Environmental Services
Natural Diversity Section
595 E Rolling Ridge Dr.
Bellefonte, PA 16823
814-359-5237

October 30, 2019

IN REPLY REFER TO
SIR# 51992

Arcadis
David Buys
110 W. Fayette Street
Syracuse, New York 13202

**RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 628950_1
Former Philadelphia Coke Plant Site
PHILADELPHIA County: Philadelphia City**

Dear David Buys:

This responds to your inquiry about a Pennsylvania Natural Diversity Inventory (PNDI) Internet Database search “potential conflict” or a threatened and endangered species impact review. These projects are screened for potential conflicts with rare, candidate, threatened or endangered species under Pennsylvania Fish & Boat Commission jurisdiction (fish, reptiles, amphibians, aquatic invertebrates only) using the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files. These species of special concern are listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, and the Pennsylvania Fish & Boat Code (Chapter 75), or the Wildlife Code.

Northern Red-bellied Cooter (*Pseudemys rubriventris*, Threatened)

The Northern Red-bellied Cooter is one of Pennsylvania’s largest native aquatic turtles. This turtle species is known to inhabit relatively large, deep streams, rivers, ponds, lakes, and marshes with permanent water and ample basking sites. Red-bellied Cooters are restricted to the southcentral and southeastern regions of the Commonwealth. The existence of this turtle species is threatened by habitat destruction, poor water quality and competition with aggressive non-native turtle species that share its range and habitat (e.g. Red-eared Slider).

You supplied descriptions and photographs of the project site. According to the information, potential habitats consistent with those known to support the species of concern may be located on portions of the property. However, current conditions are not having adverse impacts to these habitats or species. Therefore, I conclude that parcel investigated is not resulting in adverse impacts to the species of concern. Future redevelopment of portions of the property may require further investigation to determine how to avoid impacts to these species.

Our Mission:

www.fish.state.pa.us

To protect, conserve and enhance the Commonwealth’s aquatic resources and provide fishing and boating opportunities.

This response represents the most up-to-date summary of the PNDI data and our files and is valid for two (2) years from the date of this letter. An absence of recorded species information does not necessarily imply species absence. Our data files and the PNDI system are continuously being updated with species occurrence information. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered, and consultation shall be re-initiated.

If you have any questions regarding this review, please contact Kathy Gipe at 814-359-5186 and refer to the SIR # 51992. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

A handwritten signature in black ink that reads "Christopher A. Urban". The signature is written in a cursive style with a large, prominent initial "C".

Christopher A. Urban, Chief
Natural Diversity Section

CAU/KDG/dn

APPENDIX M

Ecological Screening Photolog



APPENDIX M – ECOLOGICAL SCREENING PHOTOGRAPH LOG

National Grid
Former Philadelphia Coke Plant
Philadelphia, Pennsylvania



Photograph: 1

Description:

Little Bluestem
Pennsylvania Sedge
Opening

Location:

Northeast section of
site

Photograph taken by:

Gretchen Hubbard

Date: 11/12/2019



Photograph: 2

Description:

Little Bluestem
Pennsylvania Sedge
Opening

Location:

Northern extent of site

Photograph taken by:

Gretchen Hubbard

Date: 11/12/2019

APPENDIX M – ECOLOGICAL SCREENING PHOTOGRAPH LOG

National Grid
Former Philadelphia Coke Plant
Philadelphia, Pennsylvania



Photograph: 3

Description:

Access Road and
Surrounding Mixed
Hardwood Floodplain
Thicket

Location:

Center of site

Photograph taken by:

Gretchen Hubbard

Date: 11/12/2019



Photograph: 4

Description:

Access Road and
Surrounding Mixed
Hardwood Floodplain
Thicket

Location:

Southeast section of
site

Photograph taken by:

Gretchen Hubbard

Date: 11/12/2019

APPENDIX M – ECOLOGICAL SCREENING PHOTOGRAPH LOG

National Grid
Former Philadelphia Coke Plant
Philadelphia, Pennsylvania



Photograph: 5

Description:
Red Maple Elm Willow
Floodplain Forest
Wetland

Location:
Wetland 2

Photograph taken by:
Gretchen Hubbard

Date: 11/12/2019



Photograph: 6

Description:
Red Maple Elm Willow
Floodplain Forest

Location:
Southwest section of
site

Photograph taken by:
Gretchen Hubbard

Date: 11/12/2019

APPENDIX M – ECOLOGICAL SCREENING PHOTOGRAPH LOG

National Grid
Former Philadelphia Coke Plant
Philadelphia, Pennsylvania



Photograph: 7

Description:

Access Road and
Surrounding Red Maple
Elm Willow Floodplain
Forest

Location:

Southwest section of
site

Photograph taken by:

Gretchen Hubbard

Date: 11/12/2019



Photograph: 8

Description:

Red Maple Elm Willow
Floodplain Forest and
Common Reed Marsh
in Background

Location:

Near wetland 3

Photograph taken by:

Gretchen Hubbard

Date: 11/12/2019

APPENDIX M – ECOLOGICAL SCREENING PHOTOGRAPH LOG

National Grid
Former Philadelphia Coke Plant
Philadelphia, Pennsylvania



Photograph: 9

Description:
Mudflat Adjacent to Site
in Northern Section of
Shoreline

Location:
Northern shoreline

Photograph taken by:
Gretchen Hubbard

Date: 11/12/2019



Photograph: 10

Description:
Shoreline Adjacent to
Site Facing Pier to
North

Location:
Northeast section of
site

Photograph taken by:
Gretchen Hubbard

Date: 11/12/2019

APPENDIX M – ECOLOGICAL SCREENING PHOTOGRAPH LOG

National Grid
Former Philadelphia Coke Plant
Philadelphia, Pennsylvania



Photograph: 11

Description:

Shoreline Adjacent to
Site Facing South

Location:

Eastern section of site

Photograph taken by:

Gretchen Hubbard

Date: 11/12/2019



Photograph: 12

Description:

Red Maple Elm Willow
Floodplain Forest
Wetland

Location:

Wetland 1

Photograph taken by:

Doug Partridge

Date: 5/1/2019

APPENDIX M – ECOLOGICAL SCREENING PHOTOGRAPH LOG

National Grid
Former Philadelphia Coke Plant
Philadelphia, Pennsylvania



Photograph: 13

Description:
Common Reed Marsh
Wetland

Location:
Wetland 4

Photograph taken by:
Doug Partridge

Date: 5/1/2019



Photograph: 14

Description:
Mixed Hardwood
Floodplain Thicket
Wetland

Location:
Wetland 5

Photograph taken by:
Doug Partridge

Date: 5/1/2019

APPENDIX N

Ecological Screening Benchmark Comparisons and Hazard Quotients



Remedial Investigation Report
National Grid Former Philadelphia Coke Plant
Philadelphia, Pennsylvania

Location ID: Sample Depth (ft): Date Collected:	CAS Number	Ecological Soil Screening Benchmark ^{1,2}	PCSB-26	PCSB-26R	PCSB-27		PCSB-28	PCSB-29	PCSB-30	PCSB-30R	PCSB-31	PCSB-32	PCSB-32	PCSB-33	
			0.5 7/26/2005	0.5-2 4/19/2019	0.5 7/26/2005	1.5 7/26/2005	0.5 7/26/2005	0.5 7/26/2005	0.5 7/26/2005	0.5 7/26/2005	0.5 7/26/2005	0.5-2 4/19/2019	0.5 7/28/2005	0.5 7/28/2005	0.5 8/1/2005
Metals (mg/kg)															
Aluminum	7429-90-5	50 g	NA	10800	NA	NA	NA	NA	NA	1140	NA	NA	NA	NA	
Antimony	7440-36-0	0.27 c	8	< 12 UJ	2.6	< 2.3	9.6	< 2.2	< 2.2	< 2.6	< 2.8	< 2.7	NA	< 2.5	
Arsenic	7440-38-2	18 d	64	15.2	27	< 2.3	99	2.4	4.3	5.2	3	< 2.7	NA	< 2.5	
Barium	7440-39-3	330 b	390	116	110	39	640	20	28	7.1 J	< 14	< 13	NA	< 12	
Beryllium	7440-41-7	21 c	1.4	0.27	0.81	< 0.68	1.1	< 0.67	0.8	< 0.26	< 0.83	< 0.8	NA	< 0.75	
Cadmium	7440-43-9	0.36 c	2.6	3.7	< 0.7	< 0.68	< 0.71	< 0.67	< 0.67	< 0.65	< 0.83	< 0.8	NA	< 0.75	
Calcium	7440-70-2	NA NA	NA	785	NA	NA	NA	NA	NA	430 J	NA	NA	NA	NA	
Chromium	7440-47-3	0.4 e	34	162	8.7	21	15	< 5.6	11	1.6	< 6.9	< 6.7	NA	< 6.2	
Cobalt	7440-48-4	13 b	NA	56.7	NA	NA	NA	NA	NA	0.60 J	NA	NA	NA	NA	
Copper	7440-50-8	28 a	200	250	82	26	260	22	20	6.7	< 6.9	9.3	NA	11	
Cyanide	57-12-5	0.9 h	NA	1.1 J	NA	NA	NA	NA	NA	< 0.36	NA	NA	NA	NA	
Iron	7439-89-6	200 f	NA	93300	NA	NA	NA	NA	NA	3720	NA	NA	NA	NA	
Lead	7439-92-1	11 a	3000	768 J	440	13	3200	29	21	15.4	7.6	7	NA	< 6.2	
Magnesium	7439-95-4	NA NA	NA	522 J	NA	NA	NA	NA	NA	297 J	NA	NA	NA	NA	
Manganese	7439-96-5	220 d	NA	536 J	NA	NA	NA	NA	NA	11.1	NA	NA	NA	NA	
Mercury	7439-97-6	0.1 e	17	0.44 J	< 0.097	< 0.095	1.8	< 0.093	< 0.094	0.037 J	< 0.12	< 0.11	NA	< 0.1	
Nickel	7440-02-0	38 d	42	243	14	14	22	< 5.6	11	1.6 J	< 6.9	< 6.7	NA	< 6.2	
Potassium	7440-09-7	NA NA	NA	682 J	NA	NA	NA	NA	NA	462 J	NA	NA	NA	NA	
Selenium	7782-49-2	0.52 d	4	5.7 J	4.2	< 2	4.3	< 2	2.1	< 2.6	< 2.5	< 2.4	NA	< 2.2	
Silver	7440-22-4	4.2 a	< 2.8	2.4 J	< 2.9	< 2.8	< 3	< 2.8	< 2.8	< 0.65	< 3.5	< 3.3	NA	< 3.1	
Sodium	7440-23-5	NA NA	NA	< 1200	NA	NA	NA	NA	NA	665 J	NA	NA	NA	NA	
Vanadium	7440-62-2	2 d	NA	26.1	NA	NA	NA	NA	NA	4.1 J	NA	NA	NA	NA	
Zinc	7440-66-6	46 a	730	2300	130	73	340	19	24	7.9	< 14	22	NA	14	
Pesticides (mg/kg)															
4,4-DDD	72-54-8	0.758 i	< 0.0057	< 0.00075	< 0.0058	< 0.0057	< 0.006	< 0.0056	< 0.0056	0.0037	< 0.0069	< 0.0067	NA	< 0.0063	
4,4-DDE	72-55-9	0.596 i	< 0.0057	< 0.00075	< 0.0058	< 0.0057	0.0074	< 0.0056	< 0.0056	0.0029	< 0.0069	< 0.0067	NA	< 0.0063	
4,4-DDT	50-29-3	0.021 c	0.029	< 0.00075	0.056	< 0.0057	0.066	< 0.0056	0.022	0.0155	< 0.0069	< 0.0067	NA	< 0.0063	
Aldrin	309-00-2	0.0025 h	< 0.0057	< 0.00075	< 0.0058	< 0.0057	< 0.006	< 0.0056	< 0.0056	< 0.00083	< 0.0069	< 0.0067	NA	< 0.0063	
Beta-BHC	319-85-7	0.001 h	< 0.0057	< 0.00075	< 0.0058	< 0.0057	< 0.006	< 0.0056	< 0.0056	< 0.00083	< 0.0069	< 0.0067	NA	< 0.0063	
Chlordane	57-74-9	0.224 i	< 0.011	NA	< 0.012	< 0.011	< 0.012	< 0.011	< 0.011	NA	< 0.014	< 0.013	NA	< 0.013	
Dieldrin	60-57-1	0.0049 c	< 0.0057	< 0.00075	< 0.0058	< 0.0057	< 0.006	< 0.0056	< 0.0056	< 0.00083	< 0.0069	< 0.0067	NA	< 0.0063	
Endosulfan I	959-98-8	0.119 i	< 0.0057	< 0.00075	< 0.0058	< 0.0057	< 0.006	< 0.0056	< 0.0056	< 0.00083	< 0.0069	< 0.0067	NA	< 0.0063	
Endosulfan II	33213-65-9	0.119 i	< 0.0057	< 0.00075	< 0.0058	< 0.0057	< 0.006	< 0.0056	< 0.0056	< 0.00083	< 0.0069	< 0.0067	NA	< 0.0063	
Endosulfan sulfate	1031-07-8	0.0358 i	< 0.0057	< 0.00075	< 0.0058	< 0.0057	< 0.006	< 0.0056	< 0.0056	< 0.00083	< 0.0069	< 0.0067	NA	< 0.0063	
Endrin	72-20-8	0.001 h	< 0.0057	< 0.00075	< 0.0058	< 0.0057	< 0.006	< 0.0056	< 0.0056	< 0.00083	< 0.0069	< 0.0067	NA	< 0.0063	
Endrin aldehyde	7421-93-4	0.0105 i	< 0.0057	< 0.00075	< 0.0058	< 0.0057	< 0.006	< 0.0056	< 0.0056	< 0.00083	< 0.0069	< 0.0067	NA	< 0.0063	
Endrin ketone	53494-70-5	0.001 h	< 0.0057	< 0.00075	< 0.0058	< 0.0057	< 0.006	< 0.0056	< 0.0056	< 0.00083	< 0.0069	< 0.0067	NA	< 0.0063	
Heptachlor epoxide	1024-57-3	0.152 i	< 0.0057	< 0.00075	< 0.0058	< 0.0057	< 0.006	< 0.0056	< 0.0056	< 0.00083	< 0.0069	< 0.0067	NA	< 0.0063	
Methoxychlor	72-43-5	0.0199 i	< 0.0057	< 0.0015	< 0.0058	< 0.0057	< 0.006	< 0.0056	< 0.0056	< 0.0017	< 0.0069	< 0.0067	NA	< 0.0063	
Toxaphene	8001-35-2	0.119 i	< 0.028	< 0.019	< 0.029	< 0.028	< 0.03	< 0.028	< 0.028	< 0.021	< 0.035	< 0.033	NA	< 0.031	
trans-chlordane	5103-74-2	0.0043 NA	NA	< 0.00075	NA	NA	NA	NA	NA	0.00059 J	NA	NA	NA	NA	

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			0.5 7/26/2005	0.5-2 4/19/2019	0.5 7/26/2005	1.5 7/26/2005	0.5 7/26/2005	0.5 7/26/2005	0.5 7/26/2005	0.5 7/26/2005	0.5-2 4/19/2019	0.5 7/28/2005	0.5 7/28/2005	0.5 8/1/2005
Polychlorinated Biphenyls (mg/kg)														
Aroclor 1242	53469-21-9	NA NA	< 0.028	< 0.038	< 0.029	< 0.028	< 0.03	< 0.028	< 0.028	< 0.042	< 0.035	< 0.033	NA	< 0.031
Aroclor 1248	12672-29-6	NA NA	< 0.028	< 0.038	< 0.029	< 0.028	< 0.03	< 0.028	< 0.028	< 0.042	< 0.035	< 0.033	NA	< 0.031
Aroclor 1254	11097-69-1	40 g	< 0.028	< 0.038	< 0.029	< 0.028	< 0.03	< 0.028	< 0.028	< 0.042	< 0.035	< 0.033	NA	< 0.031
Aroclor 1260	11096-82-5	NA NA	< 0.028	< 0.038	< 0.029	< 0.028	< 0.03	< 0.028	< 0.028	< 0.042	< 0.035	< 0.033	NA	< 0.031
Aroclor 1262	37324-23-5	40 g	NA	< 0.038	NA	NA	NA	NA	NA	< 0.042	NA	NA	NA	NA
Total Aroclor PCBs	1336-36-3	0.02 h	< 0.028	< 0.038	< 0.029	< 0.028	< 0.03	< 0.028	< 0.028	< 0.042	< 0.035	< 0.033	NA	< 0.031
Volatile Organic Compounds (mg/kg)														
Acetone	67-64-1	2.5 i	0.034	0.0087 J	< 0.013	< 0.006	< 0.013	< 0.0059	< 0.006	0.0252	< 0.0074	NA	< 0.0072	< 0.0066
Benzene	71-43-2	0.05 h	< 0.00083	< 0.00058	< 0.0013	< 0.00058	< 0.0012	< 0.00057	< 0.00057	< 0.00092	< 0.00071	NA	< 0.00069	< 0.00064
Carbon Disulfide	75-15-0	0.0941 i	< 0.0011	< 0.0023	< 0.0016	< 0.00074	< 0.0015	< 0.00072	< 0.00073	< 0.0037 UJ	< 0.0009	NA	< 0.00088	< 0.00081
Cyclohexane	110-82-7	0.1 h	NA	< 0.0023	NA	NA	NA	NA	NA	< 0.0037	NA	NA	NA	NA
Dichloromethane	75-09-2	2 h	0.018 B	< 0.0058	0.021 B	0.013 B	0.017 B	0.013 B	0.0058 B	< 0.0092	0.038 B	NA	0.021 B	0.028 B
Ethylbenzene	100-41-4	0.05 h	< 0.0012	< 0.0012	< 0.0019	< 0.00085	< 0.0018	< 0.00083	< 0.00084	< 0.0018	< 0.001	NA	< 0.001	< 0.00093
Isopropylbenzene	98-82-8	NA NA	NA	< 0.0023	NA	NA	NA	NA	NA	< 0.0037	NA	NA	NA	NA
m&p-Xylenes	ARC-mpXyl	0.05 h	< 0.0018	< 0.0012	< 0.0028	< 0.0013	< 0.0026	< 0.0012	< 0.0012	< 0.0018	< 0.0015	NA	< 0.0015	< 0.0014
Methyl Acetate	79-20-9	2.4 k	NA	< 0.0058	NA	NA	NA	NA	NA	< 0.0092	NA	NA	NA	NA
Methylcyclohexane	108-87-2	1160 j	NA	< 0.0023	NA	NA	NA	NA	NA	< 0.0037	NA	NA	NA	NA
o,p-Xylene	136777-61-2	0.05 h	< 0.00076	NA	< 0.0012	< 0.00053	< 0.0011	< 0.00052	< 0.00053	NA	< 0.00065	NA	< 0.00063	< 0.00058
o-Xylene	95-47-6	0.05 h	NA	< 0.0012	NA	NA	NA	NA	NA	< 0.0018	NA	NA	NA	NA
Styrene (Monomer)	100-42-5	0.1 h	< 0.001	< 0.0023	< 0.0016	< 0.0007	< 0.0015	< 0.00069	< 0.0007	< 0.0037	< 0.00086	NA	< 0.00084	< 0.00078
Toluene	108-88-3	0.05 h	< 0.0012	< 0.0012	< 0.0019	< 0.00086	< 0.0018	< 0.00084	< 0.00085	< 0.0018	< 0.001	NA	< 0.001	< 0.00094
Total Xylenes	1330-20-7	0.05 h	NA	< 0.0012	NA	NA	NA	NA	NA	< 0.0018	NA	NA	NA	NA
Semi-Volatile Organic Compounds (mg/kg)														
1,1-Biphenyl	92-52-4	60 g	NA	< 0.077	NA	NA	NA	NA	NA	< 0.089	NA	NA	NA	NA
2,4-Dimethylphenol	105-67-9	0.01 i	< 0.052	< 0.19	< 0.27	< 0.032	< 0.055	< 0.031	< 0.052	< 0.22	< 0.039	< 0.038	NA	< 0.035
2-Methylnaphthalene	91-57-6	3.24 b	0.12	< 0.038	0.73	< 0.065	0.78	0.072	0.36	< 0.045	< 0.079	< 0.076	NA	0.14
2-Methylphenol	95-48-7	0.5 h	< 0.18	< 0.077	< 0.92	< 0.14	< 0.19	< 0.14	< 0.18	< 0.089	< 0.17	< 0.17	NA	< 0.16
3-Methylphenol, 4-Methylphenol	65794-96-9	0.5 h	NA	< 0.077	NA	NA	NA	NA	NA	< 0.089	NA	NA	NA	NA
4-Methylphenol	106-44-5	0.5 h	< 0.2	NA	< 1	< 0.14	< 0.21	< 0.14	< 0.2	NA	< 0.17	< 0.16	NA	< 0.15
4-Nitroaniline	100-01-6	21.9 i	NA	< 0.19	NA	NA	NA	NA	NA	< 0.22	NA	NA	NA	NA
Acenaphthene	83-32-9	20 b	0.16	< 0.038	< 0.081	< 0.0062	0.079	< 0.0061	< 0.016	< 0.045	< 0.0076	< 0.0073	NA	< 0.0069
Acenaphthylene	208-96-8	29 b	0.23	< 0.038	1.7	< 0.0057	0.35	< 0.0056	0.1	< 0.045	< 0.007	< 0.0067	NA	0.072
Acetophenone	98-86-2	300 i	NA	< 0.19	NA	NA	NA	NA	NA	< 0.22	NA	NA	NA	NA
Anthracene	120-12-7	0.1 b	0.61	< 0.038	1.6	< 0.0075	0.47	< 0.0073	0.22	< 0.045	< 0.0092	< 0.0088	NA	< 0.0082
Benz(a)anthracene	56-55-3	0.25 b	3.8	0.134	9.2	0.046	2.4	0.067	0.68	0.0283 J	< 0.0065	0.052	NA	0.23
Benzaldehyde	100-52-7	470 k	NA	< 0.19	NA	NA	NA	NA	NA	< 0.22	NA	NA	NA	NA
Benzo(a)pyrene	50-32-8	0.1 b	3.1	0.154	8.8	0.042	2.1	0.055	0.41	0.0339 J	< 0.0077	0.051	NA	0.24
Benzo(b)fluoranthene	205-99-2	18 b	4.8	0.211	11	0.13	4	0.12	0.97	0.0478	0.07	0.087	NA	0.45
Benzo(g,h,i)perylene	191-24-2	7.5 b	2.3	0.102	7.3	< 0.0054	2	0.045	0.39	0.0281 J	< 0.0067	< 0.0064	NA	0.23
Benzo(k)fluoranthene	207-08-9	2.4 b	1.8	0.0702	4.1	0.046	0.94	< 0.013	0.24	< 0.045	< 0.016	< 0.016	NA	0.12

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			0.5 7/26/2005	0.5-2 4/19/2019	0.5 7/26/2005	1.5 7/26/2005	0.5 7/26/2005	0.5 7/26/2005	0.5 7/26/2005	0.5 7/26/2005	0.5-2 4/19/2019	0.5 7/28/2005	0.5 7/28/2005	0.5 8/1/2005	0.5 7/28/2005
Semi-Volatile Organic Compounds (mg/kg) (cont'd)															
bis(2-Ethylhexyl)phthalate	117-81-7	0.925	i	0.11	< 0.077	< 0.17	< 0.024	0.27	0.1	0.55	< 0.089	0.077	0.1	NA	0.18
Butyl benzyl phthalate	85-68-7	0.239	i	< 0.015	< 0.077	< 0.078	< 0.01	< 0.016	< 0.01	0.13	< 0.089	< 0.013	< 0.012	NA	< 0.011
Carbazole	86-74-8	NA	b	0.18	0.0116 J	0.46	< 0.0073	0.19	< 0.0071	< 0.011	< 0.089	< 0.0089	< 0.0085	NA	< 0.008
Chrysene	218-01-9	4.73	b	3.9	0.142	9.6	0.085	3	0.099	0.99	0.0272 J	0.053	0.065	NA	0.36
Dibenz(a,h)anthracene	53-70-3	18	b	0.8	0.0326 J	2.5	< 0.0069	0.85	< 0.0068	0.16	< 0.045	< 0.0085	< 0.0081	NA	0.062
Dibenzofuran	132-64-9	19	j	0.16	< 0.077	0.44	< 0.049	0.35	< 0.048	0.22	< 0.089	< 0.06	< 0.057	NA	0.056
Diethyl phthalate	84-66-2	24.8	g	< 0.01	< 0.077	< 0.053	< 0.0089	< 0.011	< 0.0087	< 0.01	< 0.089	< 0.011	< 0.01	NA	< 0.0098
Di-n-butyl phthalate	84-74-2	0.15	g	< 0.0085	< 0.077	< 0.043	0.039 B	0.054 B	< 0.0075	< 0.0084	< 0.089	< 0.0094	< 0.009	NA	0.045
Di-n-octyl phthalate	117-84-0	709	i	< 0.0089	< 0.077	< 0.046	< 0.013	< 0.0094	< 0.013	< 0.0088	< 0.089	< 0.016	< 0.015	NA	< 0.014
Fluoranthene	206-44-0	0.1	b	3.7	0.243	17	0.049	3.9	0.12	1.1	0.0452	0.058	0.084	NA	0.41
Fluorene	86-73-7	29	b	0.17	< 0.038	0.41	< 0.0091	0.12	< 0.0089	< 0.0095	< 0.045	< 0.011	< 0.011	NA	< 0.01
Indeno(1,2,3-cd)pyrene	193-39-5	5.9	b	2.1	0.107	6.2	< 0.0064	1.8	< 0.0063	0.39	0.0286 J	< 0.0078	< 0.0075	NA	0.19
Naphthalene	91-20-3	0.0994	b	0.16	< 0.038	1.2	< 0.0037	0.69	0.054	0.42	< 0.045	< 0.0045	< 0.0043	NA	0.067
Phenanthrene	85-01-8	0.1	b	1.8	0.121	5.6	< 0.0084	1.7	0.11	0.93	0.0215 J	< 0.01	0.048	NA	0.29
Phenol	108-95-2	0.05	h	< 0.058	< 0.077	< 0.3	< 0.063	< 0.06	< 0.061	< 0.057	< 0.089	< 0.077	< 0.073	NA	< 0.069
Pyrene	129-00-0	0.1	b	3.2	0.21	14	0.067	3.2	0.11	0.78	0.0413 J	0.055	0.079	NA	0.39
Total PAHs	ARC-TPAH	1	h	20.3	NA	51.4	0.349	15.09	0.341	3.84	NA	0.123	0.255	NA	1.652

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			0.5 7/27/2005	0.5 8/2/2005	0.5 7/27/2005	0.5 8/3/2005	0.5 7/27/2005	0.5 7/27/2005	0.5 7/27/2005	0.5 7/28/2005	0.5 7/28/2005	0.5-2 4/22/2019	0.5 8/1/2005
Metals (mg/kg)													
Aluminum	7429-90-5	50 g	NA	NA	NA	NA	NA	NA	NA	NA	7590	NA [NA]	NA
Antimony	7440-36-0	0.27 c	3.4	< 2.1	17	8.7	< 2.4	< 2.6	< 2.7	14	20.6	< 2.1 [< 2.1]	< 2.1
Arsenic	7440-38-2	18 d	7	13	20	20	< 2.6	< 2.6	3.2	13	19.5	5.2 [10]	57
Barium	7440-39-3	330 b	80	63	780	74	75	16	< 13	88	175	37 [49]	390
Beryllium	7440-41-7	21 c	6.3	< 0.62	1.1	< 0.67	< 0.73	< 0.78	< 0.8	0.68	0.91	< 0.62 [< 0.63]	< 0.64
Cadmium	7440-43-9	0.36 c	< 0.72	0.92	3.7	3.6	< 0.73	< 0.78	< 0.8	2.5	1.4	< 0.62 [< 0.63]	1.4
Calcium	7440-70-2	NA NA	NA	NA	NA	NA	NA	NA	NA	NA	11500	NA [NA]	NA
Chromium	7440-47-3	0.4 e	50	24	16	110	9.5	< 6.5	< 6.7	59	26.0	16 [22]	25
Cobalt	7440-48-4	13 b	NA	NA	NA	NA	NA	NA	NA	NA	7.8	NA [NA]	NA
Copper	7440-50-8	28 a	690	51	840	610	66	17	15	120	193	21 [25]	100
Cyanide	57-12-5	0.9 h	NA	NA	NA	NA	NA	NA	NA	NA	0.53	NA [NA]	NA
Iron	7439-89-6	200 f	NA	NA	NA	NA	NA	NA	NA	NA	28300	NA [NA]	NA
Lead	7439-92-1	11 a	1200	130	14000	420	230	11	< 6.7	930	986	160 [88]	1900
Magnesium	7439-95-4	NA NA	NA	NA	NA	NA	NA	NA	NA	NA	4570	NA [NA]	NA
Manganese	7439-96-5	220 d	NA	NA	NA	NA	NA	NA	NA	NA	552	NA [NA]	NA
Mercury	7439-97-6	0.1 e	< 0.1	0.27	1.2	0.47	0.13	< 0.11	< 0.11	1.6	0.34 J	0.15 [0.14]	0.64
Nickel	7440-02-0	38 d	39	18	26	97	18	< 6.5	< 6.7	39	38.4	16 [18]	87
Potassium	7440-09-7	NA NA	NA	NA	NA	NA	NA	NA	NA	NA	1120 J	NA [NA]	NA
Selenium	7782-49-2	0.52 d	2.9	< 1.9	3.6	2.4	2.7	< 2.3	< 2.4	3.3	< 4.8	< 1.9 [< 1.9]	2.1
Silver	7440-22-4	4.2 a	< 3	< 2.6	< 2.9	< 2.8	< 3	< 3.2	< 3.3	< 2.7	< 1.2	< 2.6 [< 2.6]	< 2.7
Sodium	7440-23-5	NA NA	NA	NA	NA	NA	NA	NA	NA	NA	208 J	NA [NA]	NA
Vanadium	7440-62-2	2 d	NA	NA	NA	NA	NA	NA	NA	NA	32.1	NA [NA]	NA
Zinc	7440-66-6	46 a	1200	140	6300	540	100	25	14	290	530	85 [95]	1300
Pesticides (mg/kg)													
4,4-DDD	72-54-8	0.758 i	< 0.006	0.012	< 0.0058	< 0.0056	0.02	< 0.0065	< 0.0067	0.085	0.0044 JN	0.0091 [< 0.0053]	< 0.0053
4,4-DDE	72-55-9	0.596 i	< 0.006	0.017	< 0.0058	0.026	0.022	< 0.0065	< 0.0067	0.15	0.0054	0.015 [< 0.0053]	0.012
4,4-DDT	50-29-3	0.021 c	< 0.006	< 0.0052	< 0.0058	0.17	0.058	< 0.0065	< 0.0067	0.1	0.0056	< 0.0052 [< 0.0053]	< 0.0053
Aldrin	309-00-2	0.0025 h	< 0.006	< 0.0052	< 0.0058	< 0.0056	< 0.0061	< 0.0065	< 0.0067	< 0.0054	< 0.00079 UJ	< 0.0052 [< 0.0053]	< 0.0053
Beta-BHC	319-85-7	0.001 h	< 0.006	< 0.0052	< 0.0058	< 0.0056	< 0.0061	< 0.0065	< 0.0067	< 0.0054	< 0.00079	< 0.0052 [< 0.0053]	< 0.0053
Chlordane	57-74-9	0.224 i	< 0.012	< 0.01	< 0.012	< 0.011	< 0.012	< 0.013	< 0.013	< 0.011	NA	< 0.01 [< 0.011]	< 0.011
Dieldrin	60-57-1	0.0049 c	< 0.006	< 0.0052	< 0.0058	0.095	< 0.0061	< 0.0065	< 0.0067	< 0.0054	< 0.00079	< 0.0052 [< 0.0053]	< 0.0053
Endosulfan I	959-98-8	0.119 i	< 0.006	< 0.0052	< 0.0058	< 0.0056	< 0.0061	< 0.0065	< 0.0067	< 0.0054	< 0.00079	< 0.0052 [< 0.0053]	< 0.0053
Endosulfan II	33213-65-9	0.119 i	< 0.006	< 0.0052	< 0.0058	0.016	< 0.0061	< 0.0065	< 0.0067	< 0.0054	< 0.00079	< 0.0052 [< 0.0053]	< 0.0053
Endosulfan sulfate	1031-07-8	0.0358 i	< 0.006	< 0.0052	< 0.0058	< 0.0056	< 0.0061	< 0.0065	< 0.0067	< 0.0054	< 0.00079	< 0.0052 [< 0.0053]	< 0.0053
Endrin	72-20-8	0.001 h	< 0.006	< 0.0052	< 0.0058	< 0.0056	< 0.0061	< 0.0065	< 0.0067	< 0.0054	< 0.00079	< 0.0052 [< 0.0053]	< 0.0053
Endrin aldehyde	7421-93-4	0.0105 i	< 0.006	< 0.0052	< 0.0058	< 0.0056	< 0.0061	< 0.0065	< 0.0067	< 0.0054	< 0.00079	< 0.0052 [< 0.0053]	< 0.0053
Endrin ketone	53494-70-5	0.001 h	< 0.006	< 0.0052	< 0.0058	< 0.0056	< 0.0061	< 0.0065	< 0.0067	< 0.0054	< 0.00079	< 0.0052 [< 0.0053]	< 0.0053
Heptachlor epoxide	1024-57-3	0.152 i	< 0.006	< 0.0052	< 0.0058	< 0.0056	< 0.0061	< 0.0065	< 0.0067	< 0.0054	< 0.00079	< 0.0052 [< 0.0053]	< 0.0053
Methoxychlor	72-43-5	0.0199 i	< 0.006	< 0.0052	< 0.0058	< 0.0056	< 0.0061	< 0.0065	< 0.0067	< 0.0054	< 0.0016	< 0.0052 [< 0.0053]	< 0.0053
Toxaphene	8001-35-2	0.119 i	< 0.03	< 0.026	< 0.029	< 0.028	< 0.03	< 0.032	< 0.033	< 0.027	< 0.02	< 0.026 [< 0.026]	< 0.027
trans-chlordane	5103-74-2	0.0043 NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.00079	NA [NA]	NA

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Location ID: Sample Depth (ft): Date Collected:	CAS Number	Ecological Soil Screening Benchmark ^{1,2}	PCSB-34	PCSB-35	PCSB-36	PCSB-37	PCSB-38	PCSB-39	PCSB-40	PCSB-41	PCSB-41R	PCSB-42	PCSB-43
			0.5 7/27/2005	0.5 8/2/2005	0.5 7/27/2005	0.5 8/3/2005	0.5 7/27/2005	0.5 7/27/2005	0.5 7/27/2005	0.5 7/28/2005	0.5 7/28/2005	0.5-2 4/22/2019	0.5 8/1/2005
Polychlorinated Biphenyls (mg/kg)													
Aroclor 1242	53469-21-9	NA NA	< 0.03	< 0.026	< 0.029	< 0.028	< 0.03	< 0.032	< 0.033	< 0.027	< 0.039	< 0.026 [< 0.026]	< 0.027
Aroclor 1248	12672-29-6	NA NA	< 0.03	< 0.026	< 0.029	< 0.028	< 0.03	< 0.032	< 0.033	0.1	< 0.039	< 0.026 [< 0.026]	< 0.027
Aroclor 1254	11097-69-1	40 g	< 0.03	< 0.026	< 0.029	< 0.028	< 0.03	< 0.032	< 0.033	< 0.027	< 0.039	< 0.026 [< 0.026]	< 0.027
Aroclor 1260	11096-82-5	NA NA	0.084	0.066	0.18	1	0.11	< 0.032	0.053	0.33	< 0.039	0.051 [< 0.026]	0.16
Aroclor 1262	37324-23-5	40 g	NA	NA	NA	NA	NA	NA	NA	NA	< 0.039	NA [NA]	NA
Total Aroclor PCBs	1336-36-3	0.02 h	0.084	0.066	0.18	1	0.11	< 0.032	0.053	0.43	< 0.039	0.051 [< 0.026]	0.16
Volatile Organic Compounds (mg/kg)													
Acetone	67-64-1	2.5 i	< 0.0064	0.018	< 0.0062	< 0.0059	< 0.0065	< 0.0069	< 0.0071	< 0.0058	< 1.4	< 0.0055 [< 0.0056]	< 0.0056
Benzene	71-43-2	0.05 h	< 0.00061	< 0.00053	< 0.00059	< 0.00057	< 0.00062	< 0.00066	< 0.00068	< 0.00055	6.32	< 0.00053 [< 0.00054]	< 0.00054
Carbon Disulfide	75-15-0	0.0941 i	< 0.00078	< 0.00068	< 0.00076	< 0.00072	< 0.00079	< 0.00084	< 0.00087	< 0.00071	< 0.28	< 0.00067 [< 0.00068]	< 0.00069
Cyclohexane	110-82-7	0.1 h	NA	NA	NA	NA	NA	NA	NA	NA	4.89	NA [NA]	NA
Dichloromethane	75-09-2	2 h	0.0093 B	0.011 B	0.0067 B	0.0023 B	0.009 B	0.018 B	0.036 B	0.011 B	< 0.7	0.014 B [0.014 B]	0.014 B
Ethylbenzene	100-41-4	0.05 h	< 0.0009	< 0.00078	< 0.00087	< 0.00083	< 0.00091	< 0.00097	< 0.00099	< 0.00081	12.3	< 0.00077 [< 0.00079]	< 0.00079
Isopropylbenzene	98-82-8	NA NA	NA	NA	NA	NA	NA	NA	NA	NA	0.943	NA [NA]	NA
m&p-Xylenes	ARC-mpXyl	0.05 h	< 0.0013	< 0.0011	< 0.0013	< 0.0012	< 0.0013	< 0.0014	< 0.0015	< 0.0012	51.9	< 0.0011 [< 0.0012]	< 0.0012
Methyl Acetate	79-20-9	2.4 k	NA	NA	NA	NA	NA	NA	NA	NA	< 0.7	NA [NA]	NA
Methylcyclohexane	108-87-2	1160 j	NA	NA	NA	NA	NA	NA	NA	NA	8.78	NA [NA]	NA
o,p-Xylene	136777-61-2	0.05 h	< 0.00056	< 0.00049	< 0.00054	< 0.00052	< 0.00057	< 0.00061	< 0.00062	< 0.00051	NA	< 0.00048 [< 0.00049]	< 0.0005
o-Xylene	95-47-6	0.05 h	NA	NA	NA	NA	NA	NA	NA	NA	19.1	NA [NA]	NA
Styrene (Monomer)	100-42-5	0.1 h	< 0.00075	< 0.00065	< 0.00072	< 0.00069	< 0.00076	< 0.00081	< 0.00083	< 0.00067	< 0.28	< 0.00064 [< 0.00065]	< 0.00066
Toluene	108-88-3	0.05 h	< 0.00091	< 0.00079	< 0.00088	< 0.00084	< 0.00092	< 0.00098	< 0.001	< 0.00082	53.4 D	< 0.00078 [< 0.00079]	< 0.0008
Total Xylenes	1330-20-7	0.05 h	NA	NA	NA	NA	NA	NA	NA	NA	71	NA [NA]	NA
Semi-Volatile Organic Compounds (mg/kg)													
1,1-Biphenyl	92-52-4	60 g	NA	NA	NA	NA	NA	NA	NA	NA	6.43 D	NA [NA]	NA
2,4-Dimethylphenol	105-67-9	0.01 i	< 0.28	< 0.14	< 0.27	< 0.15	< 0.034	< 0.037	< 0.038	< 0.25	< 0.2	< 0.04 [< 0.041]	< 0.15
2-Methylnaphthalene	91-57-6	3.24 b	0.74	0.11 J	1.3	3.8	0.13	0.56	< 0.076	0.47	22.8 D	0.11 [< 0.036]	1.4
2-Methylphenol	95-48-7	0.5 h	< 0.96	< 0.5	< 0.92	< 0.53	< 0.15	< 0.16	< 0.17	< 0.86	< 0.081	< 0.077 [< 0.078]	< 0.51
3-Methylphenol, 4-Methylphenol	65794-96-9	0.5 h	NA	NA	NA	NA	NA	NA	NA	NA	< 0.081	NA [NA]	NA
4-Methylphenol	106-44-5	0.5 h	< 1.1	< 0.55	< 1	< 0.59	< 0.15	< 0.16	< 0.16	< 0.96	NA	< 0.094 [< 0.095]	< 0.56
4-Nitroaniline	100-01-6	21.9 i	NA	NA	NA	NA	NA	NA	NA	NA	< 0.2	NA [NA]	NA
Acenaphthene	83-32-9	20 b	< 0.084	< 0.043	0.47	0.81	< 0.0067	< 0.0071	< 0.0073	0.3	66.2 DJ	< 0.012 [< 0.013]	0.13
Acenaphthylene	208-96-8	29 b	2.3	< 0.024	1.9	< 0.026	0.072	0.068	< 0.0067	1.3	1.15	0.17 [0.052]	< 0.025
Acetophenone	98-86-2	300 i	NA	NA	NA	NA	NA	NA	NA	NA	< 0.2	NA [NA]	NA
Anthracene	120-12-7	0.1 b	4.2	< 0.027	3.5	0.58	0.079	< 0.0086	< 0.0088	1.3	28.1 D	0.4 [0.052]	0.48
Benz(a)anthracene	56-55-3	0.25 b	16	0.58	11	1.2	0.37	0.23	< 0.0062	7.6	19.4 D	1.2 [0.29]	2.2
Benzaldehyde	100-52-7	470 k	NA	NA	NA	NA	NA	NA	NA	NA	< 0.2	NA [NA]	NA
Benzo(a)pyrene	50-32-8	0.1 b	14	0.61	9.4	1.4	0.39	0.24	< 0.0074	7.5	14.4 D	1.3 [0.26]	2.2
Benzo(b)fluoranthene	205-99-2	18 b	19	0.88	13	1.7	0.71	0.42	0.056	10	17.8 D	1.8 [0.36]	2.8
Benzo(g,h,i)perylene	191-24-2	7.5 b	13	0.53	8.1	1.8	0.32	0.2	< 0.0064	7.1	8.46 D	1.1 [0.2]	2.1
Benzo(k)fluoranthene	207-08-9	2.4 b	7.4	0.25	3.5	0.67	0.21	0.13	< 0.016	2.5	6.97 D	0.5 [0.1]	0.86

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Semi-Volatile Organic Compounds (mg/kg) (cont'd)														
bis(2-Ethylhexyl)phthalate	117-81-7	0.925	i	0.23	0.12	0.41	0.55	0.22	0.39	0.1	0.26	< 0.081	0.17 [0.22]	< 0.096
Butyl benzyl phthalate	85-68-7	0.239	i	< 0.081	< 0.042	< 0.078	< 0.045	< 0.011	< 0.012	< 0.012	< 0.073	< 0.081	< 0.014 [< 0.014]	< 0.043
Carbazole	86-74-8	NA	b	0.75	< 0.031	0.91	< 0.033	0.049	< 0.0083	< 0.0085	< 0.054	9.89 D	0.081 [< 0.012]	< 0.032
Chrysene	218-01-9	4.73	b	16	0.7	11	1.8	0.59	0.36	< 0.013	7.1	17.7 D	1.3 [0.27]	1.9
Dibenz(a,h)anthracene	53-70-3	18	b	4.3	0.17	2.9	0.55	0.11	0.076	< 0.0081	2.3	2.69	0.3 [0.036]	0.56
Dibenzofuran	132-64-9	19	j	0.83	< 0.13	0.99	0.84	0.064	0.18	< 0.057	0.22 J	32.5 D	0.13 [< 0.061]	0.28
Diethyl phthalate	84-66-2	24.8	g	< 0.055	< 0.029	< 0.053	< 0.031	< 0.0096	< 0.01	< 0.01	< 0.05	< 0.081	< 0.0082 [< 0.0084]	< 0.029
Di-n-butyl phthalate	84-74-2	0.15	g	< 0.045	< 0.023	< 0.043	0.31	< 0.0082	< 0.0088	< 0.009	< 0.041	< 0.081	< 0.0077 [< 0.0079]	< 0.024
Di-n-octyl phthalate	117-84-0	709	i	< 0.047	< 0.025	< 0.046	< 0.026	< 0.014	< 0.015	< 0.015	< 0.043	< 0.081	< 0.0081 [< 0.0083]	< 0.025
Fluoranthene	206-44-0	0.1	b	30	1.2	20	2	0.67	0.31	0.049	15	97.9 D	2.7 [0.43]	3.3
Fluorene	86-73-7	29	b	1.3	< 0.026	1.4	1.4	< 0.0097	< 0.01	< 0.011	0.23	48.5 D	0.18 [< 0.0075]	0.16
Indeno(1,2,3-cd)pyrene	193-39-5	5.9	b	11	0.45	7	1.2	0.28	0.18	< 0.0075	6.2	9.14 D	0.87 [0.15]	1.6
Naphthalene	91-20-3	0.0994	b	1	< 0.024	1.8	2.1	0.13	0.27	< 0.0043	0.59	14.1 D	0.08 [< 0.0067]	0.59
Phenanthrene	85-01-8	0.1	b	15	0.54	12	2.9	0.54	0.56	< 0.0099	4.4	158 D	1.9 [0.22]	1.8
Phenol	108-95-2	0.05	h	< 0.31	< 0.16	< 0.3	< 0.17	< 0.067	< 0.072	< 0.073	< 0.28	< 0.081	< 0.034 [< 0.035]	< 0.16
Pyrene	129-00-0	0.1	b	26	0.76	17	2	0.67	0.31	< 0.01	11	61.6 D	2.6 [0.41]	2.5
Total PAHs	ARC-TPAH	1	h	87.7	3.64	57.8	8.52	2.66	1.636	0.056	43.2	NA	7.27 [1.466]	12.12

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Metals (mg/kg)														
Aluminum	7429-90-5	50 g	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	7440-36-0	0.27 c	2.5	< 2.1 [3.3]	< 2.3	2.6	< 2.1	< 2.1	< 2.1	3.8	< 2.2	< 2.2	3	3.9
Arsenic	7440-38-2	18 d	23	33 [79]	7.3	100	4.2	7.2	27	8.2	18	22	27	75
Barium	7440-39-3	330 b	750	140 [130]	31	73	31	46	100	73	140	130	83	770
Beryllium	7440-41-7	21 c	< 0.62	< 0.63 [< 0.64]	< 0.68	< 0.65	< 0.63	< 0.62	< 0.64	< 0.63	< 0.65	< 0.65	< 0.71	< 0.65
Cadmium	7440-43-9	0.36 c	3.3	< 0.63 [0.78]	< 0.68	< 0.65	< 0.63	< 0.62	< 0.64	1.1	0.71	< 0.65	0.83	3.7
Calcium	7440-70-2	NA NA	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	7440-47-3	0.4 e	21	21 [31]	< 5.7	26	16	18	15	43	39	25	22	18
Cobalt	7440-48-4	13 b	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	7440-50-8	28 a	220	73 [110]	14	76	20	23	62	150	73	58	90	250
Cyanide	57-12-5	0.9 h	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	7439-89-6	200 f	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	7439-92-1	11 a	5400	670 [670]	6.9	260	110	50	490	180	470	650	240	6200
Magnesium	7439-95-4	NA NA	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	7439-96-5	220 d	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	7439-97-6	0.1 e	3.3	0.37 [0.37]	< 0.095	0.25	0.12	0.19	0.44	0.24	0.69	0.28	< 0.098	< 0.091
Nickel	7440-02-0	38 d	28	20 [33]	7.6	26	13	26	17	25	23	22	19	27
Potassium	7440-09-7	NA NA	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	7782-49-2	0.52 d	2.3	< 1.9 [2.6]	2.3	2	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 2.1	2.1
Silver	7440-22-4	4.2 a	< 2.6	< 2.6 [< 2.7]	< 2.8	< 2.7	< 2.6	< 2.6	< 2.7	< 2.6	< 2.7	< 2.7	< 2.9	< 2.7
Sodium	7440-23-5	NA NA	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	7440-62-2	2 d	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	7440-66-6	46 a	2900	450 [420]	15	220	51	93	390	260	420	340	260	2700
Pesticides (mg/kg)														
4,4-DDD	72-54-8	0.758 i	< 0.0052	< 0.0053 [< 0.0053]	< 0.0057	< 0.0054	< 0.0053	< 0.0052	< 0.0053	0.04	< 0.0054	NA	< 0.0059	< 0.0054
4,4-DDE	72-55-9	0.596 i	< 0.0052	< 0.0053 [< 0.0053]	0.014	< 0.0054	< 0.0053	< 0.0052	< 0.0053	0.02	< 0.0054	NA	0.027	< 0.0054
4,4-DDT	50-29-3	0.021 c	0.016	0.039 [0.03]	< 0.0057	< 0.0054	< 0.0053	0.011	0.078	0.05	< 0.0054	NA	0.059	< 0.0054
Aldrin	309-00-2	0.0025 h	< 0.0052	< 0.0053 [< 0.0053]	< 0.0057	< 0.0054	< 0.0053	< 0.0052	< 0.0053	< 0.0053	< 0.0054	NA	< 0.0059	< 0.0054
Beta-BHC	319-85-7	0.001 h	< 0.0052	< 0.0053 [< 0.0053]	< 0.0057	< 0.0054	< 0.0053	< 0.0052	< 0.0053	< 0.0053	< 0.0054	NA	< 0.0059	< 0.0054
Chlordane	57-74-9	0.224 i	< 0.01	< 0.011 [< 0.011]	< 0.011	< 0.011	< 0.011	< 0.01	< 0.011	0.047	< 0.011	NA	0.12	< 0.011
Dieldrin	60-57-1	0.0049 c	< 0.0052	< 0.0053 [< 0.0053]	< 0.0057	< 0.0054	< 0.0053	< 0.0052	0.024	< 0.0053	< 0.0054	NA	< 0.0059	< 0.0054
Endosulfan I	959-98-8	0.119 i	< 0.0052	< 0.0053 [< 0.0053]	< 0.0057	< 0.0054	< 0.0053	< 0.0052	< 0.0053	< 0.0053	< 0.0054	NA	< 0.0059	< 0.0054
Endosulfan II	33213-65-9	0.119 i	< 0.0052	< 0.0053 [< 0.0053]	< 0.0057	< 0.0054	< 0.0053	< 0.0052	< 0.0053	< 0.0053	< 0.0054	NA	< 0.0059	< 0.0054
Endosulfan sulfate	1031-07-8	0.0358 i	< 0.0052	< 0.0053 [< 0.0053]	< 0.0057	< 0.0054	< 0.0053	< 0.0052	< 0.0053	< 0.0053	< 0.0054	NA	< 0.0059	< 0.0054
Endrin	72-20-8	0.001 h	< 0.0052	< 0.0053 [< 0.0053]	< 0.0057	< 0.0054	< 0.0053	< 0.0052	< 0.0053	< 0.0053	< 0.0054	NA	< 0.0059	< 0.0054
Endrin aldehyde	7421-93-4	0.0105 i	< 0.0052	< 0.0053 [< 0.0053]	< 0.0057	< 0.0054	< 0.0053	< 0.0052	< 0.0053	< 0.0053	< 0.0054	NA	< 0.0059	< 0.0054
Endrin ketone	53494-70-5	0.001 h	< 0.0052	< 0.0053 [< 0.0053]	< 0.0057	< 0.0054	< 0.0053	< 0.0052	< 0.0053	< 0.0053	< 0.0054	NA	< 0.0059	< 0.0054
Heptachlor epoxide	1024-57-3	0.152 i	< 0.0052	< 0.0053 [< 0.0053]	< 0.0057	< 0.0054	< 0.0053	< 0.0052	< 0.0053	< 0.0053	< 0.0054	NA	< 0.0059	< 0.0054
Methoxychlor	72-43-5	0.0199 i	< 0.0052	< 0.0053 [< 0.0053]	< 0.0057	< 0.0054	< 0.0053	< 0.0052	< 0.0053	< 0.0053	< 0.0054	NA	< 0.0059	< 0.0054
Toxaphene	8001-35-2	0.119 i	< 0.026	< 0.026 [< 0.027]	< 0.028	< 0.027	< 0.026	< 0.026	< 0.027	< 0.026	< 0.027	NA	< 0.029	< 0.027
trans-chlordane	5103-74-2	0.0043 NA	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Polychlorinated Biphenyls (mg/kg)															
Aroclor 1242	53469-21-9	NA NA	< 0.026	< 0.026 [<lt; 0.027]<="" td=""> <td>< 0.028</td> <td>< 0.027</td> <td>< 0.026</td> <td>< 0.026</td> <td>< 0.027</td> <td>< 0.026</td> <td>< 0.027</td> <td>NA</td> <td>< 0.029</td> <td>< 0.027</td> </lt;>	< 0.028	< 0.027	< 0.026	< 0.026	< 0.027	< 0.026	< 0.027	NA	< 0.029	< 0.027	
Aroclor 1248	12672-29-6	NA NA	< 0.026	< 0.026 [<lt; 0.027]<="" td=""> <td>< 0.028</td> <td>< 0.027</td> <td>< 0.026</td> <td>< 0.026</td> <td>< 0.027</td> <td>< 0.026</td> <td>< 0.027</td> <td>NA</td> <td>< 0.029</td> <td>< 0.027</td> </lt;>	< 0.028	< 0.027	< 0.026	< 0.026	< 0.027	< 0.026	< 0.027	NA	< 0.029	< 0.027	
Aroclor 1254	11097-69-1	40 g	< 0.026	< 0.026 [<lt; 0.027]<="" td=""> <td>< 0.028</td> <td>0.34</td> <td>< 0.026</td> <td>< 0.026</td> <td>< 0.027</td> <td>< 0.026</td> <td>< 0.027</td> <td>NA</td> <td>0.32</td> <td>< 0.027</td> </lt;>	< 0.028	0.34	< 0.026	< 0.026	< 0.027	< 0.026	< 0.027	NA	0.32	< 0.027	
Aroclor 1260	11096-82-5	NA NA	0.12	0.13 [0.13]	0.046	< 0.027	< 0.026	0.053	0.14	0.12	0.12	NA	< 0.029	0.069	
Aroclor 1262	37324-23-5	40 g	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Total Aroclor PCBs	1336-36-3	0.02 h	0.12	0.13 [0.13]	0.046	0.34	< 0.026	0.053	0.14	0.12	0.12	NA	0.32	0.069	
Volatile Organic Compounds (mg/kg)															
Acetone	67-64-1	2.5 i	0.028	0.036 [0.022]	< 0.006	0.036	0.3	0.019	< 0.41	< 0.0056	< 0.0057	< 0.0057	< 0.0062	0.024	
Benzene	71-43-2	0.05 h	< 0.00053	< 0.00054 [<lt; 0.00054]<="" td=""> <td>< 0.00058</td> <td>< 0.00055</td> <td>< 0.0027</td> <td>< 0.00053</td> <td>< 0.031</td> <td>< 0.00054</td> <td>< 0.00055</td> <td>< 0.00055</td> <td>< 0.0006</td> <td>< 0.00055</td> </lt;>	< 0.00058	< 0.00055	< 0.0027	< 0.00053	< 0.031	< 0.00054	< 0.00055	< 0.00055	< 0.0006	< 0.00055	
Carbon Disulfide	75-15-0	0.0941 i	< 0.00068	< 0.00068 [<lt; 0.00069]<="" td=""> <td>< 0.00074</td> <td>< 0.00071</td> <td>< 0.0034</td> <td>< 0.00068</td> <td>< 0.049</td> <td>< 0.00068</td> <td>< 0.0007</td> <td>< 0.0007</td> <td>< 0.00076</td> <td>< 0.00071</td> </lt;>	< 0.00074	< 0.00071	< 0.0034	< 0.00068	< 0.049	< 0.00068	< 0.0007	< 0.0007	< 0.00076	< 0.00071	
Cyclohexane	110-82-7	0.1 h	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dichloromethane	75-09-2	2 h	0.01 B	0.012 B [0.009 B]	0.015 B	0.008 B	0.07 B	0.01 B	0.22 B	0.0026 B	0.013 B	0.017 B	0.0024 B	0.014 B	
Ethylbenzene	100-41-4	0.05 h	< 0.00078	< 0.00079 [<lt; 0.00079]<="" td=""> <td>< 0.00085</td> <td>< 0.00081</td> <td>< 0.0039</td> <td>< 0.00078</td> <td>< 0.06</td> <td>< 0.00079</td> <td>< 0.0008</td> <td>< 0.0008</td> <td>< 0.00088</td> <td>< 0.00081</td> </lt;>	< 0.00085	< 0.00081	< 0.0039	< 0.00078	< 0.06	< 0.00079	< 0.0008	< 0.0008	< 0.00088	< 0.00081	
Isopropylbenzene	98-82-8	NA NA	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
m&p-Xylenes	ARC-mpXyl	0.05 h	< 0.0011	< 0.0012 [<lt; 0.0012]<="" td=""> <td>< 0.0013</td> <td>< 0.0012</td> <td>< 0.0058</td> <td>< 0.0011</td> <td>< 0.063</td> <td>< 0.0012</td> <td>< 0.0012</td> <td>< 0.0012</td> <td>< 0.0013</td> <td>< 0.0012</td> </lt;>	< 0.0013	< 0.0012	< 0.0058	< 0.0011	< 0.063	< 0.0012	< 0.0012	< 0.0012	< 0.0013	< 0.0012	
Methyl Acetate	79-20-9	2.4 k	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Methylcyclohexane	108-87-2	1160 j	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
o,p-Xylene	136777-61-2	0.05 h	< 0.00049	< 0.00049 [<lt; 0.0005]<="" td=""> <td>< 0.00053</td> <td>< 0.00051</td> <td>< 0.0025</td> <td>< 0.00049</td> <td>< 0.039</td> <td>< 0.00049</td> <td>< 0.0005</td> <td>< 0.0005</td> <td>< 0.00055</td> <td>< 0.00051</td> </lt;>	< 0.00053	< 0.00051	< 0.0025	< 0.00049	< 0.039	< 0.00049	< 0.0005	< 0.0005	< 0.00055	< 0.00051	
o-Xylene	95-47-6	0.05 h	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Styrene (Monomer)	100-42-5	0.1 h	< 0.00065	< 0.00065 [<lt; 0.00066]<="" td=""> <td>< 0.0007</td> <td>< 0.00067</td> <td>< 0.0033</td> <td>< 0.00065</td> <td>< 0.013</td> <td>< 0.00065</td> <td>< 0.00067</td> <td>< 0.00067</td> <td>< 0.00073</td> <td>< 0.00067</td> </lt;>	< 0.0007	< 0.00067	< 0.0033	< 0.00065	< 0.013	< 0.00065	< 0.00067	< 0.00067	< 0.00073	< 0.00067	
Toluene	108-88-3	0.05 h	< 0.00079	< 0.00079 [<lt; 0.0008]<="" td=""> <td>< 0.00086</td> <td>< 0.00082</td> <td>< 0.004</td> <td>< 0.00079</td> <td>< 0.02</td> <td>< 0.00079</td> <td>< 0.00081</td> <td>< 0.00081</td> <td>< 0.00089</td> <td>< 0.00082</td> </lt;>	< 0.00086	< 0.00082	< 0.004	< 0.00079	< 0.02	< 0.00079	< 0.00081	< 0.00081	< 0.00089	< 0.00082	
Total Xylenes	1330-20-7	0.05 h	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Semi-Volatile Organic Compounds (mg/kg)															
1,1-Biphenyl	92-52-4	60 g	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2,4-Dimethylphenol	105-67-9	0.01 i	< 0.029	< 0.048 [<lt; 0.049]<="" td=""> <td>< 0.052</td> <td>< 0.031</td> <td>< 0.03</td> <td>< 0.029</td> <td>< 0.049</td> <td>< 0.15</td> <td>< 0.15</td> <td>< 0.15</td> <td>< 0.16</td> <td>< 0.05</td> </lt;>	< 0.052	< 0.031	< 0.03	< 0.029	< 0.049	< 0.15	< 0.15	< 0.15	< 0.16	< 0.05	
2-Methylnaphthalene	91-57-6	3.24 b	0.093	0.68 [0.52]	1.3	0.18	< 0.06	< 0.059	1.4	0.33	0.35	1.5	1.3	0.46	
2-Methylphenol	95-48-7	0.5 h	< 0.13	< 0.17 [<lt; 0.17]<="" td=""> <td>< 0.18</td> <td>< 0.14</td> <td>< 0.13</td> <td>< 0.13</td> <td>< 0.17</td> <td>< 0.5</td> <td>< 0.51</td> <td>< 0.51</td> <td>< 0.56</td> <td>< 0.17</td> </lt;>	< 0.18	< 0.14	< 0.13	< 0.13	< 0.17	< 0.5	< 0.51	< 0.51	< 0.56	< 0.17	
3-Methylphenol, 4-Methylphenol	65794-96-9	0.5 h	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
4-Methylphenol	106-44-5	0.5 h	< 0.13	< 0.19 [<lt; 0.19]<="" td=""> <td>< 0.2</td> <td>< 0.13</td> <td>< 0.13</td> <td>< 0.13</td> <td>< 0.19</td> <td>< 0.56</td> <td>< 0.57</td> <td>< 0.57</td> <td>< 0.62</td> <td>< 0.19</td> </lt;>	< 0.2	< 0.13	< 0.13	< 0.13	< 0.19	< 0.56	< 0.57	< 0.57	< 0.62	< 0.19	
4-Nitroaniline	100-01-6	21.9 i	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Acenaphthene	83-32-9	20 b	0.059	0.079 [0.14]	0.082	0.057	< 0.0058	< 0.0057	1.9	< 0.044	0.35	< 0.045	0.28	0.48	
Acenaphthylene	208-96-8	29 b	0.075	0.077 [0.13]	0.14	0.087	< 0.0053	0.035	0.32	0.4	0.21	< 0.025	0.61	0.09	
Acetophenone	98-86-2	300 i	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Anthracene	120-12-7	0.1 b	0.37	0.28 [0.5]	0.13	0.13	< 0.0069	0.044	1.5	0.59	1.7	0.39	1.5	1.5	
Benz(a)anthracene	56-55-3	0.25 b	1.6	0.9 [1.8]	0.48	0.54	0.052	0.14	2.1	2.2	7.5	1.3	4.9	3.8	
Benzaldehyde	100-52-7	470 k	NA	NA [NA]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(a)pyrene	50-32-8	0.1 b	1.6	0.89 [1.6]	0.3	0.53	0.059	0.15	2.1	2	6.7	1.4	3.6	3.2	
Benzo(b)fluoranthene	205-99-2	18 b	2.1	1.2 [2]	0.67	0.79	0.069	0.2	2.8	2.9	9.5	1.6	5.8	4.2	
Benzo(g,h,i)perylene	191-24-2	7.5 b	1.1	0.74 [1.1]	0.33	0.43	0.055	0.19	1.6	2	4.1	1.4	2.7	2.1	
Benzo(k)fluoranthene	207-08-9	2.4 b	0.83	0.43 [0.9]	0.21	0.27	< 0.012	0.066	1.1	1	2	0.73	1.6	1.6	

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Semi-Volatile Organic Compounds (mg/kg) (cont'd)															
bis(2-Ethylhexyl)phthalate	117-81-7	0.925	i	0.06	0.039 [0.038]	0.23	0.059	< 0.022	0.039	0.12	0.15	< 0.097	0.18	1.1	< 0.033
Butyl benzyl phthalate	85-68-7	0.239	i	< 0.0094	< 0.014 [< 0.014]	< 0.015	< 0.0098	< 0.0095	< 0.0094	< 0.014	< 0.042	< 0.043	< 0.043	0.31	< 0.015
Carbazole	86-74-8	NA	b	0.12	0.098 [0.18]	0.085	0.068	< 0.0067	0.035	< 0.011	0.13	0.4	0.14	0.52	0.75
Chrysene	218-01-9	4.73	b	1.6	0.95 [1.6]	0.76	0.6	0.065	0.16	2.1	2.2	7.3	1.6	4.5	3.9
Dibenz(a,h)anthracene	53-70-3	18	b	0.39	0.29 [0.47]	0.15	0.13	< 0.0064	< 0.0064	0.55	0.63	1.9	0.33	1.1	0.76
Dibenzofuran	132-64-9	19	j	0.075	0.098 [0.17]	0.55	0.074	< 0.045	< 0.045	0.92	0.25	0.27	0.27	0.81	0.48
Diethyl phthalate	84-66-2	24.8	g	< 0.0082	< 0.0096 [< 0.0097]	< 0.01	< 0.0085	< 0.0083	< 0.0082	< 0.0097	< 0.029	< 0.03	< 0.03	< 0.032	< 0.0099
Di-n-butyl phthalate	84-74-2	0.15	g	0.042	0.042 [< 0.0079]	0.079	< 0.0073	< 0.0071	< 0.007	< 0.0079	0.14 B	< 0.024	< 0.024	0.19 B	0.054
Di-n-octyl phthalate	117-84-0	709	i	< 0.012	< 0.0083 [< 0.0084]	< 0.0089	< 0.012	< 0.012	< 0.012	< 0.0084	< 0.025	< 0.025	< 0.025	< 0.028	< 0.0086
Fluoranthene	206-44-0	0.1	b	2.3	1.7 [3.7]	0.74	1	0.098	0.26	4.5	4.1	13	2.4	9.4	6.4
Fluorene	86-73-7	29	b	0.062	0.096 [0.22]	< 0.0096	0.053	< 0.0084	< 0.0083	1.9	< 0.027	0.48	0.2	0.78	0.43
Indeno(1,2,3-cd)pyrene	193-39-5	5.9	b	0.98	0.67 [1]	0.29	0.36	0.037	0.11	1.5	1.6	3.9	1	2.5	2
Naphthalene	91-20-3	0.0994	b	0.1	0.25 [0.25]	0.86	0.17	< 0.0034	< 0.0034	0.98	0.36	0.22	0.8	1.3	0.54
Phenanthrene	85-01-8	0.1	b	1.4	1.1 [2.1]	1.4	0.63	0.067	0.17	4.5	2.1	5.6	1.6	7.3	5.2
Phenol	108-95-2	0.05	h	< 0.057	< 0.053 [< 0.054]	< 0.058	< 0.06	< 0.058	< 0.057	< 0.054	< 0.16	< 0.16	< 0.16	< 0.18	< 0.055
Pyrene	129-00-0	0.1	b	2.1	1.3 [2.4]	0.54	0.95	0.13	0.26	3.3	3.3	11	2	7.6	5.5
Total PAHs	ARC-TPAH	1	h	9.1	5.33 [9.37]	2.86	3.22	0.282	0.826	12.25	12.53	38.8	7.96	24	19.46

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Metals (mg/kg)													
Aluminum	7429-90-5	50 g	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
Antimony	7440-36-0	0.27 c	3.5	4	5.2	3.3	2.7 [3]	< 2.2 [< 2.2]	2.3	5.4	2.5	< 2.2	< 2
Arsenic	7440-38-2	18 d	13	19	28	39	35 [32]	12 [11]	13	9.5	17	6.7	2.8
Barium	7440-39-3	330 b	63	250	61	190	140 [130]	96 [90]	140	180	140	58	15
Beryllium	7440-41-7	21 c	< 0.67	< 0.68	< 0.66	< 0.66	< 0.65 [< 0.65]	0.86 [0.79]	< 0.67	0.74	0.76	< 0.67	< 0.61
Cadmium	7440-43-9	0.36 c	0.76	1.7	< 0.66	1.5	2.5 [2.2]	< 0.67 [< 0.67]	< 0.67	1.4	2.2	< 0.67	< 0.61
Calcium	7440-70-2	NA NA	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
Chromium	7440-47-3	0.4 e	55	29	53	31	24 [23]	25 [21]	16	24	25	9.7	< 5.1
Cobalt	7440-48-4	13 b	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
Copper	7440-50-8	28 a	100	210	94	130	85 [75]	83 [73]	65	170	170	58	12
Cyanide	57-12-5	0.9 h	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
Iron	7439-89-6	200 f	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
Lead	7439-92-1	11 a	130	1600	180	960	710 [600]	680 [1100]	400	810	230	150	30
Magnesium	7439-95-4	NA NA	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
Manganese	7439-96-5	220 d	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
Mercury	7439-97-6	0.1 e	0.36	1.3	0.24	0.66	0.46 [0.52]	0.99 [4.8]	0.55	1.2	0.27	0.38	< 0.085
Nickel	7440-02-0	38 d	49	33	35	27	21 [25]	21 [19]	12	21	26	20	< 5.1
Potassium	7440-09-7	NA NA	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
Selenium	7782-49-2	0.52 d	4	4.8	6.4	3.1	2.8 [2.9]	2.7 [2.7]	< 2	2	4	< 2	< 1.8
Silver	7440-22-4	4.2 a	< 2.8	< 2.8	< 2.7	< 2.7	< 2.7 [< 2.7]	< 2.8 [< 2.8]	< 2.8	< 2.6	< 2.8	< 2.8	< 2.6
Sodium	7440-23-5	NA NA	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
Vanadium	7440-62-2	2 d	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
Zinc	7440-66-6	46 a	190	960	51	1300	3700 [2500]	290 [240]	160	650	430	220	20
Pesticides (mg/kg)													
4,4-DDD	72-54-8	0.758 i	< 0.0056	< 0.0057	< 0.0055	< 0.0055	< 0.0054 [< 0.0054]	< 0.0056 [< 0.0056]	NA	< 0.0053	< 0.0056	< 0.0056	< 0.0034
4,4-DDE	72-55-9	0.596 i	0.013	< 0.0057	0.013	< 0.0055	< 0.0054 [< 0.0054]	< 0.0056 [< 0.0056]	NA	< 0.0053	< 0.0056	< 0.0056	< 0.0034
4,4-DDT	50-29-3	0.021 c	< 0.0056	0.043	0.057	0.029	< 0.0054 [< 0.0054]	< 0.0056 [< 0.0056]	NA	< 0.0053	< 0.0056	< 0.0056	< 0.0034
Aldrin	309-00-2	0.0025 h	< 0.0056	< 0.0057	< 0.0055	< 0.0055	< 0.0054 [< 0.0054]	< 0.0056 [< 0.0056]	NA	< 0.0053	< 0.0056	< 0.0056	< 0.0034
Beta-BHC	319-85-7	0.001 h	< 0.0056	< 0.0057	< 0.0055	< 0.0055	< 0.0054 [< 0.0054]	< 0.0056 [< 0.0056]	NA	< 0.0053	< 0.0056	< 0.0056	< 0.0034
Chlordane	57-74-9	0.224 i	< 0.011	0.056	< 0.011	0.041	< 0.011 [< 0.011]	0.041 [0.044]	NA	< 0.011	< 0.011	< 0.011	< 0.0068
Dieldrin	60-57-1	0.0049 c	0.032	< 0.0057	< 0.0055	< 0.0055	< 0.0054 [< 0.0054]	< 0.0056 [< 0.0056]	NA	< 0.0053	< 0.0056	< 0.0056	< 0.0034
Endosulfan I	959-98-8	0.119 i	< 0.0056	< 0.0057	< 0.0055	< 0.0055	< 0.0054 [< 0.0054]	< 0.0056 [< 0.0056]	NA	< 0.0053	< 0.0056	< 0.0056	< 0.0034
Endosulfan II	33213-65-9	0.119 i	< 0.0056	< 0.0057	< 0.0055	< 0.0055	< 0.0054 [< 0.0054]	< 0.0056 [< 0.0056]	NA	< 0.0053	< 0.0056	< 0.0056	< 0.0034
Endosulfan sulfate	1031-07-8	0.0358 i	< 0.0056	< 0.0057	< 0.0055	< 0.0055	< 0.0054 [< 0.0054]	< 0.0056 [< 0.0056]	NA	< 0.0053	< 0.0056	< 0.0056	< 0.0034
Endrin	72-20-8	0.001 h	< 0.0056	< 0.0057	< 0.0055	< 0.0055	< 0.0054 [< 0.0054]	< 0.0056 [< 0.0056]	NA	< 0.0053	< 0.0056	< 0.0056	< 0.0034
Endrin aldehyde	7421-93-4	0.0105 i	< 0.0056	< 0.0057	< 0.0055	< 0.0055	< 0.0054 [< 0.0054]	< 0.0056 [< 0.0056]	NA	< 0.0053	< 0.0056	< 0.0056	< 0.0034
Endrin ketone	53494-70-5	0.001 h	< 0.0056	< 0.0057	< 0.0055	< 0.0055	< 0.0054 [< 0.0054]	< 0.0056 [< 0.0056]	NA	< 0.0053	< 0.0056	< 0.0056	< 0.0034
Heptachlor epoxide	1024-57-3	0.152 i	< 0.0056	< 0.0057	< 0.0055	< 0.0055	< 0.0054 [< 0.0054]	< 0.0056 [< 0.0056]	NA	< 0.0053	< 0.0056	< 0.0056	< 0.0034
Methoxychlor	72-43-5	0.0199 i	< 0.0056	< 0.0057	< 0.0055	< 0.0055	< 0.0054 [< 0.0054]	< 0.0056 [< 0.0056]	NA	< 0.0053	< 0.0056	< 0.0056	< 0.0034
Toxaphene	8001-35-2	0.119 i	< 0.028	< 0.028	< 0.027	< 0.027	< 0.027 [< 0.027]	< 0.028 [< 0.028]	NA	< 0.026	< 0.028	< 0.028	< 0.017
trans-chlordane	5103-74-2	0.0043 NA	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA

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Location ID: Sample Depth (ft): Date Collected:	CAS Number	Ecological Soil Screening Benchmark ^{1,2}	PCSB-56 0.5 8/15/2005	PCSB-57 0.5 8/15/2005	PCSB-58 0.5 8/15/2005	PCSB-59 0.5 8/15/2005	PCSB-60 0.5 8/15/2005	PCTP-61 0.5 9/8/2005	PCTP-62 0.5 9/8/2005	PCTP-63 0.5 9/8/2005	PCTP-64 0.5 9/8/2005	PCTP-65 0.5 9/8/2005	PCTP-66 0.5 9/8/2005
Polychlorinated Biphenyls (mg/kg)													
Aroclor 1242	53469-21-9	NA NA	< 0.028	< 0.028	< 0.027	< 0.027	< 0.027 [<lt; 0.027]<="" td=""> <td>< 0.028 [<lt; 0.028]<="" td=""> <td>< 0.028</td> <td>< 0.026</td> <td>< 0.028</td> <td>< 0.028</td> <td>< 0.017</td> </lt;></td></lt;>	< 0.028 [<lt; 0.028]<="" td=""> <td>< 0.028</td> <td>< 0.026</td> <td>< 0.028</td> <td>< 0.028</td> <td>< 0.017</td> </lt;>	< 0.028	< 0.026	< 0.028	< 0.028	< 0.017
Aroclor 1248	12672-29-6	NA NA	1.7	< 0.028	< 0.027	< 0.027	< 0.027 [<lt; 0.027]<="" td=""> <td>< 0.028 [<lt; 0.028]<="" td=""> <td>0.15</td> <td>0.11</td> <td>< 0.028</td> <td>< 0.028</td> <td>< 0.017</td> </lt;></td></lt;>	< 0.028 [<lt; 0.028]<="" td=""> <td>0.15</td> <td>0.11</td> <td>< 0.028</td> <td>< 0.028</td> <td>< 0.017</td> </lt;>	0.15	0.11	< 0.028	< 0.028	< 0.017
Aroclor 1254	11097-69-1	40 g	< 0.028	0.11	0.13	0.21	0.5 [0.25]	< 0.028 [<lt; 0.028]<="" td=""> <td>< 0.028</td> <td>< 0.026</td> <td>< 0.028</td> <td>< 0.028</td> <td>< 0.017</td> </lt;>	< 0.028	< 0.026	< 0.028	< 0.028	< 0.017
Aroclor 1260	11096-82-5	NA NA	< 0.028	< 0.028	< 0.027	< 0.027	< 0.027 [<lt; 0.027]<="" td=""> <td>1.3 [0.54]</td> <td>0.43</td> <td>0.12</td> <td>0.36</td> <td>< 0.028</td> <td>< 0.017</td> </lt;>	1.3 [0.54]	0.43	0.12	0.36	< 0.028	< 0.017
Aroclor 1262	37324-23-5	40 g	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
Total Aroclor PCBs	1336-36-3	0.02 h	1.7	0.11	0.13	0.21	0.5 [0.25]	1.3 [0.54]	0.58	0.23	0.36	< 0.028	< 0.017
Volatile Organic Compounds (mg/kg)													
Acetone	67-64-1	2.5 i	< 0.006	< 0.006	< 0.0058	< 0.0058	0.02 [0.019]	< 0.0038 [<lt; 0.006]<="" td=""> <td>< 0.0038</td> <td>< 0.0036</td> <td>< 0.0059</td> <td>< 0.0059</td> <td>< 0.79</td> </lt;>	< 0.0038	< 0.0036	< 0.0059	< 0.0059	< 0.79
Benzene	71-43-2	0.05 h	< 0.00057	< 0.00058	< 0.00056	< 0.00056	< 0.00055 [<lt; 0.00055]<="" td=""> <td>< 0.00027 [<lt; 0.00057]<="" td=""> <td>< 0.00027</td> <td>< 0.00026</td> <td>< 0.00057</td> <td>< 0.00057</td> <td>29</td> </lt;></td></lt;>	< 0.00027 [<lt; 0.00057]<="" td=""> <td>< 0.00027</td> <td>< 0.00026</td> <td>< 0.00057</td> <td>< 0.00057</td> <td>29</td> </lt;>	< 0.00027	< 0.00026	< 0.00057	< 0.00057	29
Carbon Disulfide	75-15-0	0.0941 i	< 0.00073	< 0.00074	< 0.00071	< 0.00071	< 0.00071 [<lt; 0.00071]<="" td=""> <td>< 0.00057 [<lt; 0.00073]<="" td=""> <td>< 0.00057</td> <td>< 0.00054</td> <td>< 0.00072</td> <td>< 0.00072</td> <td>< 0.095</td> </lt;></td></lt;>	< 0.00057 [<lt; 0.00073]<="" td=""> <td>< 0.00057</td> <td>< 0.00054</td> <td>< 0.00072</td> <td>< 0.00072</td> <td>< 0.095</td> </lt;>	< 0.00057	< 0.00054	< 0.00072	< 0.00072	< 0.095
Cyclohexane	110-82-7	0.1 h	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
Dichloromethane	75-09-2	2 h	0.041 B	0.034 B	0.018 B	0.019 B	0.018 B [0.017 B]	0.011 B [0.019 B]	0.0095 B	0.0078 B	0.0087 B	0.011 B	< 0.22
Ethylbenzene	100-41-4	0.05 h	< 0.00084	< 0.00085	< 0.00082	< 0.00082	< 0.00081 [<lt; 0.00081]<="" td=""> <td>< 0.00076 [<lt; 0.00084]<="" td=""> <td>< 0.00075</td> <td>< 0.00071</td> <td>< 0.00083</td> <td>< 0.00083</td> <td>< 0.12</td> </lt;></td></lt;>	< 0.00076 [<lt; 0.00084]<="" td=""> <td>< 0.00075</td> <td>< 0.00071</td> <td>< 0.00083</td> <td>< 0.00083</td> <td>< 0.12</td> </lt;>	< 0.00075	< 0.00071	< 0.00083	< 0.00083	< 0.12
Isopropylbenzene	98-82-8	NA NA	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
m&p-Xylenes	ARC-mpXyl	0.05 h	< 0.0012	< 0.0013	< 0.0012	< 0.0012	< 0.0012 [<lt; 0.0012]<="" td=""> <td>< 0.00091 [<lt; 0.0012]<="" td=""> <td>< 0.0009</td> <td>< 0.00085</td> <td>< 0.0012</td> <td>< 0.0012</td> <td>8.2</td> </lt;></td></lt;>	< 0.00091 [<lt; 0.0012]<="" td=""> <td>< 0.0009</td> <td>< 0.00085</td> <td>< 0.0012</td> <td>< 0.0012</td> <td>8.2</td> </lt;>	< 0.0009	< 0.00085	< 0.0012	< 0.0012	8.2
Methyl Acetate	79-20-9	2.4 k	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
Methylcyclohexane	108-87-2	1160 j	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
o,p-Xylene	136777-61-2	0.05 h	< 0.00053	< 0.00053	< 0.00051	< 0.00051	< 0.00051 [<lt; 0.00051]<="" td=""> <td>< 0.0002 [<lt; 0.00053]<="" td=""> <td>< 0.00019</td> <td>< 0.00018</td> <td>< 0.00052</td> <td>< 0.00052</td> <td>2.2</td> </lt;></td></lt;>	< 0.0002 [<lt; 0.00053]<="" td=""> <td>< 0.00019</td> <td>< 0.00018</td> <td>< 0.00052</td> <td>< 0.00052</td> <td>2.2</td> </lt;>	< 0.00019	< 0.00018	< 0.00052	< 0.00052	2.2
o-Xylene	95-47-6	0.05 h	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
Styrene (Monomer)	100-42-5	0.1 h	< 0.0007	< 0.0007	< 0.00068	< 0.00068	< 0.00067 [<lt; 0.00067]<="" td=""> <td>< 0.00017 [<lt; 0.0007]<="" td=""> <td>< 0.00017</td> <td>< 0.00016</td> <td>< 0.00069</td> <td>< 0.00069</td> <td>2.4</td> </lt;></td></lt;>	< 0.00017 [<lt; 0.0007]<="" td=""> <td>< 0.00017</td> <td>< 0.00016</td> <td>< 0.00069</td> <td>< 0.00069</td> <td>2.4</td> </lt;>	< 0.00017	< 0.00016	< 0.00069	< 0.00069	2.4
Toluene	108-88-3	0.05 h	< 0.00085	< 0.00086	< 0.00083	< 0.00083	< 0.00082 [<lt; 0.00082]<="" td=""> <td>< 0.00021 [<lt; 0.00085]<="" td=""> <td>< 0.0002</td> <td>< 0.00019</td> <td>< 0.00084</td> <td>< 0.00084</td> <td>22</td> </lt;></td></lt;>	< 0.00021 [<lt; 0.00085]<="" td=""> <td>< 0.0002</td> <td>< 0.00019</td> <td>< 0.00084</td> <td>< 0.00084</td> <td>22</td> </lt;>	< 0.0002	< 0.00019	< 0.00084	< 0.00084	22
Total Xylenes	1330-20-7	0.05 h	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds (mg/kg)													
1,1-Biphenyl	92-52-4	60 g	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
2,4-Dimethylphenol	105-67-9	0.01 i	< 0.052	< 0.16	< 0.051	< 0.051	< 0.05 [<lt; 0.05]<="" td=""> <td>< 0.052 [<lt; 0.052]<="" td=""> <td>< 1.5</td> <td>< 0.48</td> <td>< 0.51</td> <td>< 0.15</td> <td>< 94</td> </lt;></td></lt;>	< 0.052 [<lt; 0.052]<="" td=""> <td>< 1.5</td> <td>< 0.48</td> <td>< 0.51</td> <td>< 0.15</td> <td>< 94</td> </lt;>	< 1.5	< 0.48	< 0.51	< 0.15	< 94
2-Methylnaphthalene	91-57-6	3.24 b	0.11	0.38	0.68	0.43	0.55 [0.49]	0.13 [0.09]	5.8	< 0.45	< 0.48	< 0.14	1300
2-Methylphenol	95-48-7	0.5 h	< 0.18	< 0.54	< 0.17	< 0.17	< 0.17 [<lt; 0.17]<="" td=""> <td>< 0.18 [<lt; 0.18]<="" td=""> <td>< 5.3</td> <td>< 1.7</td> <td>< 1.8</td> <td>< 0.53</td> <td>< 320</td> </lt;></td></lt;>	< 0.18 [<lt; 0.18]<="" td=""> <td>< 5.3</td> <td>< 1.7</td> <td>< 1.8</td> <td>< 0.53</td> <td>< 320</td> </lt;>	< 5.3	< 1.7	< 1.8	< 0.53	< 320
3-Methylphenol, 4-Methylphenol	65794-96-9	0.5 h	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
4-Methylphenol	106-44-5	0.5 h	< 0.2	< 0.6	< 0.19	< 0.19	< 0.19 [<lt; 0.19]<="" td=""> <td>< 0.2 [<lt; 0.2]<="" td=""> <td>< 5.9</td> <td>< 1.9</td> <td>< 2</td> <td>< 0.59</td> <td>180 J</td> </lt;></td></lt;>	< 0.2 [<lt; 0.2]<="" td=""> <td>< 5.9</td> <td>< 1.9</td> <td>< 2</td> <td>< 0.59</td> <td>180 J</td> </lt;>	< 5.9	< 1.9	< 2	< 0.59	180 J
4-Nitroaniline	100-01-6	21.9 i	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
Acenaphthene	83-32-9	20 b	< 0.016	0.16	0.13	0.23	0.18 [0.23]	0.16 [0.13]	2.2	1.8	0.41	< 0.046	180
Acenaphthylene	208-96-8	29 b	0.039	0.8	0.074	0.1	0.15 [0.13]	0.048 [0.042]	4.5	0.51	1.2	0.54	2000
Acetophenone	98-86-2	300 i	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
Anthracene	120-12-7	0.1 b	0.11	1.6	0.33	0.39	0.4 [0.4]	0.38 [0.34]	32	8.7	2.6	1.2	1800
Benz(a)anthracene	56-55-3	0.25 b	0.43	7.7	1.1	1.3	1.6 [1.5]	0.93 [0.95]	53	18	10	8.4	1800
Benzaldehyde	100-52-7	470 k	NA	NA	NA	NA	NA [NA]	NA [NA]	NA	NA	NA	NA	NA
Benzo(a)pyrene	50-32-8	0.1 b	0.43	7.2	0.92	1.3	1.6 [1.4]	0.89 [0.95]	34	14	10	9.8	1300
Benzo(b)fluoranthene	205-99-2	18 b	0.75	12	1.8	1.8	2.3 [1.8]	1.2 [1.3]	41	20	15	12	1600
Benzo(g,h,i)perylene	191-24-2	7.5 b	0.37	3.6	0.59	0.94	1.1 [1]	0.66 [0.73]	19	9.8	8.3	8.5	850
Benzo(k)fluoranthene	207-08-9	2.4 b	0.27	2.8	0.47	0.66	0.71 [0.75]	0.47 [0.52]	18	5.1	5.3	2.9	690

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Location ID: Sample Depth (ft): Date Collected:	CAS Number	Ecological Soil Screening Benchmark ^{1,2}	PCSB-56 0.5 8/15/2005	PCSB-57 0.5 8/15/2005	PCSB-58 0.5 8/15/2005	PCSB-59 0.5 8/15/2005	PCSB-60 0.5 8/15/2005	PCTP-61 0.5 9/8/2005	PCTP-62 0.5 9/8/2005	PCTP-63 0.5 9/8/2005	PCTP-64 0.5 9/8/2005	PCTP-65 0.5 9/8/2005	PCTP-66 0.5 9/8/2005
Semi-Volatile Organic Compounds (mg/kg) (cont'd)													
bis(2-Ethylhexyl)phthalate	117-81-7	0.925 i	0.59	0.48	0.61	0.19	0.34 [0.34]	0.15 [0.1]	< 1	1.1	0.85	< 0.1	< 61
Butyl benzyl phthalate	85-68-7	0.239 i	0.34	0.39	0.1	< 0.015	0.12 [0.16]	< 0.015 [< 0.015]	< 0.45	< 0.14	0.7	< 0.045	< 27
Carbazole	86-74-8	NA b	0.037	0.78	0.12	0.17	0.19 [0.15]	0.14 [0.12]	12	3.2	0.87	0.19	970
Chrysene	218-01-9	4.73 b	0.57	6.8	1.3	1.3	1.6 [1.2]	0.97 [0.98]	41	16	10	7.8	1500
Dibenz(a,h)anthracene	53-70-3	18 b	0.099	1.4	0.3	0.4	0.44 [0.43]	0.21 [0.28]	7.5	4	2.7	2.5	270
Dibenzofuran	132-64-9	19 j	0.053	0.36	0.3	0.17	0.2 [0.19]	0.22 [0.16]	14	2.1	0.46 J	0.11 J	1600
Diethyl phthalate	84-66-2	24.8 g	0.043	< 0.031	< 0.01	0.041	< 0.0099 [0.064]	< 0.01 [< 0.01]	< 0.31	< 0.096	< 0.1	< 0.031	< 19
Di-n-butyl phthalate	84-74-2	0.15 g	0.074 B	< 0.025	0.046 B	< 0.0082	0.067 B [0.11 B]	0.045 [< 0.0084]	< 0.25	< 0.079	< 0.083	< 0.025	< 15
Di-n-octyl phthalate	117-84-0	709 i	< 0.0088	< 0.027	< 0.0087	< 0.0087	< 0.0086 [< 0.0086]	< 0.0088 [< 0.0088]	< 0.26	< 0.083	< 0.087	< 0.026	< 16
Fluoranthene	206-44-0	0.1 b	0.5	11	1.5	1.4	1.9 [1.6]	1.8 [1.7]	97	31	18	9.9	3800
Fluorene	86-73-7	29 b	0.038	0.51	0.16	0.23	0.25 [0.25]	0.12 [0.099]	31	4.4	0.97	0.24	2600
Indeno(1,2,3-cd)pyrene	193-39-5	5.9 b	0.33	3.2	0.56	0.85	0.98 [0.87]	0.57 [0.63]	18	9.1	7	6.8	750
Naphthalene	91-20-3	0.0994 b	0.13	0.88	0.8	0.24	0.3 [0.27]	0.12 [0.1]	12	< 0.083	0.43	0.28	6000
Phenanthrene	85-01-8	0.1 b	0.43	5.4	1.7	1.7	1.6 [1.5]	1.5 [1.2]	140	33	10	4.8	7700
Phenol	108-95-2	0.05 h	< 0.057	< 0.17	< 0.056	< 0.056	< 0.055 [< 0.055]	< 0.057 [< 0.057]	< 1.7	< 0.53	< 0.56	< 0.17	210
Pyrene	129-00-0	0.1 b	0.86	13	2.2	2.9	4 [3.1]	1.8 [2]	110	42	22	13	4400
Total PAHs	ARC-TPAH	1 h	2.879	41.1	6.45	7.61	9.23 [7.95]	5.24 [5.61]	212.5	86.2	60	50.2	7910

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Location ID: Sample Depth (ft): Date Collected:	CAS Number	Ecological Soil Screening Benchmark ^{1,2}		PCTP-66R		PCTP-66R-HC	PCTP-67	PCTP-68	PCTP-69	PCTP-70	PCTP-71	PCTP-72
				0-0.5 4/24/2019	0.5-2 4/24/2019	0-2 4/4/2019	0.5 9/12/2005	0.5 9/9/2005	0.5 9/9/2005	0.5 9/9/2005	0.5 9/9/2005	0.5 9/9/2005
Metals (mg/kg)												
Aluminum	7429-90-5	50	g	7560 J [6890 J]	8310 J	6260	NA [NA]	NA	NA	NA	NA	NA
Antimony	7440-36-0	0.27	c	2.8 J [3.0 J]	< 2.2 UJ	2.6	9.9 [6.9]	< 2.1	< 2.1	< 2.2	< 2.1	< 2.3
Arsenic	7440-38-2	18	d	66.6 [60.7]	6.7	35.7	27 [31]	5.8	44	120	100	7.9
Barium	7440-39-3	330	b	204 J [99.0 J]	42.9 J	79.4	150 [150]	51	71	88	70	87
Beryllium	7440-41-7	21	c	1.1 [0.90]	0.60	0.68	< 0.67 [< 0.66]	< 0.63	0.76	< 0.67	0.77	0.8
Cadmium	7440-43-9	0.36	c	3.0 [2.8]	0.10 J	1.9	4.8 [3.4]	< 0.63	0.69	< 0.67	< 0.62	< 0.68
Calcium	7440-70-2	NA	NA	8670 J [5280 J]	527 J	3170	NA [NA]	NA	NA	NA	NA	NA
Chromium	7440-47-3	0.4	e	23.2 [23.9]	19.2	19.8	40 [48]	12	17	15	14	25
Cobalt	7440-48-4	13	b	6.0 J [6.4]	7.5	5.8	NA [NA]	NA	NA	NA	NA	NA
Copper	7440-50-8	28	a	217 [217]	17.2	127	480 [200]	110	110	33	46	75
Cyanide	57-12-5	0.9	h	0.54 J [1.1 J]	1.2 J	0.14 J	NA [NA]	NA	NA	NA	NA	NA
Iron	7439-89-6	200	f	12400 [13600]	24400	18900	NA [NA]	NA	NA	NA	NA	NA
Lead	7439-92-1	11	a	392 [386]	26.8	323	470 [500]	58	290	71	370	280
Magnesium	7439-95-4	NA	NA	3560 J [2390 J]	1430 J	1640	NA [NA]	NA	NA	NA	NA	NA
Manganese	7439-96-5	220	d	595 [375]	209	279	NA [NA]	NA	NA	NA	NA	NA
Mercury	7439-97-6	0.1	e	0.20 J [0.34 J]	0.030 J	0.23	< 0.093 [< 0.092]	< 0.088	0.29	0.27	0.14	0.93
Nickel	7440-02-0	38	d	32.1 [32.3]	12.1	23.8	54 [41]	13	21	18	13	18
Potassium	7440-09-7	NA	NA	890 J [858 J]	1430	740 J	NA [NA]	NA	NA	NA	NA	NA
Selenium	7782-49-2	0.52	d	0.88 J [< 2.6]	< 4.4	< 2.3	7 [4.9]	3	2.6	< 2	< 1.9	< 2
Silver	7440-22-4	4.2	a	0.22 J [0.22 J]	< 1.1	0.33 J	< 2.8 [< 2.7]	< 2.6	< 2.6	< 2.8	< 2.6	< 2.8
Sodium	7440-23-5	NA	NA	180 J [375 J]	< 1100	130 J	NA [NA]	NA	NA	NA	NA	NA
Vanadium	7440-62-2	2	d	27.1 [28.4]	22.9	20.5	NA [NA]	NA	NA	NA	NA	NA
Zinc	7440-66-6	46	a	490 J [501 J]	60.0 J	339	860 [970]	72	220	270	180	190
Pesticides (mg/kg)												
4,4-DDD	72-54-8	0.758	i	< 0.00075 [< 0.00078]	< 0.00069	< 0.00078	< 0.028 [< 0.027]	< 0.0035	< 0.0053	NA	< 0.0052	< 0.0057
4,4-DDE	72-55-9	0.596	i	0.0047 J [0.0047 J]	< 0.00069	0.0030	< 0.028 [< 0.027]	< 0.0035	< 0.0053	NA	< 0.0052	0.0081
4,4-DDT	50-29-3	0.021	c	0.0184 J [0.0222]	< 0.00069	0.0113	< 0.028 [0.073]	< 0.0035	< 0.0053	NA	< 0.0052	< 0.0057
Aldrin	309-00-2	0.0025	h	< 0.00075 [< 0.00078]	< 0.00069	< 0.00078	< 0.028 [< 0.027]	< 0.0035	< 0.0053	NA	< 0.0052	< 0.0057
Beta-BHC	319-85-7	0.001	h	< 0.00075 [< 0.00078]	< 0.00069	< 0.00078	< 0.028 [< 0.027]	< 0.0035	< 0.0053	NA	< 0.0052	< 0.0057
Chlordane	57-74-9	0.224	i	NA [NA]	NA	NA	< 0.056 [< 0.055]	< 0.007	< 0.011	NA	< 0.01	0.056
Dieldrin	60-57-1	0.0049	c	< 0.00075 UJ [0.0043 J]	< 0.00069	< 0.00078	< 0.028 [< 0.027]	< 0.0035	< 0.0053	NA	< 0.0052	< 0.0057
Endosulfan I	959-98-8	0.119	i	< 0.00075 [< 0.00078]	< 0.00069	< 0.00078	< 0.028 [< 0.027]	< 0.0035	< 0.0053	NA	< 0.0052	< 0.0057
Endosulfan II	33213-65-9	0.119	i	< 0.00075 [< 0.00078]	< 0.00069	< 0.00078	< 0.028 [< 0.027]	< 0.0035	< 0.0053	NA	< 0.0052	< 0.0057
Endosulfan sulfate	1031-07-8	0.0358	i	0.0136 J [< 0.00078 UJ]	< 0.00069	< 0.00078	< 0.028 [< 0.027]	< 0.0035	< 0.0053	NA	< 0.0052	< 0.0057
Endrin	72-20-8	0.001	h	< 0.00075 [< 0.00078]	< 0.00069	< 0.00078	< 0.028 [< 0.027]	< 0.0035	< 0.0053	NA	< 0.0052	< 0.0057
Endrin aldehyde	7421-93-4	0.0105	i	< 0.00075 [< 0.00078]	< 0.00069	< 0.00078	< 0.028 [< 0.027]	< 0.0035	< 0.0053	NA	< 0.0052	< 0.0057
Endrin ketone	53494-70-5	0.001	h	< 0.00075 [< 0.00078]	< 0.00069	< 0.00078	< 0.028 [< 0.027]	< 0.0035	< 0.0053	NA	< 0.0052	< 0.0057
Heptachlor epoxide	1024-57-3	0.152	i	< 0.00075 [0.0011 J]	< 0.00069	< 0.00078	< 0.028 [< 0.027]	< 0.0035	< 0.0053	NA	< 0.0052	< 0.0057
Methoxychlor	72-43-5	0.0199	i	< 0.0015 [< 0.0016]	< 0.0014	< 0.0016	< 0.028 [< 0.027]	< 0.0035	< 0.0053	NA	< 0.0052	< 0.0057
Toxaphene	8001-35-2	0.119	i	< 0.019 [< 0.019]	< 0.017	< 0.02	< 0.14 [< 0.14]	< 0.018	< 0.026	NA	< 0.026	< 0.028
trans-chlordane	5103-74-2	0.0043	NA	< 0.00075 [< 0.00078]	< 0.00069	< 0.00078	NA [NA]	NA	NA	NA	NA	NA

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Location ID: Sample Depth (ft): Date Collected:	CAS Number	Ecological Soil Screening Benchmark ^{1,2}		PCTP-66R		PCTP-66R-HC	PCTP-67	PCTP-68	PCTP-69	PCTP-70	PCTP-71	PCTP-72
				0-0.5 4/24/2019	0.5-2 4/24/2019	0-2 4/4/2019	0.5 9/12/2005	0.5 9/9/2005	0.5 9/9/2005	0.5 9/9/2005	0.5 9/9/2005	0.5 9/9/2005
Polychlorinated Biphenyls (mg/kg)												
Aroclor 1242	53469-21-9	NA	NA	< 0.037 [< 0.039]	< 0.035	< 0.2	< 0.028 [< 0.027]	< 0.018	< 0.026	< 0.028	< 0.026	< 0.028
Aroclor 1248	12672-29-6	NA	NA	< 0.037 [< 0.039]	< 0.035	< 0.2	< 0.028 [< 0.027]	< 0.018	< 0.026	< 0.028	< 0.026	< 0.028
Aroclor 1254	11097-69-1	40	g	< 0.037 [< 0.039]	< 0.035	< 0.2	< 0.028 [< 0.027]	< 0.018	1.3	< 0.028	0.21	< 0.028
Aroclor 1260	11096-82-5	NA	NA	< 0.037 [< 0.039]	< 0.035	0.369	0.25 [0.2]	< 0.018	< 0.026	< 0.028	< 0.026	0.3
Aroclor 1262	37324-23-5	40	g	0.249 [0.336]	< 0.035	< 0.2	NA [NA]	NA	NA	NA	NA	NA
Total Aroclor PCBs	1336-36-3	0.02	h	0.249 [0.336]	< 0.035	0.369	0.25 [0.2]	< 0.018	1.3	< 0.028	0.21	0.3
Volatile Organic Compounds (mg/kg)												
Acetone	67-64-1	2.5	i	< 0.02 [0.0199]	< 0.012	NA R	< 0.0059 [< 0.0058]	< 0.028	< 0.0056	< 0.0059	< 0.0055	< 0.0039
Benzene	71-43-2	0.05	h	< 0.0010 [< 0.00095]	< 0.00062	NA R	< 0.00057 [< 0.00056]	0.006	< 0.00054	< 0.00057	< 0.00053	< 0.00028
Carbon Disulfide	75-15-0	0.0941	i	< 0.0041 [< 0.0038]	< 0.0025	NA R	< 0.00072 [< 0.00071]	< 0.0034	< 0.00068	< 0.00072	< 0.00067	< 0.00058
Cyclohexane	110-82-7	0.1	h	< 0.0041 [< 0.0038]	< 0.0025	NA R	NA [NA]	NA	NA	NA	NA	NA
Dichloromethane	75-09-2	2	h	< 0.01 [< 0.0095]	< 0.0062	NA R	0.0048 B [0.0065 B]	0.03 B	0.0075 B	0.013 B	0.0058 B	0.0091 B
Ethylbenzene	100-41-4	0.05	h	< 0.0020 [< 0.0019]	< 0.0012	NA R	< 0.00083 [< 0.00082]	0.0083	< 0.00079	< 0.00083	< 0.00077	< 0.00077
Isopropylbenzene	98-82-8	NA	NA	< 0.0041 [< 0.0038]	< 0.0025	NA R	NA [NA]	NA	NA	NA	NA	NA
m&p-Xylenes	ARC-mpXyl	0.05	h	< 0.0020 [< 0.0019]	< 0.0012	NA R	< 0.0012 [< 0.0012]	0.19	< 0.0012	< 0.0012	< 0.0011	< 0.00092
Methyl Acetate	79-20-9	2.4	k	< 0.01 [< 0.0095]	< 0.0062	NA R	NA [NA]	NA	NA	NA	NA	NA
Methylcyclohexane	108-87-2	1160	j	< 0.0041 [< 0.0038]	< 0.0025	NA R	NA [NA]	NA	NA	NA	NA	NA
o,p-Xylene	136777-61-2	0.05	h	NA [NA]	NA	NA	< 0.00052 [< 0.00051]	0.1	< 0.00049	< 0.00052	< 0.00048	< 0.0002
o-Xylene	95-47-6	0.05	h	< 0.0020 [< 0.0019]	< 0.0012	NA R	NA [NA]	NA	NA	NA	NA	NA
Styrene (Monomer)	100-42-5	0.1	h	< 0.0041 [< 0.0038]	< 0.0025	NA R	< 0.00069 [< 0.00068]	< 0.0033	< 0.00065	< 0.00069	< 0.00064	< 0.00017
Toluene	108-88-3	0.05	h	< 0.0020 [< 0.0019]	< 0.0012	NA R	< 0.00084 [< 0.00083]	0.022	< 0.00079	< 0.00084	< 0.00078	< 0.00021
Total Xylenes	1330-20-7	0.05	h	< 0.0020 [< 0.0019]	< 0.0012	NA R	NA [NA]	NA	NA	NA	NA	NA
Semi-Volatile Organic Compounds (mg/kg)												
1,1-Biphenyl	92-52-4	60	g	0.226 J [4.33 J]	0.0185 J	0.211	NA [NA]	NA	NA	NA	NA	NA
2,4-Dimethylphenol	105-67-9	0.01	i	< 0.21 [< 1]	< 0.17	< 0.2	< 0.15 [< 0.062]	< 12	< 0.03	< 0.051	< 0.047	< 0.052
2-Methylnaphthalene	91-57-6	3.24	b	0.486 J [10.5 J]	0.106	0.502	0.13 J [0.16]	230	0.16	< 0.048	0.057	0.075
2-Methylphenol	95-48-7	0.5	h	< 0.083 [< 0.42]	< 0.07	< 0.079	< 0.53 [< 0.27]	< 52	< 0.13	< 0.18	< 0.16	< 0.18
3-Methylphenol, 4-Methylphenol	65794-96-9	0.5	h	0.0370 J [< 0.42]	< 0.07	< 0.079	NA [NA]	NA	NA	NA	NA	NA
4-Methylphenol	106-44-5	0.5	h	NA [NA]	NA	NA	< 0.59 [< 0.27]	< 52	< 0.13	< 0.2	< 0.18	< 0.2
4-Nitroaniline	100-01-6	21.9	i	< 0.21 [< 1]	< 0.17	< 0.2	NA [NA]	NA	NA	NA	NA	NA
Acenaphthene	83-32-9	20	b	0.244 J [4.39 J]	0.0787	0.234	0.11 [< 0.012]	22	0.14	0.079	0.23	0.31
Acenaphthylene	208-96-8	29	b	2.64 J [45.6 DJ]	0.116	2.9	< 0.026 [0.18]	85	0.62	0.068	< 0.0079	0.064
Acetophenone	98-86-2	300	i	0.0329 J [< 1]	< 0.17	< 0.2	NA [NA]	NA	NA	NA	NA	NA
Anthracene	120-12-7	0.1	b	4.16 J [70.9 DJ]	0.143	5.81 DJ	0.26 [0.15]	250	0.99	0.17	0.52	0.73
Benz(a)anthracene	56-55-3	0.25	b	8.88 DJ [77.6 DJ]	0.393	8.24 D	1.5 [0.89]	220	2.3	1	1.5	2.3
Benzaldehyde	100-52-7	470	k	0.0297 J [< 1]	< 0.17	< 0.2	NA [NA]	NA	NA	NA	NA	NA
Benzo(a)pyrene	50-32-8	0.1	b	9.2 DJ [67.8 DJ]	0.515	8.36 D	1.5 [1]	190	1.9	0.99	1.3	2.1
Benzo(b)fluoranthene	205-99-2	18	b	11.7 DJ [85.6 DJ]	0.681	10.4 D	1.8 [1.6]	250	3.6	1.5	1.5	2.7
Benzo(g,h,i)perylene	191-24-2	7.5	b	5.99 DJ [38.1 DJ]	0.421	5.36 DJ	1.3 [0.77]	91	1	0.72	0.97	1.5
Benzo(k)fluoranthene	207-08-9	2.4	b	2.66 J [27 DJ]	0.251	4.16 D	0.8 [0.49]	79	1.2	0.54	0.62	1.1

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			0-0.5 4/24/2019	0.5-2 4/24/2019	0-2 4/4/2019	0.5 9/12/2005	0.5 9/9/2005	0.5 9/9/2005	0.5 9/9/2005	0.5 9/9/2005	0.5 9/9/2005	
Semi-Volatile Organic Compounds (mg/kg) (cont'd)												
bis(2-Ethylhexyl)phthalate	117-81-7	0.925	i	0.172 J [< 0.42]	< 0.07	0.149	< 0.1 [0.092]	< 8.9	0.092	0.08	0.074	0.3
Butyl benzyl phthalate	85-68-7	0.239	i	< 0.083 [< 0.42]	< 0.07	< 0.079	< 0.045 [< 0.02]	< 3.8	< 0.0095	< 0.015	0.13	< 0.015
Carbazole	86-74-8	NA	b	1.44 J [19.7]	0.0300 J	1.59	0.12 [< 0.014]	140	0.19	0.11	0.28	0.29
Chrysene	218-01-9	4.73	b	8.37 DJ [65.7 DJ]	0.373	8.31 D	1.4 [1.2]	210	2.6	1.1	1.4	2.4
Dibenz(a,h)anthracene	53-70-3	18	b	1.45 J [10.1]	0.105	1.66	0.37 [0.24]	31	0.39	0.28	0.38	0.59
Dibenzofuran	132-64-9	19	j	1.56 J [39.8 DJ]	0.0495 J	1.39	0.13 J [0.078 J]	230	0.18	0.038 J	0.13	0.16
Diethyl phthalate	84-66-2	24.8	g	< 0.083 [< 0.42]	< 0.07	< 0.079	< 0.031 [< 0.017]	< 3.3	< 0.0083	< 0.01	< 0.0094	< 0.01
Di-n-butyl phthalate	84-74-2	0.15	g	< 0.083 [< 0.42]	< 0.07	< 0.079	< 0.025 [< 0.015]	< 2.8	< 0.0071	0.04 B	< 0.0077	0.068
Di-n-octyl phthalate	117-84-0	709	i	< 0.083 [< 0.42]	< 0.07	< 0.079	< 0.026 [< 0.025]	< 4.8	< 0.012	< 0.0087	< 0.0081	< 0.0089
Fluoranthene	206-44-0	0.1	b	19.8 DJ [200 DJ]	0.624	17.3 D	2 [1.6]	700	3.8	1.5	2.1	3.4
Fluorene	86-73-7	29	b	3.11 [76.2 DJ]	0.0866	2.79 J	< 0.028 [< 0.018]	320	0.14	0.079	0.25	0.28
Indeno(1,2,3-cd)pyrene	193-39-5	5.9	b	6.39 DJ [42.9 DJ]	0.444	5.97 DJ	1 [0.66]	88	1.1	0.64	0.81	1.3
Naphthalene	91-20-3	0.0994	b	0.782 J [11.2]	0.0294 J	0.643	0.21 [0.15]	1900	0.56	0.043	0.18	0.14
Phenanthrene	85-01-8	0.1	b	18.3 DJ [296 DJ]	0.348	15 D	1.4 [0.73]	1000	1.4	0.77	2.2	3
Phenol	108-95-2	0.05	h	0.0364 J [0.111 J]	< 0.07	< 0.079	< 0.17 [< 0.12]	< 23	< 0.058	< 0.056	< 0.052	< 0.058
Pyrene	129-00-0	0.1	b	15.7 DJ [147 DJ]	0.523	14.6 D	2.5 [1.6]	490	4.2	1.8	3.1	5.7
Total PAHs	ARC-TPAH	1	h	NA [NA]	NA	NA	8.37 [6.08]	1068	13.09	6.05	7.51	12.49

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			0.5 9/9/2005	0-0.5 4/10/2019	0.5 9/9/2005	0.5 9/9/2005	0.5 9/12/2005	0.5 9/12/2005	0.5 9/12/2005	0.5 9/12/2005	0.5 9/12/2005	1-2 3/11/2003	1-2 3/11/2003	1-2 3/11/2003	1-2 3/11/2003
Metals (mg/kg)															
Aluminum	7429-90-5	50 g	NA	8940	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	7440-36-0	0.27 c	< 2.2	1.4 J	< 2.2	< 2.1	< 2.2	< 2.2	< 2.1	3.2	< 2.2	3.2	< 7.4	< 2.3	
Arsenic	7440-38-2	18 d	4.2	5.3	4.4	2.8	4.8	5.6	9	5.5	5.3	6.2	3.6	5.2	
Barium	7440-39-3	330 b	70	83.1	69	45	69	110	280	120	120	110	220	100	
Beryllium	7440-41-7	21 c	< 0.67	0.42	< 0.65	< 0.62	< 0.65	< 0.65	< 0.64	< 0.64	< 0.67	< 0.69	< 0.72	< 0.69	
Cadmium	7440-43-9	0.36 c	< 0.67	1.2	< 0.65	< 0.62	< 0.65	< 0.65	0.7	< 0.64	< 0.67	< 0.69	< 0.72	< 0.69	
Calcium	7440-70-2	NA NA	NA	26700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Chromium	7440-47-3	0.4 e	14	19.8	19	9.6	23	25	23	23	23	26	21	28	
Cobalt	7440-48-4	13 b	NA	5.4 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Copper	7440-50-8	28 a	1400	75.1	31	34	28	41	52	55	38	190	22	43	
Cyanide	57-12-5	0.9 h	NA	0.45	NA	NA	NA	NA	NA	NA	< 0.28	< 0.29	0.9	0.72	
Iron	7439-89-6	200 f	NA	14400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Lead	7439-92-1	11 a	130	248	250	73	150	220	1100	430	230	970	250	170	
Magnesium	7439-95-4	NA NA	NA	7550	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Manganese	7439-96-5	220 d	NA	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Mercury	7439-97-6	0.1 e	0.5	0.48	0.8	0.13	< 0.09	0.47	0.36	0.2	0.58	1.2	0.71	0.41	
Nickel	7440-02-0	38 d	12	19.7	14	14	17	17	15	17	18	19	10	15	
Potassium	7440-09-7	NA NA	NA	1230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Selenium	7782-49-2	0.52 d	< 2	< 2.5	2.6	2.3	2.6	2.2	< 1.9	2.6	< 2	< 2.1	< 2.2	< 2.1	
Silver	7440-22-4	4.2 a	< 2.8	< 0.62	< 2.7	< 2.6	< 2.7	< 2.7	< 2.7	< 2.7	< 2.8	< 2.9	< 3	< 2.9	
Sodium	7440-23-5	NA NA	NA	187 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Vanadium	7440-62-2	2 d	NA	37.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Zinc	7440-66-6	46 a	130	234	86	63	89	180	510	380	130	190	250	130	
Pesticides (mg/kg)															
4,4-DDD	72-54-8	0.758 i	< 0.0056	< 0.00076	< 0.0054	< 0.0052	< 0.0054	< 0.0054	< 0.027	< 0.027	0.011	0.057	< 0.004	0.047	
4,4-DDE	72-55-9	0.596 i	< 0.0056	0.0165 J	< 0.0054	< 0.0052	< 0.0054	< 0.0054	0.055	< 0.027	0.002	0.012	< 0.004	< 0.0038	
4,4-DDT	50-29-3	0.021 c	< 0.0056	0.0347 JN	0.027	< 0.0052	< 0.0054	0.026	< 0.027	< 0.027	0.0052	0.012	< 0.004	0.073	
Aldrin	309-00-2	0.0025 h	< 0.0056	< 0.00076	< 0.0054	< 0.0052	< 0.0054	< 0.0054	< 0.027	< 0.027	< 0.0037	< 0.0038	< 0.004	< 0.0038	
Beta-BHC	319-85-7	0.001 h	< 0.0056	< 0.00076	< 0.0054	< 0.0052	< 0.0054	< 0.0054	< 0.027	< 0.027	< 0.0037	< 0.0038	< 0.004	< 0.0038	
Chlordane	57-74-9	0.224 i	< 0.011	NA	0.056	0.053	< 0.011	< 0.011	4.5 E	0.29	< 0.0075	< 0.0038	< 0.008	< 0.0077	
Dieldrin	60-57-1	0.0049 c	< 0.0056	< 0.00076	< 0.0054	< 0.0052	0.014	< 0.0054	< 0.027	< 0.027	< 0.0037	0.01	< 0.004	< 0.0038	
Endosulfan I	959-98-8	0.119 i	< 0.0056	< 0.00076	< 0.0054	< 0.0052	< 0.0054	< 0.0054	< 0.027	< 0.027	< 0.0037	< 0.0038	< 0.004	0.012	
Endosulfan II	33213-65-9	0.119 i	< 0.0056	< 0.00076	< 0.0054	< 0.0052	< 0.0054	< 0.0054	< 0.027	< 0.027	< 0.0037	< 0.0038	< 0.004	< 0.0038	
Endosulfan sulfate	1031-07-8	0.0358 i	< 0.0056	< 0.00076	< 0.0054	< 0.0052	< 0.0054	< 0.0054	< 0.027	< 0.027	< 0.0037	< 0.0038	< 0.004	0.04	
Endrin	72-20-8	0.001 h	< 0.0056	< 0.00076	< 0.0054	< 0.0052	< 0.0054	< 0.0054	< 0.027	< 0.027	< 0.0037	< 0.0038	< 0.004	< 0.0038	
Endrin aldehyde	7421-93-4	0.0105 i	< 0.0056	0.0388	< 0.0054	< 0.0052	< 0.0054	< 0.0054	< 0.027	< 0.027	< 0.0037	< 0.0038	0.034	0.058	
Endrin ketone	53494-70-5	0.001 h	< 0.0056	0.0091	< 0.0054	< 0.0052	< 0.0054	< 0.0054	< 0.027	< 0.027	< 0.0037	< 0.0038	< 0.004	< 0.0038	
Heptachlor epoxide	1024-57-3	0.152 i	< 0.0056	0.0069 JN	< 0.0054	< 0.0052	< 0.0054	< 0.0054	< 0.027	< 0.027	< 0.0037	< 0.0038	< 0.004	0.012	
Methoxychlor	72-43-5	0.0199 i	< 0.0056	< 0.0015	< 0.0054	< 0.0052	< 0.0054	< 0.0054	< 0.027	< 0.027	< 0.0037	< 0.0038	< 0.004	< 0.0038	
Toxaphene	8001-35-2	0.119 i	< 0.028	< 0.019	< 0.027	< 0.026	< 0.027	< 0.027	< 0.13	< 0.13	< 0.019	< 0.019	< 0.02	< 0.019	
trans-chlordane	5103-74-2	0.0043 NA	NA	< 0.00076	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

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			0.5 9/9/2005	0-0.5 4/10/2019	0.5 9/9/2005	0.5 9/9/2005	0.5 9/12/2005	0.5 9/12/2005	0.5 9/12/2005	0.5 9/12/2005	0.5 9/12/2005	1-2 3/11/2003	1-2 3/11/2003	1-2 3/11/2003	1-2 3/11/2003
Polychlorinated Biphenyls (mg/kg)															
Aroclor 1242	53469-21-9	NA NA	< 0.56	< 0.038	< 0.027	< 0.026	< 0.027	< 0.027	< 0.027	< 0.027	< 0.019	< 0.019	0.12	0.12	
Aroclor 1248	12672-29-6	NA NA	< 0.56	< 0.038	< 0.027	< 0.026	< 0.027	0.053	< 0.027	< 0.027	< 0.019	< 0.019	< 0.02	< 0.02	
Aroclor 1254	11097-69-1	40 g	7.9	0.932	< 0.027	< 0.026	< 0.027	< 0.027	< 0.027	< 0.027	0.08	< 0.019	< 0.02	0.49	
Aroclor 1260	11096-82-5	NA NA	< 0.56	< 0.038	< 0.027	0.055	0.37	0.39	< 0.027	0.27	< 0.019	0.43	0.094	< 0.02	
Aroclor 1262	37324-23-5	40 g	NA	< 0.038	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Total Aroclor PCBs	1336-36-3	0.02 h	7.9	0.932	< 0.027	0.055	0.37	0.443	< 0.027	0.27	0.08	0.43	0.214	0.61	
Volatile Organic Compounds (mg/kg)															
Acetone	67-64-1	2.5 i	< 0.0038	< 0.012	< 0.0058	< 0.0055	< 0.0057	< 0.0037	< 0.0036	< 0.0036	< 0.022	< 0.023	< 0.024	< 0.023	
Benzene	71-43-2	0.05 h	< 0.00027	< 0.00061	< 0.00055	< 0.00053	< 0.00055	< 0.00026	< 0.00026	< 0.00026	0.0059	0.0082 B	< 0.0012	< 0.0011 UB	
Carbon Disulfide	75-15-0	0.0941 i	< 0.00057	< 0.0025	< 0.00071	< 0.00067	< 0.0007	< 0.00055	< 0.00054	< 0.00054	< 0.056	< 0.0057	< 0.006	< 0.0057	
Cyclohexane	110-82-7	0.1 h	NA	< 0.0025	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dichloromethane	75-09-2	2 h	0.01 B	< 0.0061	0.0048 B	0.0034 B	0.013 B	0.01 B	0.011 B	0.009 B	0.0072 B	0.0082 B	0.0097 B	0.0076 B	
Ethylbenzene	100-41-4	0.05 h	< 0.00075	< 0.0012	< 0.00081	< 0.00077	< 0.0008	< 0.00073	< 0.00072	< 0.00072	< 11	< 0.0011	< 0.0012	< 0.0011	
Isopropylbenzene	98-82-8	NA NA	NA	< 0.0025	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
m&p-Xylenes	ARC-mpXyl	0.05 h	< 0.0009	< 0.0012	< 0.0012	< 0.0011	< 0.0012	< 0.00087	< 0.00086	< 0.00086	NA	NA	NA	NA	
Methyl Acetate	79-20-9	2.4 k	NA	< 0.0061	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Methylcyclohexane	108-87-2	1160 j	NA	< 0.0025	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
o,p-Xylene	136777-61-2	0.05 h	< 0.00019	NA	< 0.00051	< 0.00048	< 0.0005	< 0.00019	< 0.00019	< 0.00019	NA	NA	NA	NA	
o-Xylene	95-47-6	0.05 h	NA	< 0.0012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Styrene (Monomer)	100-42-5	0.1 h	< 0.00017	< 0.0025	< 0.00067	< 0.00064	< 0.00067	< 0.00016	< 0.00016	< 0.00016	NA	NA	NA	NA	
Toluene	108-88-3	0.05 h	< 0.0002	< 0.0012	< 0.00082	< 0.00078	< 0.00081	< 0.0002	< 0.00019	< 0.00019	0.0015	< 0.0011	< 0.0012	< 0.0011	
Total Xylenes	1330-20-7	0.05 h	NA	< 0.0012	NA	NA	NA	NA	NA	NA	0	0	0	0	
Semi-Volatile Organic Compounds (mg/kg)															
1,1-Biphenyl	92-52-4	60 g	NA	0.0131 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2,4-Dimethylphenol	105-67-9	0.01 i	< 0.051	< 0.21	< 0.031	< 0.029	< 0.03	< 0.3	< 0.03	< 0.15	< 0.37	< 1.9	< 2	< 19	
2-Methylnaphthalene	91-57-6	3.24 b	0.06	0.0404 J	< 0.062	0.12	0.097	0.91	0.044 J	< 0.14	0.22 J	< 1.9	0.35 J	3.7 J	
2-Methylphenol	95-48-7	0.5 h	< 0.18	< 0.085	< 0.14	< 0.13	< 0.13	< 1.3	< 0.13	< 0.51	NA	NA	NA	NA	
3-Methylphenol, 4-Methylphenol	65794-96-9	0.5 h	NA	< 0.085	NA	NA	NA	NA	NA	NA	< 0.37	< 1.9	< 2	< 19	
4-Methylphenol	106-44-5	0.5 h	< 0.2	NA	< 0.13	< 0.13	< 0.13	< 1.3	< 0.13	< 0.56	NA	NA	NA	NA	
4-Nitroaniline	100-01-6	21.9 i	NA	< 0.21	NA	NA	NA	NA	NA	NA	< 0.37	< 1.9	< 2	< 19	
Acenaphthene	83-32-9	20 b	0.077	0.0445	0.27	0.058	0.26	2	0.24	0.29	0.47	< 1.9	1.2 J	12 J	
Acenaphthylene	208-96-8	29 b	0.079	0.137	0.082	0.12	< 0.0054	0.8	0.086	0.12	0.17 J	< 1.9	1.48 J	< 19	
Acetophenone	98-86-2	300 i	NA	< 0.21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Anthracene	120-12-7	0.1 b	0.31	0.226	1.2	0.16	0.55	4.3	0.51	0.69	1.2	0.7 J	3.3	23	
Benz(a)anthracene	56-55-3	0.25 b	1.1	0.742	2.9	0.66	1.1	7.8	1.7	2.5	2.8	5.9	7.6	45	
Benzaldehyde	100-52-7	470 k	NA	0.0489 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(a)pyrene	50-32-8	0.1 b	1.1	0.742	2.4	0.61	0.77	6.7	1.7	2.6	2.3	4.6	5.9	35	
Benzo(b)fluoranthene	205-99-2	18 b	1.5	0.981	3.4	1.2	0.94	8.9	2.2	3.3	3.8	7.4	7.3	42	
Benzo(g,h,i)perylene	191-24-2	7.5 b	0.87	0.507	1.3	0.41	0.38	3.6	1	2.1	0.52	1.4 J	3.3	12 J	
Benzo(k)fluoranthene	207-08-9	2.4 b	0.62	0.341	1	0.36	0.27	3.2	0.73	1	1.2	2.6	2.9	18 J	

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Semi-Volatile Organic Compounds (mg/kg) (cont'd)															
bis(2-Ethylhexyl)phthalate	117-81-7	0.925	i	1.2	0.182	0.13	0.13	< 0.023	< 0.23	0.13	< 0.096	< 0.37	< 1.9	0.79 J	< 19
Butyl benzyl phthalate	85-68-7	0.239	i	< 0.015	0.0846 J	< 0.0098	< 0.0093	< 0.0097	< 0.097	0.19	< 0.043	< 0.37	< 1.9	< 2	< 19
Carbazole	86-74-8	NA	b	0.11	0.0768 J	0.18	0.06	0.17	1.3	0.23	0.36	0.47	0.45 J	1.2	10 J
Chrysene	218-01-9	4.73	b	1.1	0.741	2.7	0.76	1.1	7.5	1.7	2.7	2.8	5.6	5.6	37
Dibenz(a,h)anthracene	53-70-3	18	b	0.33	0.137	0.42	0.14	0.14	1.2	0.31	0.57	0.23 J	0.56 J	1 J	6 J
Dibenzofuran	132-64-9	19	j	0.089	0.0403 J	0.12	0.088	0.13	1.7	0.1	0.18	0.38	< 1.9	0.75 J	7.6 J
Diethyl phthalate	84-66-2	24.8	g	< 0.01	< 0.085	< 0.0085	< 0.0081	< 0.0084	< 0.084	< 0.0083	< 0.029	NA	NA	NA	NA
Di-n-butyl phthalate	84-74-2	0.15	g	< 0.0083	< 0.085	< 0.0073	< 0.007	< 0.0073	< 0.073	0.041	< 0.024	0.18 J	< 1.9	< 2	< 19
Di-n-octyl phthalate	117-84-0	709	i	< 0.0087	< 0.085	< 0.012	< 0.012	< 0.012	< 0.12	< 0.012	< 0.025	< 0.37	< 1.9	< 2	< 19
Fluoranthene	206-44-0	0.1	b	1.7	1.34	6.7	1.1	1.8	17	3.1	4.8	4.7	9.6	16	86
Fluorene	86-73-7	29	b	0.094	0.0577	0.31	0.07	0.2	2.3	0.2	0.26	0.69	< 1.9	1.3 J	13 J
Indeno(1,2,3-cd)pyrene	193-39-5	5.9	b	0.73	0.525	1.2	0.38	0.34	3.3	0.92	1.7	0.61	1.7 J	3.4	16 J
Naphthalene	91-20-3	0.0994	b	0.14	0.0552	0.071	0.27	0.084	1.6	0.064	< 0.025	0.36 J	< 1.9	0.5 J	9 J
Phenanthrene	85-01-8	0.1	b	1.2	0.732	3.5	0.54	2.5	16	2.2	3.7	3.8	2.3	12	85
Phenol	108-95-2	0.05	h	< 0.056	< 0.085	< 0.06	< 0.057	< 0.059	< 0.59	< 0.059	< 0.16	1.5	< 1.4	< 1.5	1.7
Pyrene	129-00-0	0.1	b	2.2	1.26	5.4	1.2	2.3	13	3.5	5.5	5.2	8.2	14	99
Total PAHs	ARC-TPAH	1	h	6.48	NA	14.02	4.11	4.66	38.6	9.26	14.37	NA	NA	NA	NA

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			1-2 4/11/2019	1-2 3/11/2003	1-2 3/11/2003	1-2 3/11/2003	0.5-2 4/18/2019	1-2 3/11/2003	1-2 3/12/2003	1-2 3/12/2003	1-2 4/16/2019	1-2 3/12/2003
Metals (mg/kg)												
Aluminum	7429-90-5	50 g	13500	NA	NA	NA	11100 [7460]	NA	NA	NA	5430 J	NA
Antimony	7440-36-0	0.27 c	< 2.3	4.3	< 2.5	< 2.5	< 2.6 UJ [< 2.4 UJ]	6.6	2.7	< 2.3	0.56 J	< 2.3
Arsenic	7440-38-2	18 d	5.8	15	4	4.4	6.6 [6.9]	12	6.7	10	7.9	< 2.3
Barium	7440-39-3	330 b	80.1	55	36	320	110 [146]	230	95	68	42.5	96
Beryllium	7440-41-7	21 c	0.64	< 0.71	< 0.76	< 0.75	0.52 [0.37]	0.78	0.96	< 0.68	0.40	< 0.68
Cadmium	7440-43-9	0.36 c	0.38 J	< 0.71	< 0.76	0.95	0.39 J [0.74]	2.4	< 0.78	< 0.68	0.32 J	< 0.68
Calcium	7440-70-2	NA NA	21200	NA	NA	NA	22400 [27600]	NA	NA	NA	519 J	NA
Chromium	7440-47-3	0.4 e	23.8	15	< 6.3	11	18.0 [20.0]	32	68	12	19.5 J	< 5.7
Cobalt	7440-48-4	13 b	7.2	NA	NA	NA	5.3 J [5.0 J]	NA	NA	NA	5.2 J	NA
Copper	7440-50-8	28 a	49.3	99	32	20	17.7 [28.1]	250	51	54	63.1	20
Cyanide	57-12-5	0.9 h	0.23 J	13	4.1	0.35	0.33 J [0.37 J]	2	0.85	< 0.28	< 0.27 UJ	0.53
Iron	7439-89-6	200 f	19700	NA	NA	NA	17000 [16000]	NA	NA	NA	13300	NA
Lead	7439-92-1	11 a	523	150	41	340	158 J [201 J]	930	85	100	153	52
Magnesium	7439-95-4	NA NA	9490	NA	NA	NA	4540 J [4260 J]	NA	NA	NA	1540	NA
Manganese	7439-96-5	220 d	286	NA	NA	NA	316 J [297 J]	NA	NA	NA	202 J	NA
Mercury	7439-97-6	0.1 e	0.71	0.4	0.15	0.37	0.19 J [0.23 J]	2.1	0.24	0.18	0.24 J	0.13
Nickel	7440-02-0	38 d	14.9	27	6.6	< 6.2	11.1 [11.6]	25	14	12	10	5.8
Potassium	7440-09-7	NA NA	1560	NA	NA	NA	978 J [895 J]	NA	NA	NA	798 J	NA
Selenium	7782-49-2	0.52 d	< 2.3	< 2.1	< 2.3	< 2.2	< 2.6 [< 2.4]	< 2.2	< 2.3	< 2	< 2.3	< 2
Silver	7440-22-4	4.2 a	< 0.57	< 2.9	< 3.2	< 3.1	< 0.65 [< 0.60]	< 3.1	< 3.2	< 2.8	< 0.58	< 2.8
Sodium	7440-23-5	NA NA	121 J	NA	NA	NA	121 J [118 J]	NA	NA	NA	< 1200	NA
Vanadium	7440-62-2	2 d	32.9	NA	NA	NA	18.0 [15.3]	NA	NA	NA	12.5	NA
Zinc	7440-66-6	46 a	126	200	39	380	127 [164]	820	310	120	99.8 J	31
Pesticides (mg/kg)												
4,4-DDD	72-54-8	0.758 i	< 0.00074	< 0.0039	< 0.0042	< 0.0043	0.0025 [0.0016]	< 0.0041	< 0.0043	< 0.0038	< 0.00073	< 0.0038
4,4-DDE	72-55-9	0.596 i	< 0.00074	0.027	< 0.0042	< 0.0043	< 0.00080 [< 0.00072]	< 0.0041	< 0.0043	< 0.0038	< 0.00073 UJ	< 0.0038
4,4-DDT	50-29-3	0.021 c	0.0414 J	0.098	0.021	< 0.0043	0.0076 [0.0049]	0.025	< 0.0043	0.017	< 0.00073	< 0.0038
Aldrin	309-00-2	0.0025 h	0.0152 JN	< 0.0039	< 0.0042	< 0.0043	< 0.00080 [< 0.00072]	< 0.0041	< 0.0043	< 0.0038	< 0.00073	< 0.0038
Beta-BHC	319-85-7	0.001 h	< 0.00074	0.012	< 0.0042	< 0.0043	< 0.00080 [< 0.00072]	< 0.0041	< 0.0043	< 0.0038	< 0.00073	< 0.0038
Chlordane	57-74-9	0.224 i	NA	< 0.0078	< 0.0084	0.067	NA [NA]	< 0.0082	0.025	< 0.0076	NA	< 0.0076
Dieldrin	60-57-1	0.0049 c	0.0176	< 0.0039	< 0.0042	< 0.0043	< 0.00080 [< 0.00072]	< 0.0041	< 0.0043	< 0.0038	< 0.00073	< 0.0038
Endosulfan I	959-98-8	0.119 i	< 0.00074	< 0.0039	< 0.0042	< 0.0043	< 0.00080 [< 0.00072]	< 0.0041	< 0.0043	< 0.0038	< 0.00073	< 0.0038
Endosulfan II	33213-65-9	0.119 i	< 0.00074	0.04	< 0.0042	< 0.0043	< 0.00080 [< 0.00072]	< 0.0041	< 0.0043	< 0.0038	< 0.00073	< 0.0038
Endosulfan sulfate	1031-07-8	0.0358 i	< 0.00074	0.0083	< 0.0042	< 0.0043	< 0.00080 [< 0.00072]	< 0.0041	< 0.0043	< 0.0038	< 0.00073	< 0.0038
Endrin	72-20-8	0.001 h	< 0.00074	< 0.0039	< 0.0042	< 0.0043	< 0.00080 [< 0.00072]	< 0.0041	< 0.0043	< 0.0038	< 0.00073	< 0.0038
Endrin aldehyde	7421-93-4	0.0105 i	0.0179 JN	< 0.0039	< 0.0042	< 0.0043	< 0.00080 [< 0.00072]	< 0.0041	0.02	< 0.0038	< 0.00073	< 0.0038
Endrin ketone	53494-70-5	0.001 h	< 0.00074	< 0.0039	< 0.0042	< 0.0043	< 0.00080 [< 0.00072]	< 0.0041	< 0.0043	< 0.0038	< 0.00073	< 0.0038
Heptachlor epoxide	1024-57-3	0.152 i	0.0111 JN	< 0.0039	< 0.0042	< 0.0043	0.0012 J [0.00099]	< 0.0041	< 0.0043	< 0.0038	< 0.00073	< 0.0038
Methoxychlor	72-43-5	0.0199 i	< 0.0015	< 0.0039	< 0.0042	< 0.0043	< 0.0016 [< 0.0014]	< 0.0041	< 0.0043	< 0.0038	< 0.0015	< 0.0038
Toxaphene	8001-35-2	0.119 i	< 0.018	0.02 HD	< 0.021	< 0.042	< 0.02 [< 0.018]	< 0.021	< 0.022	< 0.019	< 0.018	< 0.019
trans-chlordane	5103-74-2	0.0043 NA	< 0.00074	NA	NA	NA	0.0015 JN [0.0012 J]	NA	NA	NA	< 0.00073 UJ	NA

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Location ID: Sample Depth (ft): Date Collected:	CAS Number	Ecological Soil Screening Benchmark ^{1,2}	PSSTP-04R	PSSTP-05A	PSSTP-06A	PSSTP-07A	PSSTP-07R	PSSTP-08A	PSSTP-09A	PSSTP-10A	PSSTP-10R	PSSTP-11A
			1-2 4/11/2019	1-2 3/11/2003	1-2 3/11/2003	1-2 3/11/2003	0.5-2 4/18/2019	1-2 3/11/2003	1-2 3/12/2003	1-2 3/12/2003	1-2 4/16/2019	1-2 3/12/2003
Polychlorinated Biphenyls (mg/kg)												
Aroclor 1242	53469-21-9	NA NA	< 0.037	< 0.02	< 0.021	< 0.021	< 0.04 [< 0.036]	< 0.021	< 0.022	< 0.019	< 0.037	< 0.019
Aroclor 1248	12672-29-6	NA NA	< 0.037	< 0.02	< 0.021	< 0.021	< 0.04 [< 0.036]	< 0.021	< 0.022	< 0.019	< 0.037	< 0.019
Aroclor 1254	11097-69-1	40 g	1.27 J	< 0.02	< 0.021	< 0.021	< 0.04 [0.0610]	< 0.021	< 0.022	< 0.019	< 0.037	< 0.019
Aroclor 1260	11096-82-5	NA NA	< 0.037	0.83	0.11	0.18	< 0.04 [< 0.036]	0.12	0.05	< 0.019	< 0.037	< 0.019
Aroclor 1262	37324-23-5	40 g	< 0.037	NA	NA	NA	< 0.04 [< 0.036]	NA	NA	NA	< 0.037	NA
Total Aroclor PCBs	1336-36-3	0.02 h	1.27 J	0.83	0.11	0.18	< 0.04 [0.0610]	0.12	0.05	< 0.019	< 0.037	< 0.019
Volatile Organic Compounds (mg/kg)												
Acetone	67-64-1	2.5 i	0.0232	< 0.024	< 0.025	< 0.025	< 0.01 [0.0095 J]	< 0.025	< 0.026	< 0.023	0.394	< 0.023
Benzene	71-43-2	0.05 h	< 0.00052	< 0.12	< 0.0013	< 0.0012	0.00089 J [0.0034 J]	< 0.0012	< 0.0013	< 0.0011	< 0.00063	< 0.0011
Carbon Disulfide	75-15-0	0.0941 i	< 0.0021	0.0061	< 0.0063	< 0.0062	< 0.0021 [< 0.0023]	< 0.0062	< 0.0065	< 0.0057	< 0.0025	< 0.0057
Cyclohexane	110-82-7	0.1 h	< 0.0021	NA	NA	NA	< 0.0021 [< 0.0023]	NA	NA	NA	< 0.0025	NA
Dichloromethane	75-09-2	2 h	< 0.0052	0.067 B	0.0046 JB	0.0099 B	< 0.0052 [< 0.0057]	0.0057 JB	0.0041 JB	0.0036 JB	< 0.0063	0.0046 JB
Ethylbenzene	100-41-4	0.05 h	< 0.0010	< 0.0012	< 0.0013	< 0.0012	< 0.0010 [< 0.0011]	< 0.012	< 0.0013	< 0.0011	< 0.0013	< 0.0011
Isopropylbenzene	98-82-8	NA NA	< 0.0021	NA	NA	NA	< 0.0021 [< 0.0023]	NA	NA	NA	< 0.0025	NA
m&p-Xylenes	ARC-mpXyl	0.05 h	< 0.0010	NA	NA	NA	< 0.0010 [< 0.0011]	NA	NA	NA	< 0.0013	NA
Methyl Acetate	79-20-9	2.4 k	< 0.0052	NA	NA	NA	< 0.0052 [< 0.0057]	NA	NA	NA	0.0061 J	NA
Methylcyclohexane	108-87-2	1160 j	< 0.0021	NA	NA	NA	< 0.0021 [< 0.0023]	NA	NA	NA	< 0.0025	NA
o,p-Xylene	136777-61-2	0.05 h	NA	NA	NA	NA	NA [NA]	NA	NA	NA	NA	NA
o-Xylene	95-47-6	0.05 h	< 0.0010	NA	NA	NA	< 0.0010 [< 0.0011]	NA	NA	NA	< 0.0013	NA
Styrene (Monomer)	100-42-5	0.1 h	< 0.0021	NA	NA	NA	< 0.0021 [< 0.0023]	NA	NA	NA	< 0.0025	NA
Toluene	108-88-3	0.05 h	< 0.0010	0.0013	< 0.0013	< 0.0012	< 0.0010 [< 0.0011]	< 0.0012	< 0.0013	< 0.0011	< 0.0013	< 0.0011
Total Xylenes	1330-20-7	0.05 h	< 0.0010	0.0067 B	0	0	< 0.0010 [< 0.0011]	0	0	0	< 0.0013	0
Semi-Volatile Organic Compounds (mg/kg)												
1,1-Biphenyl	92-52-4	60 g	0.0462 J	NA	NA	NA	0.0107 J [0.0085 J]	NA	NA	NA	0.0132 J	NA
2,4-Dimethylphenol	105-67-9	0.01 i	< 0.19	< 7.8	< 1.9	< 4.2	< 0.21 [< 0.19]	< 4.1	< 0.43	< 0.38	< 0.18	< 0.38
2-Methylnaphthalene	91-57-6	3.24 b	0.0951	1.4	0.054 J	< 4.2	0.0195 J [0.0151 J]	0.86 J	< 0.43	< 0.38	0.0273 J	0.06 J
2-Methylphenol	95-48-7	0.5 h	< 0.075	NA	NA	NA	< 0.083 [< 0.075]	NA	NA	NA	< 0.074	NA
3-Methylphenol, 4-Methylphenol	65794-96-9	0.5 h	< 0.075	< 7.8	< 0.42	< 4.2	< 0.083 [< 0.075]	< 4.1	< 0.43	< 0.38	< 0.074	< 0.38
4-Methylphenol	106-44-5	0.5 h	NA	NA	NA	NA	NA [NA]	NA	NA	NA	NA	NA
4-Nitroaniline	100-01-6	21.9 i	< 0.19	< 7.8	< 1.9	< 4.2	< 0.21 [< 0.19]	< 4.1	0.17 J	< 0.38	< 0.18	< 0.38
Acenaphthene	83-32-9	20 b	0.348	< 7.8	< 0.42	1.2 J	0.125 [0.0906]	1.1 J	0.56 J	< 0.38	0.0284 J	< 0.38
Acenaphthylene	208-96-8	29 b	0.229	8.1	0.28 J	< 4.2	0.0720 [0.0886]	6.6	< 0.43	< 0.38	0.266	0.51
Acetophenone	98-86-2	300 i	< 0.19	NA	NA	NA	< 0.21 [< 0.19]	NA	NA	NA	< 0.18	NA
Anthracene	120-12-7	0.1 b	0.871	9.9	0.33 J	3.6 J	0.321 [0.346]	7.4	0.16 J	< 0.38	0.608	0.83
Benz(a)anthracene	56-55-3	0.25 b	2.79	21	1.8	6.4	0.939 [0.983]	15	0.41 J	0.17 J	1.76	3.7
Benzaldehyde	100-52-7	470 k	< 0.19	NA	NA	NA	0.0221 J [0.0177 J]	NA	NA	NA	< 0.18	NA
Benzo(a)pyrene	50-32-8	0.1 b	2.37	18	1.5	5	0.979 [0.987]	10	0.37 J	0.14 J	1.31	2.3
Benzo(b)fluoranthene	205-99-2	18 b	2.85	23	2.7	7	1.21 [1.21]	15	0.6	0.22 J	1.97	3.5
Benzo(g,h,i)perylene	191-24-2	7.5 b	1.35 J	7.8 J	0.08 J	1.8 J	0.626 [0.558]	3.9 J	0.1 J	0.1 J	0.909	1
Benzo(k)fluoranthene	207-08-9	2.4 b	1.01	11	0.95	2.1 J	0.481 [0.401]	3.8 J	0.26 J	0.089 J	0.781	1.6

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Location ID: Sample Depth (ft): Date Collected:	CAS Number	Ecological Soil Screening Benchmark ^{1,2}	PSSTP-04R 1-2 4/11/2019	PSSTP-05A 1-2 3/11/2003	PSSTP-06A 1-2 3/11/2003	PSSTP-07A 1-2 3/11/2003	PSSTP-07R 0.5-2 4/18/2019	PSSTP-08A 1-2 3/11/2003	PSSTP-09A 1-2 3/12/2003	PSSTP-10A 1-2 3/12/2003	PSSTP-10R 1-2 4/16/2019	PSSTP-11A 1-2 3/12/2003
Semi-Volatile Organic Compounds (mg/kg) (cont'd)												
bis(2-Ethylhexyl)phthalate	117-81-7	0.925 i	< 0.075	< 7.8	0.082 J	0.64 J	0.191 [0.11]	< 4.1	1.7 B	< 0.38	< 0.074	< 0.38
Butyl benzyl phthalate	85-68-7	0.239 i	< 0.075	< 7.8	< 0.42	0.46 J	< 0.083 [< 0.075]	< 4.1	< 0.43	< 0.38	< 0.074	< 0.38
Carbazole	86-74-8	NA b	0.344	3.1 J	0.087 J	1.8 J	0.139 [0.102]	2.4 J	0.061 J	< 0.38	0.218	0.17 J
Chrysene	218-01-9	4.73 b	2.59	20	1.5	6.6	0.847 [0.907]	10	0.37 J	0.21 J	1.72	3.4
Dibenz(a,h)anthracene	53-70-3	18 b	0.421	2.6 J	0.36 J	0.66 J	0.132 [0.135]	1.7 J	< 0.43	< 0.38	0.354	0.46
Dibenzofuran	132-64-9	19 j	0.316	3.4 J	0.057 J	0.8 J	0.0676 J [0.0596 J]	6.1	< 0.43	< 0.38	0.115	0.25 J
Diethyl phthalate	84-66-2	24.8 g	< 0.075	NA	NA	NA	< 0.083 [< 0.075]	NA	NA	NA	< 0.074	NA
Di-n-butyl phthalate	84-74-2	0.15 g	< 0.075	< 7.8	0.053 JB	0.42 JB	0.343 [0.294]	< 4.1	0.044 JB	< 0.38	< 0.074	< 0.38
Di-n-octyl phthalate	117-84-0	709 i	< 0.075	< 7.8	< 0.42	< 4.2	< 0.083 [< 0.075]	< 4.1	< 0.43	< 0.38	< 0.074	< 0.38
Fluoranthene	206-44-0	0.1 b	5.45 D	49	2.8	15	1.71 [1.82]	27	0.76	0.31 J	3.21	5.6
Fluorene	86-73-7	29 b	0.472	5.5 J	0.069 J	1.4 J	0.136 [0.128]	8.8	0.048 J	< 0.38	0.203	0.31 J
Indeno(1,2,3-cd)pyrene	193-39-5	5.9 b	1.27 J	7.5 J	1	1.7 J	0.66 [0.633]	3.7 J	0.093 J	0.095 J	1.03	1.1
Naphthalene	91-20-3	0.0994 b	0.16	2.5 J	0.23 J	0.48 J	0.0321 J [0.0192 J]	4.7	< 0.43	< 0.38	0.0813	0.11 J
Phenanthrene	85-01-8	0.1 b	4.19 D	38	1.2	12	1.2 [1.21]	14	0.61	0.15 J	2.25	2.6
Phenol	108-95-2	0.05 h	< 0.075	< 1.5	< 0.42	< 1.6	< 0.083 [< 0.075]	< 1.5	< 0.43	< 0.38	< 0.074	1.7
Pyrene	129-00-0	0.1 b	4.33 D	41	3.2	13	1.59 [1.68]	23	0.99	0.26 J	2.56	4.7
Total PAHs	ARC-TPAH	1 h	NA	NA	NA	NA	NA [NA]	NA	NA	NA	NA	NA

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			1-2 3/12/2003	1-2 3/12/2003	1-2 3/12/2003	1-2 3/12/2003	1-2 3/12/2003	1-2 3/12/2003	1-2 3/12/2003	1-2 3/12/2003	1-2 3/12/2003	1-2 3/12/2003	1-2 3/13/2003
Metals (mg/kg)													
Aluminum	7429-90-5	50 g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	7440-36-0	0.27 c	5.4	< 2.2	< 2.9	< 2.4	< 2.4	2.7	< 2.4	< 2.4	< 2.3	2.7	2.7
Arsenic	7440-38-2	18 d	100	3.6	< 2.9	6.1	6	7.4	6.3	6.8	47	5.5	16
Barium	7440-39-3	330 b	88	17	36	180	120	150	97	72	65	60	120
Beryllium	7440-41-7	21 c	0.76	< 0.67	< 0.86	< 0.73	< 0.73	1.7	< 0.71	< 0.72	< 0.7	< 0.76	0.88
Cadmium	7440-43-9	0.36 c	1.2	< 0.67	< 0.86	< 0.73	< 0.73	< 0.72	< 0.71	< 0.72	< 0.7	< 0.76	< 0.7
Calcium	7440-70-2	NA NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	7440-47-3	0.4 e	20	9.2	< 7.1	24	23	24	24	19	9.8	12	22
Cobalt	7440-48-4	13 b	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	7440-50-8	28 a	150	7.6	25	34	55	100	31	48	57	70	61
Cyanide	57-12-5	0.9 h	2.8	< 0.28	< 0.36	< 0.3	0.68	< 0.3	0.29	< 0.3	2.3	2.2	5.5
Iron	7439-89-6	200 f	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	7439-92-1	11 a	310	13	58	380	280	270	180	200	240	130	190
Magnesium	7439-95-4	NA NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	7439-96-5	220 d	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	7439-97-6	0.1 e	0.6	< 0.94	0.17	0.7	0.63	0.53	0.54	0.6	0.41	0.37	8.1
Nickel	7440-02-0	38 d	30	7.5	< 7.1	13	18	17	14	14	14	14	13
Potassium	7440-09-7	NA NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	7782-49-2	0.52 d	< 2.2	< 2	< 2.6	< 2.2	< 2.2	< 2.2	< 2.1	< 2.2	< 2.1	< 2.3	< 2.1
Silver	7440-22-4	4.2 a	< 3	< 2.8	< 3.6	< 3	< 3	< 3	< 2.9	< 3	< 2.9	< 3.2	< 2.9
Sodium	7440-23-5	NA NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	7440-62-2	2 d	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	7440-66-6	46 a	430	32	< 14	200	260	570	130	110	240	170	95
Pesticides (mg/kg)													
4,4-DDD	72-54-8	0.758 i	< 0.04	< 0.0037	< 0.0048	< 0.0041	< 0.02	< 0.04	< 0.0039	< 0.004	< 0.0039	< 0.0042	< 0.0039
4,4-DDE	72-55-9	0.596 i	< 0.04	< 0.0037	< 0.0048	< 0.0041	< 0.02	< 0.04	< 0.0039	< 0.004	< 0.0039	< 0.0042	< 0.0039
4,4-DDT	50-29-3	0.021 c	0.48	< 0.0037	< 0.0048	< 0.0041	< 0.02	< 0.04	0.013	0.018	0.01	0.045	0.053
Aldrin	309-00-2	0.0025 h	< 0.04	< 0.0037	< 0.0048	0.0074	< 0.02	< 0.04	< 0.0039	< 0.004	< 0.0039	< 0.0042	< 0.0039
Beta-BHC	319-85-7	0.001 h	< 0.04	< 0.0037	< 0.0048	< 0.0041	< 0.02	< 0.04	< 0.0039	< 0.004	< 0.0039	< 0.0042	< 0.0039
Chlordane	57-74-9	0.224 i	< 0.08	< 0.0075	< 0.0095	< 0.0081	0.16	0.45	0.083	< 0.08	< 0.0078	< 0.0084	< 0.0078
Dieldrin	60-57-1	0.0049 c	< 0.04	< 0.0037	< 0.0048	0.046	0.024	0.18	0.026	< 0.04	< 0.0039	< 0.0042	< 0.0039
Endosulfan I	959-98-8	0.119 i	< 0.04	< 0.0037	< 0.0048	< 0.0041	< 0.02	< 0.04	< 0.0039	< 0.004	< 0.0039	< 0.0042	< 0.0039
Endosulfan II	33213-65-9	0.119 i	< 0.04	< 0.0037	< 0.0048	< 0.0041	< 0.02	< 0.04	< 0.0039	< 0.004	< 0.0039	< 0.0042	0.016
Endosulfan sulfate	1031-07-8	0.0358 i	< 0.04	< 0.0037	< 0.0048	< 0.0041	< 0.02	< 0.04	< 0.0039	< 0.004	< 0.0039	< 0.0042	0.088
Endrin	72-20-8	0.001 h	< 0.04	< 0.0037	< 0.0048	< 0.0041	< 0.02	< 0.04	< 0.0039	< 0.004	< 0.0039	< 0.0042	< 0.0039
Endrin aldehyde	7421-93-4	0.0105 i	< 0.04	< 0.0037	< 0.0048	< 0.0041	< 0.02	< 0.04	< 0.0039	< 0.004	< 0.0039	< 0.0042	< 0.0039
Endrin ketone	53494-70-5	0.001 h	< 0.04	< 0.0037	< 0.0048	< 0.0041	< 0.02	< 0.04	< 0.0039	< 0.004	< 0.0039	< 0.0042	< 0.0039
Heptachlor epoxide	1024-57-3	0.152 i	< 0.04	< 0.0037	< 0.0048	< 0.0041	< 0.02	< 0.04	< 0.0039	< 0.004	< 0.0039	< 0.0042	< 0.0039
Methoxychlor	72-43-5	0.0199 i	< 0.04	< 0.0037	< 0.0048	< 0.0041	< 0.02	< 0.04	< 0.0039	< 0.004	< 0.0039	< 0.0042	< 0.0039
Toxaphene	8001-35-2	0.119 i	< 0.2	< 0.019	< 0.024	< 0.02	< 0.1	< 0.2	< 0.02	< 0.02	< 0.019	< 0.021	< 0.019
trans-chlordane	5103-74-2	0.0043 NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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				1-2 3/12/2003	1-2 3/12/2003	1-2 3/12/2003	1-2 3/12/2003	1-2 3/12/2003	1-2 3/12/2003	1-2 3/12/2003	1-2 3/12/2003	1-2 3/12/2003	1-2 3/12/2003	1-2 3/13/2003	1-2 3/13/2003
Polychlorinated Biphenyls (mg/kg)															
Aroclor 1242	53469-21-9	NA	NA	< 0.02	< 0.019	< 0.024	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.019	< 0.021	< 0.019
Aroclor 1248	12672-29-6	NA	NA	0.098	< 0.019	< 0.024	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.019	< 0.021	< 0.019
Aroclor 1254	11097-69-1	40	g	< 0.02	< 0.019	< 0.024	0.096	< 0.02	0.25	< 0.02	< 0.02	0.11	< 0.021	< 0.019	
Aroclor 1260	11096-82-5	NA	NA	0.32	< 0.019	< 0.024	< 0.02	0.63	< 0.02	0.12	0.23	< 0.019	0.25	< 0.019	
Aroclor 1262	37324-23-5	40	g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Total Aroclor PCBs	1336-36-3	0.02	h	0.418	< 0.019	< 0.024	0.096	0.63	0.25	0.12	0.23	0.11	0.25	< 0.019	
Volatile Organic Compounds (mg/kg)															
Acetone	67-64-1	2.5	i	< 0.024	< 0.022	< 0.029	< 0.024	< 0.024	< 0.024	< 0.024	< 0.024	< 0.023	< 0.025	< 2.9	
Benzene	71-43-2	0.05	h	< 0.0012	< 0.0011	< 0.0014	< 0.0012	< 0.0012	< 0.012	< 0.0012	< 0.0012	< 0.0012	< 0.0013	0.68	
Carbon Disulfide	75-15-0	0.0941	i	< 0.006	0.0012 J	< 0.0071	< 0.0061	< 0.0061	< 0.006	< 0.0059	< 0.006	< 0.0058	< 0.0063	< 0.73	
Cyclohexane	110-82-7	0.1	h	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dichloromethane	75-09-2	2	h	< 0.006	0.0035 JB	< 0.0071	0.002 JB	0.0021 JB	0.0021 JB	< 0.0059	< 0.006	0.0072 B	0.0052 JB	0.28 J	
Ethylbenzene	100-41-4	0.05	h	< 0.0012	< 0	< 0.0014	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0013	< 0.15	
Isopropylbenzene	98-82-8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
m&p-Xylenes	ARC-mpXyl	0.05	h	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Methyl Acetate	79-20-9	2.4	k	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Methylcyclohexane	108-87-2	1160	j	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
o,p-Xylene	136777-61-2	0.05	h	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
o-Xylene	95-47-6	0.05	h	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Styrene (Monomer)	100-42-5	0.1	h	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Toluene	108-88-3	0.05	h	< 0.0012	< 0.0011	< 0.0014	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0013	0.9	
Total Xylenes	1330-20-7	0.05	h	0	0	0	0	0	0	0 JB	0	0	0	1.22	
Semi-Volatile Organic Compounds (mg/kg)															
1,1-Biphenyl	92-52-4	60	g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2,4-Dimethylphenol	105-67-9	0.01	i	< 8	< 0.37	< 0.48	< 0.41	< 0.41	< 0.4	< 0.39	< 0.4	< 0.39	< 0.42	< 19	
2-Methylnaphthalene	91-57-6	3.24	b	1.9 J	< 0.37	< 0.48	0.35 J	0.051 J	0.14 J	0.076 J	< 0.4	0.092 J	0.82	11 J	
2-Methylphenol	95-48-7	0.5	h	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
3-Methylphenol, 4-Methylphenol	65794-96-9	0.5	h	< 8	< 0.37	< 0.48	< 0.41	< 0.41	< 0.4	< 0.39	< 0.4	< 0.39	< 0.42	< 19	
4-Methylphenol	106-44-5	0.5	h	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
4-Nitroaniline	100-01-6	21.9	i	< 8	< 0.37	< 0.48	< 0.41	< 0.41	< 0.4	< 0.39	< 0.4	< 0.39	< 0.42	< 19	
Acenaphthene	83-32-9	20	b	1.8 J	0.045 J	< 0.48	0.64	0.2 J	0.24 J	0.21 J	0.1 J	0.16 J	0.25 J	2.7 J	
Acenaphthylene	208-96-8	29	b	11	< 0.37	0.11 J	0.075 J	0.073 J	0.074 J	0.21 J	< 0.4	0.18 J	0.93	8.5 J	
Acetophenone	98-86-2	300	i	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Anthracene	120-12-7	0.1	b	12	0.27 J	0.079 J	1.2	0.53	0.54 J	0.8	0.35 J	0.46	1.1	39	
Benz(a)anthracene	56-55-3	0.25	b	50	1.4	1.5	2.8	1.5	1.3	1.9	0.31 J	1.7	4.3	81	
Benzaldehyde	100-52-7	470	k	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(a)pyrene	50-32-8	0.1	b	41	1.2	1.9	2.4	1.3	1	1.5	0.5	1.5	3.7	53	
Benzo(b)fluoranthene	205-99-2	18	b	67	1.5	4.3	4	2.1	1.7	2.6	0.099 J	2.4	7.1	82	
Benzo(g,h,i)perylene	191-24-2	7.5	b	13	0.73	1.3	0.75	0.39 J	0.36 J	0.42	0.14 J	0.55	1.3	27	
Benzo(k)fluoranthene	207-08-9	2.4	b	20	0.54	1.3	1.6	0.62	0.58	0.77	< 0.4	0.83	2.9	35	

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Semi-Volatile Organic Compounds (mg/kg) (cont'd)													
bis(2-Ethylhexyl)phthalate	117-81-7	0.925 i	< 8	< 0.37	< 0.48	< 0.41	< 0.41	< 0.4	< 0.39	< 0.4	< 0.39	< 0.42	< 19
Butyl benzyl phthalate	85-68-7	0.239 i	< 8	< 0.37	< 0.48	< 0.41	< 0.41	0.045 J	0.053 J	< 0.4	< 0.39	< 0.42	< 19
Carbazole	86-74-8	NA b	3.6 J	0.12 J	< 0.48	0.7	0.25 J	0.23 J	0.37 J	0.043 J	0.24 J	0.5	11 J
Chrysene	218-01-9	4.73 b	56	1.6	2	2.9	1.6	1.3	1.8	0.38 J	1.8	4.8	75
Dibenz(a,h)anthracene	53-70-3	18 b	5.1 J	0.21 J	0.5	0.3 J	0.15 J	0.14 J	0.17 J	< 0.4	0.23 J	0.53	11 J
Dibenzofuran	132-64-9	19 j	2.9 J	0.1 J	< 0.48	0.48	0.12 J	0.19 J	0.17 J	< 0.4	0.11 J	0.54	22
Diethyl phthalate	84-66-2	24.8 g	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	84-74-2	0.15 g	< 8	< 0.37	< 0.48	0.06 J	< 0.41	0.11 J	0.049 J	< 0.4	0.045 J	0.14 J	< 19
Di-n-octyl phthalate	117-84-0	709 i	< 8	< 0.37	< 0.48	0.076 J	< 0.41	0.047 J	< 0.39	< 0.4	< 0.39	< 0.42	< 19
Fluoranthene	206-44-0	0.1 b	100	3.3	1.2	4.8	3	2.4	3.6	0.66	3	6.2	160
Fluorene	86-73-7	29 b	8.1	0.19 J	< 0.48	0.59	0.22 J	0.23 J	0.32 J	< 0.4	0.18 J	0.43	30
Indeno(1,2,3-cd)pyrene	193-39-5	5.9 b	13	0.66	1.4	0.83	0.44	0.41	0.48	0.12 J	0.61	1.5	29
Naphthalene	91-20-3	0.0994 b	3.5 J	< 0.37	0.11 J	1.9	0.08 J	0.77	0.17 J	< 0.4	0.16 J	1.7	21
Phenanthrene	85-01-8	0.1 b	86	1.2	0.31 J	4	2.2	1.9	2.6	0.39 J	1.8	4.1	140
Phenol	108-95-2	0.05 h	< 1.5	< 0.37	< 0.48	< 0.41	< 0.41	< 0.4	< 0.39	< 0.4	< 0.39	1.6	1.7
Pyrene	129-00-0	0.1 b	120	3.1	0.99	4.6	2.7	2.2	3.3	0.58	2.7	6.3	130
Total PAHs	ARC-TPAH	1 h	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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			0.5-2 4/24/2019	1-2 3/13/2003	1-2 3/13/2003	1-2 3/13/2003	1-2 3/13/2003	1-2 3/13/2003	1-2 3/13/2003	1-2 3/13/2003	1-2 3/13/2003	1-2 3/13/2003	0-1 4/23/2019
Metals (mg/kg)													
Aluminum	7429-90-5	50 g	12300 J	NA	NA	NA	NA	NA	NA	NA	NA	3340 J	8490 J
Antimony	7440-36-0	0.27 c	2.2 J	< 2.4	3.7	2.8	< 2.4	2.8	3.3	2.3	16	4.9 J	2.5 J
Arsenic	7440-38-2	18 d	13.5	10	13	12	5.2	11	54	20	170	10.7	10.9
Barium	7440-39-3	330 b	286 J	66	53	43	380	97	260	120	340	154 J	275 J
Beryllium	7440-41-7	21 c	0.91	8.1	< 0.72	< 0.73	< 0.73	< 0.7	< 0.69	< 0.67	0.79	0.24	0.65
Cadmium	7440-43-9	0.36 c	1.0	< 0.71	< 0.72	1.4	< 0.73	< 0.7	< 0.69	< 0.67	< 0.79	0.40 J	0.40 J
Calcium	7440-70-2	NA NA	15800 J	NA	NA	NA	NA	NA	NA	NA	NA	1620 J	6740 J
Chromium	7440-47-3	0.4 e	28.4	25	10	31	15	26	11	27	31	27.1	38.6
Cobalt	7440-48-4	13 b	10.6	NA	NA	NA	NA	NA	NA	NA	NA	2.9 J	4.6 J
Copper	7440-50-8	28 a	549	24	55	96	27	62	57	56	190	80.2	183
Cyanide	57-12-5	0.9 h	8.1 J	< 0.3	1.3	2.6	0.46	< 0.29	0.91	< 0.28	0.64	125 J	9.8 J
Iron	7439-89-6	200 f	34900	NA	NA	NA	NA	NA	NA	NA	NA	19500	21700
Lead	7439-92-1	11 a	1130	21	69	91	1000	150	960	560	1600	460	445
Magnesium	7439-95-4	NA NA	6530 J	NA	NA	NA	NA	NA	NA	NA	NA	602 J	2050 J
Manganese	7439-96-5	220 d	1050	NA	NA	NA	NA	NA	NA	NA	NA	112	147
Mercury	7439-97-6	0.1 e	0.17 J	0.17	< 0.1	0.19	0.9	0.22	0.35	0.44	1.2	0.50 J	0.30 J
Nickel	7440-02-0	38 d	35.2	39	11	33	9.4	16	30	18	33	8.3	18.8
Potassium	7440-09-7	NA NA	2550	NA	NA	NA	NA	NA	NA	NA	NA	1010 J	857 J
Selenium	7782-49-2	0.52 d	< 4.9	< 2.1	2.7	< 2.2	< 2.2	< 2.1	< 2.1	< 2	< 2.4	2.1 J	1.8 J
Silver	7440-22-4	4.2 a	0.73 J	< 3	< 3	< 3	< 2.3	< 2.9	< 2.9	< 2.8	< 3.3	< 0.60	< 0.65
Sodium	7440-23-5	NA NA	229 J	NA	NA	NA	NA	NA	NA	NA	NA	244 J	< 1300
Vanadium	7440-62-2	2 d	38.7	NA	NA	NA	NA	NA	NA	NA	NA	13.7	32.6
Zinc	7440-66-6	46 a	438 J	61	37	540	560	180	370	260	590	98.4 J	173 J
Pesticides (mg/kg)													
4,4-DDD	72-54-8	0.758 i	0.0306 J	< 0.004	< 0.004	< 0.0041	< 0.041	0.067	0.011	< 0.0037	0.086	NA	NA
4,4-DDE	72-55-9	0.596 i	< 0.00075	< 0.004	< 0.004	< 0.0041	< 0.041	< 0.0039	< 0.038	< 0.0037	0.021	NA	NA
4,4-DDT	50-29-3	0.021 c	< 0.00075	< 0.004	< 0.004	< 0.0041	< 0.041	0.044	< 0.038	0.02	0.098	NA	NA
Aldrin	309-00-2	0.0025 h	< 0.00075	< 0.004	< 0.004	< 0.0041	< 0.041	< 0.0039	< 0.038	< 0.0037	< 0.0044	NA	NA
Beta-BHC	319-85-7	0.001 h	< 0.00075	< 0.004	< 0.004	< 0.0041	< 0.041	< 0.0039	< 0.038	< 0.0037	< 0.0044	NA	NA
Chlordane	57-74-9	0.224 i	NA	< 0.0079	< 0.008	< 0.0081	0.52	< 0.0078	0.016	< 0.0075	< 0.0088	NA	NA
Dieldrin	60-57-1	0.0049 c	< 0.00075	< 0.004	< 0.004	< 0.0041	< 0.041	< 0.0039	< 0.038	< 0.0037	0.016	NA	NA
Endosulfan I	959-98-8	0.119 i	< 0.00075	< 0.004	< 0.004	< 0.0041	< 0.041	< 0.0039	< 0.038	< 0.0037	< 0.0044	NA	NA
Endosulfan II	33213-65-9	0.119 i	< 0.00075	< 0.004	< 0.004	< 0.0041	< 0.041	< 0.0039	< 0.038	< 0.0037	< 0.0044	NA	NA
Endosulfan sulfate	1031-07-8	0.0358 i	< 0.00075	< 0.004	< 0.004	< 0.0041	< 0.041	< 0.0039	0.02	< 0.0037	0.039	NA	NA
Endrin	72-20-8	0.001 h	< 0.00075	< 0.004	< 0.004	< 0.0041	< 0.041	< 0.0039	0.0057	< 0.0037	0.015	NA	NA
Endrin aldehyde	7421-93-4	0.0105 i	< 0.00075	< 0.004	0.0071	< 0.0041	0.32	< 0.0039	< 0.038	< 0.0037	< 0.0044	NA	NA
Endrin ketone	53494-70-5	0.001 h	< 0.00075	< 0.004	< 0.004	< 0.0041	< 0.041	< 0.0039	< 0.038	< 0.0037	< 0.0044	NA	NA
Heptachlor epoxide	1024-57-3	0.152 i	< 0.00075	< 0.004	< 0.004	< 0.0041	< 0.041	< 0.0039	< 0.038	< 0.0037	< 0.0044	NA	NA
Methoxychlor	72-43-5	0.0199 i	< 0.0015	< 0.004	< 0.004	< 0.0041	< 0.041	< 0.0039	0.014	< 0.0037	< 0.0044	NA	NA
Toxaphene	8001-35-2	0.119 i	< 0.019	< 0.02	< 0.02	< 0.02	< 0.2	< 0.019	< 19	< 0.019	< 0.022	NA	NA
trans-chlordane	5103-74-2	0.0043 NA	< 0.00075	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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				0.5-2 4/24/2019	1-2 3/13/2003	1-2 3/13/2003	1-2 3/13/2003	1-2 3/13/2003	1-2 3/13/2003	1-2 3/13/2003	1-2 3/13/2003	1-2 3/13/2003	1-2 3/13/2003	1-2 3/13/2003
Polychlorinated Biphenyls (mg/kg)														
Aroclor 1242	53469-21-9	NA	NA	< 0.037	< 0.02	< 0.02	< 0.02	< 0.02	< 0.097	< 0.019	< 0.019	< 0.023	NA	NA
Aroclor 1248	12672-29-6	NA	NA	< 0.037	< 0.02	< 0.02	< 0.02	< 0.02	< 0.097	< 0.019	< 0.019	< 0.023	NA	NA
Aroclor 1254	11097-69-1	40	g	< 0.037	< 0.02	< 0.02	< 0.02	< 0.02	< 0.097	< 0.019	< 0.019	< 0.023	NA	NA
Aroclor 1260	11096-82-5	NA	NA	< 0.037	< 0.02	< 0.02	0.081	0.092	0.2	< 0.019	0.077	< 0.023	NA	NA
Aroclor 1262	37324-23-5	40	g	< 0.037	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Aroclor PCBs	1336-36-3	0.02	h	< 0.037	< 0.02	< 0.02	0.081	0.092	0.2	< 0.019	0.077	< 0.023	NA	NA
Volatile Organic Compounds (mg/kg)														
Acetone	67-64-1	2.5	i	< 0.013	< 0.024	< 0.024	< 0.024	< 0.024	< 0.023	< 0.11	< 0.022	< 0.026	< 0.016	< 2.5
Benzene	71-43-2	0.05	h	0.0010	< 0.0012	< 0.0012	< 0.0012	< 0.012	< 0.0012	< 0.0057	< 0.0011	< 0.0013	< 0.00082	0.935
Carbon Disulfide	75-15-0	0.0941	i	0.0012 J	< 0.006	< 0.006	< 0.0061	< 0.0061	< 0.0058	< 0.029	< 0.0056	< 0.0066	< 0.0033	< 0.5
Cyclohexane	110-82-7	0.1	h	< 0.0026	NA	NA	NA	NA	NA	NA	NA	NA	< 0.0033	< 0.5
Dichloromethane	75-09-2	2	h	< 0.0064	0.0095 B	0.0053 JB	0.0056 JB	0.0091 B	0.0035 JB	0.035 B	0.0043 JB	< 0.0046 UJB	< 0.0082	< 1.3
Ethylbenzene	100-41-4	0.05	h	< 0.0013	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	0.0095	< 0.0011	< 0.0013	< 0.0016	< 0.25
Isopropylbenzene	98-82-8	NA	NA	< 0.0026	NA	NA	NA	NA	NA	NA	NA	NA	< 0.0033	< 0.5
m&p-Xylenes	ARC-mpXyl	0.05	h	0.0029	NA	NA	NA	NA	NA	NA	NA	NA	< 0.0016	0.29
Methyl Acetate	79-20-9	2.4	k	< 0.0064 UJ	NA	NA	NA	NA	NA	NA	NA	NA	< 0.0082	< 1.3
Methylcyclohexane	108-87-2	1160	j	< 0.0026	NA	NA	NA	NA	NA	NA	NA	NA	< 0.0033	< 0.5
o,p-Xylene	136777-61-2	0.05	h	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	95-47-6	0.05	h	0.00085 J	NA	NA	NA	NA	NA	NA	NA	NA	< 0.0016	< 0.25
Styrene (Monomer)	100-42-5	0.1	h	< 0.0026	NA	NA	NA	NA	NA	NA	NA	NA	< 0.0033	< 0.5
Toluene	108-88-3	0.05	h	0.0016	< 0.0012	< 0.0012	< 0.0012	< 0.0012	< 0.0012	0.012	< 0.0011	< 0.0013	< 0.0016	0.546
Total Xylenes	1330-20-7	0.05	h	0.0038	0	0	0	0	0	0.048	0	0	< 0.0016	0.29
Semi-Volatile Organic Compounds (mg/kg)														
1,1-Biphenyl	92-52-4	60	g	1.99	NA	NA	NA	NA	NA	NA	NA	NA	1.2	0.177 J
2,4-Dimethylphenol	105-67-9	0.01	i	0.181 J	< 0.4	< 1.2	< 8.1	< 1.2	< 19	< 7.7	< 1.1	< 1.3	0.158 J	< 0.4
2-Methylnaphthalene	91-57-6	3.24	b	10.9 D	< 0.4	0.24 J	< 8.1	0.35 J	2 J	17	0.5 J	4.8	2.99	0.522 J
2-Methylphenol	95-48-7	0.5	h	0.0797 J	NA	NA	NA	NA	NA	NA	NA	NA	0.195	< 0.16
3-Methylphenol, 4-Methylphenol	65794-96-9	0.5	h	0.304	< 0.4	< 1.2	< 8.1	< 1.2	< 19	< 7.7	< 1.1	< 1.3	0.61	< 0.16
4-Methylphenol	106-44-5	0.5	h	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	100-01-6	21.9	i	< 0.4	< 0.4	< 1.2	< 8.1	< 1.2	< 19	< 7.7	< 1.1	< 1.3	< 0.41	< 0.4
Acenaphthene	83-32-9	20	b	1.98	< 0.4	< 1.2	< 8.1	1.1 J	8.8 J	8.7	1.1	0.29 J	1.98	0.817 J
Acenaphthylene	208-96-8	29	b	17.7 D	< 0.4	0.83 J	1.3 J	0.32 J	3.2 J	< 7.7	0.35 J	0.4 J	32.3 D	16.9 D
Acetophenone	98-86-2	300	i	0.0245 J	NA	NA	NA	NA	NA	NA	NA	NA	0.128 J	< 0.4
Anthracene	120-12-7	0.1	b	31.1 D	< 0.4	4.7	3.4 J	2.5	31	7 J	2.8	0.44 J	52.7 D	24 D
Benz(a)anthracene	56-55-3	0.25	b	58 D	0.19 J	11	18	6	51	7 J	4.7	1.1 J	101 D	65.9 D
Benzaldehyde	100-52-7	470	k	< 0.4	NA	NA	NA	NA	NA	NA	NA	NA	< 0.41	< 0.4
Benzo(a)pyrene	50-32-8	0.1	b	48.6 D	0.16 J	6.6	14	5.4	42	3.4 J	3.4	1.1 J	82.9 D	55.2 D
Benzo(b)fluoranthene	205-99-2	18	b	71.4 D	0.24 J	11	29	8.3	67	3.4 J	5.2	2.6	107 D	76.6 D
Benzo(g,h,i)perylene	191-24-2	7.5	b	31 D	0.099 J	2.5	< 8.1	1.7	11 J	1.4 J	0.95 J	0.59 J	53.1 D	31.1 D
Benzo(k)fluoranthene	207-08-9	2.4	b	6.68	0.074 J	4.4	8 J	2.7	21	0.97 J	1.2	0.68 J	43 D	23.1 D

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Semi-Volatile Organic Compounds (mg/kg) (cont'd)														
bis(2-Ethylhexyl)phthalate	117-81-7	0.925	i	< 0.16	< 0.4	< 1.2	< 8.1	0.87 J	< 19	< 7.7	0.13 J	< 1.3	< 0.16	< 0.16
Butyl benzyl phthalate	85-68-7	0.239	i	< 0.16	< 0.4	< 1.2	< 8.1	< 1.2	< 19	< 7.7	< 1.1	< 1.3	< 0.16	< 0.16
Carbazole	86-74-8	NA	b	9.74 D	< 0.4	1.3	1.5 J	1.2	4.5 J	< 7.7	1.1 J	0.3 J	9.79 D	1.82 J
Chrysene	218-01-9	4.73	b	52.3 D	0.18 J	12	23	5.7	47	6.7 J	4.1	2.2	90.9 D	57 D
Dibenz(a,h)anthracene	53-70-3	18	b	6.44	< 0.4	1.1 J	3.4 J	0.6 J	3.2 J	< 7.7	0.35 J	0.17 J	17.1 D	9.6 D
Dibenzofuran	132-64-9	19	j	18.1 D	< 0.4	0.42 J	0.97 J	0.65 J	5.8 J	3.4 J	1 J	0.59 J	10.2 D	2.81 J
Diethyl phthalate	84-66-2	24.8	g	< 0.16	NA	NA	NA	NA	NA	NA	NA	NA	< 0.16	< 0.16
Di-n-butyl phthalate	84-74-2	0.15	g	< 0.16	0.063 J	< 1.2	< 8.1	< 1.2	< 19	< 7.7	< 1.1	0.15 J	< 0.16	< 0.16
Di-n-octyl phthalate	117-84-0	709	i	< 0.16	< 0.4	< 1.2	< 8.1	< 1.2	< 19	< 7.7	< 1.1	< 1.3	< 0.16	< 0.16
Fluoranthene	206-44-0	0.1	b	139 D	0.33 J	16	34	11	120	4 J	9.1	1.8	266 D	179 D
Fluorene	86-73-7	29	b	18.9 D	< 0.4	0.71 J	< 8.1	1.2 J	12 J	11	1.5	0.55 J	22.3 D	11 D
Indeno(1,2,3-cd)pyrene	193-39-5	5.9	b	35.3 D	0.09 J	2.7	8.5	1.7	11 J	0.87 J	1 J	0.56 J	49.6 D	36.4 D
Naphthalene	91-20-3	0.0994	b	18.5 D	< 0.4	0.66 J	1.8 J	0.77 J	< 19	7.9	0.63 J	2.4	7.76	1.08 J
Phenanthrene	85-01-8	0.1	b	122 D	0.047 J	6.7	16	8.6	110	13	11	2.5	183 D	63.4 D
Phenol	108-95-2	0.05	h	0.212	1.6	< 1.2	2	< 1.2	< 1.5	2.5	< 1.1	< 1.3	0.646	< 0.16
Pyrene	129-00-0	0.1	b	107 D	0.27 J	13	25	12	130	26	8.9	2.2	187 D	133 D
Total PAHs	ARC-TPAH	1	h	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Location ID: Sample Depth (ft): Date Collected:	CAS Number	Ecological Soil Screening Benchmark ^{1,2}	S-119	S-120	S-121	S-122	S-138		S-139		S-140		S-151	S-163	
			0-1 4/12/2019	0-1 4/24/2019	0-1 4/12/2019	0-1 4/12/2019	0-0.5 4/5/2019	0.5-2 4/5/2019	0-0.5 4/10/2019	0.5-2 4/10/2019	0-0.5 4/10/2019	0.5-2 4/10/2019	0.5-2 4/25/2019	0.5-2 9/19/2019	
Metals (mg/kg)															
Aluminum	7429-90-5	50	g	6540	5780 J	5600	4670	NA	NA	NA	NA	NA	NA	6750	11400
Antimony	7440-36-0	0.27	c	< 2.7	2.3 J	< 2.7	< 2.3	NA	NA	NA	NA	NA	NA	0.87 J	< 2.2
Arsenic	7440-38-2	18	d	57.4	105	69.3	75.0	NA	NA	NA	NA	NA	NA	6.9	7.6
Barium	7440-39-3	330	b	92.8	249 J	106	67.5	NA	NA	NA	NA	NA	NA	84.3	217
Beryllium	7440-41-7	21	c	0.68	0.59	0.88	0.52	NA	NA	NA	NA	NA	NA	0.75	1.2
Cadmium	7440-43-9	0.36	c	1.8	2.7	1.8	1.1	NA	NA	NA	NA	NA	NA	0.31 J	< 0.54
Calcium	7440-70-2	NA	NA	4320	2650 J	9920	2290	NA	NA	NA	NA	NA	NA	17500 J	41400
Chromium	7440-47-3	0.4	e	19.3	15.2	21.0	16.1	NA	NA	NA	NA	NA	NA	16.7	17.4
Cobalt	7440-48-4	13	b	6.8	5.6 J	< 6.9	< 5.8	NA	NA	NA	NA	NA	NA	3.3 J	< 5.4
Copper	7440-50-8	28	a	132	134	135	102	NA	NA	NA	NA	NA	NA	25.5	20.7
Cyanide	57-12-5	0.9	h	1.6	1.4 J	0.68	0.95	NA	NA	NA	NA	NA	NA	0.72 J	0.96
Iron	7439-89-6	200	f	14600	17200	11300	14200	NA	NA	NA	NA	NA	NA	11600	10300
Lead	7439-92-1	11	a	253	329	241	359	NA	NA	NA	NA	NA	NA	102 J	34.5
Magnesium	7439-95-4	NA	NA	1730	1100 J	2760	1120	NA	NA	NA	NA	NA	NA	3890	15400
Manganese	7439-96-5	220	d	303	229	266	245	NA	NA	NA	NA	NA	NA	350 J	1710
Mercury	7439-97-6	0.1	e	0.21	0.29 J	0.12	0.24	NA	NA	NA	NA	NA	NA	0.12 J	< 0.035
Nickel	7440-02-0	38	d	23.4	18.7	25.2	13.8	NA	NA	NA	NA	NA	NA	9.4	8.6
Potassium	7440-09-7	NA	NA	< 1300	651 J	< 1400	< 1200	NA	NA	NA	NA	NA	NA	853 J	1980
Selenium	7782-49-2	0.52	d	< 2.7	< 2.4	< 2.7	< 2.3	NA	NA	NA	NA	NA	NA	0.74 J	< 2.2
Silver	7440-22-4	4.2	a	< 0.67	< 0.60	< 0.69	< 0.58	NA	NA	NA	NA	NA	NA	< 0.55	< 0.54
Sodium	7440-23-5	NA	NA	< 1300	< 1200	< 1400	< 1200	NA	NA	NA	NA	NA	NA	273 J	< 1100
Vanadium	7440-62-2	2	d	22.5	19.5	24.7	21.6	NA	NA	NA	NA	NA	NA	13.7	41.3
Zinc	7440-66-6	46	a	362	774	355	247	NA	NA	NA	NA	NA	NA	49.0	25.2
Pesticides (mg/kg)															
4,4-DDD	72-54-8	0.758	i	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDE	72-55-9	0.596	i	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-DDT	50-29-3	0.021	c	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	309-00-2	0.0025	h	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beta-BHC	319-85-7	0.001	h	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlordane	57-74-9	0.224	i	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	60-57-1	0.0049	c	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	959-98-8	0.119	i	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	33213-65-9	0.119	i	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan sulfate	1031-07-8	0.0358	i	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	72-20-8	0.001	h	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin aldehyde	7421-93-4	0.0105	i	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin ketone	53494-70-5	0.001	h	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	1024-57-3	0.152	i	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	72-43-5	0.0199	i	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toxaphene	8001-35-2	0.119	i	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-chlordane	5103-74-2	0.0043	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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			0-1 4/12/2019	0-1 4/24/2019	0-1 4/12/2019	0-1 4/12/2019	0-0.5 4/5/2019	0.5-2 4/5/2019	0-0.5 4/10/2019	0.5-2 4/10/2019	0-0.5 4/10/2019	0.5-2 4/10/2019	0.5-2 4/25/2019	0.5-2 9/19/2019	
Polychlorinated Biphenyls (mg/kg)															
Aroclor 1242	53469-21-9	NA NA	NA	NA	NA	NA	NA	< 0.036	< 0.034	< 0.036	< 0.035	< 0.041	< 0.038	NA	NA
Aroclor 1248	12672-29-6	NA NA	NA	NA	NA	NA	NA	< 0.036	< 0.034	< 0.036	< 0.035	< 0.041	< 0.038	NA	NA
Aroclor 1254	11097-69-1	40 g	NA	NA	NA	NA	NA	0.159	0.426	0.406	0.171	0.0256 J	< 0.038	NA	NA
Aroclor 1260	11096-82-5	NA NA	NA	NA	NA	NA	NA	< 0.036	< 0.034	< 0.036	< 0.035	< 0.041	< 0.038	NA	NA
Aroclor 1262	37324-23-5	40 g	NA	NA	NA	NA	NA	< 0.036	< 0.034	< 0.036	< 0.035	< 0.041	< 0.038	NA	NA
Total Aroclor PCBs	1336-36-3	0.02 h	NA	NA	NA	NA	NA	0.159	0.426	0.406	0.171	0.0256 J	< 0.038	NA	NA
Volatile Organic Compounds (mg/kg)															
Acetone	67-64-1	2.5 i	0.0428	< 0.028	< 0.023	< 0.011	NA	NA	NA	NA	NA	NA	NA	< 2.8	< 1.7
Benzene	71-43-2	0.05 h	< 0.00097	< 0.0014	< 0.0012	< 0.00055	NA	NA	NA	NA	NA	NA	NA	< 0.14	< 0.087
Carbon Disulfide	75-15-0	0.0941 i	< 0.0039	< 0.0055	< 0.0047	< 0.0022	NA	NA	NA	NA	NA	NA	NA	< 0.57	< 0.35
Cyclohexane	110-82-7	0.1 h	< 0.0039	< 0.0055	< 0.0047	< 0.0022	NA	NA	NA	NA	NA	NA	NA	< 0.57	0.158 J
Dichloromethane	75-09-2	2 h	< 0.0097	< 0.014	< 0.012	< 0.0055	NA	NA	NA	NA	NA	NA	NA	< 1.4	< 0.87
Ethylbenzene	100-41-4	0.05 h	< 0.0019	< 0.0028	< 0.0023	< 0.0011	NA	NA	NA	NA	NA	NA	NA	< 0.28	< 0.17
Isopropylbenzene	98-82-8	NA NA	< 0.0039	< 0.0055	< 0.0047	< 0.0022	NA	NA	NA	NA	NA	NA	NA	< 0.57	< 0.35
m&p-Xylenes	ARC-mpXyl	0.05 h	< 0.0019	< 0.0028	< 0.0023	< 0.0011	NA	NA	NA	NA	NA	NA	NA	< 0.28	0.286
Methyl Acetate	79-20-9	2.4 k	0.0039 J	< 0.014	< 0.012	< 0.0055	NA	NA	NA	NA	NA	NA	NA	< 1.4	< 0.87
Methylcyclohexane	108-87-2	1160 j	< 0.0039	< 0.0055	< 0.0047	< 0.0022	NA	NA	NA	NA	NA	NA	NA	< 0.57	0.409
o,p-Xylene	136777-61-2	0.05 h	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	95-47-6	0.05 h	< 0.0019	< 0.0028	< 0.0023	< 0.0011	NA	NA	NA	NA	NA	NA	NA	< 0.28	0.161 J
Styrene (Monomer)	100-42-5	0.1 h	< 0.0039	< 0.0055	< 0.0047	< 0.0022	NA	NA	NA	NA	NA	NA	NA	< 0.57	< 0.35
Toluene	108-88-3	0.05 h	< 0.0019	< 0.0028	< 0.0023	< 0.0011	NA	NA	NA	NA	NA	NA	NA	< 0.28	0.311
Total Xylenes	1330-20-7	0.05 h	< 0.0019	< 0.0028	< 0.0023	< 0.0011	NA	NA	NA	NA	NA	NA	NA	< 0.28	0.447
Semi-Volatile Organic Compounds (mg/kg)															
1,1-Biphenyl	92-52-4	60 g	0.0202 J	0.0109 J	0.0090 J	0.0088 J	NA	NA	NA	NA	NA	NA	NA	NA	3.19
2,4-Dimethylphenol	105-67-9	0.01 i	< 0.21	< 0.19	< 0.22	< 0.2	NA	NA	NA	NA	NA	NA	NA	< 0.37	< 0.94
2-Methylnaphthalene	91-57-6	3.24 b	0.0629	0.0360 J	0.0209 J	0.0226 J	NA	NA	NA	NA	NA	NA	NA	22.1 D	15.3
2-Methylphenol	95-48-7	0.5 h	< 0.086	< 0.074	< 0.089	< 0.079	NA	NA	NA	NA	NA	NA	NA	< 0.15	0.131 J
3-Methylphenol, 4-Methylphenol	65794-96-9	0.5 h	< 0.086	< 0.074	< 0.089	< 0.079	NA	NA	NA	NA	NA	NA	NA	0.119 J	0.485
4-Methylphenol	106-44-5	0.5 h	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	100-01-6	21.9 i	< 0.21	< 0.19	< 0.22	< 0.2	NA	NA	NA	NA	NA	NA	NA	< 0.37	< 0.94
Acenaphthene	83-32-9	20 b	0.0451	0.0228 J	< 0.044	0.0155 J	NA	NA	NA	NA	NA	NA	NA	5.08	2.96
Acenaphthylene	208-96-8	29 b	0.494	0.115	0.0828	0.109	NA	NA	NA	NA	NA	NA	NA	40.3 D	36 D
Acetophenone	98-86-2	300 i	< 0.21	< 0.19	< 0.22	< 0.2	NA	NA	NA	NA	NA	NA	NA	NA	< 0.94
Anthracene	120-12-7	0.1 b	0.63	0.122	0.102	0.126	NA	NA	NA	NA	NA	NA	NA	78.8 D	85.4 D
Benz(a)anthracene	56-55-3	0.25 b	1.96	0.417 J	0.484	0.631	NA	NA	NA	NA	NA	NA	NA	93.1 D	201 D
Benzaldehyde	100-52-7	470 k	0.212	0.0111 J	0.0123 J	0.0206 J	NA	NA	NA	NA	NA	NA	NA	NA	< 0.94
Benzo(a)pyrene	50-32-8	0.1 b	2.26	0.516 J	0.821	0.848	NA	NA	NA	NA	NA	NA	NA	86.4 D	156 D
Benzo(b)fluoranthene	205-99-2	18 b	2.81	0.638	0.821	1.01	NA	NA	NA	NA	NA	NA	NA	101 D	218 D
Benzo(g,h,i)perylene	191-24-2	7.5 b	1.48	0.407 J	0.663	0.598	NA	NA	NA	NA	NA	NA	NA	64.7 D	79.6 D
Benzo(k)fluoranthene	207-08-9	2.4 b	0.891	0.253	0.29	0.307	NA	NA	NA	NA	NA	NA	NA	40.3 D	66.1 D

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			0-1 4/12/2019	0-1 4/24/2019	0-1 4/12/2019	0-1 4/12/2019	0-0.5 4/5/2019	0.5-2 4/5/2019	0-0.5 4/10/2019	0.5-2 4/10/2019	0-0.5 4/10/2019	0.5-2 4/10/2019	0.5-2 4/25/2019	0.5-2 9/19/2019	
Semi-Volatile Organic Compounds (mg/kg) (cont'd)															
bis(2-Ethylhexyl)phthalate	117-81-7	0.925	i	0.181	0.0397 J	0.0786 J	0.0546 J	NA	NA	NA	NA	NA	NA	< 0.15	< 0.37
Butyl benzyl phthalate	85-68-7	0.239	i	< 0.086	< 0.074	< 0.089	< 0.079	NA	NA	NA	NA	NA	NA	< 0.15	< 0.37
Carbazole	86-74-8	NA	b	0.14	0.0420 J	0.0282 J	0.0396 J	NA	NA	NA	NA	NA	NA	29.4 D	10.2
Chrysene	218-01-9	4.73	b	1.81	0.443	0.507	0.663	NA	NA	NA	NA	NA	NA	77 D	174 D
Dibenz(a,h)anthracene	53-70-3	18	b	0.349	0.0964	0.117	0.137	NA	NA	NA	NA	NA	NA	16.4 D	23.8 D
Dibenzofuran	132-64-9	19	j	0.0873	0.0364 J	< 0.089	0.0199 J	NA	NA	NA	NA	NA	NA	52.6 D	42 D
Diethyl phthalate	84-66-2	24.8	g	< 0.086	< 0.074	< 0.089	< 0.079	NA	NA	NA	NA	NA	NA	< 0.15	< 0.37
Di-n-butyl phthalate	84-74-2	0.15	g	0.0187 J	< 0.074	< 0.089	< 0.079	NA	NA	NA	NA	NA	NA	< 0.15	< 0.37
Di-n-octyl phthalate	117-84-0	709	i	< 0.086	< 0.074	< 0.089	< 0.079	NA	NA	NA	NA	NA	NA	< 0.15	< 0.37
Fluoranthene	206-44-0	0.1	b	3.36	0.772 J	0.616	1.01	NA	NA	NA	NA	NA	NA	305 D	477 D
Fluorene	86-73-7	29	b	0.187	0.0544	0.0204 J	0.0275 J	NA	NA	NA	NA	NA	NA	91.9 D	69.3 D
Indeno(1,2,3-cd)pyrene	193-39-5	5.9	b	1.41	0.406 J	0.604	0.557	NA	NA	NA	NA	NA	NA	56.9 D	95.1 D
Naphthalene	91-20-3	0.0994	b	0.127	0.114	0.0591	0.0505	NA	NA	NA	NA	NA	NA	100 D	37.2 D
Phenanthrene	85-01-8	0.1	b	1.74	0.574 J	0.312	0.468	NA	NA	NA	NA	NA	NA	354 D	324 D
Phenol	108-95-2	0.05	h	< 0.086	< 0.074	< 0.089	< 0.079	NA	NA	NA	NA	NA	NA	0.0928 J	0.404
Pyrene	129-00-0	0.1	b	3.26	0.713 J	0.789	1.15	NA	NA	NA	NA	NA	NA	227 D	353 D
Total PAHs	ARC-TPAH	1	h	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Notes:

1. The relevant ecological screening benchmarks (ESBs) are selected based on the following hierarchy system:
 1. EcoSSLs
 2. ORNL benchmarks
 3. EPA Region 4
 4. EPA Region 5
 5. ECOTOX
 6. PubChem
2. Letter denotes which ESB was selected for each analyte:
 - a. Eco-SSL Avian Soil Screening Benchmark
 - b. Eco-SSL Inverts Soil Screening Benchmark
 - c. Eco-SSL Mammalian Soil Screening Benchmark
 - d. Eco-SSL Plants Soil Screening Benchmark
 - e. ORNL Invertebrates Soil Screening Benchmark
 - f. ORNL Microbes Soil Screening Benchmark
 - g. ORNL Plants Screening Benchmark
 - h. EPA R4 Soil Screening Benchmark
 - i. EPA R5 ESL Soil Screening Benchmark
 - j. PubChem
 - k. ECOTOX
3. See reference section below for the ESBs used.
4. CAS = Chemical Abstract Service.
5. COPEC = Constituent of Potential Ecological Concern
6. mg/kg = Milligrams per kilogram
7. NA = Not applicable
8. PAH = Polycyclic Aromatic Hydrocarbon
9. PCB = Polychlorinated biphenyl

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Analyte	CAS Number	Relevant Ecological Soil Criteria ^{1,2}		Detection Frequency	Range of Detections	Criteria Exceedance Frequency	Act 2 COPEC?	Retain as COPEC?	Range of Hazard Quotients
Metals (mg/kg)									
Aluminum	7429-90-5	50	g	19/19 (100%)	1140 - 13500	19/19 (100%)	No	Yes	22.8 - 270
Antimony	7440-36-0	0.27	c	47/104 (45.2%)	0.56 - 20.6	47/104 (45.2%)	No	Yes	2.1 - 76.3
Arsenic	7440-38-2	18	d	98/104 (94.2%)	2.4 - 170	34/104 (32.7%)	Yes	Yes	0.13 - 9.4
Barium	7440-39-3	330	b	100/104 (96.2%)	7.1 - 780	8/104 (7.7%)	Yes	Yes	0.022 - 2.4
Beryllium	7440-41-7	21	c	38/104 (36.5%)	0.24 - 8.1	0/104 (0%)	Yes	No	0.011 - 0.39
Cadmium	7440-43-9	0.36	c	42/104 (40.4%)	0.1 - 4.1	39/104 (37.5%)	Yes	Yes	0.28 - 11.4
Calcium	7440-70-2	NA	NA	19/19 (100%)	430 - 41400	0/19 (0%)	No	No	NA - NA
Chromium	7440-47-3	0.4	e	93/104 (89.4%)	1.6 - 162	93/104 (89.4%)	Yes	Yes	4.0 - 405
Cobalt	7440-48-4	13	b	16/19 (84.2%)	0.6 - 56.7	1/19 (5.3%)	Yes	Yes	0.046 - 4.4
Copper	7440-50-8	28	a	103/104 (99%)	6.7 - 1400	79/104 (76%)	Yes	Yes	0.24 - 50.0
Cyanide	57-12-5	0.9	h	36/49 (73.5%)	0.14 - 125	20/49 (40.8%)	Yes	Yes	0.16 - 139
Iron	7439-89-6	200	f	19/19 (100%)	3720 - 93300	19/19 (100%)	Yes	Yes	18.6 - 467
Lead	7439-92-1	11	a	102/104 (98.1%)	6.9 - 14000	98/104 (94.2%)	Yes	Yes	0.63 - 1,270
Magnesium	7439-95-4	NA	NA	19/19 (100%)	297 - 15400	0/19 (0%)	No	No	NA - NA
Manganese	7439-96-5	220	d	19/19 (100%)	11.1 - 1710	13/19 (68.4%)	Yes	Yes	0.050 - 7.8
Mercury	7439-97-6	0.1	e	84/104 (80.8%)	0.03 - 17	82/104 (78.8%)	Yes	Yes	0.30 - 170
Nickel	7440-02-0	38	d	95/104 (91.3%)	1.6 - 243	10/104 (9.6%)	Yes	Yes	0.042 - 6.4
Potassium	7440-09-7	NA	NA	16/19 (84.2%)	462 - 2550	0/19 (0%)	No	No	NA - NA
Selenium	7782-49-2	0.52	d	37/104 (35.6%)	0.74 - 6.4	37/104 (35.6%)	Yes	Yes	1.4 - 12.3
Silver	7440-22-4	4.2	a	4/104 (3.9%)	0.22 - 2.4	0/104 (0%)	No	No	0.052 - 0.57
Sodium	7440-23-5	NA	NA	10/19 (52.6%)	119.5 - 665	0/19 (0%)	No	No	NA - NA
Vanadium	7440-62-2	2	d	19/19 (100%)	4.1 - 41.3	19/19 (100%)	Yes	Yes	2.1 - 20.7
Zinc	7440-66-6	46	a	102/104 (98.1%)	7.9 - 6300	88/104 (84.6%)	Yes	Yes	0.17 - 137
Pesticides (mg/kg)									
4,4-DDD	72-54-8	0.758	i	15/93 (16.1%)	0.00205 - 0.086	0/93 (0%)	Yes	No	0.0027 - 0.11
4,4-DDE	72-55-9	0.596	i	23/93 (24.7%)	0.002 - 0.15	0/93 (0%)	Yes	No	0.0034 - 0.25
4,4-DDT	50-29-3	0.021	c	42/93 (45.2%)	0.0052 - 0.48	28/93 (30.1%)	Yes	Yes	0.25 - 22.9
Aldrin	309-00-2	0.0025	h	2/93 (2.2%)	0.0074 - 0.0152	2/93 (2.2%)	Yes	Yes	3.0 - 6.1
Beta-BHC	319-85-7	0.001	h	1/93 (1.1%)	0.012 - 0.012	1/93 (1.1%)	No	Yes	12.0 - 12.0
Chlordane	57-74-9	0.224	i	17/82 (20.7%)	0.016 - 4.5	4/82 (4.9%)	Yes	Yes	0.071 - 20.1
Dieldrin	60-57-1	0.0049	c	12/93 (12.9%)	0.0043 - 0.18	11/93 (11.8%)	Yes	Yes	0.88 - 36.7
Endosulfan I	959-98-8	0.119	i	1/93 (1.1%)	0.012 - 0.012	0/93 (0%)	Yes	No	0.10 - 0.10
Endosulfan II	33213-65-9	0.119	i	3/93 (3.2%)	0.016 - 0.04	0/93 (0%)	Yes	No	0.13 - 0.34
Endosulfan sulfate	1031-07-8	0.0358	i	6/93 (6.5%)	0.0083 - 0.088	3/93 (3.2%)	Yes	Yes	0.23 - 2.5
Endrin	72-20-8	0.001	h	2/93 (2.2%)	0.0057 - 0.015	2/93 (2.2%)	Yes	Yes	5.7 - 15.0
Endrin aldehyde	7421-93-4	0.0105	i	7/93 (7.5%)	0.0071 - 0.32	6/93 (6.5%)	No	Yes	0.68 - 30.5
Endrin ketone	53494-70-5	0.001	h	1/93 (1.1%)	0.0091 - 0.0091	1/93 (1.1%)	No	Yes	9.1 - 9.1
Heptachlor epoxide	1024-57-3	0.152	i	5/93 (5.4%)	0.001095 - 0.012	0/93 (0%)	No	No	0.0072 - 0.079
Methoxychlor	72-43-5	0.0199	i	1/93 (1.1%)	0.014 - 0.014	0/93 (0%)	Yes	No	0.70 - 0.70
Toxaphene	8001-35-2	0.119	i	1/93 (1.1%)	0.02 - 0.02	0/93 (0%)	Yes	No	0.17 - 0.17
trans-chlordane	5103-74-2	0.0043	NA	2/11 (18.2%)	0.00059 - 0.00135	0/11 (0%)	No	No	0.14 - 0.31
Polychlorinated Biphenyls (mg/kg)									
Aroclor 1242	53469-21-9	NA	NA	2/101 (2%)	0.12 - 0.12	0/101 (0%)	No	No	NA - NA
Aroclor 1248	12672-29-6	NA	NA	6/101 (5.9%)	0.053 - 1.7	0/101 (0%)	No	No	NA - NA
Aroclor 1254	11097-69-1	40	g	22/101 (21.8%)	0.0256 - 7.9	0/101 (0%)	No	No	0.00064 - 0.20
Aroclor 1260	11096-82-5	NA	NA	44/101 (43.6%)	0.046 - 1	0/101 (0%)	No	No	NA - NA
Aroclor 1262	37324-23-5	40	g	1/17 (5.9%)	0.2925 - 0.2925	0/17 (0%)	No	No	0.0073 - 0.0073
Total Aroclor PCBs	1336-36-3	0.02	h	68/101 (67.3%)	0.0256 - 7.9	68/101 (67.3%)	Yes	Yes	1.3 - 395
Volatile Organic Compounds (mg/kg)									
Acetone	67-64-1	2.5	i	16/103 (15.5%)	0.0087 - 0.394	0/103 (0%)	No	No	0.0035 - 0.16
Benzene	71-43-2	0.05	h	9/103 (8.7%)	0.001 - 29	4/103 (3.9%)	Yes	Yes	0.020 - 580
Carbon Disulfide	75-15-0	0.0941	i	3/103 (2.9%)	0.0012 - 0.0061	0/103 (0%)	No	No	0.013 - 0.065
Cyclohexane	110-82-7	0.1	h	2/18 (11.1%)	0.158 - 4.89	2/18 (11.1%)	No	Yes	1.6 - 48.9
Dichloromethane	75-09-2	2	h	79/103 (76.7%)	0.002 - 0.28	0/103 (0%)	No	No	0.0010 - 0.44
Ethylbenzene	100-41-4	0.05	h	3/103 (2.9%)	0.0083 - 12.3	1/103 (0.97%)	Yes	Yes	0.17 - 246
Isopropylbenzene	98-82-8	NA	NA	1/18 (5.6%)	0.943 - 0.943	0/18 (0%)	No	No	NA - NA
m&p-Xylenes	ARC-mpXyl	0.05	h	6/73 (8.2%)	0.0029 - 51.9	5/73 (6.8%)	No	Yes	0.058 - 1,040
Methyl Acetate	79-20-9	2.4	k	2/18 (11.1%)	0.0039 - 0.0061	0/18 (0%)	No	No	0.0016 - 0.0025
Methylcyclohexane	108-87-2	1160	j	2/18 (11.1%)	0.409 - 8.78	0/18 (0%)	No	No	0.00035 - 0.0076
o,p-Xylene	136777-61-2	0.05	h	2/55 (3.6%)	0.1 - 2.2	2/55 (3.6%)	Yes	Yes	2.0 - 44.0
o-Xylene	95-47-6	0.05	h	3/18 (16.7%)	0.00085 - 19.1	2/18 (11.1%)	Yes	Yes	0.017 - 382
Styrene (Monomer)	100-42-5	0.1	h	1/73 (1.4%)	2.4 - 2.4	1/73 (1.4%)	No	Yes	24.0 - 24.0
Toluene	108-88-3	0.05	h	10/103 (9.7%)	0.0013 - 53.4	5/103 (4.9%)	Yes	Yes	0.026 - 1,070
Total Xylenes	1330-20-7	0.05	h	34/48 (70.8%)	0.29 - 71	4/48 (8.3%)	No	Yes	5.8 - 1,420

Remedial Investigation Report
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Philadelphia, Pennsylvania

Analyte	CAS Number	Relevant Ecological Soil Criteria ^{1,2}		Detection Frequency	Range of Detections	Criteria Exceedance Frequency	Act 2 COPEC?	Retain as COPEC?	Range of Hazard Quotients
Semi-Volatile Organic Compounds (mg/kg)									
1,1-Biphenyl	92-52-4	60	g	16/18 (88.9%)	0.0088 - 6.43	0/18 (0%)	No	No	0.00015 - 0.11
2,4-Dimethylphenol	105-67-9	0.01	i	2/104 (1.9%)	0.158 - 0.181	2/104 (1.9%)	No	Yes	15.8 - 18.1
2-Methylnaphthalene	91-57-6	3.24	b	81/104 (77.9%)	0.0173 - 1300	13/104 (12.5%)	No	Yes	0.0053 - 401
2-Methylphenol	95-48-7	0.5	h	3/74 (4.1%)	0.0797 - 0.195	0/74 (0%)	No	No	0.16 - 0.39
3-Methylphenol, 4-Methylphenol	65794-96-9	0.5	h	5/49 (10.2%)	0.037 - 0.61	1/49 (2%)	No	Yes	0.074 - 1.2
4-Methylphenol	106-44-5	0.5	h	1/55 (1.8%)	180 - 180	1/55 (1.8%)	No	Yes	360 - 360
4-Nitroaniline	100-01-6	21.9	i	1/49 (2%)	0.17 - 0.17	0/49 (0%)	No	No	0.0078 - 0.0078
Acenaphthene	83-32-9	20	b	73/104 (70.2%)	0.0155 - 180	3/104 (2.9%)	No	Yes	0.00078 - 9.0
Acenaphthylene	208-96-8	29	b	81/104 (77.9%)	0.035 - 2000	6/104 (5.8%)	No	Yes	0.0012 - 69.0
Acetophenone	98-86-2	300	i	3/18 (16.7%)	0.0245 - 0.128	0/18 (0%)	No	No	0.000082 - 0.0031
Anthracene	120-12-7	0.1	b	91/104 (87.5%)	0.044 - 1800	88/104 (84.6%)	No	Yes	0.44 - 18,000
Benzo(a)anthracene	56-55-3	0.25	b	102/104 (98.1%)	0.0283 - 1800	91/104 (87.5%)	Yes	Yes	0.11 - 7,200
Benzaldehyde	100-52-7	470	k	7/18 (38.9%)	0.0111 - 0.212	0/18 (0%)	No	No	0.000024 - 0.00045
Benzo(a)pyrene	50-32-8	0.1	b	102/104 (98.1%)	0.0339 - 1300	97/104 (93.3%)	No	Yes	0.34 - 13,000
Benzo(b)fluoranthene	205-99-2	18	b	104/104 (100%)	0.0478 - 1600	17/104 (16.3%)	No	Yes	0.0027 - 88.9
Benzo(g,h,i)perylene	191-24-2	7.5	b	99/104 (95.2%)	0.0281 - 850	20/104 (19.2%)	No	Yes	0.0037 - 113
Benzo(k)fluoranthene	207-08-9	2.4	b	97/104 (93.3%)	0.046 - 690	32/104 (30.8%)	No	Yes	0.019 - 288
bis(2-Ethylhexyl)phthalate	117-81-7	0.925	i	56/104 (53.8%)	0.0385 - 1.7	4/104 (3.8%)	No	Yes	0.042 - 1.8
Butyl benzyl phthalate	85-68-7	0.239	i	13/104 (12.5%)	0.045 - 0.7	5/104 (4.8%)	No	Yes	0.19 - 2.9
Carbazole	86-74-8	NA	b	85/104 (81.7%)	0.0116 - 970	0/104 (0%)	No	No	NA - NA
Chrysene	218-01-9	4.73	b	103/104 (99%)	0.0272 - 1500	35/104 (33.7%)	Yes	Yes	0.0058 - 317
Semi-Volatile Organic Compounds (mg/kg) (continued)									
Dibenz(a,h)anthracene	53-70-3	18	b	91/104 (87.5%)	0.0326 - 270	3/104 (2.9%)	Yes	Yes	0.0018 - 15.0
Dibenzofuran	132-64-9	19	j	87/104 (83.7%)	0.0199 - 1600	7/104 (6.7%)	No	Yes	0.0010 - 84.2
Diethyl phthalate	84-66-2	24.8	g	3/74 (4.1%)	0.041 - 0.064	0/74 (0%)	Yes	No	0.0017 - 0.0026
Di-n-butyl phthalate	84-74-2	0.15	g	30/104 (28.8%)	0.0187 - 0.42	5/104 (4.8%)	Yes	Yes	0.12 - 2.8
Di-n-octyl phthalate	117-84-0	709	i	2/104 (1.9%)	0.047 - 0.076	0/104 (0%)	Yes	No	0.000066 - 0.00011
Fluoranthene	206-44-0	0.1	b	104/104 (100%)	0.0452 - 3800	98/104 (94.2%)	No	Yes	0.45 - 38,000
Fluorene	86-73-7	29	b	81/104 (77.9%)	0.0204 - 2600	8/104 (7.7%)	No	Yes	0.00070 - 89.7
Indeno(1,2,3-cd)pyrene	193-39-5	5.9	b	99/104 (95.2%)	0.0286 - 750	24/104 (23.1%)	Yes	Yes	0.0048 - 127
Naphthalene	91-20-3	0.0994	b	86/104 (82.7%)	0.02565 - 6000	72/104 (69.2%)	No	Yes	0.26 - 60,400
Phenanthrene	85-01-8	0.1	b	101/104 (97.1%)	0.0215 - 7700	97/104 (93.3%)	Yes	Yes	0.22 - 77,000
Phenol	108-95-2	0.05	h	14/104 (13.5%)	0.0364 - 210	14/104 (13.5%)	No	Yes	0.73 - 4,200
Pyrene	129-00-0	0.1	b	103/104 (99%)	0.0413 - 4400	99/104 (95.2%)	Yes	Yes	0.41 - 44,000
Total PAHs	ARC-TPAH	1	h	55/55 (100%)	0.056 - 7910	48/55 (87.3%)	Yes	Yes	0.056 - 7,910

Ecological Screening Benchmark Comparisons - Summary and Hazard Quotients
**Remedial Investigation Report
 National Grid Former Philadelphia Coke Plant
 Philadelphia, Pennsylvania**
Notes:

1. The relevant ecological screening benchmarks (ESBs) are selected based on the following hierarchy system:
 1. EcoSSLs
 2. ORNL benchmarks
 3. EPA Region 4
 4. EPA Region 5
 5. ECOTOX
 6. PubChem
2. Letter denotes which ESB was selected for each analyte:
 - a. Eco-SSL Avian Soil Screening Benchmark
 - b. Eco-SSL Inverts Soil Screening Benchmark
 - c. Eco-SSL Mammalian Soil Screening Benchmark
 - d. Eco-SSL Plants Soil Screening Benchmark
 - e. ORNL Invertebrates Soil Screening Benchmark
 - f. ORNL Microbes Soil Screening Benchmark
 - g. ORNL Plants Screening Benchmark
 - h. EPA R4 Soil
 - i. EPA R5 ESL Soil Screening Benchmark
 - j. PubChem
 - k. ECOTOX
3. See reference section below for the ESBs used.
4. CAS = Chemical Abstract Service.
5. COPEC = Constituent of Potential Ecological Concern
6. mg/kg = Milligrams per kilogram
7. NA = Not applicable
8. PAH = Polycyclic Aromatic Hydrocarbon
9. PCB = Polychlorinated Biphenyl

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