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Solvay, Inc.

Remedial Investigation Report Addendum and Cleanup Plan

Morrisville, Pennsylvania Facility
USEPA ID No. PAD002336410

July 2015

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Remedial Investigation Report Addendum and Cleanup Plan

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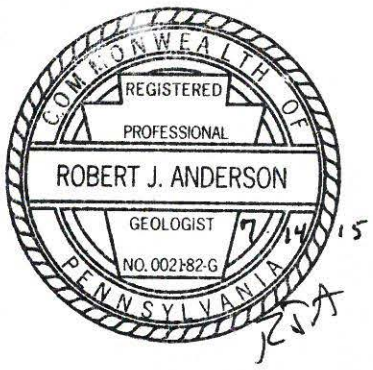

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1. Introduction

This Remedial Investigation Report Addendum (RIRA) and Cleanup Plan (Report) has been prepared on behalf of Solvay, Inc. (Solvay; formerly known as Rhodia Inc.) for the Morrisville, Pennsylvania Facility located at 2300 South Pennsylvania Avenue in Morrisville, Pennsylvania (the "Site", see **Figure 1**). This Report was prepared to summarize additional Remedial Investigation (RI) activities that were conducted at the Site following the submission of the Remedial Investigation Report (RIR) in August 2012 (ARCADIS, 2012a). The RIR concluded that additional delineation was required to fill data gaps. The RIR was approved by the Pennsylvania Department of Environmental Protection (PADEP) on November 27, 2012. This Report also includes an ecological risk assessment (ERA) for select areas of the Site.

Proofs of newspaper publication and municipality notification of the submittal of this Report are provided in **Appendix A**.

The RIR (ARCADIS, 2012a) presents details of the Site background, including the Site description, environmental setting, historical activities and waste management practices, areas of concern (AOCs), and historical investigation activities and findings. The Site Plan is presented on **Figure 2** and includes locations of the samples collected in 2012 during the initial RI.

As presented in the RIR, RI activities were conducted to assess the path forward for obtaining a Site-wide release of liability (ROL) for Site media in accordance with a Site-Specific Standard (SSS). The approved RIR presented a preliminary exposure pathway evaluation, the findings of which were as follows:

- Areas 5, 6, 10, and the area to the west and south of Areas 5 and 6 (referred to herein as the 'Non-Residential Area'): Soil direct contact pathway was identified as complete;
- Area 10: Potential risk to ecological receptors required evaluation;
- Leaching to groundwater was identified as a complete pathway, however, the PADEP has designated the groundwater as part of a non-use aquifer designation in the area, and does therefore not present a concern;
- Ingestion of groundwater is not a complete pathway; and
- Groundwater discharge to surface water is not a complete pathway.

A Site meeting took place in spring 2013 between the United States Environmental Protection Agency (USEPA), PADEP, Solvay and ARCADIS to discuss the RIR conclusions and identify areas that required further evaluation under the non-residential scenario. Data gaps requiring horizontal and vertical arsenic

delineation in Areas 5, 6, and the Non-Residential Area (see **Figure 2**) were identified, and the need for an ERA in Area 10 was identified. It was agreed that ARCADIS would conduct additional investigative activities to further assess and/or delineate impacted soil and sediment in these areas. This Report summarizes the work performed to address the data gaps which included five sampling events in June (**Figure 3**), September (**Figure 4**), and November 2013 (**Figure 5**), as well as May 2014 (**Figure 6**) and April 2015 (**Figure 7**).

At the time of the June and September 2013 sampling events, delineation to the PADEP Non-Residential Direct Contact Medium-Specific Criteria (MSC) was the intent of soil sampling. However, following the September 2013 sampling event, the Solvay property was re-zoned from industrial to mixed commercial/residential use. **Figure 2** shows the areas considered for residential and non-residential use. As a result, Site data were re-evaluated in comparison to the residential MSCs to determine potential redevelopment opportunities. The evaluation showed that arsenic concentrations were above the residential MSCs in Areas 3, 4, 5, 6, 8, the Non-Residential Area and the Waste Pipeline. Other metals were present in Area 10 sediment at concentrations above residential MSCs as well. Two detections of benzo(a)pyrene were also slightly above residential MSC in Area 3 and the Former Manufacturing Area (previously referred to as the 'Industrial Area' in the RIR). **Appendix B** presents the original (2012) RI soil data in comparison to residential standards and is the rationale for the additional delineation samples collected during the supplemental RI sampling events.

The Site as a whole will be considered under the residential scenario. As documented in the approved RIR, certain areas of the Site were not investigated during the RI based on historical knowledge that these areas were not impacted by Site activities. Other areas that were impacted and were investigated during the RI, met residential MSCs and did not require additional sampling during the supplemental investigations that were conducted from 2013 to 2015. Areas compared to residential MSCs for the purpose of this Report include Areas 4, 5, 6, 8, 10 and the Former Manufacturing Area. Areas where residential development is not considered feasible include Area 3, the Non-Residential Area, and the Waste Pipeline, and are therefore compared to non-residential MSCs.

Subsequent discussions between Solvay representatives and the USEPA and PADEP led to concurrence that arsenic was the only remaining concern, and that the Site required remediation to the PADEP Non-Residential Direct Contact MSC (53 milligrams per kilogram (mg/kg) for arsenic). In addition to this, Solvay has performed delineation to residential standards for the Site as a whole, and in developable portions of the Site (described above), in order to assess potential residential uses on the Site. On February 4, 2015, a meeting was held between PADEP, USEPA and Solvay representatives to discuss the results of the recent delineation events and the refined closure strategy for the Site. Based on the meeting and subsequent correspondences and evaluations, it was determined that a one-foot soil cover would be placed within areas that contained arsenic in soil samples at concentrations greater than the residential MSC of 12 mg/kg. Additionally, calculation of a 95% Upper Confidence Limit (95 UCL) of the arithmetic mean was proposed for

areas that were not considered ecological habitats, to evaluate risks of human exposure under the appropriate property use scenarios.

The following sections provide information on the activities conducted during supplemental sampling events, which have delineated both the residential and non-residential MSC exceedances at the Site. Also included in this Report is an exposure pathway evaluation, including findings of the human health risk evaluation (the results of the 95 UCL calculations) and findings of the ERA. Section 5 provides the proposed Cleanup Plan for remediation of the Site to both residential and non-residential standards, which include excavation, engineering controls (liner, soil covers) and institutional controls (deed restrictions through an Environmental Covenant).

1.1 List of Contacts and Signatures

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2. Additional Site Characterization Activities

Supplemental investigation activities were conducted in accordance with the Site-specific Health and Safety Plan (HASP) and ARCADIS' internal Standard Operating Procedures (SOPs), which were included in the approved Remedial Investigation Work Plan (RIWP) (ARCADIS, 2012b).

2.1 Site Preparation

Prior to commencing investigation activities at the Site, the following preparatory activities were performed in the vicinity of the proposed investigation areas:

- Location of underground utilities, including the waste pipeline, where possible; and
- Clearing of trees and brush.

Underground utilities were located by Master Locators of Glen Mills, Pennsylvania.

2.2 Areas Investigated

Areas investigated during the RI where delineation was complete, or areas that did not require investigation due to historical knowledge of them being un-impacted by Site operations, did not need addressed during the supplemental RI.

The main focus of the supplemental RI activities described in this Report were Areas 5, 6, 10, the Non-Residential Area, and the Waste Pipeline. Soil sampling for arsenic was conducted in these areas for delineation to the residential standards (Areas 5, 6 and 10) and non-residential standards (Non-Residential Area, and Waste Pipeline). Other areas with RI soil samples that contained arsenic concentrations requiring delineation were Area 3 (to non-residential standards) and the Former Manufacturing Area (includes Area 8 and Area 4) (to residential standards).

One RI sample (IA-06) in the Former Manufacturing Area also exhibited a benzo(a)pyrene concentration above the residential MSC. Step-out samples were collected during the November 2013 supplemental investigation to delineate this concentration.

Soil around the Waste Pipeline was sampled to evaluate whether arsenic leached from the pipeline and impacted surrounding soils. Additionally, ARCADIS completed investigations to more accurately track the path, endpoint and condition of the waste pipeline. Findings are presented in Section 3.

Additional constituents were detected in Area 10 RI sediment samples at concentrations above MSCs. While this report focuses on arsenic concentrations, **Appendix B** provides a summary of constituents above residential MSCs. Various media within Area 10 were sampled during the supplemental investigation to support the ERA. Sampling activities are described in the following sections.

2.3 Soil Sampling Activities

Horizontal and vertical delineation of RI soil sample concentrations above residential MSCs was completed in select areas of the Site where residential development was considered feasible. Numerous soil samples were collected during the supplemental investigations at step-out locations from RI samples that exhibited residential MSC exceedances. During the field efforts, additional contingency step-out samples were collected and were placed on hold pending laboratory analysis of the initial step-out samples. Contingency samples were released for laboratory analysis if the initial step-out location exhibited a MSC exceedance. **Figure 3** through **Figure 7** present the soil sample locations by event.

The following sections describe the soil sampling protocol and analytical methods conducted during the supplemental investigations.

2.3.1 Soil Sampling Procedures

Depending upon the depth of the RI samples that exhibited MSC exceedances in soil, surface and subsurface soil samples were collected during the supplemental RI for delineation purposes. In general, horizontal delineation samples were located approximately 40 to 50 feet from previous MSC exceedance locations.

Surface soil samples (1.5 to 2 feet below ground surface [ft bgs]) were collected using a hand auger by ARCADIS personnel. Subsurface soil samples were collected for vertical delineation where appropriate (at the same depth where the RI sample MSC exceedance was present in the subsurface, or if a step-out surface soil sample required vertical delineation). Subsurface soil samples were collected using a Geoprobe® direct-push drill rig, operated by Zebra Drilling Company of Jackson, New Jersey (June 2013 and May 2014 events) and Uni-tech Drilling Company, Inc. of Franklinville, New Jersey (November 2013 event) with oversight provided by ARCADIS. A photoionization detector (PID) was used to field screen the soil for volatile organic compounds (VOCs). Soil boring logs from the supplemental investigations are provided in **Appendix C**.

Soil samples that were collected as part of the supplemental RI are shown by event on **Figure 3** through **Figure 7**. Analytical samples were submitted under proper chain of custody to Hampton-Clark/Veritech of Fairfield, New Jersey. Soil samples were analyzed for arsenic via USEPA Method 6010B, and some samples (from Area 3 and Former Manufacturing Area) were analyzed for benzo(a)pyrene via method

8270C. The details of the sampling within each area during the June 2013, September 2013, November 2013, May 2014, and April 2015 sampling events are discussed below.

Area 5 (Arsenic sulfide settling ponds), Area 6 (Arsenic sulfide burial site), and Non-Residential Area

The initial intent of sampling in these areas was delineation to residential MSCs. In June 2013, 18 step-out samples ("AR-01" through "AR-19") were collected to delineate RI arsenic concentrations above the residential MSC in Areas 5 and 6. Some samples (AR-11 and -12) were contingency locations and were not analyzed, as delineation was achieved in that direction (based on comparison to MSCs). **Figure 3** presents the June 2013 sample locations. Four soil samples were also collected in June 2013 from the outfalls that receive runoff from Areas 6 and 10 ("OU-1" through"OU-4") at the locations shown on **Figure 3**. Samples were collected using a hand auger.

It was later determined that the area to the west and south of Areas 5 and 6 would not be suitable for residential development, and this area is now identified as the 'Non-Residential Area'. This area includes the four outfall samples and numerous other samples that were originally categorized with Area 5 and 6. The Non-Residential Area is depicted on **Figure 4**. Based on the results of the June 2013 sampling event, 26 additional step-out samples ("AR-20" through "AR-45") were collected in September 2013 in the Non-Residential Area, at the locations shown on **Figure 4**. Contingency samples AR-28, -29, -30, and -32 through -42 did not require analysis.

In May 2014, step-out samples 'AR-44A through "AR-101" were collected in the Non-Residential Area as well as Areas 5 and 6 at the locations presented on **Figure 6**. Sample locations AR-44A, -90, -91, -93, -94, -96, -97, -98, and -100 were collected from Areas 5 and 6. Sample locations AR-47, -50, -51, -52, -53, -54, -54A, -55, -57, -60, -63, -66, -69, -72, -75, -78, -81, -84, and -87 were collected from the Non-Residential Area. Contingency samples AR-45A, -46, -48, -49, -55A, -56, -58, -59, -61, -62, -64, -65, -67, -68, -70, -71, -73, -74, -76, -77, -79, -80, -82, -83, -85, -86, -88, -89, -92, -95, -99, and -101 did not require analysis. Multiple depths were sampled at each location, and samples at depth were not analyzed unless the overlying interval was greater than the MSC. Samples collected from the Non-Residential Area during the May 2014 sampling event (**Figure 6**) provided information on the horizontal extent of arsenic concentrations above the non-residential MSC, as discussed in Section 3.

In April 2015, 22 soil samples (AR-111 through AR-131) were collected to delineate the arsenic concentrations from sample A6-01 in the Non-Residential Area as well as in Area 5 (**Figure 7**). The purpose was to define the areas that are proposed to be spot-excavated (around A6-01 in the Non-Residential Area) and covered with fill (Area 5). Sample locations A6-01, AR-111, -112, and -120 through -131 were located in the Non-Residential Area. Sample locations AR-113, -114, -117, -118, and -119 were located in Area 5. Soil sample results are presented in Section 3. Comparison of samples from Areas 5 and 6 to residential MSCs,

and from within the Non-Residential Area to non-residential MSCs, is discussed in Sections 3.1.1 and 3.1.2, respectively.

The proposed remedial actions for these areas are discussed further in Section 5.

Waste Pipeline

The initial intent for delineation in the Waste Pipeline area was under the residential scenario. Eight samples ("WP-04" through "WP-11") were collected in November 2013 at the locations shown on **Figure 5** to delineate arsenic concentrations in the area of the waste pipeline above the residential MSC. Contingency sample WP-07 did not require analysis.

Based on the November 2013 analytical results, additional step out samples WP-12 through WP-24 were collected in May 2014 to characterize the extent of arsenic impacts associated with the Waste Pipeline that is located adjacent to the northern and southern edge of the driveway (**Figure 6**). Soil samples were collected from the following depth intervals using Geoprobe technology: 1.5 – 2 ft bgs, 3.5 – 4 ft bgs, 5.5 – 6 ft bgs and 7.5 – 8 ft bgs. Step out boring locations as well as subsurface samples from 5.5 - 6 and 7.5 – 8 ft bgs were placed on hold at the laboratory, to be analyzed pending initial results. Contingency samples WP-19, -20, -21 and -24 did not require analysis.

The exact location of the Waste Pipeline was difficult to trace once it entered the heavily wooded area north of the driveway. During the May 2014 field event, a metal rod was used to penetrate the ground surface in an attempt to locate the pipeline. Where resistance was encountered, it was inferred that the pipeline was present. The exact location of the pipeline was challenging to track, due to its small diameter and poor condition (substantial water logging and easily broken transite) of the pipe. A small bucket excavator was used to remove overgrowth and soil to confirm the location of the pipe. Samples AR-102 through AR-110 were collected in May 2014 (**Figure 6**) along the inferred pipeline to determine if arsenic had leached from the pipeline into surface and subsurface soils. Upon digging a small hole by hand in the vicinity of samples AR-108 through 110, it was observed that the pipeline was broken in several pieces at various depths and appeared to have been previously disturbed by some type of construction activity. The pipe was not found beyond this point despite several test holes advanced with the bucket excavator.

Samples AR-103, AR-106 and AR-109 were collected at the pipeline's inferred centerline, and additional samples were collected on either side of the pipe by stepping out a few feet (**Figure 6**). Sampled depth intervals include 1.5 – 2 ft, 2.5 – 3 ft, and 3.5 – 4 ft bgs. Based on the results of centerline samples collected at 1.5 – 2 ft and 2.5 – 3 ft, contingency samples were also analyzed. Exposed segments of the pipeline were surveyed by professional land surveyor Dennis W. Sklar.

It was later determined that the area of the Waste Pipeline would not be suitable for residential development, and comparison to non-residential MSCs was completed, as described in Section 3.

Area 3, Area 8, and Former Manufacturing Area

In November 2013, delineation soil samples were collected from Areas 3 and 8 and the Former Manufacturing Area as described below. The Former Manufacturing Area was referred to as the 'Industrial Area' in the RIR. However, it has been re-designated as the Former Manufacturing Area for the purpose of this Report because it was part of the residential delineation.

- Area 3: Samples A3-09 through A3-13 were collected to delineate arsenic concentrations above their respective residential MSCs in shallow RI soil samples A3-01, -02, -04 and -08. However, Solvay later elected for this area to be restricted to non-residential development due to the low potential for future development of this portion of the Site.

- Area 8: Sample A8-06 was collected to delineate the residential MSC exceedance for arsenic in the 7 – 7.5 ft bgs interval of RI sample A8-04. Area 8 falls within the Former Manufacturing Area.

- Former Manufacturing Area: Sample IA-22 and contingency sample IA-23 were collected to delineate the benzo(a)pyrene concentration above the residential MSC in the 2.5 – 3.5 ft interval in RI sample IA-06. Contingency sample IA-23 did not require analysis.

Soil sample results are discussed in Section 3.

2.4 Sediment, Surface Water and Pore Water Sampling Activities – Area 10

Area 10 is the Settling Pond for storm water runoff and formerly accepted process waste streams. Because there are no sediment screening levels to compare to, sediment concentrations were evaluated against PADEP Surface Soil MSCs in the RIR. Sediment samples collected during the RI exhibited concentrations of constituents above their respective MSCs. In June 2013, co-located sediment, surface water and porewater samples were collected from eight sample locations within the pond ("SD/SW/PW-1" through "SD/SW/PW-8") at the locations shown on **Figure 3** to evaluate potential ecological risks, as follows:

- Pore water samples: collected using passive diffusion bags (PDBs) that were placed into polyvinyl chloride (PVC) pore water sleeves, which were driven approximately six inches into the sediment. PDBs were allowed approximately two weeks to equilibrate, and were analyzed for dissolved Target Analyte List (TAL) metals.

- Surface water samples: collected from the middle of the water column using weighted, dedicated Teflon bailers. Samples were analyzed for hardness, and total and dissolved TAL metals.

- Bulk sediment samples: collected from 0-0.5 ft bgs interval and analyzed for TAL metals, alkylated polycyclic aromatic hydrocarbons (PAHs), total organic carbon (TOC), acid volatile sulfide/simultaneously extracted metals (AVS/SEM), and arsenic speciation/arsenic dimethylarsinous acid/monomethylarsonous acid (DMAA/MMAA).

Area 10 samples were submitted under standard chain of custody documentation as follows:

- Pore water and surface water samples were submitted to Hampton-Clark/Veritech of Fairfield, New Jersey.

- Sediment samples:

    - AVS/SEM, PAH, TOC, and metals analyses were completed at Accutest Laboratories of Dayton, New Jersey.

    - Arsenic Speciation and arsenic DMAA/MMAA analyses were completed at Eurofins Laboratories of Lancaster, Pennsylvania.

Analytical results were used to support the ERA (**Appendix D**), discussed in Section 4.3.

2.5 Quality Assurance/Quality Control Samples

Soil and aqueous equipment blanks, field duplicates, and matrix spike/matrix spike duplicate (MS/MSD) sets were collected on a frequency of one per 20 samples collected in each media, as described in the RIWP.

2.6 Decontamination

Equipment decontamination was an integral part of the sampling activities and was performed to prevent cross-contamination between sampling locations. A decontamination area was established before the commencement of investigation activities. Non-disposable sampling equipment (e.g., hand augers and drilling rods) was decontaminated in accordance with ARCADIS SOPs.

2.7 Surveying

Soil sample locations were surveyed by Pennsylvania-licensed surveyors, Gilmore and Associates, Inc. and Dennis W. Sklar, Inc. All survey data were referenced to the Pennsylvania State Plane South coordinate system and were reported using NAD83 (horizontal) and NAD88 (vertical) data.

Additionally, points along exposed segments of the waste pipeline (near samples AR-93, -103, -106 and -109) were surveyed in May 2014 to confirm the location of the pipeline that was previously depicted on RI figures. The surveyed layout of the exposed pipeline is depicted on **Figure 2.**

3. Nature and Extent of Impacts

The following sections summarize the findings of the supplemental RI activities. Solvay is seeking a ROL for the entire Site (**Figure 2**) under a combination of Statewide Health Standards and Site-Specific Standards for residential land use. Select areas have been identified as developable for residential uses, while others will be restricted to non-residential land use, and were compared to MSCs as such. Certain areas will require engineering or institutional controls to attain their respective standard, as discussed in Section 4.

3.1 Soil

Soil samples collected during the 2012 RI were initially compared to residential MSCs for the purpose of determining the extent of delineation sampling that would be necessary for the RIRA. RI soil sample results compared to residential MSCs are presented in **Appendix B**. It was later determined that not all areas of the Site would be suitable for residential development, and therefore the sections below describe both residential and non-residential delineation results, by area. Based on the findings of the RIR and subsequent agency correspondences, arsenic is the remaining constituent of concern for the purpose of this Report. The residential MSC for arsenic is 12 mg/kg (0 to 15 ft bgs), and the non-residential MSCs for arsenic are 53 mg/kg (0 to 2 ft bgs) and 190,000 mg/kg (2 to 15 ft bgs).

Laboratory analytical data packages for soil samples collected during the supplemental RI are included as **Appendix E**. A summary of the findings is provided below.

3.1.1 Areas of Residential Characterization

Areas 5, 6, 8, and the Former Manufacturing Area were characterized to ascertain delineation to residential MSCs because these areas have more potential to be redeveloped for residential purposes. Sample results from Area 10 are also compared to residential MSCs for the purpose of this Report as the area will be covered with fill, eliminating the direct contact exposure pathway for future residents. Soil results for these areas are presented below.

3.1.1.1 Areas 5 and 6

Five arsenic delineation events were conducted between June 2013 and April 2015 that encompassed these two areas. Analytical results are presented in **Table 1** and exceedances of the residential MSC are shown on **Figure 8**.

June 2013

Three of the soil samples from the June 2013 event (AR-5 (11 to 11.5 ft bgs), AR-18 (8 to 8.5 ft bgs), and AR-19 (1.5 to 2 ft bgs)) exceeded the residential MSC for arsenic.

May 2014

Surficial soil samples AR-44A, -97, -98, and -100 were collected from the exterior portions of Area 5 and Area 6 on either side of the outfall stream in May 2014. These soil samples were collected as 'step out' samples located approximately 30 feet from soil samples collected during prior events. There were no exceedances of the residential MSC for arsenic in samples collected during the May 2014 event.

April 2015

The purpose of the April 2015 soil sampling event in this area was to define the area that will require cover in Area 5. Five surface soil samples were collected from Area 5. Three samples exceeded the residential MSC (AR-113, AR-117, and AR-118). Sample location AR-119 was 9.5 mg/kg (below the MSC) and AR-114 equaled the MSC (12 mg/kg).

Table 1 and **Figure 8** present the arsenic concentrations in soil samples above the residential Direct Contact MSC of 12 mg/kg.

3.1.1.2 Area 8

Surface samples were not collected from Area 8 as part of the supplemental RI activities. One sub-surface sample was collected (A8-06) from 7 to 7.5 ft bgs to delineate the exceedance in RI sample A8-04 (7 to 7.5 ft bgs). Arsenic in soil collected from A8-06 was below the residential MSC (**Table 1**). This completes delineation of the arsenic exceedance in RI sample A8-04.

3.1.1.3 Former Manufacturing Area

Sample IA-22 was collected in November 2013 to delineate the benzo(a)pyrene concentration above the MSC in the 2.5 – 3.5 ft interval in RI sample IA-06. The result was below the residential MSC, as shown on **Table 1**. Also presented on **Table 1** is a MSC exceedance for arsenic in RI sample A4-01. However, sample A4-01 was located inside the Former Manufacturing Area, and additional delineation was not necessary.

3.1.1.4 Area 10

As presented in the RIR (ARCADIS, 2012a), sediment sample results were detected at concentrations above surface soil MSCs (**Appendix B**). Arsenic exceedances are presented in **Table 1**. The proposed remedy is discussed in Section 5. Additional sediment, pore water and surface samples were collected to support the ERA. These results are evaluated in **Appendix D**.

3.1.2 Areas of Non-Residential Characterization

Low lying or wet areas (Non-Residential Area, Waste Pipeline, and Area 3) would not be developed for residential purposes, and were therefore characterized to ascertain delineation to non-residential standards. Analytical results are presented in **Table 2** and arsenic concentrations above the non-residential MSC are shown on **Figure 9**. Surface soil sample results above the Direct Contact MSC are discussed below. No subsurface soil sample results were above the 2 to 15 ft bgs Direct Contact MSC.

3.1.2.1 Non-Residential Area

Four arsenic delineation events were conducted between June 2013 and April 2015 with locations that now fall within the Non-Residential Area. Analytical results are presented in **Table 2** and exceedances of the non-residential MSC are shown on **Figure 9**.

June 2013

Seven locations were sampled during the June 2013 event. One location exceeded the non-residential MSC for arsenic (AR-16 surficial sample). The sub-surface sample at AR-16 did not exceed the non-residential MSC.

Four additional samples (OU-1, OU-2, OU-3 and OU-4) were collected from the bed of the outfall streams to monitor the extent of arsenic potentially transported within the streams from Area 6 and Area 10. Outfall sample, OU-01, was the only exceedance of the non-residential MSC.

September 2013

Eleven samples were collected in September 2013 from the Non-Residential Area. There were no exceedances of the non-residential MSC for arsenic during this event.

May 2014

Nineteen locations were sampled in May 2014 from the Non-Residential Area. There were no exceedances of the non-residential MSC during this sampling event.

April 2015

The purpose of the April 2015 soil sampling event was to define the extent of the elevated arsenic concentration (690 mg/kg) in RI soil sample A6-01. As discussed below in Section 4.1.2, this elevated concentration was biasing the 95 UCL calculations high. Removal of this sample result from the calculation substantially decreased the 95 UCL arithmetic mean. It was determined that this sample location would be removed via excavation. Among the samples collected (AR-120 through AR-131), only one location exceeded the non-residential MSC (AR-127 at 56 mg/kg). Two additional samples were collected during this event in the Non-Residential Area (AR-111 and AR-112). Both locations exceeded the non-residential MSC for arsenic (**Table 2**).

3.1.2.2 Waste Pipeline

Seven surface samples were analyzed for arsenic along the waste pipeline in November 2013. At the time of the November 2013 sampling event, concentrations were compared to residential MSCs. Arsenic concentrations from six samples (WP-05, WP-06, WP-08, WP-09, WP-10 and WP-11) exceeded the residential MSC. Therefore, 28 additional samples were collected along the waste pipeline in May 2014. It was later determined by Solvay that this low-lying area would not be suitable for residential development, and therefore, sample concentrations were compared to non-residential MSCs. Arsenic concentrations did not exceed the non-residential MSC in any WP samples, as shown in **Table 2**.

3.1.2.3 Area 3

Supplemental sampling was conducted in Area 3 in November 2013 to delineate arsenic concentrations above residential MSCs. However, it was later determined by Solvay that this area will be restricted to non-residential development. Arsenic concentrations in samples A3-09 through A3-13 were below the non-residential MSC (**Table 2**).

4. Updated Exposure Pathway Evaluation

This section discusses the potential exposure pathway scenarios, and the steps that may be taken to mitigate them. The potential exposure pathways that remain and that were evaluated during the supplemental RI are direct contact with arsenic-impacted soil and several constituents in Area 10 media. Potential receptors include Site workers, trespassers or potential future residents, construction workers and potential ecological receptors.

4.1 Soil and Sediment Direct Contact Exposure Pathway

Figures 8 and **9** show the areas of residential and non-residential delineation, respectively. These areas of delineation have been updated since the RIR to reflect additional sampling events and comparison to the non-residential arsenic MSCs of 53 mg/kg (0-2 ft bgs) and 190,000 mg/kg (2-15 ft bgs), and the residential MSC of 12 mg/kg (0-15 ft bgs). A discussion of the direct contact exposure pathways that are identified is discussed below, based on the potential redevelopment scenario (residential vs. non-residential) for each area of concern.

4.1.1 Residential

As described in Section 1, the Site as a whole will be considered under the residential scenario. As documented in the approved RIR, certain areas of the Site were not investigated during the RI based on historical knowledge that these areas were not impacted by Site activities. Other areas that were impacted and were investigated during the RI, met residential MSCs and did not require additional sampling during the supplemental investigations that were conducted from 2013 to 2015.

Among the areas that were sampled during supplemental RI investigations, Areas 5, 6, 10 and the Former Manufacturing Area were considered for the residential ROL, based on their proposed remedies and potential for residential re-development.

4.1.1.1 Area 5

Area 5 has been delineated using the residential MSC as shown on **Figure 8**. Based on the presence of arsenic in surface soils above the MSC the direct contact exposure pathway is complete. Engineering controls (soil cover) will eliminate exposure to soil with concentrations of arsenic above the residential MSC in Area 5. These controls were evaluated as part of the Cleanup Plan and are presented in Section 5.

There are also subsurface soil samples from Area 5 that contain arsenic concentrations above the residential MSC, but these would not present a direct contact concern unless subsurface soil were to be excavated or otherwise exposed. An institutional control (deed restriction) will be memorialized in an

Environmental Covenant that will prohibit disturbances of soil in this area, as discussed in Section 5 (Cleanup Plan).

4.1.1.2 Area 6

Arsenic concentrations in soil samples from Area 6 are presented on **Figure 8**. This area is currently covered by an engineered clay cap, as documented during the RI with geotechnical borings GT-1 and GT-2. Therefore the direct contact exposure pathway is not complete in Area 6. An institutional control (deed restriction) will be enforced that will prohibit disturbance of the cap, as discussed in Section 5.

4.1.1.3 Former Manufacturing Area

RI soil samples in Area 4 (A4-01) and Area 8 (A8-04) contained arsenic concentrations greater than the residential MSC (**Figure 8**). These samples are within the Former Manufacturing Area and are located in a portion of the Site that is already covered with concrete. A 95 UCL calculation was completed for the Former Manufacturing Area, which includes Area 4 and Area 8. Results of the calculation indicated that the arithmetic mean of soil samples do not present exposure at unacceptable levels (i.e., above the residential Direct Contact MSC). Therefore, this pathway is not complete. The 95 UCL calculation is described in more detail in Section 4.2.

A 95 UCL calculation was also completed for the Former Manufacturing Area for the only benzo(a)pyrene residential MSC exceedance (see **Table 1**) in RI sample IA-06 (2.5 – 3.5). Results of the calculation indicated that the arithmetic mean of soil samples do not present exposure at unacceptable levels for benzo(a)pyrene. This is described further in Section 4.2.

4.1.1.4 Area 10

Potential ecological receptors in Area 10 were evaluated during supplemental RI activities, in accordance with PADEP guidance.

As an initial review of the potential for threatened and endangered species, a Pennsylvania Natural Diversity Index (PNDI) search was performed during the RI and is included in Appendix A of **Appendix D** (ERA). As presented on the PNDI receipt, the Department of Conservation and Natural Resources (DCNR) Bureau of Forestry and the Pennsylvania Fish and Boat Commission identified several species in the area that have potential to be impacted.

ARCADIS contacted the agencies noted above and received responses. The correspondence letters are included in Appendix A of **Appendix D**. The DCNR Bureau of Forestry indicated that no impact is anticipated. The Pennsylvania Fish and Boat Commission noted several species of concern, and indicated

that if wetlands or waterways are not proposed to be altered, and provided that best management practices are employed and strict erosion and sediment control measures are maintained in any project work, adverse impacts to the species listed are not anticipated.

Based on a notification on the PNDI Environmental Review Tool, that reviews conducted before May 4, 2015 required rescreening due to the addition of information regarding the federally-listed threatened northern long-eared bat, the Site was rescreened in June 2015 and additional correspondence letters were submitted (included in Appendix A of **Appendix D**). The species were evaluated as part of the ERA, which is described in Section 4.3. Subsequent correspondence with the Fish and Boat Commission on June 24, 2015 concluded that no further action was needed as long as the footprint of the Site did not change.

The ERA determined that constituents were not present at unacceptable levels to ecological receptors (see Section 4.3). Fencing in Area 10 currently mitigates human direct contact concerns with sediments from the pond. Further mitigation measures for human direct contact (placement of a permeable liner and fill) are described in Section 5.

4.1.2 Non-Residential

While the majority of the Site will achieve residential standards, three areas that were investigated during the supplemental RI, the Non-Residential Area, the Waste Pipeline, and Area 3, were evaluated under the non-residential scenario and will require a non-residential land use restriction (via an Environmental Covenant).

4.1.2.1 Non-residential Area

Non-residential MSC exceedances were exhibited in surface soil samples from the Non-Residential Area as shown on **Figure 9**, resulting in a complete pathway for direct contact. As described in Section 4.2, soil samples from this area were incorporated into a 95 UCL calculation, and the resulting concentrations are below non-residential MSCs. Therefore, the direct contact exposure pathway is not complete.

4.1.2.2 Waste Pipeline

Arsenic concentrations along the waste pipeline are below the non-residential MSCs. Therefore, direct contact with soils in this area is not a complete pathway.

4.1.2.3 Area 3

Arsenic concentrations within Area 3 are below the non-residential MSCs. Therefore, direct contact with soils in this area is not a complete pathway.

4.2 95 UCL Calculation

An exposure point concentration (EPC) is the concentration of a constituent of potential concern (COPC) in a media to which a receptor might be exposed through complete exposure routes. For each exposure area, the EPC is defined for arsenic concentrations in soil, and also for benzo(a)pyrene in the Former Manufacturing Area. A 95% upper confidence limit of the arithmetic mean concentration (95 UCL) was estimated and used to represent the EPC. USEPA's statistical software, ProUCL 5.0.00 (http://www2.epa.gov/land-research/proucl-software), was used to derive the 95% UCL.

Areas that were not considered ecological habitats were included in the 95 UCL calculation for the Site, to evaluate potential human exposure, as follows:

- Residential exposure in the Former Manufacturing Area, which includes Area 4 and Area 8.
- Non-residential exposure in the Non-Residential Area.

Results are presented below.

4.2.1 Residential Area

The 95 UCL area for determination of residential EPCs is shown on **Figure 10,** and includes the Former Manufacturing Area, Area 4 and Area 8. The resulting EPC for this area is 8.404 mg/kg for arsenic, which is below the residential MSC of 12 mg/kg.

A 95 UCL calculation was also completed for the Former Manufacturing Area for the only benzo(a)pyrene residential MSC exceedance in RI sample IA-06 (2.5 – 3.5). The resulting EPC for this area is 0.122 mg/kg for benzo(a)pyrene, which is below the residential MSC of 0.57 mg/kg.

Therefore, no unacceptable exposure currently exists in this area.

4.2.2 Non-residential Area

The 95 UCL area for determination of non-residential EPCs is shown on **Figure 11**, and includes the Non-Residential Area.

Results were initially biased high due to the arsenic concentration from RI surface soil sample A6-01 (690 mg/kg). It was determined that if soil from A6-01 was removed from the Site (and from the 95 UCL calculation), the EPC would be below the applicable standard, therefore eliminating the calculated risk from exposure to soil.

Calculations were run for surface soil (0 to 2 ft bgs), subsurface soil (2 to 15 ft bgs), and the 0 to 15 ft bgs depth interval. The resulting EPCs for this area are, 51.9 mg/kg, 36.67 mg/kg and 50.83 mg/kg, respectively (all below the non-residential MSC of 53 mg/kg). Excavation will be completed around A6-01, as described in Section 5.

Supporting datasets and the 95 UCL calculations are provided in **Appendix F**.

4.3 Ecological Risk Assessment

Analytical results of sediment, surface water and pore water samples collected in Area 10 were used to support the ERA in order to address potential impacts to the ecological community. Analytical results are presented in the ERA. The ERA report is included as **Appendix D**, and is summarized in this section.

While the Settling Pond is not identified as wetlands habitat according to the National Wetlands Inventory, it is surrounded by several wetland areas and appears to provide adequate habitat to support a limited aquatic ecosystem. Runoff from the area is minimal.

ARCADIS ecologists conducted ecological assessments at the Site in 2013. The pond is approximately 5 feet deep at its deepest point. There is limited emergent vegetation along the edges, and the pond is surrounded by a sparse canopy of mature deciduous trees. The understory surrounding the pond consists of saplings of species found in the canopy and several invasive species such as multiflora rose and Japanese knotweed. During several Site visits, frogs and turtles were noted in the pond. It likely supports a small fish community but none were observed.

The ERA evaluated the species identified during agency correspondence, as well as those identified during ARCADIS Site visits. The species are described in **Appendix D.**

Based on the calculations presented in **Appendix D**, the ERA predicts a lack of potential risk to all ecological receptor groups from the major constituents of potential ecological concern (CPECs) identified in Settling Pond media. An engineering control (lining and covering with certified clean fill) is proposed to ensure that potential human receptors are not subject to exposures at unacceptable levels, as described in Section 5.

5. Clean-Up Plan

Potentially complete exposure pathways were identified in Area 5, 6, and 10. Additionally, one area within the Non-Residential Area needs to be excavated for the EPC to be below the applicable standard, thereby eliminating the calculated risk from exposure to soil.

The following remedial action objectives have been identified:

- Eliminate potential human direct contact with soils
- Eliminate potential human direct contact with media in Area 10

5.1 Remedial Alternatives

Engineering (soil cover) and institutional (Environmental Covenant) controls will be implemented to eliminate direct contact exposure pathways, as described below. Proposed remediation for the residential and non-residential uses are presented on **Figures 10 and 11**, respectively.

5.1.1 Area 5

To eliminate direct contact exposure of potential future residents to surface soil in portions of Area 5, a vegetated soil cover is proposed. A one foot thick soil cover will be placed over the extent of Area 5 shown on **Figure 10**. This covered area will consist of certified clean fill, followed by seeding and establishment of a vegetative cover.

Additionally, a deed restriction will be memorialized in an Environmental Covenant that will prohibit excavation or disturbance of soils in this area without notification to PADEP.

5.1.2 Area 6

A cap currently exists in Area 6. A deed restriction will be memorialized in an Environmental Covenant that will prohibit disturbance of the cap without notification to PADEP.

5.1.3 Non-Residential Area

The 95 UCL for the Non-Residential Area determined that the EPCs are within the acceptable exposure limits.

The proposed remediation for the arsenic-impacted soil around sample A6-01 is spot excavation. The proposed excavation extent is shown on **Figure 11.** The samples collected around A6-01 to delineate this area will also serve as post-excavation samples.

5.1.4 Area 10

To address metals concentrations above non-residential MSCs in Area 10, it is proposed that a permeable liner (type to be determined) and one foot layer of certified clean fill be placed over the settling pond. In order to perform this remedial measure, the settling pond would be temporarily drained of any standing water so that the liner and cover could be installed over the existing sediment. This cover will eliminate the direct contact exposure pathway.

5.2 Treatability Studies

Treatability studies are not necessary for the proposed remedy because potential exposure pathways will be eliminated for all Site-related constituents.

5.3 Design Plans and Specifications

A design drawing set has been prepared and is included as **Appendix G.** The design drawing include the following:

- Existing Site Plan showing existing conditions of the Site
- Proposed Soil Cover Plan showing the proposed activities in the areas to be remediated
- Sections and Details showing the soil cover areas, erosion and sediment controls and other necessary details

The area of earth disturbance associated with the remedy is anticipated to be approximately 119,377 square feet. Fill material used for backfill/cover will be obtained from an offsite borrow source. It is anticipated that approximately 4,421 cubic yards of fill material will be required.

All areas disturbed as the result of the remedial activities and not otherwise stabilized will be restored with a vegetative cover consisting of topsoil and grass. In addition, runoff conditions on steeper-sloped vegetated areas will be evaluated to determine the possible need for temporary or permanent erosion control matting.

To facilitate proper implementation of the remedial action, project construction specifications will be developed and provided to the remedial contractor prior to construction. Specifications considered for this remedial action may include, but are not limited to, the following:

- Survey Control
- Clearing and Grubbing
- Erosion and Sediment Control
- Trenching
- Earthwork
- Fill Materials
- Site Restoration
- Vegetative Soil Seeding and Mulching

Table 3 provides the engineer's estimated cost to complete the proposed remedy.

5.4 Remedial Actions Status Plan

A Remedial Action Status Plan is included below to evaluate the short-term and long-term effectiveness of the remedial action.

5.4.1 Short Term Risks and Effectiveness of Remedy

During implementation of the remedy, potential exposure to impacted soils may occur for construction workers. There will be no additional risk of exposure to trespassers because no disturbance of soils will occur, and no other Site hazards will be created during implementation of the remedy. Construction workers will follow appropriate health and safety procedures and utilize proper personal protective equipment in accordance with the Site specific HASP to protect against exposure to impacted soils and other potential hazards associated with the remedial action. Procedures established in the pertinent permits and the erosion and sediment control plan will be followed to ensure that other risks are minimized to the surrounding community. Refer to the following sections for additional information pertaining to the HASP, project permit requirements, and erosion and sediment control.

5.4.2 Long Term Risks and Effectiveness of Remedy

The proposed remedial actions will eliminate any potential long-term exposure associated with impacted soils. The clean fill will eliminate the potential for direct contact with soils and sediments. Immediately upon construction of the control measures, the potential for a future direct contact pathway will be eliminated.

The implementation of the institutional and engineering controls is such that the integrity of the measures will be perpetual. Upon completion of construction, post-remediation inspections will occur as described in Section 5.12.

5.5 Construction Quality Assurance/Quality Control (QA/QC) Plan

A Site specific Construction QA/QC Plan has been prepared for the remedial activities and is included as **Appendix H**. The Construction QA/QC Plan describes the materials, procedures, and testing necessary for effective construction, evaluation, and documentation during implementation of the remedial action identified in this Cleanup Plan.

5.6 Required Approvals and Permits

Before beginning Site activities, all necessary permits will be obtained from the regulatory agencies having jurisdiction over aspects of the work. Permitting efforts will be conducted through either the state's programmatic or general permitting process.

As Area 10 possesses a current NPDES permit and is functioning in a manner consistent with the intended permitted use of receiving storm water runoff from a series of catch basins within the remaining impervious surfaces of the site, the settling pond remains a storm water Best Management Practice. As the Site is no longer an active facility, Area 10 now strictly receives storm water (no industrial wastewater).Therefore the NPDES permit can be discontinued. The installation of a liner and one foot of soil cover in Area 10 may require permitting under PADEP, including but not limited to, an Erosion and Sediment Control Plan to mitigate any downstream impacts and temporary handling of storm water during cover and construction operations.

5.7 Health and Safety Plan

A Site-specific HASP will be prepared prior to construction activities and will be onsite at all times during construction.

5.8 Site Security Plan

Site security will not be required during implementation of the remedy because no disturbance of impacted soil will occur during soil cover activities and no other Site hazards will be created during implementation of the remedy. Equipment at the Site will be secured each day when work is complete. The spot excavation of A6-01 area will be completed and backfilled within one working day, thus leaving no impacted soil exposed overnight. The Site is also fenced and has a locked entrance gate. The remediation will comply with Solvay's "Closed Site Safety Manual" and Solvay's "LIFE SAVING RULES".

5.9 Erosion and Sediment Control Plan

All erosion and sediment controls will be installed and maintained in accordance with the PADEP Chapter 102 requirements for Erosion and Sediment Control. Appropriate temporary erosion and sediment control measures will be installed prior to any significant soil disturbance and/or clearing activities at the Site. Erosion control shall consist of control measures designed to protect the existing Site features and to minimize the potential for sediment-laden storm water runoff. This project will incorporate temporary and permanent soil stabilization. The locations of soil disturbing construction activities, such as excavation and soil stockpiles, are noted on the design drawings.

General descriptions of erosion and sediment control measures that may be implemented during remediation activities will be included in the final Erosion and Sediment Control Plan. Select erosion and sediment controls considered are listed below.

- Temporary/Permanent Seeding
- Temporary/Permanent Erosion Control Mat
- Culvert Inlet Protection
- Stabilized Construction Entrances
- Silt Fence
- Good Housekeeping Practices

5.10 Schedule

The following is a proposed schedule of milestones for implementing the proposed remedial action:

- Within 60 days following receipt of written approval of this Report from PADEP, a contractor will be selected who will implement the Cleanup Plan.
- Within 60 days following receipt of written approval of this Report from PADEP, an E&SPC permit application will be submitted to the county.
- Within 60 days of gaining all necessary permits, approvals and agreements, the selected contractor will mobilize to the Site to begin construction activities. In the event mobilization would be occurring during the winter, mobilization will be postponed until the next spring construction season.
- Within approximately 180 days of beginning construction activities, the selected contractor will finish all construction activities and demobilize from the Site.
- Within 90 days of finishing all construction and construction-related activities, a draft Final Report will be submitted to PADEP.

5.11 Operation and Maintenance Plan

There will be no on-going remediation operations needed at the Site, and therefore, an Operation and Maintenance Plan is not applicable. Post-remediation monitoring and maintenance is described in the following section.

5.12 Post-remediation Care Plan

The following sections describe the inspection and maintenance requirements to be performed upon completion of construction activities. The final Post-remediation Care Plan will be included in the Final Report.

5.12.1 Inspections

Inspections will be made on a monthly basis for three months and then on a quarterly basis for 9 months (one year total) following the completion of construction. Additional on-going post-remediation care after the first year will be implemented through an enforceable mechanism such as a permit, order, or Environmental Covenant. Inspections will be performed by a Professional Engineer (PE) licensed in the Commonwealth of

Pennsylvania or a designee. The following inspection activities will be performed and recorded:

- Visual inspection of final restored surface within the work area to monitor the progress of vegetative cover growth and to check for possible evidence of erosion or other disturbances of the restored surface.

- Visual inspection of the work area to determine the existence of any seeps created as a result of the work.

- Visual inspection of areas for evidence of disturbance that might expose impacted soils.

A standardized inspection form will be filled out during each inspection to document findings, including condition of vegetative growth, presence of possible erosion rills, condition of stormwater engineering controls, evidence of any vandalism at the Site and maintenance/repairs required (if any). A brief photo log, if applicable, will also be included. The completed inspection forms will be submitted to PADEP upon completion of the post-remediation inspections.

5.12.2 Maintenance

The engineering controls will be designed and constructed to take advantage of thick, natural vegetation and function with the minimum maintenance possible. Maintenance will be limited to as-needed repairs of the engineering controls during the post remediation inspections.

Any required maintenance of the Site identified during the inspections will be documented and completed in a timely manner. A list of maintenance activities will be kept and submitted to PADEP upon completion of post-remediation inspections. The maintenance list will briefly describe the identified issue, remedy, and results of the implementation of the remedy. Any problems discovered that are beyond the scope of routine maintenance will be referred to the engineer of record, who will evaluate the situation and develop a solution as soon as practicable.

5.13 Cooperation or Agreement of Third Party

The remedial construction area is located entirely within the bounds of the Solvay property.

5.14 Public Comments

Neither Solvay or ARCADIS have received no public comments during the public comment period.

5.15 Supporting Documents

Supporting documents for a Cleanup Plan prepared under the Site-Specific Standard in the Act 2 Technical Guidance Manual include:

- Construction QA/QC Plan (included as **Appendix H**).
- Project-specific HASP (onsite during construction).
- E&SC Plan (to be submitted following PADEP approval of the Cleanup Plan).
- Schedule for implementation of the remedy (included herein), and
- Copies of all permits, approvals and agreements required for remedial construction (to be submitted following approval of the Cleanup Plan by PADEP).

6. Conclusions and Recommendations

Supplemental soil sampling and an ERA have been performed to address the potentially complete exposure pathways that were identified in the approved RIR (ARCADIS, 2012a). As documented in the RIR, a ROL for the entire Site is being sought for residential land use, under a combination of Statewide Health Standards and Site-Specific Standards. Select areas of the Site, however, do not meet residential MSCs and would not be suitable for residential development, and will therefore be restricted to non-residential development.

Following the supplemental soil sampling activities, Areas 4, 5, 6, 8, 10 and the Former Manufacturing Area have been delineated to the residential MSC (**Figure 8**); and the Waste Pipeline, Non-Residential Area, and Area 3 have been delineated to the non-residential MSC (**Figure 9**). Potential exposure to arsenic concentrations above the residential MSC in Area 5 surface soil will be eliminated by a one-foot thick soil cover. To remediate elevated arsenic concentrations in soil in the Non-Residential Area, spot excavation around sample A6-01 will be conducted.

A risk assessment (95 UCL calculation) was completed on the remaining arsenic soil concentrations (and one benzo(a)pyrene concentration) in the Former Manufacturing Area (to ascertain the residential exposure); and in the Non-Residential Area (to ascertain non-residential exposure). Calculations indicate that the direct contact exposures will be below their respective MSCs. Therefore, concentrations in soil do not pose a threat to human health.

Deed restrictions (through an Environmental Covenant) will be put in place for Areas 5, 6, and 10, which will prohibit disturbances of soil covers and exposure of subsurface soils.

To evaluate ecological risks associated with Area 10, an ERA was completed and concentrations were determined to not pose a threat to ecological receptors. However, metals were found to be present above the applicable direct contact MSCs for future residents. To remediate Area 10, a permeable liner and one-foot thick soil cover will be placed over the sediment to eliminate direct contact with impacted media.

Delineation of residential and non-residential MSC exceedances is complete. Proposed residential and non-residential remediation activities are presented on **Figures 10 and 11,** respectively. ARCADIS, on behalf of Solvay, respectfully requests approval to implement the Cleanup Plan discussed in Section 5. Following completion of remedial activities, a Final Report will be submitted that documents the activities that were conducted, as well as the proposed institutional controls for the Site.

7. References

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ARCADIS

Tables

Table 1. Soil Analytical Results for Areas 4, 5, 6, 8, 10 and Former Manufacturing Area - Compared to Residential MSC

Area 4

Analyte	Residential Direct Contact MSC (0-15')	Unit	Location ID	A4-01		A4-02	A4-03	A4-04
			Sample Date	4/12/2012		4/13/2012	4/12/2012	4/12/2012
			Sample Depth	2.5 -3.0	11.0 - 11.5	7.5 - 8.0	12.0 - 12.5	7.0 - 8.0
Arsenic	12	mg/kg		**18**	11	12	4.1	11

Areas 5 and 6

Analyte	Residential Direct Contact MSC (0-15')	Unit	Location ID	A5-01		A5-02		A5-03		A5-04		A5-05		A5-06		A5-07		A5-08		A5-09		A5-10		A5-11	
			Sample Date	4/5/2012		4/9/2012		4/9/2012		4/9/2012		4/5/2012		4/4/2012		4/4/2012		4/5/2012		4/5/2012		4/5/2012		4/5/2012	
			Sample Depth	1.5 - 2.0	7.0 - 8.0	6.0 - 6.5	11.0 - 12.0	7.0 - 7.5	11.5 - 12.0	1.5 - 2.0	7.5 - 8.0	1.5 - 2.0	4.5 - 5.0	0.5 - 1.5	12.0 - 12.5	1.0 - 2.0	5.8 - 6.3	1.5 - 2.0	3.5 - 4.0	1.5 - 2.0	7.5 - 8.0	1.5 - 2.0	8.0 - 8.5	1.5 - 2.0	3.5 - 4.0
Arsenic	12	mg/kg		**27**	**35**	**330**	**850**	**480**	**63**	**44 [53]**	**43**	4.8	6.2	9.1	5.2	6.2 [5.7]	4.1	**34**	**99**	**23**	**31**	5.6	**89**	**21**	11

Analyte	Residential Direct Contact MSC (0-15')	Unit	Location ID	A6-01		A6-03		AR-01	AR-02	AR-03		AR-04	AR-05	AR-13	AR-18	AR-19		AR-44A	AR-97	AR-98	AR-100	AR-113	AR-114	AR-117
			Sample Date	4/4/2012		4/5/2012		6/19/2013	6/19/2013	6/19/2013		6/19/2013	6/19/2013	6/18/2013	6/19/2013	6/19/2013		5/19/2014	5/20/2014	5/20/2014	5/20/2014	4/22/2015	4/22/2015	4/22/2015
			Sample Depth	1.5 - 2.0	5.0 - 6.0	1.5 - 2.0	3.75 - 4.75	8 - 8.5	1.5 -2	1.5 -2	7.5 -8	7 -7.5	11 -11.5	11 -11.5	8 - 8.5	1.5 -2	7.5 -8	1.5 -2	1.5 - 2.0	1.5 - 2.0	1.5 - 2.0	1.5 - 2	1.5 - 2	1.5 - 2
Arsenic	12	mg/kg		**690**	**77**	5.3	6.3	6	4.6	6.9	2.9	5.3	**920**	3.9	**66**	**67 [80]**	7.2	10 [11]	4.9	9.3	10	**43**	12	**13**

Analyte	Residential Direct Contact MSC (0-15')	Unit	Location ID	AR-118	AR-119
			Sample Date	4/22/2015	4/22/2015
			Start Depth	1.5 - 2	1.5 - 2
Arsenic	12	mg/kg		**28**	9.5

Area 8

Analyte	Residential Direct Contact MSC (0-15')	Unit	Location ID	A8-01		A8-02		A8-03		A8-04		A8-05		A8-06
			Sample Date	4/10/2012		4/10/2012		4/10/2012		4/10/2012		4/10/2012		11/26/2013
			Sample Depth	4.5	11.5 - 12.0	4.5 - 5.0	11.0 - 12.0	6.0 - 6.5	11.0 - 12.0	7.0 -7.5	11.5 - 12.0	4.5 - 5.0	10.0 - 11.0	7.0 - 7.5
Arsenic	12	mg/kg		5.4	2.6	4.1	1.7 J	4.7	2.1 J	**27 [15]**	2.5	6.1	1.8 J	5.7

Area 10

Analyte	Residential Direct Contact MSC (0-15')	Unit	Location ID	A10-01	A10-02	A10-03	A10-04	A10-05	A10-06
			Sample Date	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012
			Depth (ft bgs)	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Arsenic	12	mg/kg		**230**	**740**	**81**	**120**	**47**	**81**

Former Manufacturing Area

Analyte	Residential Direct Contact MSC (0-15')	Unit	Location ID	IA-01	IA-01	IA-03	IA-04		IA-05		IA-06		IA-07	IA-08	IA-09	IA-10		IA-11		IA-12		IA-13	IA-14	IA-15	
			Sample Date	4/9/2012	4/9/2012	4/3/2012	4/9/2012		4/11/2012		4/11/2012		4/3/2012	4/3/2012	4/3/2012	4/3/2012		4/3/2012		4/4/2012		4/3/2012	4/4/2012	4/2/2012	
			Depth (ft bgs)	3.5	11.5 - 12.0	11.5 - 12.0	5.0 - 5.5	9.5 - 10.0	2.5 - 3.0	4.0 - 5.0	2.5 - 3.5	6.5 - 7.0	12.0 - 12.5	13.5 - 14.5	10.5 - 11.5	3.0 - 3.5	13.0 - 14.0	4.5 - 5.0	9.0 - 9.5	6.5 - 7.0	17.0 - 18.0	12.0 - 13.0	12.0 - 13.0	3.5 - 4.0	14.5 - 15.0
Arsenic	12	mg/kg		5.6	7.6	4.6	12	5.5	3.2	4.7	5.4	4.5	5.1	3.9	7.6	3.8	6.2	3.6	5.5	12	7.5	4.9	4.9	3.8	5.8
BAP	0.57	mg/kg		0.040 U	0.039 U	0.041 U	0.07	0.038 U	0.037 U	0.038 U	**0.63**	0.0079 J	0.037 J	0.036 U	0.039 U	0.041 U	0.040 U	0.0078 J	0.040 U	0.0045 J	0.040 U	0.037 U	0.036 U	0.021 J	0.040 U

Analyte	Residential Direct Contact MSC (0-15')	Unit	Location ID	IA-16		IA-17		IA-18	IA-18	IA-19	IA-20		IA-21
			Sample Date	4/2/2012		4/3/2012		4/2/2012	4/13/2012	4/2/2012	4/2/2012		4/2/2012
			Depth (ft bgs)	3.5 - 4.0	4.5 - 5.0	2.0 - 3.0	11.0 -12.0	5.5 - 6.0	12.5 - 13.0	4.5 - 5.0	2.0 - 2.5	13.0 - 13.5	14.5 - 15.0
Arsenic	12	mg/kg		2.7	4.9	4.7	3.8	5	4.3	5.1	5.1	6.7	4.4
BAP	0.57	mg/kg		0.021 J	0.039 U	0.0097 J	0.035 U	0.0046 J	0.035 U	0.038 U	0.037 U	0.039 U	0.036 U

Notes:
ft bgs - feet below ground surface.
[ ] - indicates concentration detected in duplicate sample.
BAP - benzo(a)pyrene.
J - indicates estimated concentration above the laboratory method detection limit but below the reporting limit.
U - Analyte not detected above the specified limit.
mg/kg - milligram per kilogram.
Residential Direct Contact MSC (0-15') - Pennsylvania Residential Direct Contact Medium Specific Concentration Standard for soil from 0 -15 ft bgs.
Samples that exceed the Residential Direct Contact MSC for soil from 0-15 ft bgs are bold and shaded gray.
A4-01 exceeded the residential MSC, but is located in the middle of the Former Manufacturing Area and will not require delineation.

Table 2. Soil Analytical Results for Area 3, Non-Residential Area, and Waste Pipeline - Compared to Non-Residential MSC

Area 3

Analyte	Non-Residential Direct Contact MSC (0-2')	Non-Residential Direct Contact MSC (2-15')	Unit	Location ID	A3-01	A3-01	A3-02	A3-04	A3-09	A3-10	A3-11	A3-12	A3-13
				Sample Date	4/11/2012	4/11/2012	4/12/2012	4/11/2012	11/26/2013	11/26/2013	11/26/2013	11/26/2013	11/26/2013
				Depth (ft bgs)	1.0 - 1.5	1.5 - 2.0	1.5 - 2.0	1.5 - 2.0	1.5 - 2.0	1.5 - 2.0	1.5 - 2.0	1.5 - 2.0	1.5 - 2.0
Arsenic	53	190,000	mg/kg		20	15	15 [15]	29	3.6 J [4.4 J]	5.3	5.9	11	4.3 J

Non-Residential Area

Analyte	Non-Residential Direct Contact MSC (0-2')	Non-Residential Direct Contact MSC (2-15')	Unit	A6-02		A6-04		AR-06	AR-07		AR-08		AR-09		AR-10		AR-14	AR-15	
				4/4/2012		4/13/2012		6/18/2013	6/18/2013		6/18/2013		6/18/2013		6/19/2013		6/18/2013	6/18/2013	
				1.5 - 2.5	4.0 - 4.5	1.5 - 2.0	4.0 - 4.5	1.5 -2	1.5 -2	5 -5.5	1.5 -2	5	1.5 -2	5 - 5.5	1.5 -2	3.5 -4	1.5 -2	1.5 -2	4.5 -5
Arsenic	53	190,000	mg/kg	**58**	29	10 [12]	15	18	51	27	48	30	36	39	26	25	4.1	31	17

Analyte	Non-Residential Direct Contact MSC (0-2')	Non-Residential Direct Contact MSC (2-15')	Unit	AR-16		AR-20	AR-21	AR-22	AR-23	AR-24	AR-25	AR-26	AR-27	AR-31	AR-43	AR-45	AR-47	AR-50	AR-51
				6/18/2013		9/24/2013	9/24/2013	9/24/2013	9/23/2013	9/23/2013	9/23/2013	9/23/2013	9/24/2013	9/24/2013	9/23/2013	9/24/2013	5/19/2014	5/19/2014	5/19/2014
				1.5 -2	5 -5.5	0.5 -1	1 -1.5	1.5 -2	1.5 -2	1.5 -2	1 -1.5	1 -1.5	1.5 -2	1.5 -2	1.5 -2	1.5 -2	1.5 -2	1.5 -2	1.5 -2
Arsenic	53	190,000	mg/kg	**110**	9.2	19 [21]	51	27	18	17	20	25	29	< 5.0 U	6.3	7	5.8	12	13

Analyte	Non-Residential Direct Contact MSC (0-2')	Non-Residential Direct Contact MSC (2-15')	Unit	AR-52	AR-53	AR-54	AR-54A	AR-55	AR-57	AR-60	AR-63	AR-66	AR-69	AR-72	AR-75	AR-78	AR-81
				5/20/2014	5/21/2014	5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/21/2014	5/20/2014
				1.5 - 2	1.5 - 2	1.5 -2	1.5 -2	1.5 -2	1.5 -2	1.5 -2	1.5 -2	1.5 -2	1.5 -2	1.5 -2	1.5 -2	1.5 -2	1.5 -2
Arsenic	53	190,000	mg/kg	11	15	26	3	22	3.8	6.6	9 [8.8]	11	7.8	7.2	8.7	8.7	10

Analyte	Non-Residential Direct Contact MSC (0-2')	Non-Residential Direct Contact MSC (2-15')	Unit	AR-84	AR-87	AR-90	AR-91	AR-93	AR-94	AR-111	AR-112	AR-120	AR-121	AR-122	AR-123	AR-124	AR-125
				5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/20/2014	5/21/2014	4/22/2015	4/22/2015	4/22/2015	4/22/2015	4/22/2015	4/22/2015	4/22/2015	4/22/2015
				1.5 -2	1.5 -2	1.5 -2	1.5 -2	1.5 - 2.0	1.5 - 2.0	1.5 - 2	1.5 - 2	1.5 - 2	1.5 - 2	1.5 - 2	1.5 - 2	1.5 - 2	1.5 - 2
Arsenic	53	190,000	mg/kg	7.9 [7.2]	8.3	19	4	19	7.8	**150**	**260**	25	41	17	31	48	36

Analyte	Non-Residential Direct Contact MSC (0-2')	Non-Residential Direct Contact MSC (2-15')	Unit	AR-126	AR-127	AR-128	AR-129	AR-130	AR-131	OU-01	OU-02	OU-03	OU-04
				4/22/2015	4/22/2015	4/22/2015	4/22/2015	4/22/2015	4/22/2015	6/19/2013	6/19/2013	6/19/2013	6/19/2013
				1.5 - 2	1.5 - 2	1.5 - 2	1.5 - 2	1.5 - 2	1.5 - 2	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Arsenic	53	190,000	mg/kg	40	**56**	24	18	22	25	**110**	31	40	10

Waste Pipeline

	Non-Residential Direct Contact MSC (0-2')	Non-Residential Direct Contact MSC (2-15')	Unit	Location ID	WP-01	WP-02		WP-03		WP-04	WP-05	WP-06	WP-08		WP-09	WP-10		WP-11		WP-12	
				Sample Date	4/5/2012	4/5/2012		4/5/2012		11/26/2013	11/26/2013	11/26/2013	11/26/2013		11/26/2013	11/26/2013		11/26/2013		5/21/2014	
Analyte				Depth (ft bgs)	1.5 - 2.0	1.0 - 2.0	6.5 - 7.0	1.0 - 2.0	3.0 - 4.0	1.5 - 2.0	1.5 - 2.0	1.5 - 2.0	1.5 - 2.0	3.5 - 4.0	1.5 - 2.0	1.5 - 2.0	3.5 - 4.0	1.5 - 2.0	3.5 - 4.0	1.5 - 2.0	3.5 - 4.0
Arsenic	53	190,000	mg/kg		9.9	15	5	19	23	5.4	16	44	25	18	16	13	5.6	13	12	13	8.6

Analyte	Non-Residential Direct Contact MSC (0-2')	Non-Residential Direct Contact MSC (2-15')	Unit	Location ID	WP-13			WP-14		WP-15				WP-16			WP-17	WP-18	WP-22		
				Sample Date	5/21/2014			5/21/2014		5/21/2014				5/21/2014			5/21/2014	5/21/2014	5/21/2014		
				Depth (ft bgs)	1.5 - 2.0	3.5 - 4.0	5.5 - 6.0	1.5 - 2.0	3.5 - 4.0	1.5 - 2.0	3.5 - 4.0	5.5 - 6.0	7.5 - 8.0	1.5 - 2.0	3.5 - 4.0	5.5 - 6.0	1.5 - 2.0	1.5 - 2.0	1.5 - 2.0	3.5 - 4.0	5.5 - 6.0
Arsenic	53	190,000	mg/kg		28	15	10	3.4 [5.6]	4.6	16	22	14	6.9	5.8	12	6.9	10	8.2	17	16	10

Analyte	Non-Residential Direct Contact MSC (0-2')	Non-Residential Direct Contact MSC (2-15')	Unit	Location ID	WP-23		AR-96	AR-102			AR-103			AR-104			AR-105	AR-106		
				Sample Date	5/21/2014		5/20/2014	5/22/2014			5/22/2014			5/22/2014			5/22/2014	5/22/2014		
				Depth (ft bgs)	1.5 - 2.0	7.5 - 8.0	1.5 - 2.0	1.5 - 2.0	2.5 - 3.0	3.5 - 4.0	1.5 - 2.0	2.5 - 3.0	3.5 - 4.0	1.5 - 2.0	2.5 - 3.0	3.5 - 4.0	1.5 - 2.0	1.5 - 2.0	2.5 - 3.0	3.5 - 4.0
Arsenic	53	190,000	mg/kg		10	5.3	14	18	18	8.4	23 [26]	14	8.7	16	18	17	10	34	24	25

Analyte	Non-Residential Direct Contact MSC (0-2')	Non-Residential Direct Contact MSC (2-15')	Unit	Location ID	AR-107			AR-108		AR-109			AR-110		
				Sample Date	5/22/2014			5/22/2014		5/22/2014			5/22/2014		
				Depth (ft bgs)	1.5 - 2.0	2.5 - 3.0	3.5 - 4.0	1.5 - 2.0	1.5 - 2.0	1.5 - 2.0	2.5 - 3.0	3.5 - 4.0	1.5 - 2.0	2.5 - 3.0	3.5 - 4.0
Arsenic	53	190,000	mg/kg		25	20	20	2.9	2.9	17 [16]	27	30	16	14	22

Notes:
ft bgs - feet below ground surface.
[ ] - indicates concentration detected in duplicate sample.
mg/kg - milligram per kilogram.
Non-Residential Direct Contact MSC (0-2') - Pennsylvania Non-Residential Direct Contact Medium Specific Concentration Standard for soil from 0 -2 ft bgs.
Non-Residential Direct Contact MSC (2-15') - Pennsylvania Non-Residential Direct Contact Medium Specific Concentration Standard for soil from 2 -15 ft bgs.
Samples that exceed the Non-Residential Direct Contact MSC for soil from 0-2 ft bgs are bold and shaded gray.
No samples exceeded the Non-Residential Direct Contact MSC for soil from 2-15 ft bgs.

Table 3. Remedial Alternatives Cost Estimate, Areas 5 & 10

I. LABOR		Area 5	Area 10
		One Foot Soil Cover (Area 5)	Installation of Permeable Liner and One Foot Soil Cover
ARCADIS - Direct Labor	**Total Labor**	**$56,000**	**$45,000**
II. TECHNICAL/PROFESSIONAL SERVICES BY OTHERS			
Dewatering of Pond	1	--	$8,000
HDPE Liner Install	1	--	$38,000
Equipment Mobilization	1	$5,000	$5,000
Equipment and Crew	1	$100,000	$25,000
Top Soil Materials	1	$170,000	$15,000
Clean Fill Materials	1	$355,000	$50,000
Permitting	1	$25,000	$25,000
Spot Excavation of A6-01	1	$25,000	
Seeding and Restoration	1	$55,000	$4,000
	Total Professional Services by Others:	**$735,000**	**$170,000**
	TASK ESTIMATED TOTAL	**$791,000**	**$215,000**

Notes:

Cost Assumptions

All costs are approximate estimates.

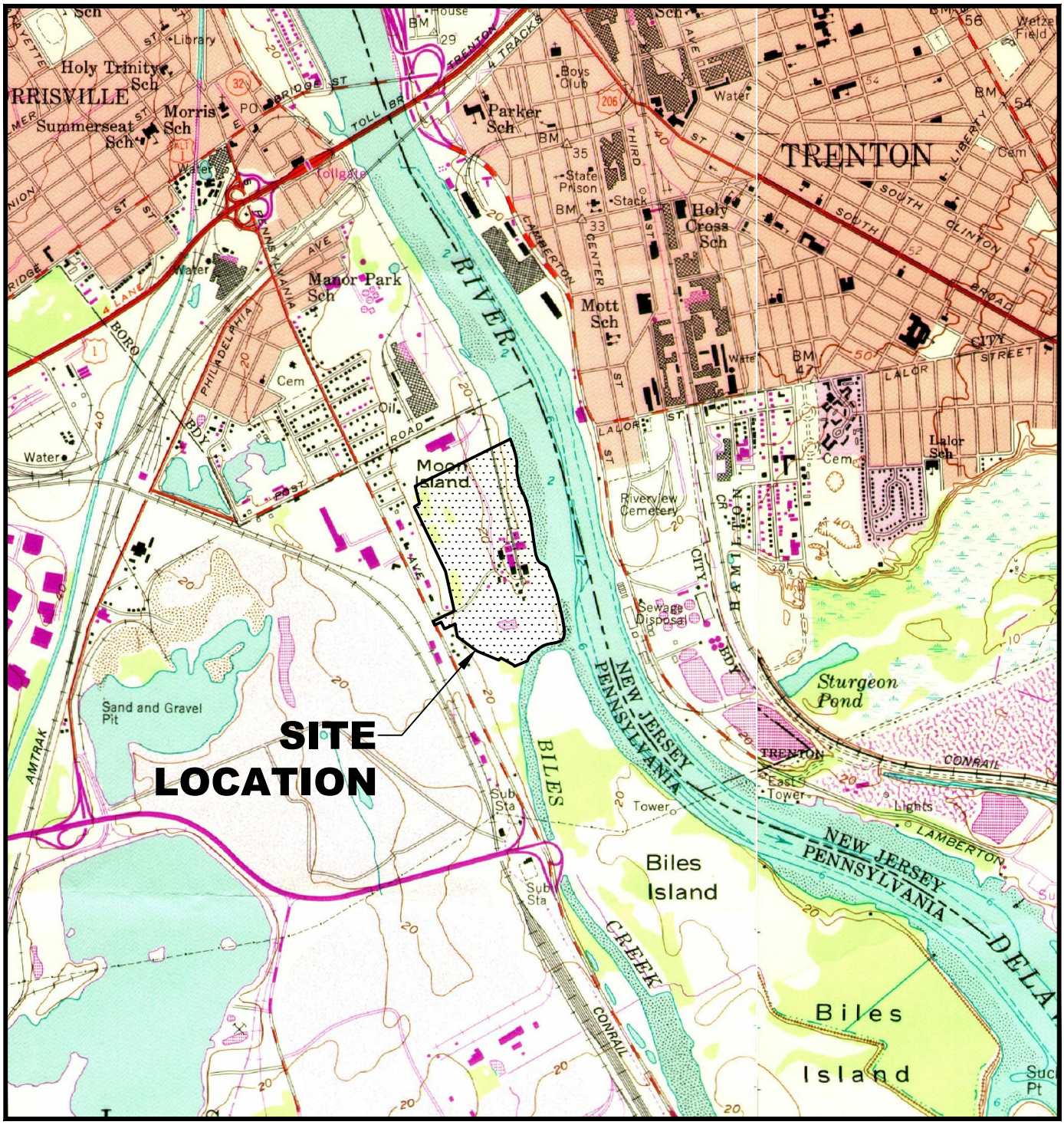
Assumes pond water generated during dewatering activities will not be containerized.

Assumes wetland mitigation activities will not be required.

Costing assumes regulatory approval.

ARCADIS

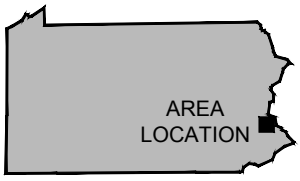
Figures



REFERENCE: BASE MAP USGS 7.5 MIN. QUADS., TRENTON EAST(1957) AND TRENTON WEST(1955), NEW JERSEY, PHOTOREVISED 1981

2000' 0 2000'

Approximate Scale: 1" = 2000'



PENNSYLVANIA

SOLVAY, INC.
MORRISVILLE, PENNSYLVANIA

RIR ADDENDUM AND CLEANUP PLAN

SITE LOCATION MAP

ARCADIS

FIGURE
1

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER/JMEYER LD:(Opt) PIC:A.HEBERT PM: R.FITZPATRICK TR:C.FOSTER LYR:(Opt)ON=*;OFF=*REF*
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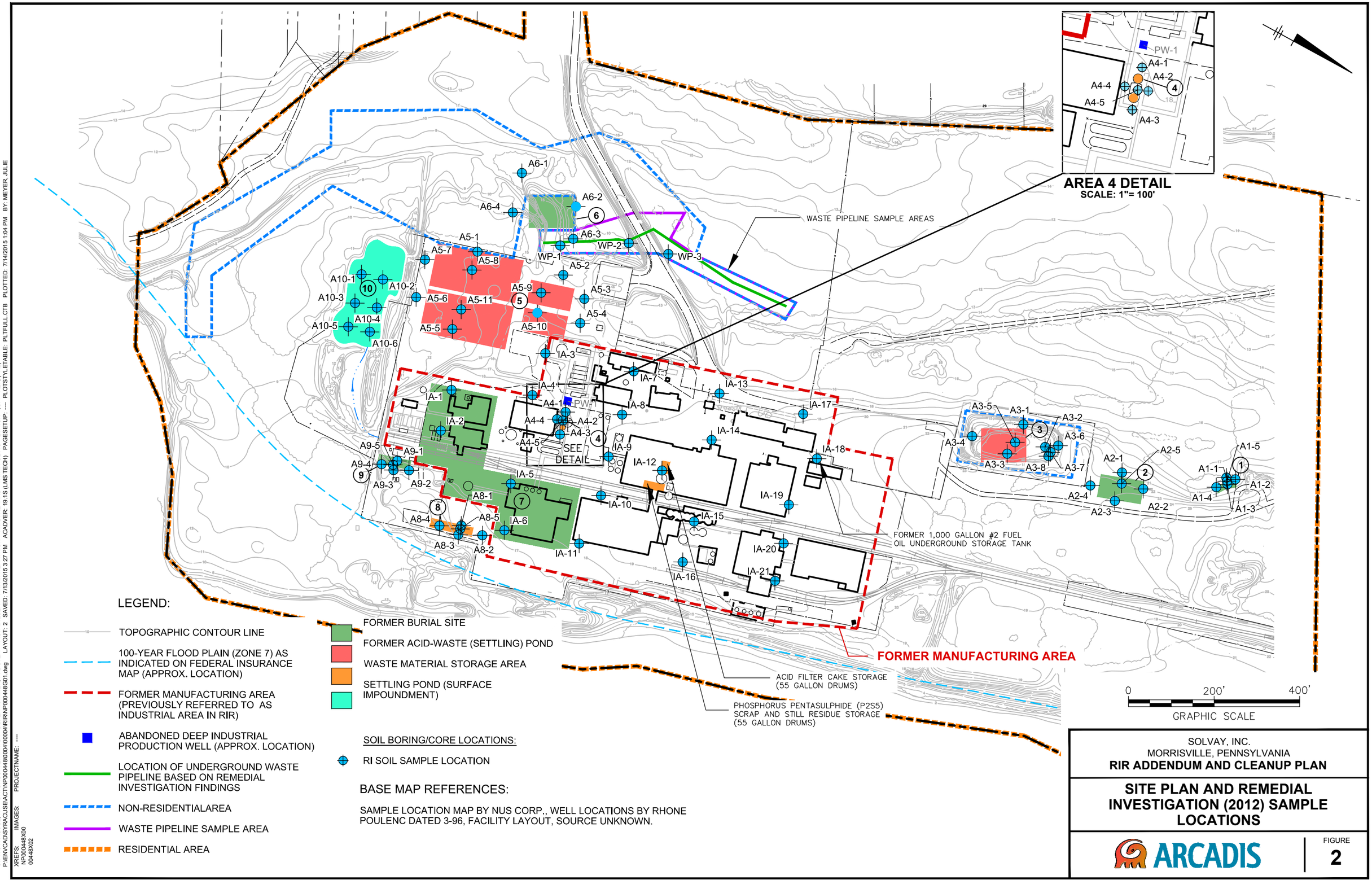
TRENTONW.jpg



SOLVAY, INC.
MORRISVILLE, PENNSYLVANIA
RIR ADDENDUM AND CLEANUP PLAN

SITE PLAN AND REMEDIAL INVESTIGATION (2012) SAMPLE LOCATIONS

ARCADIS

FIGURE
2

CITY: SYRACUSE, NY DIV/GROUP: ENV/IM-DV DB: E. KRAHMER, P. LISTER PIC: A.HEBERT PM: R.FITZPATRICK TM: D. KEARNS TR: A. POLING LYR:ON=*;OFF=REF,(FRZ)
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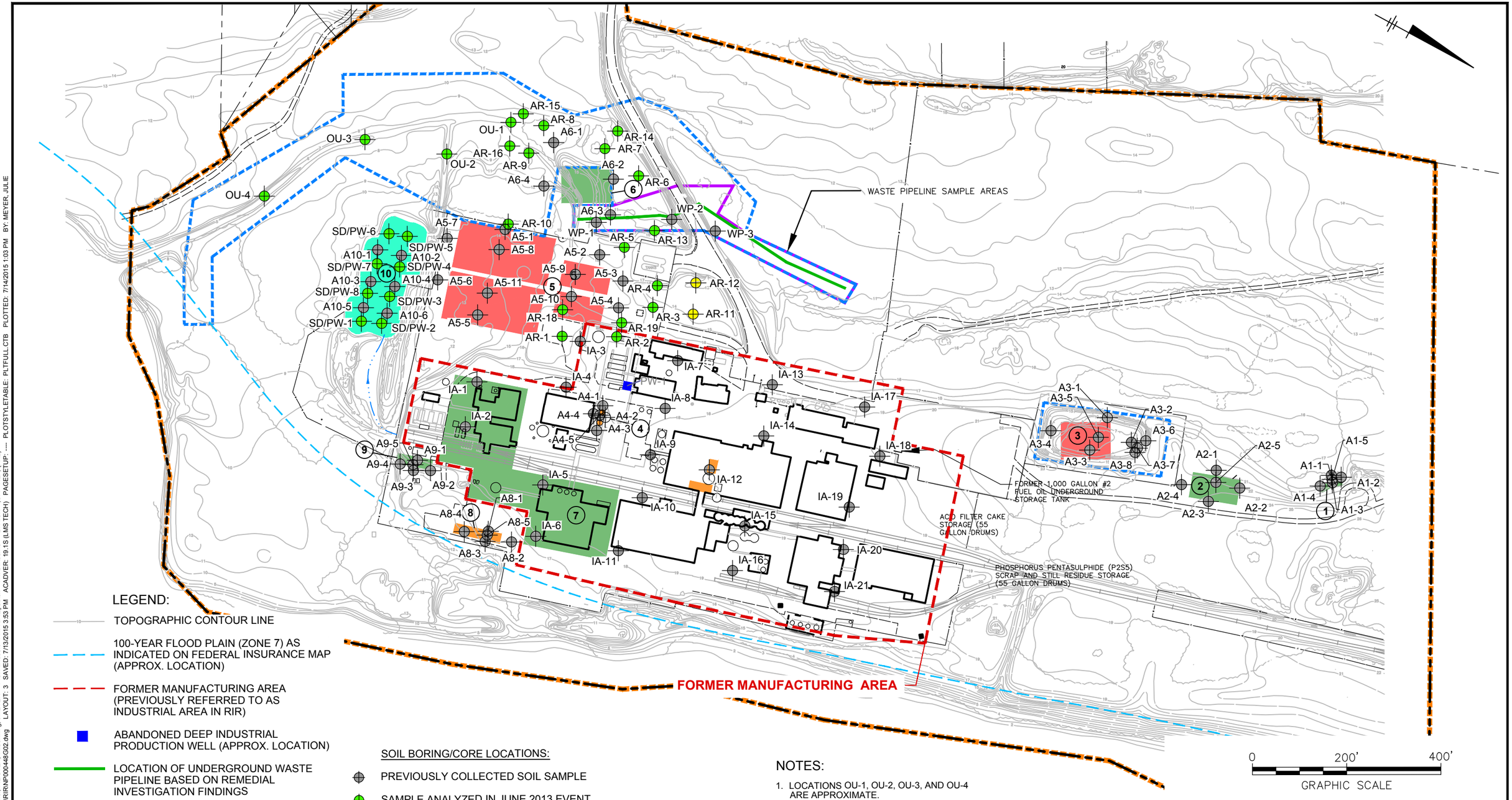

LEGEND:

- TOPOGRAPHIC CONTOUR LINE
- 100-YEAR FLOOD PLAIN (ZONE 7) AS INDICATED ON FEDERAL INSURANCE MAP (APPROX. LOCATION)
- FORMER MANUFACTURING AREA (PREVIOUSLY REFERRED TO AS INDUSTRIAL AREA IN RIR)
- ABANDONED DEEP INDUSTRIAL PRODUCTION WELL (APPROX. LOCATION)
- LOCATION OF UNDERGROUND WASTE PIPELINE BASED ON REMEDIAL INVESTIGATION FINDINGS
- FORMER BURIAL SITE
- FORMER ACID-WASTE (SETTLING) POND
- WASTE MATERIAL STORAGE AREA
- SETTLING POND (SURFACE IMPOUNDMENT)
- NON-RESIDENTIAL AREA
- WASTE PIPELINE SAMPLE AREAS
- RESIDENTIAL AREA

SOIL BORING/CORE LOCATIONS:

- PREVIOUSLY COLLECTED SOIL SAMPLE
- SAMPLE ANALYZED IN JUNE 2013 EVENT
- SAMPLE COLLECTED BUT NOT ANALYZED IN JUNE 2013 EVENT

NOTES:

1. LOCATIONS OU-1, OU-2, OU-3, AND OU-4 ARE APPROXIMATE.
2. SAMPLES NOT ANALYZED WERE COLLECTED AS CONTINGENCY SAMPLES.

BASE MAP REFERENCES:

SAMPLE LOCATION MAP BY NUS CORP., WELL LOCATIONS BY RHONE POULENC DATED 3-96, FACILITY LAYOUT, SOURCE UNKNOWN.

SOLVAY, INC.
MORRISVILLE, PENNSYLVANIA
RIR ADDENDUM AND CLEANUP PLAN

JUNE 2013 SAMPLE LOCATIONS

ARCADIS

FIGURE 3

CITY: Syracuse DIVGROUP: EnvCAD DB: E.Krahmer, P.LISTER, A.Schilling, JMEYER PIC: A.Hebert PM: R.Fitzpatrick TM: D.Kearns LYR:ON=*;OFF=REF (FR2)
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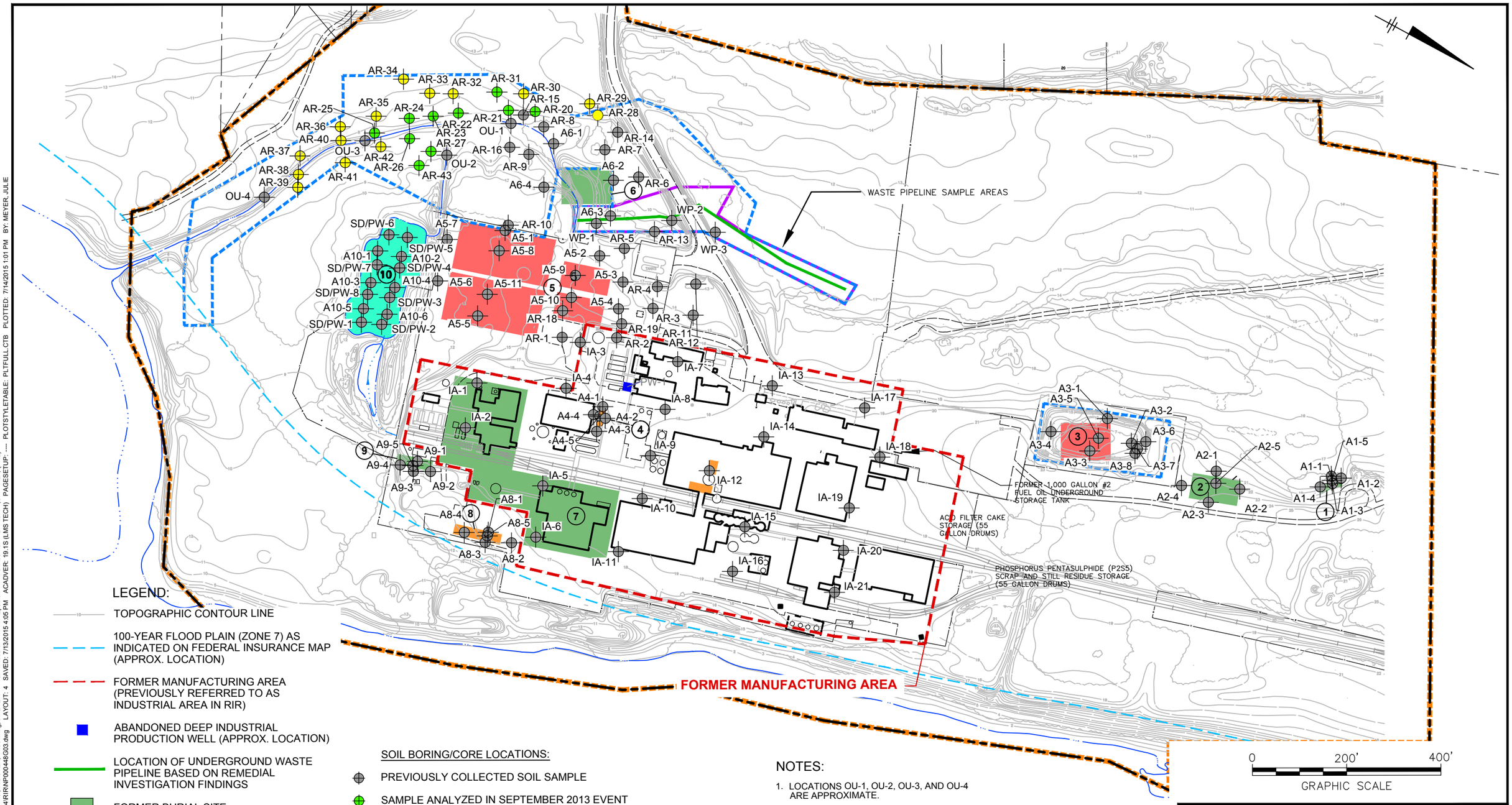

LEGEND:

- TOPOGRAPHIC CONTOUR LINE
- 100-YEAR FLOOD PLAIN (ZONE 7) AS INDICATED ON FEDERAL INSURANCE MAP (APPROX. LOCATION)
- FORMER MANUFACTURING AREA (PREVIOUSLY REFERRED TO AS INDUSTRIAL AREA IN RIR)
- ABANDONED DEEP INDUSTRIAL PRODUCTION WELL (APPROX. LOCATION)
- LOCATION OF UNDERGROUND WASTE PIPELINE BASED ON REMEDIAL INVESTIGATION FINDINGS
- FORMER BURIAL SITE
- FORMER ACID-WASTE (SETTLING) POND
- WASTE MATERIAL STORAGE AREA
- SETTLING POND (SURFACE IMPOUNDMENT)
- NON-RESIDENTIAL AREA
- RESIDENTIAL AREA
- WASTE PIPELINE SAMPLE AREAS

SOIL BORING/CORE LOCATIONS:

- PREVIOUSLY COLLECTED SOIL SAMPLE
- SAMPLE ANALYZED IN SEPTEMBER 2013 EVENT
- SAMPLE COLLECTED BUT NOT ANALYZED IN SEPTEMBER 2013 EVENT

NOTES:

1. LOCATIONS OU-1, OU-2, OU-3, AND OU-4 ARE APPROXIMATE.
2. SAMPLES NOT ANALYZED WERE COLLECTED AS CONTINGENCY SAMPLES.

BASE MAP REFERENCES:

SAMPLE LOCATION MAP BY NUS CORP., WELL LOCATIONS BY RHONE POULENC DATED 3-96, FACILITY LAYOUT, SOURCE UNKNOWN.

SOLVAY, INC.
MORRISVILLE, PENNSYLVANIA
RIR ADDENDUM AND CLEANUP PLAN

SEPTEMBER 2013 SAMPLE LOCATIONS

ARCADIS

FIGURE
4

CITY: Syracuse DIVGROUP: EnvCAD DB: E.Krahmer, P.LISTER, A.Schilling, JMEYER PIC: A.Hebert PM: R.Fitzpatrick TM: D.Kearns LYR:ON=*;OFF=REF (FR2)
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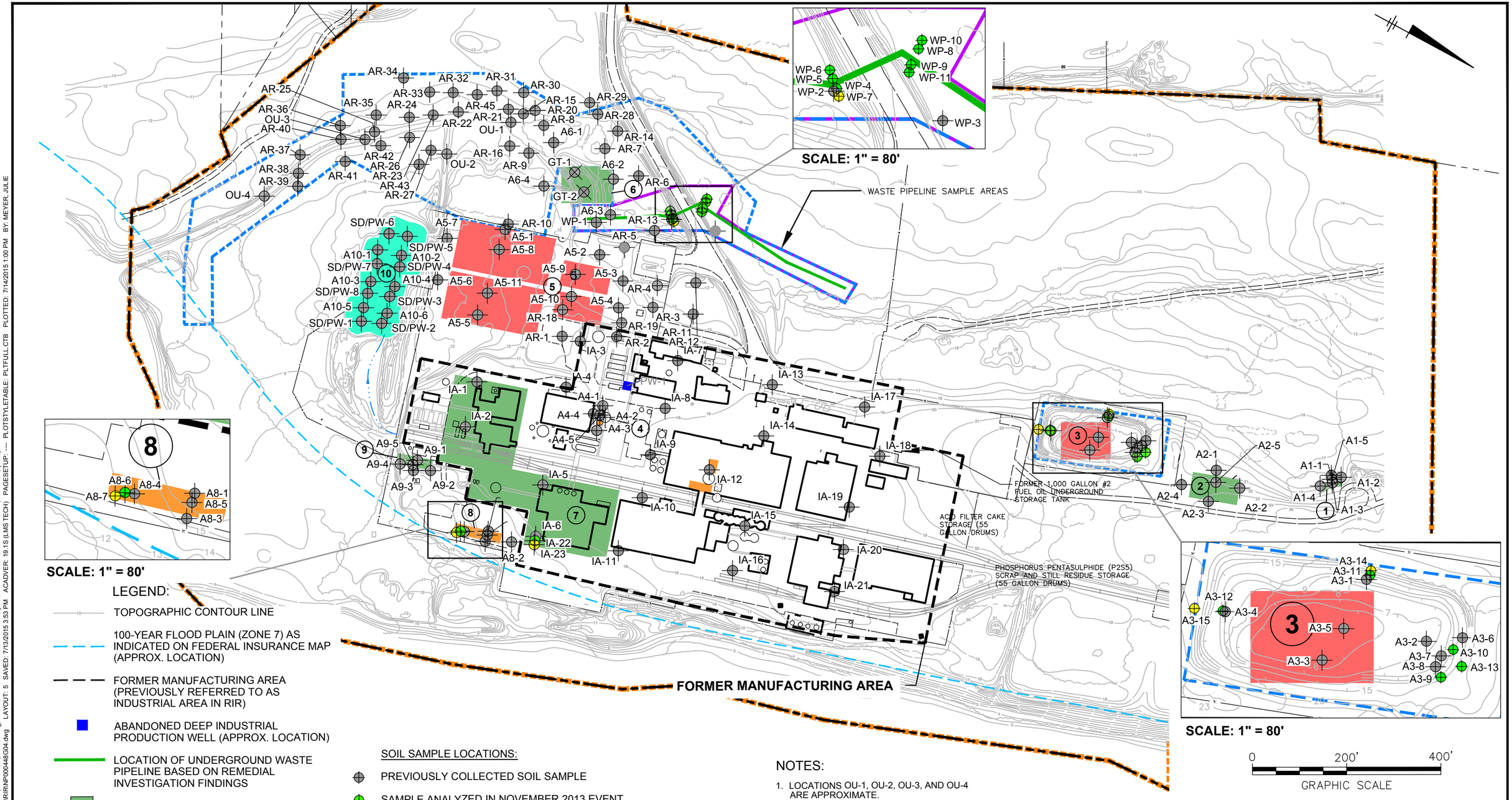

LEGEND:

- TOPOGRAPHIC CONTOUR LINE
- 100-YEAR FLOOD PLAIN (ZONE 7) AS INDICATED ON FEDERAL INSURANCE MAP (APPROX. LOCATION)
- FORMER MANUFACTURING AREA (PREVIOUSLY REFERRED TO AS INDUSTRIAL AREA IN RIR)
- ABANDONED DEEP INDUSTRIAL PRODUCTION WELL (APPROX. LOCATION)
- LOCATION OF UNDERGROUND WASTE PIPELINE BASED ON REMEDIAL INVESTIGATION FINDINGS
- FORMER BURIAL SITE
- FORMER ACID-WASTE (SETTLING) POND
- WASTE MATERIAL STORAGE AREA
- SETTLING POND (SURFACE IMPOUNDMENT)
- NON-RESIDENTIAL AREA
- WASTE PIPELINE SAMPLE AREAS
- RESIDENTIAL AREA

SOIL SAMPLE LOCATIONS:

- PREVIOUSLY COLLECTED SOIL SAMPLE
- SAMPLE ANALYZED IN NOVEMBER 2013 EVENT
- SAMPLE COLLECTED IN NOVEMBER 2013 BUT NOT ANALYZED

BASE MAP REFERENCES:

SAMPLE LOCATION MAP BY NUS CORP., WELL LOCATIONS BY RHONE POULENC DATED 3-96, FACILITY LAYOUT, SOURCE UNKNOWN.

NOTES:

1. LOCATIONS OU-1, OU-2, OU-3, AND OU-4 ARE APPROXIMATE.
2. SAMPLES NOT ANALYZED WERE COLLECTED AS CONTINGENCY SAMPLES.
3. A10 AND SD/PW SAMPLE LOCATIONS ARE APPROXIMATE.
4. NOVEMBER 2013 SAMPLE LOCATIONS SURVEYED BY DENNIS W. SKLAR INC, PROFESSIONAL LAND SURVEYING, BENSALEM, PA.

SOLVAY, INC.
MORRISVILLE, PENNSYLVANIA
RIR ADDENDUM AND CLEANUP PLAN

NOVEMBER 2013 SAMPLE LOCATIONS

ARCADIS

FIGURE
5

CITY: Syracuse DIVGROUP: EnvCAD DB: E.Krahmer, P.LISTER, A.Schilling, JMEYER PIC: A.Hebert PM: R.Fitzpatrick TM: D.Kearns LYR:ON=*;OFF=REF (FR2)
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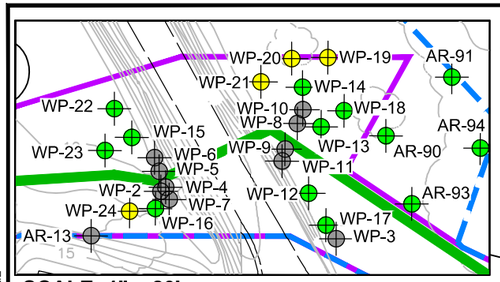
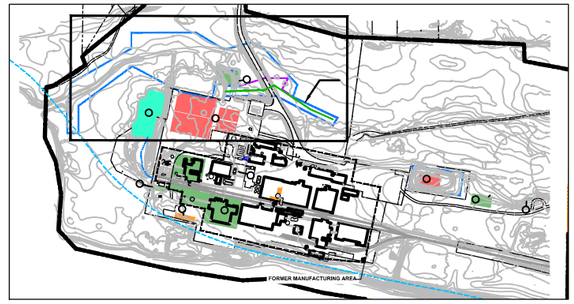
00448X02



SCALE: 1" = 80'



SCALE: 1" = 800'

LEGEND:

- TOPOGRAPHIC CONTOUR LINE
- 100-YEAR FLOOD PLAIN (ZONE 7) AS INDICATED ON FEDERAL INSURANCE MAP (APPROX. LOCATION)
- FORMER MANUFACTURING AREA (PREVIOUSLY REFERRED TO AS INDUSTRIAL AREA IN RIR)
- ABANDONED DEEP INDUSTRIAL PRODUCTION WELL (APPROX. LOCATION)
- LOCATION OF UNDERGROUND WASTE PIPELINE BASED ON REMEDIAL INVESTIGATION FINDINGS
- FORMER BURIAL SITE
- FORMER ACID-WASTE (SETTLING) POND
- WASTE MATERIAL STORAGE AREA
- SETTLING POND (SURFACE IMPOUNDMENT)
- NON-RESIDENTIAL AREA
- WASTE PIPELINE SAMPLE AREAS
- RESIDENTIAL AREA

SOIL SAMPLE LOCATIONS:

- PREVIOUSLY COLLECTED SOIL SAMPLE
- SAMPLE ANALYZED IN MAY 2014 EVENT
- SAMPLE COLLECTED IN MAY 2014 BUT NOT ANALYZED

BASE MAP REFERENCES:

SAMPLE LOCATION MAP BY NUS CORP., WELL LOCATIONS BY RHONE POULENC DATED 3-96, FACILITY LAYOUT, SOURCE UNKNOWN.

NOTES:

1. LOCATIONS OU-1, OU-2, OU-3, AND OU-4 ARE APPROXIMATE.
2. SAMPLES NOT ANALYZED WERE COLLECTED AS CONTINGENCY SAMPLES.
3. A10 AND SD/PW SAMPLE LOCATIONS ARE APPROXIMATE.
4. MAY 2014 SAMPLE LOCATIONS SURVEYED BY DENNIS W. SKLAR INC, PROFESSIONAL LAND SURVEYING, BENSALEM, PA.

0 100' 200'

GRAPHIC SCALE

SOLVAY, INC.
MORRISVILLE, PENNSYLVANIA

RIR ADDENDUM AND CLEANUP PLAN

MAY 2014 SAMPLE LOCATIONS

ARCADIS

FIGURE 6

CITY: Syracuse DIV/GROUP: Env/CAD DB: E.Krahmer, P.LISTER, A.Schilling, JMEYER PIC: A.Hebert PM: R.Fitzpatrick TM: D.Kearns LYR:ON=*;OFF=REF, (FRZ)
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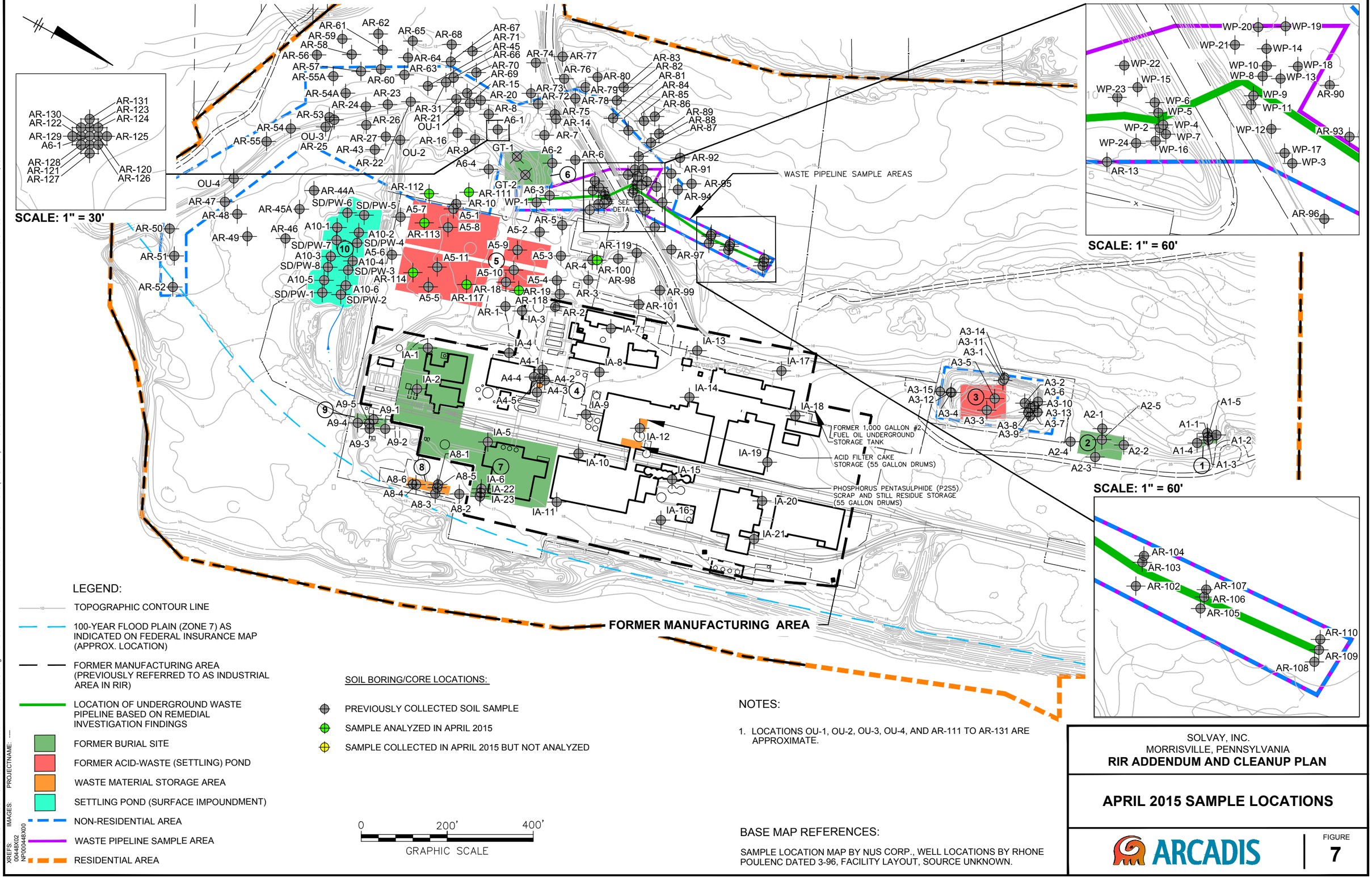

LEGEND:

- TOPOGRAPHIC CONTOUR LINE
- 100-YEAR FLOOD PLAIN (ZONE 7) AS INDICATED ON FEDERAL INSURANCE MAP (APPROX. LOCATION)
- FORMER MANUFACTURING AREA (PREVIOUSLY REFERRED TO AS INDUSTRIAL AREA IN RIR)
- LOCATION OF UNDERGROUND WASTE PIPELINE BASED ON REMEDIAL INVESTIGATION FINDINGS
- FORMER BURIAL SITE
- FORMER ACID-WASTE (SETTLING) POND
- WASTE MATERIAL STORAGE AREA
- SETTLING POND (SURFACE IMPOUNDMENT)
- NON-RESIDENTIAL AREA
- WASTE PIPELINE SAMPLE AREA
- RESIDENTIAL AREA

SOIL BORING/CORE LOCATIONS:

- PREVIOUSLY COLLECTED SOIL SAMPLE
- SAMPLE ANALYZED IN APRIL 2015
- SAMPLE COLLECTED IN APRIL 2015 BUT NOT ANALYZED

NOTES:

1. LOCATIONS OU-1, OU-2, OU-3, OU-4, AND AR-111 TO AR-131 ARE APPROXIMATE.

BASE MAP REFERENCES:

SAMPLE LOCATION MAP BY NUS CORP., WELL LOCATIONS BY RHONE POULENC DATED 3-96, FACILITY LAYOUT, SOURCE UNKNOWN.

SOLVAY, INC.
MORRISVILLE, PENNSYLVANIA
RIR ADDENDUM AND CLEANUP PLAN

APRIL 2015 SAMPLE LOCATIONS

ARCADIS

FIGURE 7

CITY: SYRACUSE, NY DIV/GROUP: ENV/IM-DV DB: E. KRAHMER, P. LISTER PIC: A.HEBERT PM: R.FITZPATRICK TM: D. KEARNS TR: A. POLING LYR:ON=*;OFF=REF.(FRZ)
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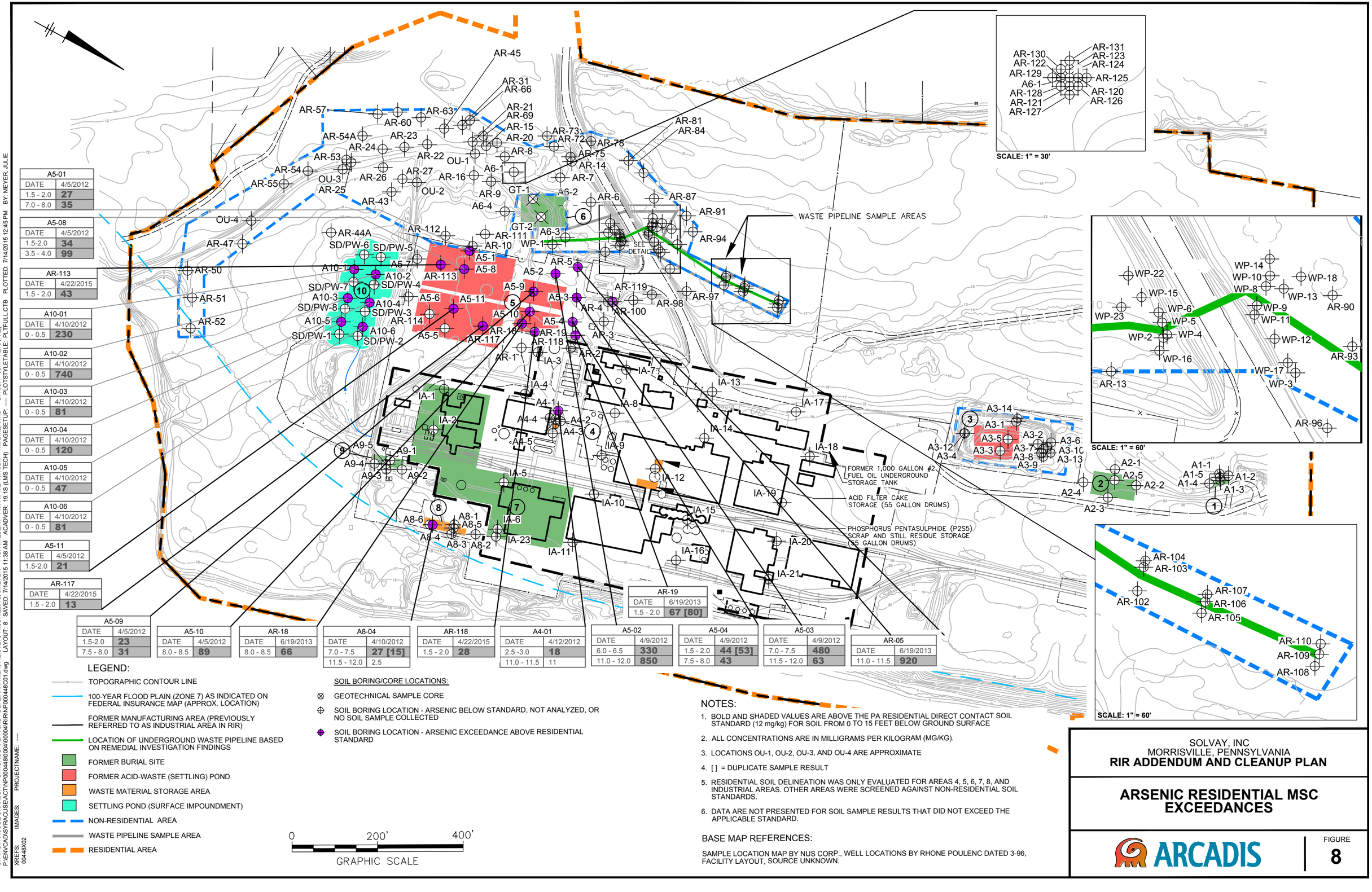

A5-01	
DATE	4/5/2012
1.5 - 2.0	27
7.0 - 8.0	35

A5-08	
DATE	4/5/2012
1.5-2.0	34
3.5 - 4.0	99

AR-113	
DATE	4/22/2015
1.5 - 2.0	43

A10-01	
DATE	4/10/2012
0 - 0.5	230

A10-02	
DATE	4/10/2012
0 - 0.5	740

A10-03	
DATE	4/10/2012
0 - 0.5	81

A10-04	
DATE	4/10/2012
0 - 0.5	120

A10-05	
DATE	4/10/2012
0 - 0.5	47

A10-06	
DATE	4/10/2012
0 - 0.5	81

A5-11	
DATE	4/5/2012
1.5-2.0	21

AR-117	
DATE	4/22/2015
1.5 - 2.0	13

A5-09	
DATE	4/5/2012
1.5-2.0	23
7.5 - 8.0	31

A5-10	
DATE	4/5/2012
8.0 - 8.5	89

AR-18	
DATE	6/19/2013
8.0 - 8.5	66

A8-04	
DATE	4/10/2012
7.0 - 7.5	27 [15]
11.5 - 12.0	2.5

AR-118	
DATE	4/22/2015
1.5 - 2.0	28

A4-01	
DATE	4/12/2012
2.5 -3.0	18
11.0 - 11.5	11

A5-02	
DATE	4/9/2012
6.0 - 6.5	330
11.0 - 12.0	850

A5-04	
DATE	4/9/2012
1.5 - 2.0	44 [53]
7.5 - 8.0	43

A5-03	
DATE	4/9/2012
7.0 - 7.5	480
11.5 - 12.0	63

AR-05	
DATE	6/19/2013
11.0 - 11.5	920

AR-19	
DATE	6/19/2013
1.5 - 2.0	67 [80]

LEGEND:

- TOPOGRAPHIC CONTOUR LINE
- 100-YEAR FLOOD PLAIN (ZONE 7) AS INDICATED ON FEDERAL INSURANCE MAP (APPROX. LOCATION)
- FORMER MANUFACTURING AREA (PREVIOUSLY REFERRED TO AS INDUSTRIAL AREA IN RIR)
- LOCATION OF UNDERGROUND WASTE PIPELINE BASED ON REMEDIAL INVESTIGATION FINDINGS
- FORMER BURIAL SITE
- FORMER ACID-WASTE (SETTLING) POND
- WASTE MATERIAL STORAGE AREA
- SETTLING POND (SURFACE IMPOUNDMENT)
- NON-RESIDENTIAL AREA
- WASTE PIPELINE SAMPLE AREA
- RESIDENTIAL AREA

SOIL BORING/CORE LOCATIONS:

- GEOTECHNICAL SAMPLE CORE
- SOIL BORING LOCATION - ARSENIC BELOW STANDARD, NOT ANALYZED, OR NO SOIL SAMPLE COLLECTED
- SOIL BORING LOCATION - ARSENIC EXCEEDANCE ABOVE RESIDENTIAL STANDARD

0 200' 400'

GRAPHIC SCALE

NOTES:

1. BOLD AND SHADED VALUES ARE ABOVE THE PA RESIDENTIAL DIRECT CONTACT SOIL STANDARD (12 mg/kg) FOR SOIL FROM 0 TO 15 FEET BELOW GROUND SURFACE
2. ALL CONCENTRATIONS ARE IN MILLIGRAMS PER KILOGRAM (MG/KG).
3. LOCATIONS OU-1, OU-2, OU-3, AND OU-4 ARE APPROXIMATE
4. [ ] = DUPLICATE SAMPLE RESULT
5. RESIDENTIAL SOIL DELINEATION WAS ONLY EVALUATED FOR AREAS 4, 5, 6, 7, 8, AND INDUSTRIAL AREAS. OTHER AREAS WERE SCREENED AGAINST NON-RESIDENTIAL SOIL STANDARDS.
6. DATA ARE NOT PRESENTED FOR SOIL SAMPLE RESULTS THAT DID NOT EXCEED THE APPLICABLE STANDARD.

BASE MAP REFERENCES:

SAMPLE LOCATION MAP BY NUS CORP., WELL LOCATIONS BY RHONE POULENC DATED 3-96, FACILITY LAYOUT, SOURCE UNKNOWN.

SOLVAY, INC
MORRISVILLE, PENNSYLVANIA
RIR ADDENDUM AND CLEANUP PLAN

ARSENIC RESIDENTIAL MSC EXCEEDANCES

ARCADIS

FIGURE
8

CITY: SYRACUSE/CRANBURY DIV/GROUP: ENVCAD DB: E.KRAHMER, P.LISTER, A.SCHILLING, JMEYER PIC: A.HEBERT PM: R.FITZPATRICK TM: D.KEARNS LYR:ON=*;OFF=REF, (FRZ)
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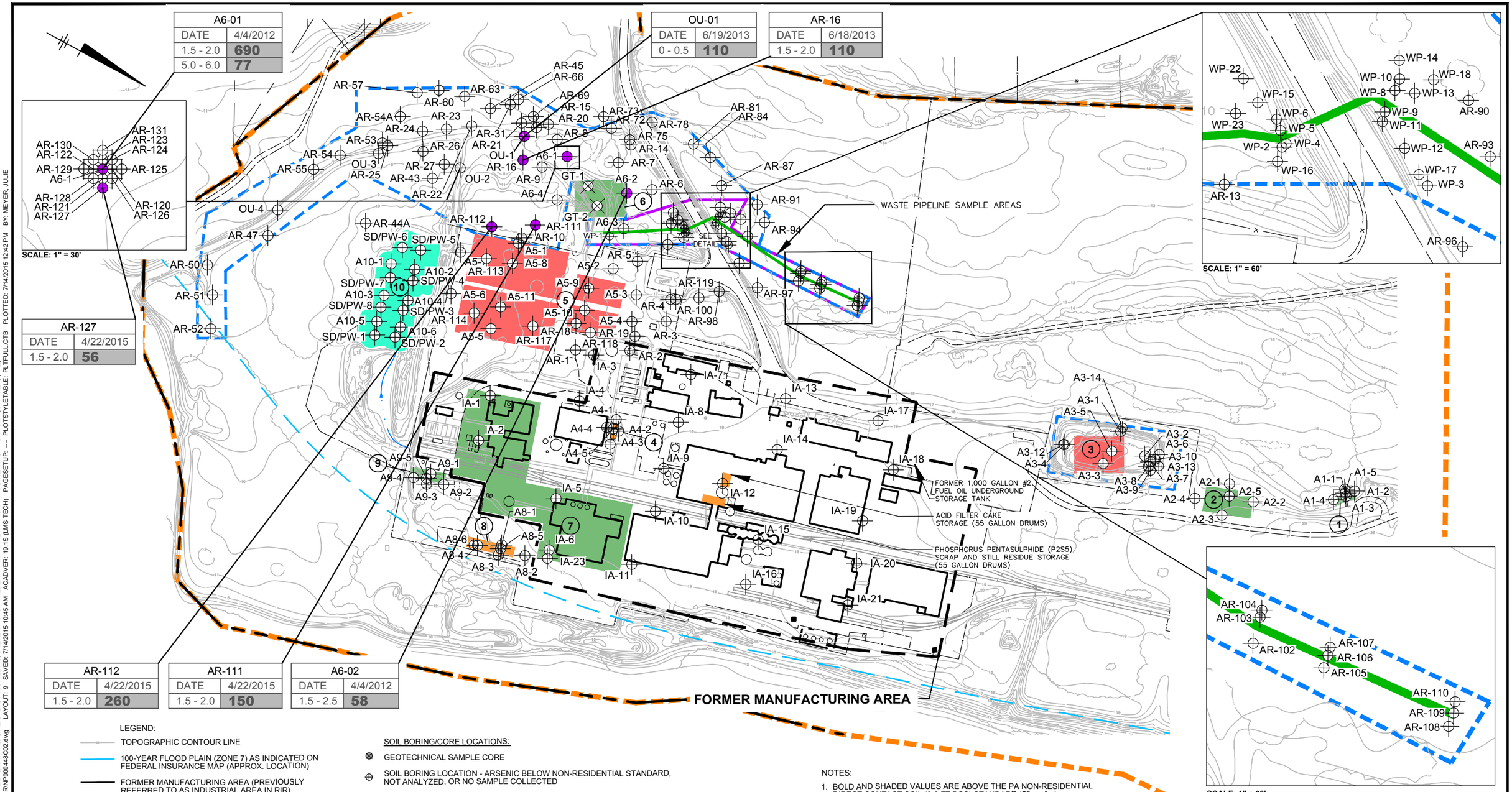

LEGEND:

- TOPOGRAPHIC CONTOUR LINE
- 100-YEAR FLOOD PLAIN (ZONE 7) AS INDICATED ON FEDERAL INSURANCE MAP (APPROX. LOCATION)
- FORMER MANUFACTURING AREA (PREVIOUSLY REFERRED TO AS INDUSTRIAL AREA IN RIR)
- LOCATION OF UNDERGROUND WASTE PIPELINE BASED ON REMEDIAL INVESTIGATION FINDINGS
- FORMER BURIAL SITE
- FORMER ACID-WASTE (SETTLING) POND
- WASTE MATERIAL STORAGE AREA
- SETTLING POND (SURFACE IMPOUNDMENT)
- NON-RESIDENTIAL AREA
- WASTE PIPELINE SAMPLE AREA
- RESIDENTIAL AREA

SOIL BORING/CORE LOCATIONS:

- GEOTECHNICAL SAMPLE CORE
- SOIL BORING LOCATION - ARSENIC BELOW NON-RESIDENTIAL STANDARD, NOT ANALYZED, OR NO SAMPLE COLLECTED
- SOIL BORING LOCATION - ARSENIC EXCEEDANCE ABOVE NON-RESIDENTIAL STANDARD

0 200' 400'
GRAPHIC SCALE

NOTES:

1. BOLD AND SHADED VALUES ARE ABOVE THE PA NON-RESIDENTIAL DIRECT CONTACT SOIL (0-2 FT BGS) STANDARD (53 mg/kg)
2. ALL CONCENTRATIONS ARE IN MILLIGRAMS PER KILOGRAM (MG/KG).
3. LOCATIONS OU-1, OU-2, OU-3, AND OU-4 ARE APPROXIMATE
4. NO SAMPLES EXCEED THE NON-RESIDENTIAL DIRECT CONTACT (2-15 FT BGS) SOIL STANDARD (190,000 mg/kg)
5. NON-RESIDENTIAL SOIL DELINEATION WAS ONLY EVALUATED FOR AREAS 3, 10 AND THE WASTE PIPELINE (WP). OTHER AREAS WERE SCREENED AGAINST RESIDENTIAL SOIL STANDARDS.
6. DATA ARE NOT PRESENTED FOR SOIL SAMPLE RESULTS THAT DID NOT EXCEED THE APPLICABLE STANDARD.

BASE MAP REFERENCES:

SAMPLE LOCATION MAP BY NUS CORP., WELL LOCATIONS BY RHONE POULENC DATED 3-96, FACILITY LAYOUT, SOURCE UNKNOWN.

SOLVAY, INC
MORRISVILLE, PENNSYLVANIA
RIR ADDENDUM AND CLEANUP PLAN

ARSENIC NON-RESIDENTIAL MSC EXCEEDANCES

ARCADIS

FIGURE
9

CITY: SYRACUSE/CRANBURY DIV/GROUP: ENVCAD DB: E.KRAHMER, P.LISTER, A.SCHILLING, JMEYER PIC: A.HEBERT PM: R.FITZPATRICK TM: D.KEARNS LYR:ON=*;OFF=REF, (FRZ)
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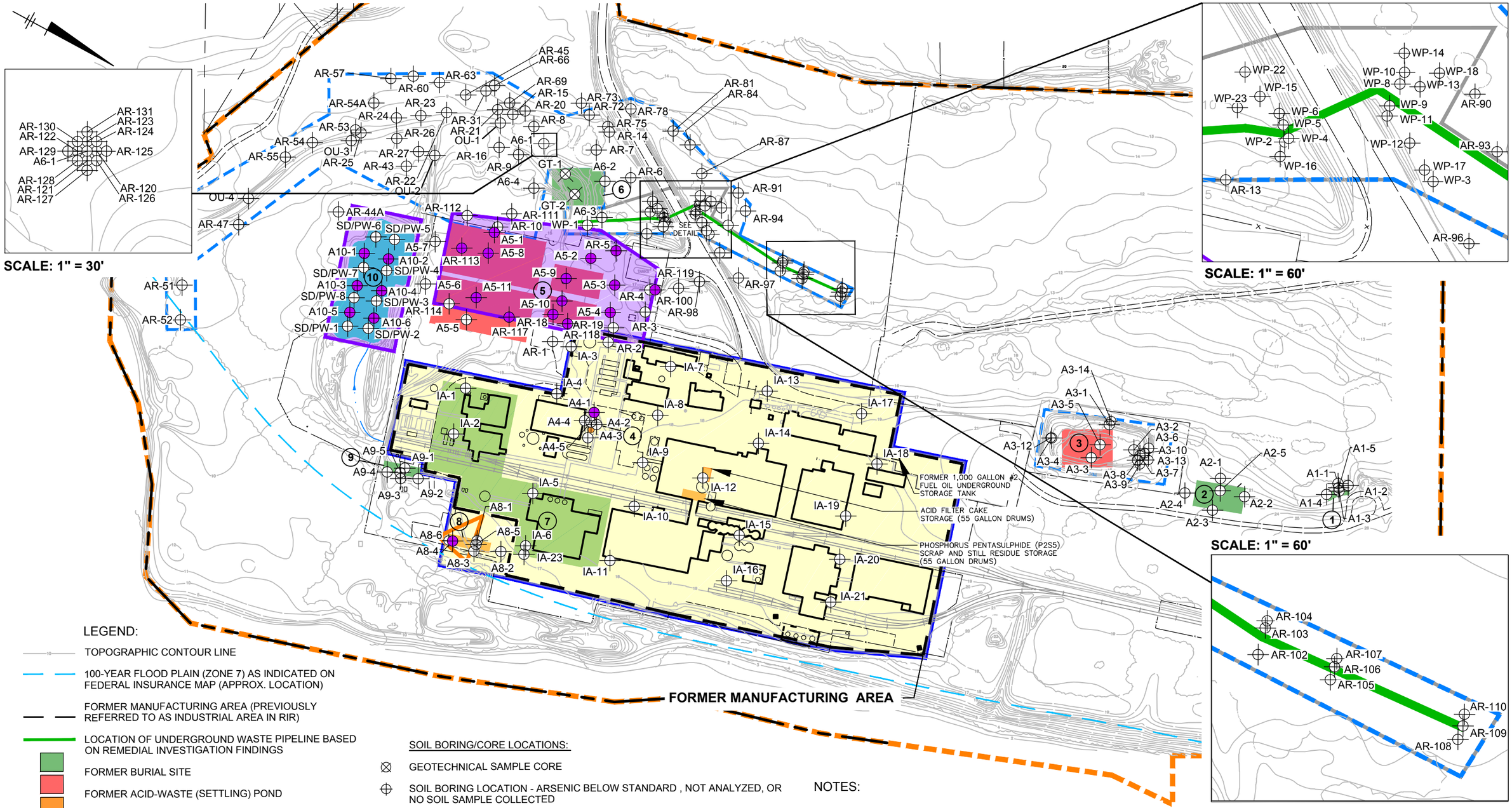

LEGEND:

- TOPOGRAPHIC CONTOUR LINE
- 100-YEAR FLOOD PLAIN (ZONE 7) AS INDICATED ON FEDERAL INSURANCE MAP (APPROX. LOCATION)
- FORMER MANUFACTURING AREA (PREVIOUSLY REFERRED TO AS INDUSTRIAL AREA IN RIR)
- LOCATION OF UNDERGROUND WASTE PIPELINE BASED ON REMEDIAL INVESTIGATION FINDINGS
- FORMER BURIAL SITE
- FORMER ACID-WASTE (SETTLING) POND
- WASTE MATERIAL STORAGE AREA
- SETTLING POND (SURFACE IMPOUNDMENT)
- 95% UCL CALCULATIONS AREA
- AREAS TO BE CAPPED
- NON-RESIDENTIAL AREA
- WASTE PIPELINE SAMPLE AREA
- RESIDENTIAL AREA

SOIL BORING/CORE LOCATIONS:

- GEOTECHNICAL SAMPLE CORE
- SOIL BORING LOCATION - ARSENIC BELOW STANDARD , NOT ANALYZED, OR NO SOIL SAMPLE COLLECTED
- SOIL BORING LOCATION - ARSENIC EXCEEDANCE ABOVE RESIDENTIAL STANDARD

0 200' 400'
GRAPHIC SCALE

NOTES:

1. LOCATIONS OU-1, OU-2, OU-3, OU-4, AND AR-111 TO AR-131 ARE APPROXIMATE.

BASE MAP REFERENCES:

SAMPLE LOCATION MAP BY NUS CORP., WELL LOCATIONS BY RHONE POULENC DATED 3-96, FACILITY LAYOUT, SOURCE UNKNOWN.

SOLVAY, INC.
MORRISVILLE, PENNSYLVANIA
RIR ADDENDUM AND CLEANUP PLAN

PROPOSED REMEDIATION FOR RESIDENTIAL USE

ARCADIS

FIGURE
10

CITY: SYRACUSE, NY DIV/GROUP: ENV/IM-DV DB: E. KRAHMER, P. LISTER PIC: A.HEBERT PM: R.FITZPATRICK TM: D. KEARNS TR: A. POLING LYR:ON=*;OFF=REF*,(FRZ)
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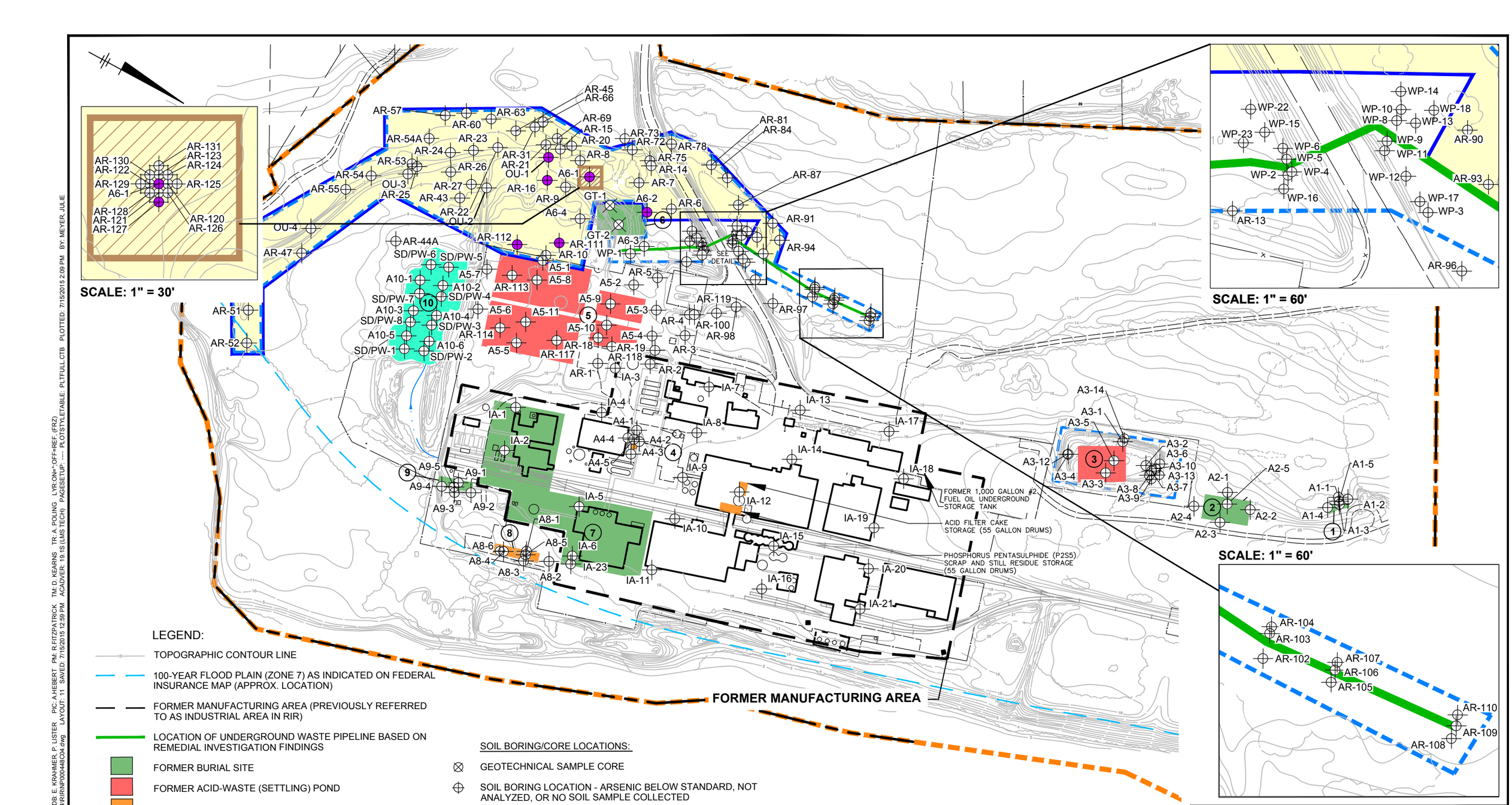
CITY: SYRACUSE, NY DIV/GROUP: ENV/IM-DV DB: E. KRAHMER, P. LISTER PIC: A.HEBERT PM: R.FITZPATRICK TM: D. KEARNS TR: A. POLING LYR:ON=*;OFF=REF*,(FRZ)
P:\ENV\CAD\SYRACUSE\ACT\NP000448\000410\00004\RIR\NP000448C04.dwg LAYOUT: 11 SAVED: 7/15/2015 12:59 PM ACADVER: 19.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 7/15/2015 2:09 PM BY: MEYER, JULIE
XREFS: 00448X02 NP000448X00 IMAGES: PROJECTNAME: ---

SCALE: 1" = 30'

SCALE: 1" = 60'



SCALE: 1" = 60'

LEGEND:

- TOPOGRAPHIC CONTOUR LINE
- 100-YEAR FLOOD PLAIN (ZONE 7) AS INDICATED ON FEDERAL INSURANCE MAP (APPROX. LOCATION)
- FORMER MANUFACTURING AREA (PREVIOUSLY REFERRED TO AS INDUSTRIAL AREA IN RIR)
- LOCATION OF UNDERGROUND WASTE PIPELINE BASED ON REMEDIAL INVESTIGATION FINDINGS
- FORMER BURIAL SITE
- FORMER ACID-WASTE (SETTLING) POND
- WASTE MATERIAL STORAGE AREA
- SETTLING POND (SURFACE IMPOUNDMENT)
- 95% UCL CALCULATIONS AREA
- NON-RESIDENTIAL AREA
- RESIDENTIAL AREA
- PROPOSED EXCAVATION AREA

SOIL BORING/CORE LOCATIONS:

- GEOTECHNICAL SAMPLE CORE
- SOIL BORING LOCATION - ARSENIC BELOW STANDARD, NOT ANALYZED, OR NO SOIL SAMPLE COLLECTED
- SOIL BORING LOCATION - ARSENIC EXCEEDANCE ABOVE NON-RESIDENTIAL STANDARD

0 200' 400'

GRAPHIC SCALE

NOTES:

1. LOCATIONS OU-1, OU-2, OU-3, OU-4, AND AR-111 TO AR-131 ARE APPROXIMATE.

BASE MAP REFERENCES:

SAMPLE LOCATION MAP BY NUS CORP., WELL LOCATIONS BY RHONE POULENC DATED 3-96, FACILITY LAYOUT, SOURCE UNKNOWN.

SOLVAY, INC.
MORRISVILLE, PENNSYLVANIA
RIR ADDENDUM AND CLEANUP PLAN

PROPOSED REMEDIATION FOR NON-RESIDENTIAL USE

ARCADIS

FIGURE
11

Appendix A

Act 2 Notices

Township of Falls
BUCKS COUNTY, PA

188 Lincoln Highway
Suite 100
Fairless Hills, PA 19030
(215) 949-9000

E-Mail: admin@fallstwp.com
Website: www.fallstwp.com

Board of Supervisors

Jeffry E. Dence
Robert J. Harvie, Jr.
Jonathan R. Snipes
Philip A. Szupka
Dorothy Vislosky

June 22, 2011

Arcadis U.S., Inc.
Attn: Ryan Fitzpatrick
10 Friends Lane
Suite 200
Newtown, PA. 18940

Re: Notice of Intent to Remediate Rhodia, Inc.
2300 So. Pennsylvania Ave., Morrisville, PA.
EPA ID # PAD002336410
Falls Township, Bucks Co., PA.

Dear Mr. Fitzpatrick:

Kindly accept this letter as Falls Township's written request for involvement in the development of the remediation and re-use plans for the site listed above.

I look forward to working with you as the township's contact person. Please feel free to call me with any questions.

Very truly yours,

Peter Gray
Falls Township Manager

cc: Thomas Bennett, Code/Zoning Officer
James Sullivan, P.E., T&M Associates

ARCADIS

Infrastructure · Water · Environment · Buildings

ARCADIS U.S., Inc.
10 Friends Lane
Suite 200
Newtown
Pennsylvania 18940
Tel 267 685 1800
Fax 267 685 1801
www.arcadis-us.com

ENVIRONMENT

Mr. Peter Gray
Falls Township Manager
188 Lincoln Highway, Suite 100
Fairless Hills, Pennsylvania 19030

Subject:
Notice of Intent to Remediate
Rhodia, Inc. Facility
2300 South Pennsylvania Ave, Morrisville, PA
EPA ID # PAD002336410
Falls Township, Bucks County, Pennsylvania

Date:
May 13, 2011

Contact:
Ryan Fitzpatrick

Phone:
267-685-1800

Email:
Ryan.Fitzpatrick@arcadis-us.com

Our ref:
NP000448.0002

Dear Mr. Gray:

The Land Recycling and Environmental Remediation Standards Act (Act 2) requires that a Notice of Intent to Remediate (NIR) be provided to the municipality in which the site is located. Act 2 also provides that when a site is a Special Industrial Area or 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 subject site. A copy of the Notice of Intent to Remediate, which has been sent to the Department of Environmental Protection (DEP), is enclosed. This notice will be published in the Pennsylvania Bulletin, and a summary of the notice will appear in the Bucks County Courier Times.

Publication of this notice 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 or if you have any questions, please contact me at 267-685-1800.

Sincerely,

Ryan Fitzpatrick
Project Manager

Copies:
Mike Shatynski, Rhodia, Inc.

Notice of an Intent to Remediate to an Environmental Standard

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 Rhodia, Inc.(Rhodia) has submitted to the Pennsylvania Department of Environmental Protection a Notice of Intent to Remediate a site located at 2300 Pennsylvania Avenue, Falls Township, Bucks County, Pennsylvania. This Notice of Intent to Remediate states that the site was a former industrial chemical plant that produced phosphoric acid. On-site settling ponds and landfills were used to manage waste materials containing arsenic suflide, sodium phosphates, and phosphorus pentasulfide from 1948 through the mid-1970's. Several areas of the site were identified as waste management areas/regulated units during previous investigations. Based on analytical data collected to date, arsenic and chromium have been identified as the COCs at the site. The Site is currently inactive and the intended future use is to remain industrial. The Site will be entered into the One-Cleanup Program through agreement between EPA and PADEP. Remediation will be conducted as necessary to obtain a release from liability for soil and groundwater using the Site-specific standard. Sampling will be conducted at the site as necessary to supplement existing closure information. Additional remedial or institutional/engineering control measures will be determined contingent upon the collected data.

Rhodia 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. Until June 15, 2011 (date 30 days after the newspaper publication date), Falls Township may submit a request to Rhodia to be involved in the development of the remediation and reuse plans for the site. Falls Township may also submit a request to Rhodia 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 2 East Main Street, Norristown, PA 19401.

8000-FM-CRLG0010 Rev. 9/2010

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
COMMUNITY REVITALIZATION AND LOCAL GOVERNMENT SUPPORT

For DEP Use Only
PF #_____
Rem ID #_____

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 Rhodia, Inc. Morrisville Plant

Former Name(s) / AKA Former names: Victor Chemical, Stauffer Chemical, Rhone-Poulenc Basic Chemicals

Address / Location 2300 South Pennsylvania Avenue

City Morrisville, Pennsylvania Zip Code 19067

Municipality(s) Falls Township County(ies) Bucks County

Latitude 40 ° (deg). 11 ' (min) 22 " (sec) Longitude 74 ° (deg). 45 ' (min) 18 " (sec)

Horizontal Collection Method USGS Quadrangle (Trenton West, NJ/PA)

Horizontal Reference Datum NAD83 Reference Point Street Address

☒ Wish to participate in the DEP/EPA MOA. Contact Troy Conrad at tconrad@state.pa.us for details.

EPA ID#, if known PAD002336410

DEP ID#(s), if known NPDES permit no. PA0011720
(i.e., eFACTS site ID#, storage tank facility ID#, water quality permit #, watershed permit, air quality permit #, etc.)

Date Release Occurred (if known) No major release, but contaminated waste material was buried onsite from 1948 through mid-1970's.

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.

The Site is a former industrial chemical plant that produced phosphoric acid. During the manufacturing process, trace amounts of arsenic were precipitated out of the phosphoric acid in the form of arsenic sulfide. On-site settling ponds and landfills were used to manage waste materials containing arsenic suflide, sodium phosphates, and phosphorus pentasulfide from 1948 through mid-1970's. Several areas of the site were identified as waste management areas/regulated units during previous investigations. Based on analytical data collected to date, arsenic and chromium have been identified as the COCs at the site. The Site is currently inactive and the intended future use is to remain industrial.

Provide a general description of proposed remediation measures.

The Site will be entered into the One-Cleanup Program through agreement between EPA and PADEP. Remediation will be conducted as necessary to obtain a release from liability for soil and groundwater using the Site-specific standard. Sampling will be conducted at the site as necessary to supplement existing closure information. Additional remedial or institutional/engineering control measures will be determined contingent upon the collected data.

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

☐ Unknown at this time	☐ Soil	☐ Groundwater
☐ Background Contaminants:	☐ Soil	☐ Groundwater
☐ Statewide Health - Residential Contaminants:	☐ Soil	☐ Groundwater
☐ Statewide Health – Non-Residential Contaminants:	☐ Soil	☐ Groundwater
☒ Site Specific Contaminants: Arsenic and chromium	☒ Soil	☒ Groundwater
☐ Special Industrial Area* Contaminants:	☐ Soil	☐ 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 Mike Shatynski/Remediation Project Manager
eFACTS Client ID* _____
Relationship to Site Owner
Client Type* _____
(e.g. owner, remediator, participant in cleanup, consultant, etc.)
Phone Number 732.516.1104
Email Address mike.shatynski@us.rhodia.com
Company Name Rhodia, Inc.
EIN or Federal ID # 22-3539954
Address (street, city, state, zip) 8 Cedar Brook Dr, Cranbury NJ 08512

Property Owner

Contact Person/Title Rhodia, Inc.
eFACTS Client ID* _____
Relationship to Site Owner
Client Type* _____
(e.g. owner, remediator, participant in cleanup, consultant, etc.)
Phone Number 609.860.4000
Email Address _____
Company Name Rhodia, Inc.
EIN or Federal ID # 22-3539954
Address (street, city, state, zip) 8 Cedar Brook Dr, Cranbury NJ 08512

Consultant

Contact Person/Title Ryan Fitzpatrick, Project Manager
eFACTS Client ID* _____
Relationship to Site consultant
Client Type* _____
(e.g. owner, remediator, participant in cleanup, consultant, etc.)
Phone Number 267.685.1800
Email Address ryan.fitzpatrick@arcadis-us.com
Company Name ARCADIS
EIN or Federal ID # _____
Address (street, city, state, zip) 10 Friends Lane, Suite 200, Newtown, PA 18940

*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 Ryan Fitzpatrick
Title Project Manager
Phone Number 267.685.1864
Email Address ryan.fitzpatrick@arcadis-us.com
Company Name ARCADIS
eFACTS Client ID _____
Address (street, city, state, zip) 10 Friends Lane, Suite 200, Newtown Pennsylvania, 18940

Bucks County, SS.

Ad Content Proof

NOTICE
of an Intent to Remediate to an Environmental Standard

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 Rhodia, Inc.(Rhodia) has submitted to the Pennsylvania Department of Environmental Protection a Notice of Intent to Remediate a site located at 2300 Pennsylvania Avenue, Falls Township, Bucks County, Pennsylvania. This Notice of Intent to Remediate states that the site was a former industrial chemical plant that produced phosphoric acid. On-site settling ponds and landfills were used to manage waste materials containing arsenic sulfide, sodium phosphates, and phosphorus pentasulfide from 1948 through the mid-1970's. Several areas of the site were identified as waste management areas/ regulated units during previous investigations. Based on analytical data collected to date, arsenic and chromium have been identified as the COCs at the site. The Site is currently inactive and the intended future use is to remain industrial. The Site will be entered into the One-Cleanup Program through agreement between EPA and PADEP. Remediation will be conducted as necessary to obtain a release from liability for soil and groundwater using the Site-specific standard. Sampling will be conducted at the site as necessary to supplement existing closure information. Additional remedial or institutional/ engineering control measures will be determined contingent upon collected data.

Rhodia 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. Until June 15, 2011 (date 30 days after the newspaper publication date), Falls Township may submit a request to Rhodia to be involved in the development of the remediation and reuse plans for the site. Falls Township may also submit a request to Rhodia 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 2 East Main Street, Norristown, PA 19401.

1t M 16

ARCADIS GERAGHTY MILLER
6 TERRY DR STE 300
NEWTOWN, PA 18940

1-026294004
0006078876-01

Laurie Clark being duly affirmed according to law, deposes and says that he/she is the Legal Billing Co-ordinator of the COURIER TIMES INCORPORATED, Publisher of The Bucks County Courier Times, a newspaper of general circulation, published and having its place of business at Levittown, Bucks County, Pa; that said newspaper was established in 1910; that securely attached hereto is a facsimile of the printed notice which is exactly as printed and published in said newspaper on

May 16, 2011

and is a true copy thereof; and that this affiant is not interested in said subject matter of advertising; and all of the allegations in this statement as to the time, place and character of publication are true.

Laurie Clark

LEGAL BILLING CO-ORDINATOR

Affirmed and subscribed to me before me this 16th day of May 2011 A.D.

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Carmelita Donnelly, Notary Public
Tullytown Boro, Bucks County
My Commission Expires Oct. 3, 2013
Member, Pennsylvania Association of Notaries

ARCADIS U.S., Inc.
One Adams Place
310 Seven Fields Blvd.
Suite 210
Seven Fields
Pennsylvania 16046
Tel 724 742 9180
Fax 724 742 9189
www.arcadis-us.com

ENVIRONMENTAL

Ms. Lauren Mapleton
Pennsylvania Department Environmental Protection
2 East Main Street
Norristown, PA 19401

Subject:
Proofs of Submittal of the Remedial Investigation Report
Municipality Notification and Newspaper Publication
Rhodia Inc., Morrisville, Pennsylvania Facility
USEPA ID No. PAD002336410
2300 South Pennsylvania Avenue
Falls Township, Bucks County
Morrisville, Pennsylvania

Date:
August 15, 2012

Contact:
Crystal Foster

Phone:
724.742.9180 ext.529

Email:
Crystal.foster@arcadis-us.com

Our ref:
NP000448.0003

Dear Ms. Mapleton:

On behalf of Rhodia Inc. (Rhodia), ARCADIS U.S., Inc. (ARCADIS) is pleased to provide these proofs of the required notification of submittal to Falls Township, Bucks County and publication in the Bucks County Courier Times for the Remedial Investigation Report (RIR) for the Rhodia, Morrisville, Pennsylvania Site. The RIR was submitted to PADEP on August 13, 2012.

If you have any questions concerning this submittal, please feel free to contact me at 724.742.9180, or Ryan Fitzpatrick at 267.685.1864.

Sincerely,

ARCADIS U.S., Inc.

Crystal Foster
Project Scientist

Copies:
Mike Shatynski - Rhodia Inc.

ARCADIS U.S., Inc.
One Adams Place
310 Seven Fields Blvd.
Suite 210
Seven Fields
Pennsylvania 16046
Tel 724 742 9180
Fax 724 742 9189
www.arcadis-us.com

ENVIRONMENTAL

Falls Township, Bucks County
Attn: Township Manager
Municipal Building
188 Lincoln Highway, Suite 100
Fairless Hills, PA 19030

Subject:
Submittal of Remedial Investigation Report
Rhodia Inc., Morrisville, Pennsylvania Facility
2300 South Pennsylvania Avenue
Falls Township, Bucks County
Morrisville, Pennsylvania

Date:
August 10, 2012

Contact:
Crystal Foster

Phone:
724.742.9180 ext. 529

Email:
Crystal.foster@arcadis-us.com

Our ref:
NP000448.0003

Dear Municipal Official:

The Land Recycling and Environmental Remediation Standards Act (Act 2) requires the notification of the local municipality when an Act 2 report is submitted to the Pennsylvania Department of Environmental Protection (PADEP) in accordance with Site-Specific Standards.

On behalf of Rhodia Inc. (Rhodia), ARCADIS U.S., Inc. (ARCADIS) is providing this letter to inform you that a Remedial Investigation Report has been submitted to PADEP under the Site-Specific Standard. The Remedial Investigation Report describes the Remedial Investigation activities conducted to facilitate Site remediation in accordance with Act 2.

A notice will also be published in the local newspaper (Bucks County Courier Times). If you have any questions, please feel free to contact me.

Sincerely,

ARCADIS U.S., Inc.

Crystal Foster
Project Scientist

Copies:
Mike Shatynski, Rhodia Inc.

FedEx Express
Customer Support Trace
3875 Airways Boulevard
Module H, 4th Floor
Memphis, TN 38116

U.S. Mail: PO Box 727
Memphis, TN 38194-4643

Telephone: 901-369-3600

August 15,2012

Dear Customer:

The following is the proof-of-delivery for tracking number **798721429326**.

Delivery Information:

Status:	Delivered	**Delivered to:**	Receptionist/Front Desk
Signed for by:	D.BERI	**Delivery location:**	188 LINCOLN HWY FAIRLESS HILLS, PA 19030
Service type:	FedEx 2Day Envelope	**Delivery date:**	Aug 14, 2012 14:24

Shipping Information:

Tracking number:	798721429326	**Ship date:**	Aug 10, 2012
		Weight:	0.5 lbs/0.2 kg

Recipient:
Atten: Township Manager
Falls Township, Bucks County
188 LINCOLN HWY
STE 100
FAIRLESS HILLS, PA 19030 US

Shipper:
Hayley Hartman
ARCADIS U.S., Inc.
310 Seven Fields Blvd., Suite 210
Seven Fields, PA 16046 US

Reference NP000448.0003.00005

Thank you for choosing FedEx Express.

FedEx Worldwide Customer Service
1.800.GoFedEx 1.800.463.3339

ARCADIS U.S., Inc.
One Adams Place
310 Seven Fields Blvd.
Suite 210
Seven Fields
Pennsylvania 16046
Tel 724 742 9180
Fax 724 742 9189
www.arcadis-us.com

ENVIRONMENTAL

Bucks County Courier Times
Attention: Legal Department
145 Easton Road
Horsham, PA 19044

Subject:
Attention: CLASSIFIEDS – LEGAL ADVERTISEMENT

Date:
August 10, 2012

Contact:
Crystal Foster

Phone:
724.742.9180 ext. 529

Email:
Crystal.foster@arcadis-us.com

Our ref:
NP000448.0003

To Whom It May Concern:

ARCADIS U.S., Inc. (ARCADIS) is submitting this publication request on behalf of Rhodia Inc. (Rhodia). Rhodia would like the following legal advertisement published in the Bucks County Courier Times on the first available date.

"Notice is hereby given that Rhodia Inc. (Rhodia) submitted to the Pennsylvania Department of Environmental Protection (PADEP) a Remedial Investigation Report (RIR) for the Morrisville, Pennsylvania Facility (Site), located at 2300 South Pennsylvania Avenue, in Morrisville, Pennsylvania.

The RIR summarizes the Remedial Investigation activities conducted at the Site in accordance with PADEP's Land Recycling and Environmental Remediation Standards Act (Act 2), the Act of May 19, 1995, P.L. #4, No. 2."

Payment has been made via credit card in the amount of $93.85. Please provide a receipt of payment, and proof of publication. Feel free to contact me with questions.

Sincerely,

ARCADIS U.S., Inc.

Crystal Foster
Project Scientist

Copies:
Mike Shatynski, Rhodia Inc.

FedEx Express
Customer Support Trace
3875 Airways Boulevard
Module H, 4th Floor
Memphis, TN 38116

U.S. Mail: PO Box 727
Memphis, TN 38194-4643

Telephone: 901-369-3600

August 15,2012

Dear Customer:

The following is the proof-of-delivery for tracking number **793890768068**.

Delivery Information:

Status:	Delivered	**Delivered to:**	Receptionist/Front Desk
Signed for by:	A.WOLF	**Delivery location:**	145 EASTON RD HORSHAM, PA 19044
Service type:	FedEx 2Day Envelope	**Delivery date:**	Aug 14, 2012 12:10

Shipping Information:

Tracking number:	793890768068	**Ship date:**	Aug 10, 2012
		Weight:	0.5 lbs/0.2 kg

Recipient:
Legal Department/Advertising
Bucks County Courier Times
145 EASTON RD
HORSHAM, PA 19044 US

Shipper:
Hayley Hartman
ARCADIS U.S., Inc.
310 Seven Fields Blvd., Suite 210
Seven Fields, PA 16046 US

Reference NP000448.0003.000005

Thank you for choosing FedEx Express.

FedEx Worldwide Customer Service
1.800.GoFedEx 1.800.463.3339

Bucks County, SS.

ARCADIS U.S. INC
ONE ADAMS PLACE
SEVEN FIELDS, PA 16046

7247429180A
0006321299-01

Laurie Clark being duly affirmed according to law, deposes and says that he/she is the Legal Billing Co-ordinator of the COURIER TIMES INCORPORATED, Publisher of The Bucks County Courier Times, a newspaper of general circulation, published and having its place of business at Levittown, Bucks County, Pa; that said newspaper was established in 1910; that securely attached hereto is a facsimile of the printed notice which is exactly as printed and published in said newspaper on

August 14, 2012

and is a true copy thereof; and that this affiant is not interested in said subject matter of advertising; and all of the allegations in this statement as to the time, place and character of publication are true.

Laurie Clark

LEGAL BILLING CO-ORDINATOR

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Karen McGovern, Notary Public
Tullytown Boro, Bucks County
My Commission Expires Feb. 19, 2013
Member, Pennsylvania Association of Notaries

Affirmed and subscribed to me before me this 14th day of August 2012 A.D.

Ad Content Proof

PUBLIC NOTICE

"Notice is hereby given that Rhodia Inc. (Rhodia) submitted to the Pennsylvania Department of Environmental Protection (PADEP) a Remedial Investigation Report (RIR) for the Morrisville, Pennsylvania Facility (Site), located at 2300 South Pennsylvania Avenue, in Morrisville, Pennsylvania.

The RIR summarizes the Remedial Investigation activities conducted at the Site in accordance with PADEP's Land Recycling and Environmental Remediation Standards Act (Act 2), the Act of May 19, 1995, P.L. #4, No. 2."

1 t A 14

ARCADIS U.S., Inc.
6041 Wallace Road Extension
Suite 300
Wexford
Pennsylvania 15090
Tel 724 742 9180
Fax 724 742 9189
www.arcadis-us.com

ENVIRONMENTAL

Falls Township, Bucks County
Attn: Township Manager
Municipal Building
188 Lincoln Highway, Suite 100
Fairless Hills, PA 19030

Subject:
Submittal of Remedial Investigation Addendum and Cleanup Plan
Rhodia Inc., Morrisville, Pennsylvania Facility
2300 South Pennsylvania Avenue
Falls Township, Bucks County
Morrisville, Pennsylvania

Date:
June 30, 2015

Contact:
Ryan Fitzpatrick

Phone:
267.685.1864

Email:
Ryan.Fitzpatrick@arcadis-us.com

Our ref:
NP000448.0003

Dear Municipal Official:

The Land Recycling and Environmental Remediation Standards Act (Act 2) requires the notification of the local municipality when an Act 2 report is submitted to the Pennsylvania Department of Environmental Protection (PADEP) in accordance with Site-Specific Standards.

On behalf of Solvay, Inc. (Solvay; formerly Rhodia), ARCADIS U.S., Inc. (ARCADIS) is providing this letter to inform you that a Combined Remedial Investigation Report Addendum (RIRA) and Cleanup Plan is being submitted to PADEP under the Site-Specific Standard. The RIRA describes remedial investigation activities conducted to facilitate Site remediation in accordance with Act 2. The Cleanup Plan describes proposed remediation activities. An Ecological Risk Assessment is also included in the submittal.

A notice will also be published in the local newspaper (Bucks County Courier Times). If you have any questions, please feel free to contact me.

Sincerely,

ARCADIS U.S., Inc.

Ryan Fitzpatrick
Project Manager

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:

Falls Township, Bucks County
Attn: Township Manager
Municipal Building
188 Lincoln Highway, Suite 100
Fairless Hills, PA 19030

9590 9403 0171 5120 3717 37

2. Article Number *(Transfer from service label)*

7015 0640 0005 1923 9291

PS Form 3811, April 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X Jane Leeson ☐ 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

RECEIVED
JUL 13 2015

3. Service Type

ARCADIS U.S., Inc.

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☐ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ ail
- ☐ ail Restricted Delivery
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Sender: Please print your name, address, and ZIP+4® in this box•

ARCADIS U.S., Inc.
6041 Wallace Road Ext., Suite 300
Wexford, PA 15090

USPS TRACKING#

9590 9403 0171 5120 3717 37

ARCADIS U.S., Inc.
6041 Wallace Road Extension
Suite 300
Wexford
Pennsylvania 15090
Tel 724 742 9180
Fax 724 742 9189
www.arcadis-us.com

ENVIRONMENTAL

Bucks County Courier Times
Attention: Legal Department
145 Easton Road
Horsham, PA 19044

Subject:
Attention: CLASSIFIEDS – LEGAL ADVERTISEMENT

Date:
June 30, 2015

Contact:
Ryan Fitzpatrick

Phone:
267.685.1864

Email:
Ryan.Fitzpatrick@arcadis-us.com

Our ref:
NP000448.0003

To Whom It May Concern:

ARCADIS U.S., Inc. (ARCADIS) is submitting this publication request on behalf of Solvay, Inc. (Solvay). Solvay would like the following legal advertisement published in the Bucks County Courier Times on the first available date.

"Notice is hereby given that Solvay Inc. (Solvay) is submitting to the Pennsylvania Department of Environmental Protection (PADEP) a Combined Remedial Investigation Addendum (RIRA) and Cleanup Plan for the Morrisville, Pennsylvania Facility (Site), located at 2300 South Pennsylvania Avenue, in Morrisville, Pennsylvania.

The RIR Addendum and Cleanup Plan summarizes the remedial investigation and ecological risk assessment activities conducted at the Site in accordance with PADEP's Land Recycling and Environmental Remediation Standards Act (Act 2), the Act of May 19, 1995, P.L. #4, No. 2, and the proposed remediation activities for the Site."

Please contact me to arrange payment via credit card. Please provide a receipt of payment, and proof of publication. Feel free to contact me with questions.

Sincerely,

ARCADIS U.S., Inc.

Ryan Fitzpatrick
Project Manager

Bucks County, SS.

ARCADIS U.S., INC.
6041 WALLACE ROAD EXTENSION, SUITE 300
WEXFORD, PA 15090

7247429180
0006827110-01

Ann Clark being duly affirmed according to law, deposes and says that he/she is the Legal Billing Co-ordinator of the COURIER TIMES INCORPORATED, Publisher of The Bucks County Courier Times, a newspaper of general circulation, published and having its place of business at Levittown, Bucks County, Pa; that said newspaper was established in 1910; that securely attached hereto is a facsimile of the printed notice which is exactly as printed and published in said newspaper on

July 02, 2015

and is a true copy thereof; and that this affiant is not interested in said subject matter of advertising; and all of the allegations in this statement as to the time, place and character of publication are true.

LEGAL BILLING CO-ORDINATOR

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Karen McGovern, Notary Public
Tullytown Boro, Bucks County
My Commission Expires Feb. 19, 2017
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Affirmed and subscribed to me before me this
2nd day of July 2015 A.D.

RECEIVED
JUL 07 2015
ARCADIS U.S., Inc.

Ad Content Proof

NOTICE
MORRISVILLE, PENNSYLVANIA

Notice is hereby given that Solvay Inc. (Solvay) is submitting to the Pennsylvania Department of Environmental Protection (PADEP) a Combined Remedial Investigation Addendum (RIRA) and Cleanup Plan for the Morrisville, Pennsylvania Facility (Site), located at 2300 South Pennsylvania Avenue, in Morrisville, Pennsylvania.

The RIR Addendum and Cleanup Plan summarizes the remedial investigation and ecological risk assessment activities conducted at the Site in accordance with PADEP's Land Recycling and Environmental Remediation Standards Act (Act 2), the Act of May 19, 1995, P.L. #4, No. 2, and the proposed remediation activities for the Site.

1t Jy 2

ARCADIS

Appendix B

RI Soil Samples Compared to Residential Standards

Table B-1
Remedial Investigation Soil Samples Compared to Residential Criteria
Solvay, Inc.
Morrisville, Pennsylvania

Constituent (mg/kg)	EPA Soil-to-GW SSL	EPA RES SOIL RSL	Res PADEP MSC	Location ID Start Depth End Depth Date	A1-01 1.5 2.0 4/6/2012	A1-01 8.0 8.5 4/6/2012	A1-02 1.5 2.0 4/6/2012	A1-02 (DUP) 1.5 2.0 4/6/2012	A1-02 8.0 8.5 4/6/2012	A1-03 1.5 2.0 4/6/2012	A1-03 10.5 11.0 4/6/2012	A1-04 1.5 2.0 4/6/2012	A1-04 11.5 12.0 4/6/2012	A1-05 1.5 2.0 4/6/2012	A1-05 9.8 10.3 4/6/2012	A2-01 1.5 2.0 4/6/2012	A2-01 14.5 15.0 4/6/2012	A2-02 1.5 2.0 4/6/2012	A2-02 14.5 15.0 4/6/2012	A2-03 1.5 2.0 4/9/2012	A2-03 14.5 15.0 4/9/2012	A2-04 1.5 2.0 4/9/2012	A2-04 14.5 15.0 4/9/2012	A2-05 1.5 2.0 4/6/2012	A2-05 14.5 15.0 4/6/2012	A3-01 1.0 1.5 4/11/2012	A3-01 1.5 2.0 4/11/2012	A3-02 1.5 2.0 4/12/2012	A3-02 (DUP) 1.5 2.0 4/12/2012	A3-04 1.5 2.0 4/11/2012	A3-06 1.5 2.0 4/12/2012	A3-07 1.5 2.0 4/12/2012
Detected Metals																																	
Aluminum	23000	77000	190000		**5500**	**4400**	**5300**	**5100**	**5400**	**5400**	**4300**	**6900**	**4300**	**4900**	**4500**	**7300**	**5500**	**7500**	**4000**	**7300 B**	**4500 B**	**7300 B**	**4800 B**	**6200**	**4300**	**5000**	**5000**	**4400**	**4000**	**4800**	**5200**	**4800**
Antimony	0.27	31	27		< 2.2 U	< 2.1 U	< 2.2 U	< 2.2 U	< 2.2 U	< 2.2 U	< 2.1 U	< 2.2 U	< 2.1 U	< 2.1 U	< 2.1 U	< 2.3 U	< 2.2 U	< 2.3 U	< 2.1 U	< 2.2 U	< 2.1 U	< 2.2 U	< 2.1 U	< 2.2 U	< 2.1 U	< 2.3 U	< 2.2 U	< 2.2 U	< 2.2 U	**1.2 J**	< 2.4 U	< 2.1 U
Arsenic	0.29	0.39	12		**4.7**	**3.4**	**4.7**	**5.3**	**5.8**	**6.7**	**4**	**4.8**	**3.5**	**5.5**	**4.2**	**3.8**	**3.9**	**5.3**	**3.8**	**3.2**	**4.7**	**3.6**	**4.6**	**3.1**	**3.4**	**20**	**15**	**15**	**15**	**29**	**4.4**	**3.2**
Barium	82	15000	8200		**29 B**	**27 B**	**25 B**	**21 B**	**26 B**	**20 B**	**29 B**	**39 B**	**23 B**	**24 B**	**32 B**	**48 B**	**33 B**	**40 B**	**28 B**	**130**	**27**	**43**	**30**	**34 B**	**22 B**	**34**	**35**	**36**	**27**	**77**	**38**	**24**
Beryllium	3.2	160	320		**0.56 JB**	**0.52 JB**	**0.57 JB**	**0.55 JB**	**0.56 JB**	**0.55 JB**	**0.51 JB**	**0.65 JB**	**0.49 JB**	**0.55 JB**	**0.50 JB**	**0.69 B**	**0.58 JB**	**0.66 JB**	**0.48 JB**	**0.57 JB**	**0.29 JB**	**0.46 JB**	**0.32 JB**	**0.61 JB**	**0.50 JB**	**0.18 J**	**0.26 J**	**0.10 J**	**0.11 J**	**0.16 J**	**0.15 J**	**0.13 J**
Cadmium	0.38	70	38		**0.39 JB**	**0.38 JB**	**0.38 JB**	**0.41 JB**	**0.40 JB**	**0.42 JB**	**0.38 JB**	**0.38 JB**	**0.34 JB**	**0.38 JB**	**0.35 JB**	**0.40 JB**	**0.40 JB**	**0.44 JB**	**0.35 JB**	**0.19 J**	**0.20 J**	**0.17 J**	**0.17 J**	**0.34 JB**	**0.32 JB**	< 0.70 U	< 0.65 U	**0.15 J**	**0.18 J**	**0.12 J**	< 0.71 U	< 0.64 U
Calcium	--	--	--		**230 JB**	**370 JB**	**360 JB**	**330 JB**	**440 JB**	**210 JB**	**340 JB**	**190 JB**	**340 JB**	**340 JB**	**500 JB**	**330 JB**	**350 JB**	**270 JB**	**320 JB**	**350 JB**	**350 JB**	**410 JB**	**380 JB**	**310 JB**	**240 JB**	**230 JB**	**820 JB**	**560 JB**	**500 JB**	**790 JB**	**710 JB**	**440 JB**
Chromium	180000	--	--		**7.3 B**	**6.7 B**	**6.9 B**	**7.1 B**	**11 B**	**7.3 B**	**6.6 B**	**8.7 B**	**6.0 B**	**7.9 B**	**7.1 B**	**9.3 B**	**11 B**	**9.2 B**	**6.1 B**	**9**	**5.9**	**8.4**	**7.4**	**7.8 B**	**6.0 B**	**12**	**12**	**11**	**11**	**16**	**9.9**	**9.1**
Cobalt	0.21	23	50		**5.4**	**4.8**	**5.1**	**5**	**5.4**	**10**	**5.1**	**5.9**	**4.3**	**5.2**	**4.9**	**6.5**	**6.2**	**6.9**	**4.6**	**6**	**4.6**	**6.5**	**5.3**	**5.4**	**5.2**	**2.6 J**	**5.9**	**6.4**	**3.7**	**4.4**	**4.9**	**4.6**
Copper	46	3100	8100		**9.6 B**	**7.7 B**	**9.0 B**	**10 B**	**10 B**	**10 B**	**7.6 B**	**8.4 B**	**6.9 B**	**9.5 B**	**7.8 B**	**8.8 B**	**12 B**	**8.3 B**	**8.1 B**	**8.1 B**	**8.0 B**	**7.7 B**	**8.7 B**	**7.0 B**	**7.5 B**	**11**	**12**	**10**	**12**	**12**	**16**	**11**
Cr (Hexavalent)	0.00059	0.29	190		< 1.1 U	< 1.1 U	< 1.1 U	< 1.1 U	< 1.1 U	< 1.1 U	< 1.0 U	< 1.1 U	< 1.0 U	< 1.1 U	< 1.0 U	< 1.1 U	< 1.1 U	< 1.1 U	< 1.0 U	**1.1**	< 1.0 U	< 1.1 U	< 1.0 U	< 1.1 U	< 1.0 U	< 1.2 U	< 1.1 U	< 1.1 U	< 1.1 U	< 1.1 U	< 1.2 U	< 1.1 U
Iron	270	55000	150000		**13000**	**12000**	**13000**	**12000**	**13000**	**13000**	**11000**	**15000**	**11000**	**13000**	**12000**	**15000**	**13000**	**16000**	**9800**	**14000**	**12000**	**15000**	**13000**	**13000**	**11000**	**12000**	**15000**	**12000**	**12000**	**14000**	**13000**	**13000**
Lead	14	400	450		**10**	**6**	**4.9 J**	**9.8**	**6**	**5.4**	**5.4**	**9.3**	**4.2 J**	**5.5**	**4.7 J**	**6.5**	**6.1**	**7.4**	**5.4**	**5.7**	**5.4**	**6.3**	**5.0 J**	**4.9 J**	**6.3**	**16**	**9.6**	**12**	**10**	**9.7**	**15**	**20**
Magnesium	--	--	--		**2200**	**2000**	**2100**	**2000**	**2200**	**2100**	**2000**	**2200**	**1900**	**2100**	**2200**	**2500**	**2300**	**2200**	**1800**	**2400**	**2100**	**2400**	**2400**	**2100**	**1900**	**1400**	**2100**	**1900 B**	**1800 B**	**1800**	**2200 B**	**2400 B**
Manganese	21	1800	2000		**360 B**	**330 B**	**350 B**	**330 B**	**350 B**	**390 B**	**370 B**	**380 B**	**280 B**	**320 B**	**350 B**	**400 B**	**390 B**	**440 B**	**370 B**	**520**	**320**	**470**	**340**	**310 B**	**330 B**	**120**	**360**	**250**	**160**	**550**	**350**	**290**
Mercury	0.1	10	10		< 0.090 U	< 0.088 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.090 U	< 0.087 U	< 0.093 U	< 0.087 U	< 0.088 U	< 0.086 U	< 0.095 U	< 0.091 U	< 0.095 U	< 0.087 U	< 0.093 U	< 0.086 U	< 0.094 U	< 0.086 U	< 0.093 U	< 0.086 U	**0.026 J**	**0.0073 J**	< 0.094 U	< 0.091 U	**0.0092 J**	**0.013 J**	< 0.089 U
Nickel	20	1500	650		**11**	**10**	**11**	**10**	**11**	**13**	**10**	**11**	**9.4**	**11**	**11**	**14**	**12**	**12**	**9.7**	**14**	**10**	**13**	**11**	**11**	**9.6**	**8.4**	**13**	**14**	**14**	**13**	**16**	**14**
Potassium	--	--	--		**470 JB**	**410 JB**	**540 B**	**500 JB**	**560 B**	**450 JB**	**420 JB**	**470 JB**	**410 JB**	**430 JB**	**460 JB**	**550 JB**	**460 JB**	**520 JB**	**360 JB**	**430 J**	**370 J**	**480 J**	**450 J**	**460 JB**	**400 JB**	**460 JB**	**520 JB**	**470 JB**	**440 JB**	**630 B**	**500 JB**	**490 JB**
Selenium	0.26	390	26		< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 1.9 U	< 2.0 U	< 1.9 U	< 1.9 U	< 1.9 U	< 2.0 U	< 2.0 U	< 2.0 U	< 1.9 U	< 2.0 U	< 1.9 U	< 2.0 U	**0.89 J**	< 2.0 U	< 1.9 U	< 2.1 U	< 1.9 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.1 U	< 1.9 U
Silver	0.6	390	84		**0.29 JB**	**0.30 JB**	**0.31 JB**	**0.34 JB**	**0.36 JB**	**0.33 JB**	**0.30 JB**	**0.28 JB**	**0.32 JB**	**0.30 JB**	**0.35 JB**	**0.38 JB**	**0.26 JB**	**0.32 JB**	**0.29 JB**	< 1.7 U	< 1.5 U	< 1.7 U	< 1.5 U	**0.29 JB**	**0.26 JB**	< 1.7 U	< 1.6 U	**0.30 J**	**0.55 J**	< 1.7 U	**0.50 J**	**0.62 J**
Sodium	--	--	--		< 270 U	< 260 U	< 270 U	< 270 U	< 270 U	< 270 U	< 260 U	< 280 U	< 260 U	< 260 U	< 260 U	< 280 U	< 270 U	< 280 U	< 260 U	< 280 U	< 260 U	< 280 U	< 260 U	< 280 U	**26 J**	**33 J**	**26 J**	**77 JB**	**57 JB**	**44 J**	**81 JB**	**40 JB**
Vanadium	--	--	1500		**8.6 J**	**7.8 J**	**8.1 J**	**8.4 J**	**8.8 J**	**8.8 J**	**7.5 J**	**11 J**	**6.8 J**	**9.2 J**	**7.6 J**	**11 J**	**9.4 J**	**12**	**6.6 J**	**10 J**	**7.8 J**	**11 J**	**8.9 J**	**9.1 J**	**6.8 J**	**9.0 J**	**13**	**8.8 J**	**9.6 J**	**10 J**	**9.6 J**	**13**
Zinc	290	23000	12000		**33**	**33**	**31**	**31**	**34**	**31**	**30**	**52**	**31**	**33**	**30**	**41**	**33**	**42**	**27**	**42**	**30**	**42**	**32**	**34**	**27**	**37**	**52**	**45**	**41**	**46**	**83**	**46**
Detected Misc.																																	
% Solids	--	--	--		**93**	**95**	**93**	**93**	**93**	**93**	**96**	**90**	**96**	**95**	**97**	**88**	**92**	**88**	**96**	**90**	**97**	**89**	**97**	**90**	**97**	**86**	**93**	**89**	**92**	**89**	**85**	**94**
Eh	--	--	--		**280**	**280**	**280**	**270**	**250**	**340**	**310**	**390**	**370**	**250**	**250**	**450**	**380**	**400**	**420**	**480**	**470**	**420**	**450**	**420**	**440**	**270**	**220**	**240**	**250**	**210**	**250**	**250**
pH	--	--	--		**5.2**	**6**	**6.4**	**6.7**	**7**	**5.1**	**6.2**	**5**	**5.2**	**5.6**	**6.3**	**5.9**	**5.9**	**5.2**	**6.1**	**6.2**	**6.1**	**7**	**6.1**	**5.5**	**6.4**	**5.3**	**6**	**6.2**	**6.3**	**6.1**	**6.2**	**5.8**
S.U.	--	--	--		**5.2**	**6**	**6.4**	**6.7**	**7**	**5.1**	**6.2**	**5**	**5.2**	**5.6**	**6.3**	**5.9**	**5.9**	**5.2**	**6.1**	**6.2**	**6.1**	**7**	**6.1**	**5.5**	**6.4**	**5.3**	**6**	**6.2**	**6.3**	**6.1**	**6.2**	**5.8**
Detected SVOCs																																	
1,1'-Biphenyl	0.0087	51	790		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	**0.018 J**	< 0.036 U	< 0.037 U	< 0.039 U	< 0.035 U
2-Methylnaphthalene	0.14	310	600		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	**0.090 J**	< 0.036 U	< 0.037 U	< 0.039 U	< 0.035 U
Acenaphthene	4.1	3400	2700		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	**0.23**	**0.012 J**	< 0.037 U	< 0.039 U	< 0.035 U
Acenaphthylene	--	--	2500		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	**0.017 J**	< 0.036 U	< 0.037 U	**0.0046 J**	< 0.035 U
Anthracene	42	17000	350		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	**0.44**	**0.022 J**	< 0.037 U	< 0.039 U	< 0.035 U
Benzo[a]anthracene	0.01	0.15	5.7		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	**0.84**	**0.076**	< 0.037 U	**0.021 J**	**0.0047 J**
Benzo[a]pyrene	0.24	0.015	0.57		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	**0.7**	**0.059**	< 0.037 U	**0.024 J**	< 0.035 U
Benzo[b]fluoranthene	0.035	0.15	5.7		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	**0.98**	**0.082**	< 0.037 U	**0.036 J**	< 0.035 U
Benzo[g,h,i]perylene	--	--	180		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	**0.35**	**0.035 J**	< 0.037 U	**0.022 J**	< 0.035 U
Benzo[k]fluoranthene	0.35	1.5	57		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	**0.3**	**0.034 J**	< 0.037 U	**0.016 J**	**0.0044 J**
bis(2-Ethylhexyl)phthalate	1.4	35	130		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	**0.16**	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	**5.5**	**0.28**	< 0.037 U	**0.73**	**0.029 J**
Carbazole	--	--	21		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	**0.17**	**0.0098 J**	< 0.037 U	< 0.039 U	< 0.035 U
Chrysene	1.1	15	230		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	**0.73**	**0.071**	< 0.037 U	**0.031 J**	**0.0044 J**
Dibenzo[a,h]anthracene	0.011	0.015	0.57		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	**0.14**	**0.010 J**	< 0.037 U	**0.0055 J**	< 0.035 U
Dibenzofuran	0.11	78	95		< 0.0090 U	< 0.0088 U	< 0.0090 U	< 0.0090 U	< 0.0090 U	< 0.0090 U	< 0.0087 U	< 0.0093 U	< 0.0087 U	< 0.0088 U	< 0.0086 U	< 0.0095 U	< 0.0091 U	< 0.0095 U	< 0.0087 U	< 0.0093 U	< 0.0086 U	< 0.0094 U	< 0.0086 U	< 0.0093 U	< 0.0086 U	< 0.0097 U	< 0.0090 U	**0.13**	**0.0052 J**	< 0.0094 U	< 0.0098 U	< 0.0089 U
Di-n-butylphthalate	1.7	6100	1500		< 0.018 U	< 0.018 U	< 0.018 U	< 0.018 U	< 0.018 U	< 0.018 U	< 0.017 U	< 0.019 U	< 0.017 U	< 0.018 U	< 0.017 U	< 0.019 U	< 0.018 U	< 0.019 U	< 0.017 U	< 0.019 U	< 0.017 U	< 0.019 U	< 0.017 U	< 0.019 U	< 0.017 U	< 0.019 U	< 0.018 U	< 0.057 U	< 0.018 U	< 0.019 U	< 0.020 U	< 0.018 U
Di-n-octylphthalate	--	--	8800		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	**0.023 J**	< 0.036 U	< 0.037 U	< 0.039 U	< 0.035 U
Fluoranthene	70	2300	3200		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	**0.026 J**	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	**1.3**	**0.1**	< 0.037 U	**0.042**	**0.0072 J**
Fluorene	4	2300	3000		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	**0.19**	**0.0071 J**	< 0.037 U	< 0.039 U	< 0.035 U
Indeno[1,2,3-cd]pyrene	0.12	0.15	5.7		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	**0.33**	**0.031 J**	< 0.037 U	**0.017 J**	< 0.035 U
Naphthalene	0.00047	3.6	25		< 0.0090 U	< 0.0088 U	< 0.0090 U	< 0.0090 U	< 0.0090 U	< 0.0090 U	< 0.0087 U	< 0.0093 U	< 0.0087 U	< 0.0088 U	< 0.0086 U	< 0.0095 U	< 0.0091 U	< 0.0095 U	< 0.0087 U	< 0.0093 U	< 0.0086 U	< 0.0094 U	< 0.0086 U	< 0.0093 U	< 0.0086 U	< 0.0097 U	< 0.0090 U	**0.14**	< 0.0091 U	< 0.0094 U	< 0.0098 U	< 0.0089 U
Phenanthrene	--	--	10000		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	**1.3**	**0.084**	< 0.037 U	**0.020 J**	**0.0037 J**
Phenol	2.6	18000	200		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	< 0.11 U	< 0.036 U	< 0.037 U	< 0.039 U	< 0.035 U
Pyrene	9.5	1700	2200		< 0.036 U	< 0.035 U	< 0.036 U	< 0.036 U	**0.023 J**	< 0.036 U	< 0.035 U	< 0.037 U	< 0.035 U	< 0.035 U	< 0.034 U	< 0.038 U	< 0.036 U	< 0.038 U	< 0.035 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.037 U	< 0.034 U	< 0.039 U	< 0.036 U	**1.3**	**0.12**	< 0.037 U	**0.046**	**0.0065 J**
VOCs																																	
1,1,1-Trichloroethane	0.07	8700	20		< 0.0020 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0019 U	< 0.0019 U	< 0.0020 U	< 0.0022 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0019 U	< 0.0021 U	< 0.0019 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0023 U	< 0.0021 U
1,2,3-Trichlorobenzene	0.015	49	--		< 0.0020 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0019 U	< 0.0019 U	< 0.0020 U	< 0.0022 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0019 U	< 0.0021 U	< 0.0019 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	**0.0010 J**	< 0.0022 U	< 0.0023 U	< 0.0021 U
1,2,4-Trichlorobenzene	0.2	22	27		< 0.0020 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0019 U	< 0.0019 U	< 0.0020 U	< 0.0022 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0019 U	< 0.0021 U	< 0.0019 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	**0.00091 J**	< 0.0022 U	< 0.0023 U	< 0.0021 U
1,2-Dichlorobenzene	0.58	1900	60		< 0.0020 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0019 U	< 0.0019 U	< 0.0020 U	< 0.0022 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0019 U	< 0.0021 U	< 0.0019 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	**0.00039 J**	< 0.0022 U	< 0.0023 U	< 0.0021 U
1,3-Dichlorobenzene	--	--	61		< 0.0020 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0019 U	< 0.0019 U	< 0.0020 U	< 0.0022 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0019 U	< 0.0021 U	< 0.0019 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0023 U	< 0.0021 U
1,4-Dichlorobenzene	0.072	2.4	10		< 0.0020 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0019 U	< 0.0019 U	< 0.0020 U	< 0.0022 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0019 U	< 0.0021 U	< 0.0019 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0023 U	< 0.0021 U
Acetone	2.4	61000	3300		< 0.010 U	< 0.0099 U	< 0.010 U	< 0.010 U	< 0.010 U	< 0.010 U	< 0.010 U	**0.14**	< 0.0097 U	< 0.0097 U	< 0.0098 U	< 0.011 U	< 0.010 U	< 0.011 U	< 0.0098 U	< 0.010 U	< 0.0099 U	< 0.010 U	< 0.0094 U	< 0.011 U	< 0.0093 U	< 0.011 U	< 0.010 U	< 0.011 U	**0.026**	< 0.011 U	< 0.011 U	< 0.010 U
Carbon disulfide	0.21	820	150		< 0.0020 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0019 U	< 0.0019 U	< 0.0020 U	< 0.0022 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0019 U	< 0.0021 U	< 0.0019 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0023 U	< 0.0021 U
Chloroform	0.022	0.29	8		< 0.0020 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0019 U	< 0.0019 U	< 0.0020 U	< 0.0022 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0019 U	< 0.0021 U	< 0.0019 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0023 U	< 0.0021 U
cis-1,2-Dichloroethene	0.021	160	7		< 0.0020 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0019 U	< 0.0019 U	< 0.0020 U	< 0.0022 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0019 U	< 0.0021 U	< 0.0019 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0023 U	**0.00039 J**
m&p-Xylenes	--	--	--		< 0.0010 U	< 0.00099 U	< 0.0010 U	< 0.0010 U	< 0.0010 U	< 0.0010 U	< 0.0010 U	< 0.0011 U	< 0.00097 U	< 0.00097 U	< 0.00098 U	< 0.0011 U	< 0.0010 U	< 0.0011 U	< 0.00098 U	< 0.0010 U	< 0.00099 U	< 0.0010 U	< 0.00094 U	< 0.0011 U	< 0.00093 U	< 0.0011 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0010 U
Styrene	0.11	6300	24		< 0.0020 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0021 U	< 0.0020 U	**0.075**	< 0.0019 U	< 0.0019 U	< 0.0020 U	< 0.0022 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0019 U	< 0.0021 U	< 0.0019 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0023 U	< 0.0021 U
Tetrachloroethene	0.0023	0.55	0.5		< 0.0020 U	< 0.0020 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0019 U	< 0.0019 U

Table B-1
Remedial Investigation Soil Samples Compared to Residential Criteria
Solvay, Inc.
Morrisville, Pennsylvania

Constituent (mg/kg)	EPA Soil-to-GW SSL	EPA RES SOIL RSL	Res PADEP MSC	Location ID	A3-08	A4-01	A4-01	A4-02	A4-02	A4-03	A4-03	A4-04	A4-04	A5-01	A5-01 (DUP)	A5-01	A5-02	A5-02	A5-03	A5-03	A5-04	A5-04 (DUP)	A5-04	A5-05	A5-05	A5-06	A5-06	A5-07	A5-07 (DUP)	A5-07	A5-08	A5-08
				Start Depth	1.5	2.5	11.0	1.5	7.5	1.5	12.0	1.5	7.0	1.5	1.5	7.0	6.0	11.0	7.0	11.5	1.5	1.5	7.5	1.5	4.5	0.5	12.0	1.0	1.0	1.0	5.8	1.5	3.5
				End Depth	2.0	3.0	11.5	2.0	8.0	2.0	12.5	2.0	8.0	2.0	2.0	8.0	6.5	12.0	7.5	12.0	2.0	2.0	8.0	2.0	5.0	1.5	12.5	2.0	2.0	2.0	6.3	2.0	4.0
				Date	4/12/2012	4/12/2012	4/12/2012	4/12/2012	4/13/2012	4/12/2012	4/12/2012	4/12/2012	4/12/2012	4/5/2012	4/5/2012	4/5/2012	4/9/2012	4/9/2012	4/9/2012	4/9/2012	4/9/2012	4/9/2012	4/9/2012	4/9/2012	4/5/2012	4/5/2012	4/4/2012	4/4/2012	4/4/2012	4/4/2012	4/4/2012	4/4/2012	4/5/2012
Detected Metals																															
Aluminum	23000	77000	190000		**4500**	**7400**	**5700**	**6800**	**7200**	**6700**	**4600**	**7800**	**9700**	**8000**	**8400**	**11000**	**10000 B**	**11000 B**	**11000 B**	**9200 B**	**10000 B**	**8300 B**	**8200 B**	**9400**	**11000**	**9000**	**9500**	**7900**	**7800**	**8100**	**9100**	**9500**
Antimony	0.27	31	27		< 2.2 U	< 2.2 U	< 2.2 U	< 2.2 U	< 2.3 U	< 2.3 U	< 2.1 U	< 2.3 U	< 2.2 U	< 2.4 U	< 2.4 U	< 2.5 U	< 2.4 U	< 2.4 U	< 2.4 U	< 2.4 U	< 2.3 U	< 2.3 U	< 2.3 U	< 2.4 U	< 2.4 U	< 2.4 U	< 2.5 U	< 2.4 U	< 2.4 U	< 2.4 U	< 2.4 U	< 2.6 U
Arsenic	0.29	0.39	12		**4.6**	**18**	**11**	**6.7**	**12**	**4.3**	**4.1**	**8.1**	**11**	**23**	**27**	**35**	**330**	**850**	**480**	**63**	**44**	**53**	**43**	**4.8**	**6.2**	**9.1**	**5.2**	**6.2**	**5.7**	**4.1**	**34**	**99**
Barium	82	15000	8200		**49**	**48**	**27**	**45**	**41**	**56**	**29**	**63**	**36**	**130**	**130**	**92**	**90**	**120**	**77**	**62**	**72**	**61**	**63**	**97**	**91**	**120**	**77**	**140**	**170**	**89**	**96**	**120**
Beryllium	3.2	160	320		**0.16 J**	**0.31 J**	**0.23 J**	**0.28 J**	**0.18 J**	**0.32 J**	**0.17 J**	**0.40 J**	**0.39 J**	**0.71 B**	**0.77 B**	**0.84 B**	**0.74 B**	**0.84 B**	**0.57 JB**	**0.59 JB**	**0.64 JB**	**0.50 JB**	**0.55 JB**	**0.78 B**	**0.61 J**	**0.66 J**	**0.52 J**	**0.61 J**	**0.60 J**	**0.49 J**	**0.74 B**	**0.86 B**
Cadmium	0.38	70	38		**0.22 J**	**0.31 J**	**0.17 J**	**0.096 J**	**0.24 J**	< 0.69 U	< 0.62 U	**0.12 J**	**0.25 J**	**0.73 B**	**0.79 B**	**0.80 B**	**6**	**15**	**8.5**	**1.2**	**0.93**	**1**	**0.92**	**0.35 JB**	**0.36 J**	**0.63 J**	**0.33 J**	**0.53 J**	**0.45 J**	**0.33 J**	**0.78 B**	**1.8 B**
Calcium	--	--	--		**970 JB**	**2900 B**	**2100 B**	**2500 B**	**1200**	**570 JB**	**340 JB**	**660 JB**	**880 JB**	**1100 JB**	**740 JB**	**1100 JB**	**440 JB**	**630 JB**	**2000 B**	**1300 B**	**1400 B**	**1000 JB**	**730 JB**	**670 JB**	**900 JB**	**910 JB**	**410 JB**	**1300 B**	**1100 JB**	**800 JB**	**750 JB**	**710 JB**
Chromium	180000	--	--		**66**	**11**	**6.8**	**9.8**	**14**	**8.7**	**6.7**	**10**	**12**	**10**	**13**	**12**	**9.7**	**12**	**15**	**10**	**12**	**9.6**	**9.8**	**11**	**13 B**	**13 B**	**11 B**	**11 B**	**11 B**	**11 B**	**10 B**	**11**	**14**
Cobalt	0.21	23	50		**8.6**	**11**	**8.7**	**7.6**	**2.2 J**	**6**	**4.7**	**7.1**	**2.6 J**	**5**	**4.8**	**11**	**4**	**8.5**	**3**	**3**	**8.9**	**7.2**	**6.7**	**8.3**	**10**	**8.8**	**8.6**	**7.8**	**7.6**	**7.3**	**8.1**	**7**
Copper	46	3100	8100		**18**	**12**	**11**	**16**	**14**	**8.9**	**7.1**	**10**	**18**	**8.4**	**10**	**14**	**15 B**	**14 B**	**11 B**	**10 B**	**12 B**	**11 B**	**9.8 B**	**10**	**15 B**	**17 B**	**12 B**	**13 B**	**11 B**	**9.8 B**	**11**	**17**
Cr (Hexavalent)	0.00059	0.29	190		**2.4**	< 1.1 U	< 1.1 U	**2.6**	**1.3**	< 1.1 U	< 1.0 U	< 1.2 U	< 1.1 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.3 U
Iron	270	55000	150000		**14000**	**17000**	**13000**	**14000**	**19000**	**14000**	**12000**	**16000**	**15000**	**17000**	**15000**	**22000**	**17000**	**24000**	**16000**	**19000**	**20000**	**17000**	**18000**	**18000**	**24000**	**18000**	**19000**	**16000**	**16000**	**17000**	**17000**	**17000**
Lead	14	400	450		**26**	**10**	**5.9**	**6.2**	**12**	**8.7**	**4.8 J**	**10**	**6**	**6.9**	**7.5**	**11**	**7**	**12**	**11**	**8.6**	**13**	**9.8**	**7.3**	**8.6**	**12**	**36**	**11**	**22**	**16**	**8.3**	**10**	**27**
Magnesium	--	--	--		**1600 B**	**900 B**	**1900 B**	**2100 B**	**250 J**	**2300 B**	**2000 B**	**2700 B**	**960 B**	**2500**	**2200**	**3600**	**2500**	**3500**	**1800**	**2200**	**3600**	**3200**	**2900**	**2900**	**3400**	**2700**	**2900**	**2600**	**2500**	**2700**	**2800**	**2700**
Manganese	21	1800	2000		**460**	**770**	**590**	**530**	**230**	**500**	**270**	**520**	**180**	**190**	**190**	**990**	**160**	**590**	**88**	**130**	**750**	**630**	**550**	**820**	**1200**	**750**	**740**	**760**	**770**	**670**	**790**	**400**
Mercury	0.1	10	10		**0.087 J**	**0.015 J**	< 0.091 U	< 0.094 U	< 0.097 U	**0.011 J**	< 0.087 U	< 0.097 U	< 0.093 U	**0.019 J**	**0.014 J**	**0.014 J**	**0.013 J**	< 0.099 U	< 0.099 U	< 0.098 U	**0.019 J**	**0.015 J**	**0.012 J**	**0.017 J**	**0.0093 J**	**0.1**	< 0.10 U	**0.043 J**	**0.053 J**	< 0.098 U	**0.022 J**	**0.060 J**
Nickel	20	1500	650		**39**	**14**	**17**	**19**	**3.2 J**	**13**	**12**	**15**	**5.9**	**27**	**20**	**28**	**12**	**21**	**12**	**11**	**17**	**14**	**16**	**17**	**19**	**17**	**15**	**15**	**16**	**16**	**22**	**20**
Potassium	--	--	--		**500 JB**	**980 B**	**680 B**	**880 B**	**630**	**650 BB**	**470 JB**	**690 B**	**640 B**	**550 J**	**530 J**	**600 J**	**630**	**710**	**630**	**540 J**	**630**	**540 J**	**510 J**	**570 J**	**700**	**580 J**	**490 J**	**520 J**	**510 J**	**470 J**	**540 J**	**660**
Selenium	0.26	390	26		< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.1 U	< 2.1 U	< 1.9 U	< 2.1 U	< 2.0 U	< 2.1 U	< 2.1 U	< 2.2 U	**3**	**1.3 J**	**1.7 J**	< 2.1 U	< 2.1 U	< 2.1 U	< 2.1 U	< 2.1 U	< 2.1 U	< 2.2 U	< 2.2 U	< 2.1 U	< 2.2 U	< 2.1 U	< 2.1 U	< 2.3 U
Silver	0.6	390	84		**0.89 J**	**0.60 J**	**0.49 J**	**0.55 J**	< 1.7 U	**0.43 J**	**0.51 J**	**0.65 J**	**0.63 J**	**0.22 J**	**0.18 J**	**0.12 J**	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.7 U	< 1.7 U	< 1.7 U	**0.16 J**	**0.63 J**	**0.66 J**	**0.49 J**	**0.42 J**	**0.43 J**	**0.47 J**	**0.24 J**	**0.25 J**
Sodium	--	--	--		**65 JB**	**110 JB**	**59 JB**	**130 JB**	**17 J**	**35 JB**	**32 JB**	**37 JB**	**45 JB**	**17 J**	**16 J**	< 310 U	**27 J**	< 300 U	**83 J**	**160 J**	< 290 U	< 290 U	< 290 U	< 290 U	< 300 U	< 300 U	**29 J**	< 300 U	< 300 U	< 290 U	< 300 U	< 320 U
Vanadium	--	--	1500		**13**	**12**	**9.1 J**	**11 J**	**7.4 J**	**10 J**	**7.9 J**	**12**	**14**	**11 J**	**12**	**15**	**13**	**15**	**15**	**13**	**14**	**12**	**12**	**12**	**16**	**16**	**13**	**13**	**12 J**	**11 J**	**12**	**15**
Zinc	290	23000	12000		**75**	**150**	**99**	**110**	**30**	**45**	**35**	**53**	**38**	**77**	**70**	**59**	**43**	**72**	**80**	**52**	**64**	**57**	**47**	**53**	**63**	**140**	**51**	**100**	**86**	**49**	**59**	**98**
Detected Misc.																															
% Solids	--	--	--		**89**	**89**	**92**	**89**	**86**	**87**	**96**	**86**	**90**	**85**	**85**	**81**	**85**	**84**	**84**	**85**	**86**	**86**	**86**	**85**	**84**	**83**	**80**	**84**	**83**	**85**	**84**	**78**
Eh	--	--	--		**280**	**260**	**240**	**220**	**260**	**220**	**260**	**220**	**290**	**260**	**270**	**220**	**260**	**190**	**80**	**120**	**120**	**140**	**150**	**250**	**240**	**210**	**260**	**210**	**240**	**210**	**210**	**240**
pH	--	--	--		**5.4**	**5.5**	**6.2**	**7.4**	**4.3**	**6.8**	**5.8**	**6.9**	**3.5**	**5.1**	**5.2**	**5.9**	**4.2**	**5.1**	**5.7**	**5.4**	**8.2**	**8.3**	**6.9**	**5.8**	**6**	**5.8**	**5.5**	**6.7**	**6.5**	**6.7**	**5.5**	**5.2**
S.U.	--	--	--		**5.4**	**5.5**	**6.2**	**7.4**	**4.3**	**6.8**	**5.8**	**6.9**	**3.5**	**5.1**	**5.2**	**5.9**	**4.2**	**5.1**	**5.7**	**5.4**	**8.2**	**8.3**	**6.9**	**5.8**	**6**	**5.8**	**5.5**	**6.7**	**6.5**	**6.7**	**5.5**	**5.2**
Detected SVOCs																															
1,1'-Biphenyl	0.0087	51	790		< 0.19 U	< 0.037 U	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.042 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.043 U
2-Methylnaphthalene	0.14	310	600		**0.072 J**	**0.0059 J**	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.040 U	**0.0053 J**	< 0.042 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.043 U
Acenaphthene	4.1	3400	2700		**0.34**	< 0.037 U	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.040 U	**0.011 J**	< 0.042 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.043 U
Acenaphthylene	--	--	2500		**0.054 J**	< 0.037 U	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.040 U	**0.0072 J**	< 0.042 U	**0.0065 J**	< 0.040 U	< 0.039 U	< 0.040 U	< 0.043 U
Anthracene	42	17000	350		**0.77**	< 0.037 U	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.040 U	**0.032 J**	< 0.042 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.043 U
Benzo[a]anthracene	0.01	0.15	5.7		**2.3**	**0.0042 J**	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.039 U	**0.0055 J**	**0.0043 J**	< 0.039 U	< 0.039 U	< 0.040 U	**0.079**	< 0.042 U	**0.022 J**	**0.013 J**	< 0.039 U	**0.0043 J**	**0.011 J**
Benzo[a]pyrene	0.24	0.015	0.57		**1.6**	< 0.037 U	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.040 U	**0.064**	< 0.042 U	**0.032 J**	**0.011 J**	< 0.039 U	< 0.040 U	**0.0091 J**
Benzo[b]fluoranthene	0.035	0.15	5.7		**2.2**	< 0.037 U	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.039 U	**0.0062 J**	< 0.039 U	< 0.039 U	< 0.039 U	< 0.040 U	**0.087**	< 0.042 U	**0.052**	**0.015 J**	< 0.039 U	< 0.040 U	**0.014 J**
Benzo[g,h,i]perylene	--	--	180		**1.2**	< 0.037 U	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.040 U	**0.032 J**	< 0.042 U	**0.021 J**	**0.0083 J**	< 0.039 U	< 0.040 U	**0.0062 J**
Benzo[k]fluoranthene	0.35	1.5	57		**0.85**	< 0.037 U	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.040 U	**0.039 J**	< 0.042 U	**0.022 J**	**0.0073 J**	< 0.039 U	< 0.040 U	**0.0049 J**
bis(2-Ethylhexyl)phthalate	1.4	35	130		**0.4**	< 0.037 U	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	**0.011 J**	< 0.040 U	< 0.040 U	**0.015 J**	< 0.039 U	< 0.039 U	< 0.039 U	**0.038 J**	< 0.040 U	**0.046**	< 0.042 U	**0.011 J**	**0.015 J**	< 0.039 U	< 0.040 U	**0.0098 J**
Carbazole	--	--	21		**0.27**	< 0.037 U	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.040 U	**0.0078 J**	< 0.042 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.043 U
Chrysene	1.1	15	230		**2.2**	< 0.037 U	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.039 U	**0.0049 J**	< 0.039 U	< 0.039 U	< 0.039 U	< 0.040 U	**0.076**	< 0.042 U	**0.049**	**0.012 J**	< 0.039 U	< 0.040 U	**0.011 J**
Dibenzo[a,h]anthracene	0.011	0.015	0.57		**0.33**	< 0.037 U	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.040 U	**0.011 J**	< 0.042 U	**0.0055 J**	< 0.040 U	< 0.039 U	< 0.040 U	< 0.043 U
Dibenzofuran	0.11	78	95		**0.17**	< 0.0094 U	< 0.0091 U	< 0.0094 U	< 0.0097 U	< 0.0096 U	< 0.0087 U	< 0.0097 U	< 0.0093 U	< 0.0098 U	< 0.0098 U	< 0.010 U	< 0.0098 U	< 0.0099 U	< 0.0099 U	< 0.0098 U	< 0.0097 U	< 0.0097 U	< 0.0097 U	< 0.0098 U	< 0.0099 U	**0.0098 J**	< 0.010 U	< 0.0099 U	< 0.010 U	< 0.0098 U	< 0.0099 U	< 0.011 U
Di-n-butylphthalate	1.7	6100	1500		< 0.094 U	< 0.019 U	< 0.018 U	< 0.019 U	< 0.019 U	< 0.019 U	< 0.017 U	< 0.019 U	< 0.019 U	< 0.020 U	< 0.020 U	< 0.021 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.019 U	< 0.019 U	< 0.019 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.021 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.021 U
Di-n-octylphthalate	--	--	8800		< 0.19 U	< 0.037 U	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.042 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.043 U
Fluoranthene	70	2300	3200		**3.4**	< 0.037 U	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.039 U	**0.0085 J**	< 0.039 U	< 0.039 U	< 0.039 U	< 0.040 U	**0.16**	< 0.042 U	**0.1**	**0.020 J**	< 0.039 U	< 0.040 U	**0.018 J**
Fluorene	4	2300	3000		**0.25**	< 0.037 U	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.040 U	**0.012 J**	< 0.042 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.043 U
Indeno[1,2,3-cd]pyrene	0.12	0.15	5.7		**0.93**	< 0.037 U	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.040 U	**0.028 J**	< 0.042 U	**0.020 J**	**0.0067 J**	< 0.039 U	< 0.040 U	**0.0054 J**
Naphthalene	0.00047	3.6	25		**0.081**	< 0.0094 U	< 0.0091 U	< 0.0094 U	< 0.0097 U	< 0.0096 U	< 0.0087 U	< 0.0097 U	< 0.0093 U	< 0.0098 U	< 0.0098 U	< 0.010 U	< 0.0098 U	< 0.0099 U	< 0.0099 U	< 0.0098 U	< 0.0097 U	< 0.0097 U	< 0.0097 U	< 0.0098 U	< 0.0099 U	< 0.010 U	< 0.010 U	< 0.0099 U	< 0.010 U	< 0.0098 U	< 0.0099 U	< 0.011 U
Phenanthrene	--	--	10000		**2.6**	< 0.037 U	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.039 U	< 0.040 U	**0.0045 J**	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.040 U	**0.12**	< 0.042 U	**0.038 J**	**0.0086 J**	< 0.039 U	< 0.040 U	**0.0090 J**
Phenol	2.6	18000	200		< 0.19 U	< 0.037 U	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.042 U	< 0.040 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.043 U
Pyrene	9.5	1700	2200		**3.4**	**0.0046 J**	< 0.036 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.039 U	< 0.037 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.039 U	< 0.040 U	< 0.040 U	< 0.039 U	**0.0057 J**	**0.0052 J**	< 0.039 U	< 0.039 U	< 0.040 U	**0.12**	< 0.042 U	**0.072**	**0.016 J**	< 0.039 U	**0.0041 J**	**0.016 J**
VOCs																															
1,1,1-Trichloroethane	0.07	8700	20		< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0019 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0024 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0023 U
1,2,3-Trichlorobenzene	0.015	49	--		< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0019 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	**0.0017 J**	< 0.0023 U	< 0.0023 U	< 0.0024 U	< 0.0022 U	< 0.0023 U	**0.00070 J**	< 0.0023 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0022 U	**0.00057 J**	< 0.0023 U
1,2,4-Trichlorobenzene	0.2	22	27		< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0019 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	**0.0013 J**	< 0.0023 U	< 0.0023 U	< 0.0024 U	< 0.0022 U	< 0.0023 U	**0.00055 J**	< 0.0023 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0022 U	**0.00049 J**	< 0.0023 U
1,2-Dichlorobenzene	0.58	1900	60		< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0019 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	**0.00070 J**	< 0.0023 U	< 0.0023 U	< 0.0024 U	< 0.0022 U	< 0.0023 U	**0.00028 J**	< 0.0023 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0023 U
1,3-Dichlorobenzene	--	--	61		< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0019 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	**0.00069 J**	< 0.0023 U	< 0.0023 U	< 0.0024 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0023 U
1,4-Dichlorobenzene	0.072	2.4	10		< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0019 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	**0.00068 J**	< 0.0023 U	< 0.0023 U	< 0.0024 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0023 U
Acetone	2.4	61000	3300		< 0.011 U	< 0.011 U	< 0.011 U	< 0.011 U	< 0.011 U	< 0.011 U	< 0.0097 U	< 0.011 U	< 0.011 U	< 0.011 U	< 0.011 U	< 0.011 U	< 0.011 U	< 0.012 U	< 0.011 U	**0.043**	**0.024**	< 0.012 U	< 0.012 U	< 0.011 U	< 0.011 U	< 0.011 U	< 0.011 U	< 0.012 U	< 0.011 U	< 0.011 U	< 0.011 U	< 0.012 U
Carbon disulfide	0.21	820	150		< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0019 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	**0.0013 J**	**0.00029 J**	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0023 U
Chloroform	0.022	0.29	8		< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0019 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0024 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0023 U
cis-1,2-Dichloroethene	0.021	160	7		< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0019 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0024 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0023 U
m&p-Xylenes	--	--	--		< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.00097 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0012 U	< 0.0011 U	< 0.0012 U	< 0.0011 U	< 0.0012 U	< 0.0012 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0012 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0012 U
Styrene	0.11	6300	24		< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0019 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	**0.00037 J**	< 0.0023 U	< 0.0023 U	< 0.0024 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0023 U
Tetrachloroethene	0.0023	0.55	0.5		< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0019 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0024 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0023 U
Toluene	0.69	5000	100		< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.00097 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0012 U	< 0.0011 U	< 0.0012 U	< 0.0011 U	< 0.0012 U	< 0.0012 U	< 0.0011 U	<

Table B-1
Remedial Investigation Soil Samples Compared to Residential Criteria
Solvay, Inc.
Morrisville, Pennsylvania

Constituent (mg/kg)	EPA Soil-to-GW SSL	EPA RES SOIL RSL	Res PADEP MSC	Location ID	A5-09	A5-09	A5-10	A5-10	A5-11	A5-11	A6-01	A6-01	A6-02	A6-02	A6-03	A6-03	A6-04	A6-04 (DUP)	A6-04	A8-01	A8-01	A8-02	A8-02	A8-03	A8-03	A8-04	A8-04 (DUP)	A8-04	A8-05	A8-05	A9-01	A9-02	A9-03
				Start Depth	1.5	7.5	1.5	8.0	1.5	3.5	1.5	5.0	1.5	4.0	1.5	3.8	1.5	1.5	4.0	4.5	11.5	4.5	11.0	6.0	11.0	7.0	7.0	11.5	4.5	10.0	4.0	2.0	5.5
				End Depth	2.0	8.0	2.0	8.5	2.0	4.0	2.0	6.0	2.5	4.5	2.0	4.8	2.0	2.0	4.5	5.0	12.0	5.0	12.0	6.5	12.0	7.5	7.5	12.0	5.0	11.0	4.5	3.0	6.0
				Date	4/5/2012	4/5/2012	4/5/2012	4/5/2012	4/5/2012	4/5/2012	4/4/2012	4/4/2012	4/4/2012	4/4/2012	4/5/2012	4/5/2012	4/13/2012	4/13/2012	4/13/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/9/2012	4/10/2012
Detected Metals																																
Aluminum	23000	77000	190000		8200	8300	6700	10000	9100	7400	14000	10000	9300	8700	9500	6800	7800	7200	7400	7900	6000	7100	4800	8000	5200	7000	8300	6800	9500	4900	7000	10000 B	7300
Antimony	0.27	31	27		< 2.3 U	< 2.4 U	< 2.3 U	< 2.4 U	< 2.4 U	< 2.4 U	7	< 2.5 U	< 2.5 U	< 2.4 U	< 2.4 U	< 2.3 U	< 2.4 U	< 2.3 U	< 2.4 U	< 2.3 U	< 2.3 U	< 2.4 U	< 2.2 U	< 2.5 U	< 2.2 U	< 2.4 U	< 2.4 U	1.7 J	< 2.3 U	< 2.2 U	< 2.3 U	< 2.5 U	< 2.4 U
Arsenic	0.29	0.39	12		23	31	5.6	89	21	11	690	77	58	29	5.3	6.3	10	12	15	5.4	2.6	4.1	1.7 J	4.7	2.1 J	27	15	2.5	6.1	1.8 J	4.9	6.8	5.4
Barium	82	15000	8200		73	73	72	68	64	52	190	120	96	68	89	40	89	71	60	110	42	86	32	170	33	97	100	33	150	34	77	250	93
Beryllium	3.2	160	320		0.48 J	0.41 J	0.47 J	0.52 J	0.67 JB	0.53 JB	0.91 J	0.65 J	0.61 J	0.52 J	0.66 JB	0.54 JB	0.42 J	0.34 J	0.35 J	0.46 J	0.21 J	0.34 J	0.12 J	0.44 J	0.15 J	0.27 J	0.076 J	0.27 J	0.55 J	0.14 J	0.38 J	0.91 B	0.22 J
Cadmium	0.38	70	38		0.64 J	0.63 J	0.36 J	1.7	0.51 JB	0.35 JB	13	1.7	1.5	0.73 J	0.35 JB	0.30 JB	0.39 J	0.33 J	0.34 J	0.31 J	0.11 J	0.24 J	0.12 J	0.24 J	0.096 J	0.99	0.49 J	< 0.69 U	0.33 J	0.13 J	0.31 J	0.47 J	0.17 J
Calcium	--	--	--		630 JB	640 JB	400 JB	820 JB	830 JB	640 JB	1400 JB	2000 B	1600 B	1100 JB	850 JB	460 JB	610 J	550 J	390 J	1300 B	510 JB	1400 B	470 JB	3000 B	480 JB	370 JB	1000 JB	500 JB	2300 B	360 JB	1700 B	2400 B	3300 B
Chromium	180000	--	--		9.7 B	9.2	8.5 B	14 B	11	9.2	44 B	14 B	17 B	11 B	11	8.6	10	9	8.8	10	7.7	9	6.4	10	6.4	15	29	78	12	6.4	12	13	8.5
Cobalt	0.21	23	50		7.4	8.3	7	9	8.1	6.6	1.3 J	12	8.3	7.9	8.5	6.6	7.7	6.6	5.6	7.6	5.4	7	4.2	7.2	4.4	17	3.1	< 2.9 U	8.8	4.4	6.1	8.2	5.1
Copper	46	3100	8100		10 B	9.7 B	9.5 B	14 B	11	8.9	66 B	15 B	17 B	9.7 B	11	7.8	13	10	7.6	14 B	6.7 B	13 B	8.2 B	13 B	5.5 B	16 B	18 B	2.1 JB	15 B	5.3 JB	16 B	17 B	15 B
Cr (Hexavalent)	0.00059	0.29	190		< 1.2 U	< 1.2 U	< 1.1 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.9 U	< 1.3 U	< 1.3 U	< 1.2 U	< 1.2 U	< 1.1 U	2	< 1.2 U	< 1.2 U	< 1.1 U	< 1.1 U	< 1.2 U	< 1.1 U	2.2	< 1.1 U	1.6	1.2	14	< 1.2 U	< 1.1 U	< 1.1 U	< 1.3 U	< 1.2 U
Iron	270	55000	150000		16000	17000	12000	21000	18000	15000	22000	20000	18000	16000	19000	14000	15000	14000	15000	17000	14000	16000	11000	17000	12000	15000	13000	4400	20000	11000	14000	20000	15000
Lead	14	400	450		11	7	12	12	8.5	6.6	110	17	32	34	9.7	6.1	28	13	7.2	26	4.7 J	14	3.6 J	8.1	4.1 J	10	7.8	2.6 J	15	4.5 J	14	11	12
Magnesium	--	--	--		2500	2900	2100	3200	2700	2400	660 J	3400	2400	2700	3000	2400	2400	2300	2400	3700	2800	3000	2100	3300	2300	1400	3000	170 J	4400	2400	2700	4000	2700
Manganese	21	1800	2000		640	670	330	710	670	540	85	780	510	480	720	410	630	530	300	680	350	630	250	870	270	81	77	4.9 J	900	230	480	1100	370
Mercury	0.1	10	10		0.011 J	0.020 J	0.018 J	0.018 J	0.021 J	0.015 J	0.35	0.060 J	0.070 J	0.025 J	< 0.098 U	< 0.096 U	0.057 J	0.062 J	0.0094 J	0.022 J	< 0.095 U	0.1	0.0090 J	0.016 J	< 0.092 U	0.018 J	0.025 J	< 0.096 U	0.069 J	< 0.091 U	0.13	0.17	0.023 J
Nickel	20	1500	650		14	17	13	17	15	13	10	41	27	21	17	13	14	13	14	16	11	14	9.6	15	9.5	39	8.1	< 5.7 U	18	9.8	20	24	13
Potassium	--	--	--		530 J	520 JB	460 J	600	540 J	480 J	1200	620 J	610 J	500 J	600	470 J	530 J	440 J	430 J	600 B	690 B	600 B	380 JB	690 B	380 JB	490 JB	720 B	310 JB	670 B	360 JB	540 JB	840	520 JB
Selenium	0.26	390	26		< 2.1 U	< 2.1 U	< 2.0 U	1.1 J	< 2.1 U	< 2.1 U	13	< 2.3 U	1.3 J	< 2.2 U	< 2.1 U	< 2.1 U	< 2.1 U	< 2.1 U	< 2.1 U	< 2.0 U	< 2.0 U	< 2.1 U	< 2.0 U	< 2.2 U	< 2.0 U	1.5 J	< 2.2 U	< 2.1 U	< 2.1 U	< 2.0 U	< 2.1 U	< 2.3 U	< 2.1 U
Silver	0.6	390	84		0.51 J	< 1.8 U	0.31 J	0.57 J	0.22 J	0.15 J	0.85 J	0.57 J	0.45 J	0.40 J	0.28 J	0.18 J	< 1.8 U	< 1.7 U	< 1.8 U	< 1.7 U	< 1.7 U	< 1.8 U	< 1.6 U	< 1.9 U	< 1.6 U	< 1.8 U	< 1.8 U	< 1.7 U	< 1.7 U	< 1.6 U	< 1.7 U	< 1.9 U	< 1.8 U
Sodium	--	--	--		< 290 U	24 J	< 280 U	< 300 U	< 290 U	< 290 U	99 J	46 J	44 J	< 300 U	< 290 U	< 290 U	< 290 U	< 290 U	17 J	82 J	87 J	72 J	160 J	54 J	190 J	19 J	370	41 J	64 J	25 J	33 J	510	94 J
Vanadium	--	--	1500		11 J	11 J	9.7 J	15	12	10 J	27	15	18	12 J	13	9.7 J	12	10 J	11 J	13	8.7 J	10 J	7.5 J	12 J	7.5 J	18	18	7.9 J	14	7.5 J	13	34	9.3 J
Zinc	290	23000	12000		57	55	56	62	50	42	130	93	130	60	52	40	180	67	52	61	37	63	38	55	33	210	17	< 11 U	72	32	76	77	48
Detected Misc.																																
% Solids	--	--	--		86	85	88	84	85	85	53	79	79	82	85	87	85	86	85	88	88	85	92	81	91	83	82	87	86	92	87	79	85
Eh	--	--	--		250	310	250	240	280	250	310	200	200	190	230	240	220	270	180	230	230	210	190	220	210	330	150	420	220	220	150	160	150
pH	--	--	--		5.1	5.3	5.1	5.8	5.3	5.7	4.4	6.1	6.1	6.5	6.2	6.2	5.5	5.7	5.6	7.5	8.2	7.9	8	7.8	8.3	3.3	7.8	3.2	8.1	7.7	7.1	7.2	8
S.U.	--	--	--		5.1	5.3	5.1	5.8	5.3	5.7	4.4	6.1	6.1	6.5	6.2	6.2	5.5	5.7	5.6	7.5	8.2	7.9	8	7.8	8.3	3.3	7.8	3.2	8.1	7.7	7.1	7.2	8
Detected SVOCs																																
1,1'-Biphenyl	0.0087	51	790		< 0.039 U	< 0.039 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.039 U	< 0.063 U	< 0.042 U	< 0.042 U	< 0.041 U	< 0.039 U	< 0.038 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.038 U	< 0.038 U	< 0.039 U	< 0.036 U	< 0.041 U	< 0.037 U	< 0.040 U	< 0.041 U	< 0.038 U	< 0.039 U	< 0.036 U	< 0.038 U	< 0.042 U	< 0.039 U
2-Methylnaphthalene	0.14	310	600		< 0.039 U	< 0.039 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.039 U	0.018 J	< 0.042 U	0.012 J	< 0.041 U	< 0.039 U	< 0.038 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.038 U	< 0.038 U	< 0.039 U	< 0.036 U	< 0.041 U	< 0.037 U	< 0.040 U	< 0.041 U	< 0.038 U	< 0.039 U	< 0.036 U	< 0.038 U	< 0.042 U	< 0.039 U
Acenaphthene	4.1	3400	2700		< 0.039 U	< 0.039 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.039 U	< 0.063 U	< 0.042 U	< 0.042 U	< 0.041 U	< 0.039 U	< 0.038 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.038 U	< 0.038 U	< 0.039 U	< 0.036 U	< 0.041 U	< 0.037 U	< 0.040 U	< 0.041 U	< 0.038 U	< 0.039 U	< 0.036 U	< 0.038 U	< 0.042 U	< 0.039 U
Acenaphthylene	--	--	2500		< 0.039 U	< 0.039 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.039 U	0.021 J	< 0.042 U	0.0075 J	< 0.041 U	< 0.039 U	< 0.038 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.038 U	< 0.038 U	< 0.039 U	< 0.036 U	< 0.041 U	< 0.037 U	< 0.040 U	< 0.041 U	< 0.038 U	< 0.039 U	< 0.036 U	0.0042 J	< 0.042 U	< 0.039 U
Anthracene	42	17000	350		< 0.039 U	< 0.039 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.039 U	0.015 J	< 0.042 U	< 0.042 U	< 0.041 U	< 0.039 U	< 0.038 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.038 U	< 0.038 U	< 0.039 U	< 0.036 U	< 0.041 U	< 0.037 U	< 0.040 U	< 0.041 U	< 0.038 U	< 0.039 U	< 0.036 U	0.0065 J	< 0.042 U	< 0.039 U
Benzo[a]anthracene	0.01	0.15	5.7		< 0.039 U	< 0.039 U	0.017 J	0.0049 J	< 0.039 U	< 0.039 U	0.092	0.0075 J	0.031 J	0.0063 J	< 0.039 U	< 0.038 U	0.068	0.010 J	< 0.039 U	0.0098 J	< 0.038 U	0.020 J	< 0.036 U	< 0.041 U	< 0.037 U	0.026 J	< 0.041 U	< 0.038 U	0.021 J	< 0.036 U	0.078	< 0.042 U	0.0074 J
Benzo[a]pyrene	0.24	0.015	0.57		< 0.039 U	< 0.039 U	0.012 J	< 0.040 U	< 0.039 U	< 0.039 U	0.085	0.0059 J	0.036 J	< 0.041 U	< 0.039 U	< 0.038 U	0.057	0.0094 J	< 0.039 U	0.0080 J	< 0.038 U	0.019 J	< 0.036 U	< 0.041 U	< 0.037 U	0.024 J	< 0.041 U	< 0.038 U	0.019 J	< 0.036 U	0.076	< 0.042 U	0.0076 J
Benzo[b]fluoranthene	0.035	0.15	5.7		< 0.039 U	< 0.039 U	0.017 J	< 0.040 U	< 0.039 U	< 0.039 U	0.21	0.0094 J	0.054	0.0068 J	< 0.039 U	< 0.038 U	0.081	0.013 J	< 0.039 U	0.012 J	< 0.038 U	0.031 J	< 0.036 U	< 0.041 U	< 0.037 U	0.038 J	< 0.041 U	< 0.038 U	0.030 J	< 0.036 U	0.098	< 0.042 U	0.012 J
Benzo[g,h,i]perylene	--	--	180		< 0.039 U	< 0.039 U	0.0061 J	< 0.040 U	< 0.039 U	< 0.039 U	0.11	< 0.042 U	0.033 J	< 0.041 U	< 0.039 U	< 0.038 U	0.031 J	0.0051 J	< 0.039 U	0.0045 J	< 0.038 U	0.013 J	< 0.036 U	< 0.041 U	< 0.037 U	0.020 J	< 0.041 U	< 0.038 U	0.012 J	< 0.036 U	0.044	< 0.042 U	< 0.039 U
Benzo[k]fluoranthene	0.35	1.5	57		< 0.039 U	< 0.039 U	0.0086 J	< 0.040 U	< 0.039 U	< 0.039 U	0.069	< 0.042 U	0.020 J	< 0.041 U	< 0.039 U	< 0.038 U	0.037 J	0.0056 J	< 0.039 U	0.0043 J	< 0.038 U	0.011 J	< 0.036 U	< 0.041 U	< 0.037 U	0.013 J	< 0.041 U	< 0.038 U	0.0094 J	< 0.036 U	0.036 J	< 0.042 U	0.0047 J
bis(2-Ethylhexyl)phthalate	1.4	35	130		< 0.039 U	< 0.039 U	< 0.038 U	0.010 J	< 0.039 U	< 0.039 U	0.078	< 0.042 U	0.024 J	0.026 J	< 0.039 U	< 0.038 U	< 0.039 U	< 0.039 U	< 0.039 U	0.0096 J	< 0.038 U	0.0096 J	0.030 J	< 0.041 U	< 0.037 U	0.029 J	< 0.041 U	< 0.038 U	0.015 J	< 0.036 U	< 0.038 U	< 0.042 U	0.015 J
Carbazole	--	--	21		< 0.039 U	< 0.039 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.039 U	0.0092 J	< 0.042 U	< 0.042 U	< 0.041 U	< 0.039 U	< 0.038 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.038 U	< 0.038 U	< 0.039 U	< 0.036 U	< 0.041 U	< 0.037 U	< 0.040 U	< 0.041 U	< 0.038 U	< 0.039 U	< 0.036 U	< 0.038 U	< 0.042 U	< 0.039 U
Chrysene	1.1	15	230		< 0.039 U	< 0.039 U	0.015 J	< 0.040 U	< 0.039 U	< 0.039 U	0.17	0.0064 J	0.043	0.0052 J	< 0.039 U	< 0.038 U	0.066	0.010 J	< 0.039 U	0.0095 J	< 0.038 U	0.024 J	< 0.036 U	< 0.041 U	< 0.037 U	0.029 J	< 0.041 U	< 0.038 U	0.025 J	< 0.036 U	0.087	< 0.042 U	0.0098 J
Dibenzo[a,h]anthracene	0.011	0.015	0.57		< 0.039 U	< 0.039 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.039 U	0.031 J	< 0.042 U	0.0089 J	< 0.041 U	< 0.039 U	< 0.038 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.038 U	< 0.038 U	< 0.039 U	< 0.036 U	< 0.041 U	< 0.037 U	< 0.040 U	< 0.041 U	< 0.038 U	< 0.039 U	< 0.036 U	0.012 J	< 0.042 U	< 0.039 U
Dibenzofuran	0.11	78	95		< 0.0097 U	< 0.0098 U	< 0.0095 U	< 0.0099 U	< 0.0098 U	< 0.0098 U	< 0.016 U	< 0.011 U	< 0.011 U	< 0.010 U	< 0.0098 U	< 0.0096 U	< 0.0098 U	< 0.0097 U	< 0.0098 U	< 0.0095 U	< 0.0095 U	< 0.0098 U	< 0.0091 U	< 0.010 U	< 0.0092 U	< 0.010 U	< 0.010 U	< 0.0096 U	< 0.0097 U	< 0.0091 U	< 0.0096 U	< 0.011 U	< 0.0098 U
Di-n-butylphthalate	1.7	6100	1500		< 0.019 U	< 0.020 U	< 0.019 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.032 U	< 0.021 U	< 0.021 U	< 0.020 U	< 0.020 U	< 0.019 U	< 0.020 U	< 0.019 U	< 0.020 U	< 0.019 U	< 0.019 U	< 0.020 U	< 0.018 U	< 0.021 U	< 0.018 U	< 0.020 U	< 0.020 U	< 0.019 U	< 0.019 U	< 0.018 U	< 0.019 U	< 0.021 U	< 0.020 U
Di-n-octylphthalate	--	--	8800		< 0.039 U	< 0.039 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.039 U	< 0.063 U	< 0.042 U	< 0.042 U	< 0.041 U	< 0.039 U	< 0.038 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.038 U	< 0.038 U	< 0.039 U	< 0.036 U	< 0.041 U	< 0.037 U	< 0.040 U	< 0.041 U	< 0.038 U	< 0.039 U	< 0.036 U	< 0.038 U	< 0.042 U	< 0.039 U
Fluoranthene	70	2300	3200		< 0.039 U	< 0.039 U	0.024 J	< 0.040 U	< 0.039 U	< 0.039 U	0.18	0.0088 J	0.058	0.0078 J	< 0.039 U	< 0.038 U	0.14	0.015 J	< 0.039 U	0.016 J	< 0.038 U	0.036 J	< 0.036 U	< 0.041 U	< 0.037 U	0.037 J	< 0.041 U	< 0.038 U	0.043	< 0.036 U	0.14	< 0.042 U	0.013 J
Fluorene	4	2300	3000		< 0.039 U	< 0.039 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.039 U	< 0.063 U	< 0.042 U	< 0.042 U	< 0.041 U	< 0.039 U	< 0.038 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.038 U	< 0.038 U	0.0051 J	< 0.036 U	< 0.041 U	< 0.037 U	< 0.040 U	< 0.041 U	< 0.038 U	< 0.039 U	< 0.036 U	< 0.038 U	< 0.042 U	< 0.039 U
Indeno[1,2,3-cd]pyrene	0.12	0.15	5.7		< 0.039 U	< 0.039 U	0.0062 J	< 0.040 U	< 0.039 U	< 0.039 U	0.1	< 0.042 U	0.028 J	< 0.041 U	< 0.039 U	< 0.038 U	0.032 J	0.0049 J	< 0.039 U	< 0.038 U	< 0.038 U	0.011 J	< 0.036 U	< 0.041 U	< 0.037 U	0.016 J	< 0.041 U	< 0.038 U	0.011 J	< 0.036 U	0.039	< 0.042 U	< 0.039 U
Naphthalene	0.00047	3.6	25		< 0.0097 U	< 0.0098 U	< 0.0095 U	< 0.0099 U	< 0.0098 U	< 0.0098 U	0.0078 J	< 0.011 U	< 0.011 U	< 0.010 U	< 0.0098 U	< 0.0096 U	< 0.0098 U	< 0.0097 U	< 0.0098 U	< 0.0095 U	< 0.0095 U	< 0.0098 U	< 0.0091 U	< 0.010 U	< 0.0092 U	< 0.010 U	< 0.010 U	< 0.0096 U	< 0.0097 U	< 0.0091 U	< 0.0096 U	< 0.011 U	< 0.0098 U
Phenanthrene	--	--	10000		< 0.039 U	< 0.039 U	0.013 J	< 0.040 U	< 0.039 U	< 0.039 U	0.074	< 0.042 U	0.031 J	< 0.041 U	< 0.039 U	< 0.038 U	0.058	0.0073 J	< 0.039 U	0.0062 J	< 0.038 U	0.019 J	< 0.036 U	< 0.041 U	< 0.037 U	0.013 J	< 0.041 U	< 0.038 U	0.018 J	< 0.036 U	0.027 J	< 0.042 U	0.0057 J
Phenol	2.6	18000	200		< 0.039 U	< 0.039 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.039 U	< 0.063 U	< 0.042 U	< 0.042 U	< 0.041 U	< 0.039 U	< 0.038 U	< 0.039 U	< 0.039 U	< 0.039 U	< 0.038 U	< 0.038 U	0.048	< 0.036 U	< 0.041 U	< 0.037 U	< 0.040 U	< 0.041 U	< 0.038 U	< 0.039 U	< 0.036 U	< 0.038 U	< 0.042 U	< 0.039 U
Pyrene	9.5	1700	2200		0.0045 J	< 0.039 U	0.020 J	0.0051 J	< 0.039 U	< 0.039 U	0.18	0.0077 J	0.062	0.0060 J	< 0.039 U	< 0.038 U	0.1	0.013 J	< 0.039 U	0.013 J	< 0.038 U	0.033 J	< 0.036 U	< 0.041 U	< 0.037 U	0.046	< 0.041 U	< 0.038 U	0.033 J	< 0.036 U	0.13	< 0.042 U	0.012 J
VOCs																																
1,1,1-Trichloroethane	0.07	8700	20		< 0.0022 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0036 U	< 0.0025 U	< 0.0025 U	< 0.0023 U	< 0.0023 U	< 0.0021 U	< 0.0026 U	< 0.0023 U	< 0.0022 U	< 0.0024 U	< 0.0021 U	< 0.0024 U	< 0.0023 U	< 0.0026 U	< 0.0023 U	< 0.0024 U	< 0.0027 U	< 0.0022 U	< 0.0025 U	< 0.0021 U	< 0.0024 U	< 0.0024 U	< 0.0025 U
1,2,3-Trichlorobenzene	0.015	49	--		< 0.0022 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0036 U	< 0.0025 U	< 0.0025 U	0.0017 J	< 0.0023 U	< 0.0021 U	< 0.0026 U	< 0.0023 U	< 0.0022 U	< 0.0024 U	< 0.0021 U	< 0.0024 U	< 0.0023 U	< 0.0026 U	< 0.0023 U	< 0.0024 U	< 0.0027 U	< 0.0022 U	< 0.0025 U	< 0.0021 U	< 0.0024 U	< 0.0024 U	< 0.0025 U
1,2,4-Trichlorobenzene	0.2	22	27		< 0.0022 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0036 U	< 0.0025 U	< 0.0025 U	0.0013 J	< 0.0023 U	< 0.0021 U	< 0.0026 U	< 0.0023 U	< 0.0022 U	< 0.0024 U	< 0.0021 U	< 0.0024 U	< 0.0023 U	< 0.0026 U	< 0.0023 U	< 0.0024 U	0.0012 J	< 0.0022 U	< 0.0025 U	< 0.0021 U	< 0.0024 U	< 0.0024 U	< 0.0025 U
1,2-Dichlorobenzene	0.58	1900	60		< 0.0022 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0036 U	< 0.0025 U	< 0.0025 U	0.00064 J	< 0.0023 U	< 0.0021 U	< 0.0026 U	< 0.0023 U	< 0.0022 U	< 0.0024 U	< 0.0021 U	< 0.0024 U	< 0.0023 U	< 0.0026 U	< 0.0023 U	< 0.0024 U	0.00062 J	< 0.0022 U	< 0.0025 U	< 0.0021 U	< 0.0024 U	< 0.0024 U	< 0.0025 U
1,3-Dichlorobenzene	--	--	61		< 0.0022 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0036 U	< 0.0025 U	< 0.0025 U	0.00053 J	< 0.0023 U	< 0.0021 U	< 0.0026 U	< 0.0023 U	< 0.0022 U	< 0.0024 U	< 0.0021 U	< 0.0024 U	< 0.0023 U	< 0.0026 U	< 0.0023 U	< 0.0024 U	< 0.0027 U	< 0.0022 U	< 0.0025 U	< 0.0021 U	< 0.0024 U	< 0.0024 U	< 0.0025 U
1,4-Dichlorobenzene	0.072	2.4	10		< 0.0022 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0036 U	< 0.0025 U	< 0.0025 U	0.00063 J	< 0.0023 U	< 0.0021 U	< 0.0026 U	< 0.0023 U	< 0.0022 U	< 0.0024 U	< 0.0021 U	< 0.0024 U	< 0.0023 U	< 0.0026 U	< 0.0023 U	< 0.0024 U	0.00073 J	< 0.0022 U	< 0.0025 U	< 0.0021 U	< 0.0024 U	< 0.0024 U	< 0.0025 U
Acetone	2.4	61000	3300		< 0.011 U	< 0.011 U	< 0.011 U	< 0.011 U	0.037	< 0.011 U	< 0.018 U	< 0.012 U	< 0.012 U	< 0.012 U	< 0.011 U	< 0.011 U	< 0.013 U	< 0.012 U	< 0.011 U	< 0.012 U	< 0.011 U	< 0.012 U	< 0.011 U	< 0.013 U	< 0.011 U	0.025	< 0.014 U	< 0.011 U	< 0.012 U	< 0.011 U	< 0.012 U	< 0.012 U	< 0.013 U
Carbon disulfide	0.21	820	150		< 0.0022 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0036 U	< 0.0025 U	< 0.0025 U	< 0.0023 U	< 0.0023 U	< 0.0021 U	< 0.0026 U	< 0.0023 U	< 0.0022 U	< 0.0024 U	< 0.0021 U	< 0.0024 U	< 0.0023 U	< 0.0026 U	< 0.0023 U	0.039	< 0.0027 U	< 0.0022 U	< 0.0025 U	< 0.0021 U	< 0.0024 U	< 0.0024 U	< 0.0025 U
Chloroform	0.022	0.29	8		< 0.0022 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0036 U	< 0.0025 U	< 0.0025 U	< 0.0023 U	< 0.0023 U	< 0.0021 U	< 0.0026 U	< 0.0023 U	< 0.0022 U	< 0.0024 U	< 0.0021 U	< 0.0024 U	< 0.0023 U	< 0.0026 U	< 0.0023 U	< 0.0024 U	< 0.0027 U	< 0.0022 U	< 0.0025 U	< 0.0021 U	< 0.0024 U	< 0.0024 U	< 0.0025 U
cis-1,2-Dichloroethene	0.021	160	7		< 0.0022 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0036 U	< 0.0025 U	< 0.0025 U	< 0.0023 U	< 0.0023 U	< 0.0021 U	< 0.0026 U	< 0.0023 U	< 0.0022 U	< 0.0024 U	< 0.0021 U	< 0.0024 U	< 0.0023 U	< 0.0026 U	< 0.0023 U	< 0.0024 U	< 0.0027 U	< 0.0022 U	< 0.0025 U	< 0.0021 U	< 0.0024 U	< 0.0024 U	< 0.0025 U
m&p-Xylenes	--	--	--		< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0010 U	< 0.0011 U	< 0.0018 U	< 0.0012 U	< 0.0012 U	< 0.0012 U	< 0.0011 U	< 0.0011 U	< 0.0013 U	< 0.0012 U	< 0.0011 U	< 0.0012 U	< 0.0011 U	< 0.0012 U	< 0.0011 U	< 0.0013 U	< 0.0011 U	< 0.0012 U	< 0.0014 U	< 0.0011 U	< 0.0012 U	< 0.0011 U	< 0.0012 U	< 0.0012 U	< 0.0013 U
Styrene	0.11	6300	24		< 0.0022 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0036 U	< 0.0025 U	< 0.0025 U	0.00036 J	< 0.0023 U	< 0.0021 U	< 0.0026 U	< 0.0023 U	< 0.0022 U	< 0.0024 U	< 0.0021 U	< 0.0024 U	< 0.0023 U	< 0.0026 U	< 0.0023 U	< 0.0024 U	< 0.0027 U	< 0.0022 U	< 0.0025 U	< 0.0021 U	< 0.0024 U	< 0.0024 U	< 0.0025 U
Tetrachloroethene	0.0023	0.55	0.5		< 0.0022 U	< 0.0023 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0036 U	< 0.0025 U	< 0.0025 U	< 0.0023 U	< 0.0023 U	< 0.0021 U	< 0.0026 U	< 0.0023 U	< 0.0022 U	< 0.0024 U	< 0.0021 U	< 0.0024 U	< 0.0023 U	< 0.0026 U	< 0.0023 U	< 0.0024 U	< 0.0027 U	< 0.0022 U	< 0.0025 U	< 0.0021 U	< 0.0024 U	< 0.0024

Table B-1
Remedial Investigation Soil Samples Compared to Residential Criteria
Solvay, Inc.
Morrisville, Pennsylvania

Constituent (mg/kg)	EPA Soil-to-GW SSL	EPA RES SOIL RSL	Res PADEP MSC	Location ID Start Depth End Depth Date	A9-03 9.5 10.5 4/10/2012	A9-04 7.5 8.0 4/10/2012	A9-05 2.0 3.0 4/10/2012	IA-01 3.5 4.0 4/9/2012	IA-01 11.5 12.0 4/9/2012	IA-02 2.0 2.5 4/9/2012	IA-03 1.5 2.0 4/3/2012	IA-03 11.5 12.0 4/3/2012	IA-04 5.0 5.5 4/9/2012	IA-04 9.5 10.0 4/9/2012	IA-05 2.5 3.0 4/11/2012	IA-05 4.0 5.0 4/11/2012	IA-06 2.5 3.5 4/11/2012	IA-06 6.5 7.0 4/11/2012	IA-07 1.5 2.0 4/3/2012	IA-07 12.0 12.5 4/3/2012	IA-08 1.2 1.7 4/3/2012	IA-08 (DUP) 1.2 1.7 4/3/2012	IA-08 13.5 14.5 4/3/2012	IA-09 1.8 2.3 4/3/2012	IA-09 10.5 11.5 4/3/2012	IA-10 3.0 3.5 4/3/2012	IA-10 13.0 14.0 4/3/2012	IA-11 4.5 5.0 4/3/2012	IA-11 9.0 9.5 4/3/2012	IA-12 6.5 7.0 4/4/2012	IA-12 17.0 18.0 4/4/2012	IA-13 1.5 2.0 4/3/2012
Detected Metals																																		
Aluminum	23000	77000	190000		**4500**	**4700**	**4800**	**8000 B**	**9500 B**	**9100 B**	**8200**	**6300**	**6200 B**	**8600 B**	**7000**	**7600**	**9100**	**8000**	**7700**	**9600**	**7400**	**8400**	**5100**	**10000**	**3200**	**8200**	**8500**	**6300**	**12000**	**9500**	**10000**	**8700**
Antimony	0.27	31	27		< 2.2 U	< 2.2 U	< 2.2 U	< 2.4 U	< 2.4 U	< 2.4 U	< 2.4 U	< 2.4 U	< 2.4 U	< 2.3 U	< 2.2 U	< 2.3 U	< 2.4 U	< 2.3 U	< 2.4 U	< 2.4 U	< 2.3 U	< 2.4 U	< 2.2 U	< 2.3 U	**1.3 J**	< 2.4 U	< 2.4 U	**2.4**	**1.2 J**	< 2.3 U	< 2.4 U	< 2.3 U
Arsenic	0.29	0.39	12		**1.9 J**	**2.0 J**	**2.6**	**5.6**	**7.6**	**2.1 J**	**6.7**	**4.6**	**12**	**5.5**	**3.2**	**4.7**	**5.4**	**4.5**	**3.9**	**5.1**	**3.3**	**5.8**	**3.9**	**6.7**	**7.6**	**3.8**	**6.2**	**3.6**	**5.5**	**12**	**7.5**	**5.1**
Barium	82	15000	8200		**48**	**54**	**39**	**120**	**80**	**120**	**98**	**37**	**280**	**52**	**75**	**81**	**74**	**98**	**73**	**69**	**71**	**99**	**34**	**100**	**86**	**150**	**78**	**57**	**49**	**88**	**94**	**60**
Beryllium	3.2	160	320		**0.051 J**	**0.14 J**	**0.12 J**	**0.62 JB**	**0.81 B**	**0.68 JB**	**0.55 J**	**0.40 J**	**0.52 JB**	**0.51 JB**	**0.40 J**	**0.48 J**	**0.48 J**	**0.46 J**	**0.48 J**	**0.58 J**	**0.55 J**	**0.58 J**	**0.29 J**	**0.61 J**	**0.19 J**	**0.63 J**	**0.48 J**	**0.37 J**	**0.59 J**	**0.33 J**	**0.54 J**	**0.53 J**
Cadmium	0.38	70	38		< 0.67 U	**0.13 J**	**0.098 J**	**0.32 J**	**0.34 J**	**0.28 J**	**0.42 J**	**0.25 J**	**2**	**0.23 J**	< 0.67 U	< 0.68 U	< 0.71 U	< 0.69 U	**0.30 J**	**0.31 J**	**0.23 J**	**0.29 J**	**0.21 J**	**0.43 J**	**0.30 J**	**0.36 J**	**0.32 J**	**0.31 J**	**0.37 J**	**2.8**	**0.35 J**	**0.24 J**
Calcium	--	--	--		**810 JB**	**1800 B**	**700 JB**	**1800 B**	**1000 JB**	**1800 B**	**1400 B**	**340 JB**	**1500 B**	**660 JB**	**1400 B**	**2800 B**	**1900 B**	**1400 B**	**630 JB**	**690 JB**	**520 JB**	**1000 JB**	**480 JB**	**5100 B**	**350 JB**	**1800 B**	**660 JB**	**1000 JB**	**1300 B**	**1400 B**	**340 JB**	**700 JB**
Chromium	180000	--	--		**7.2**	**9.7**	**6.3**	**9.7**	**17**	**21**	**11**	**8.3**	**18**	**9.9**	**10**	**11**	**11**	**13**	**9.1**	**18**	**8.6**	**10**	**7.3**	**13**	**14**	**9.5**	**10**	**8.1**	**15**	**20 B**	**13 B**	**9.4**
Cobalt	0.21	23	50		**3.1**	**3.6**	**4.1**	**7.7**	**6.3**	**7.7**	**7.4**	**6.3**	**6.8**	**8.3**	**7.1**	**6.3**	**5.3**	**7.7**	**6**	**8**	**5.8**	**7**	**4.1**	**7.6**	< 2.9 U	**6.3**	**8.7**	**4.8**	**11**	**3.4**	**10**	**6.9**
Copper	46	3100	8100		**4.5 JB**	**6.4 B**	**5.8 B**	**11 B**	**12 B**	**18 B**	**18**	**8.8**	**46 B**	**10 B**	**11**	**15**	**21**	**49**	**10**	**13**	**10**	**16**	**7.4**	**150**	**7.5**	**12**	**15**	**13**	**17**	**21 B**	**18 B**	**11**
Cr (Hexavalent)	0.00059	0.29	190		< 1.1 U	< 1.1 U	< 1.1 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.1 U	< 1.1 U	< 1.1 U	< 1.2 U	< 1.1 U	< 1.2 U	**1.8**	< 1.1 U	< 1.2 U	< 1.1 U	< 1.2 U	**2.7**	< 1.2 U	< 1.2 U	< 1.1 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.1 U
Iron	270	55000	150000		**11000**	**12000**	**11000**	**17000**	**24000**	**18000**	**15000**	**15000**	**40000**	**19000**	**15000**	**15000**	**14000**	**17000**	**14000**	**19000**	**14000**	**16000**	**13000**	**21000**	**17000**	**15000**	**20000**	**11000**	**24000**	**14000**	**24000**	**16000**
Lead	14	400	450		**3.8 J**	**3.8 J**	**5.6**	**8.5**	**9.6**	**13**	**30**	**5.6 J**	**420**	**8.2**	**13**	**16**	**18**	**28**	**21**	**13**	**7.9**	**39**	**4.8 J**	**17**	**16**	**13**	**9.9**	**15**	**12**	**34**	**13**	**10**
Magnesium	--	--	--		**2200**	**2100**	**2200**	**3200**	**3300**	**4900**	**2600**	**2400**	**2000**	**2900**	**3300**	**2800**	**2300**	**3300**	**2400**	**2900**	**2200**	**2600**	**2200**	**2900**	**96 J**	**2300**	**3000**	**1800**	**2200**	**630**	**3200**	**2600**
Manganese	21	1800	2000		**200**	**190**	**220**	**760**	**530**	**490**	**520**	**300**	**750**	**610**	**500**	**620**	**290**	**680**	**410**	**670**	**320**	**420**	**250**	**390**	**34**	**710**	**730**	**360**	**1100**	**83**	**940**	**460**
Mercury	0.1	10	10		< 0.094 U	**0.023 J**	< 0.091 U	< 0.099 U	**0.0080 J**	**0.034 J**	**0.0086 J**	**0.19**	**0.46**	**0.0080 J**	**0.033 J**	**0.038 J**	**0.038 J**	**0.070 J**	**0.039 J**	**0.033 J**	**0.020 J**	**0.2**	< 0.091 U	**0.038 J**	**0.089 J**	**0.032 J**	**0.012 J**	**0.15**	**0.020 J**	**2.2**	**0.013 J**	**0.0085 J**
Nickel	20	1500	650		**16**	**16**	**9.8**	**18**	**16**	**16**	**15**	**13**	**13**	**15**	**20**	**18**	**11**	**21**	**14**	**16**	**13**	**14**	**12**	**19**	**0.60 J**	**15**	**16**	**16**	**21**	**7.2**	**19**	**14**
Potassium	--	--	--		**350 JB**	**380 JB**	**360 JB**	**620**	**520 J**	**730**	**830**	**570 J**	**560 J**	**810**	**650 B**	**660 B**	**720 B**	**640 B**	**680**	**850**	**640**	**790**	**550**	**1100**	**750**	**720**	**760**	**680**	**1500**	**660**	**630**	**620**
Selenium	0.26	390	26		< 2.0 U	< 2.0 U	< 2.0 U	< 2.1 U	**1.5 J**	< 2.1 U	< 2.1 U	< 2.2 U	**1.9 J**	**1.0 J**	< 2.0 U	< 2.0 U	< 2.1 U	< 2.1 U	< 2.1 U	< 2.1 U	< 2.0 U	< 2.1 U	< 2.0 U	< 2.1 U	< 2.1 U	< 2.2 U	< 2.2 U	< 2.0 U	< 2.2 U	< 2.1 U	< 2.2 U	< 2.0 U
Silver	0.6	390	84		< 1.7 U	< 1.6 U	**0.36 J**	< 1.8 U	< 1.8 U	< 1.8 U	**0.32 J**	**0.41 J**	< 1.8 U	< 1.7 U	< 1.7 U	< 1.7 U	< 1.8 U	< 1.7 U	**0.30 J**	**0.39 J**	**0.33 J**	**0.32 J**	**0.33 J**	**0.52 J**	**0.33 J**	**0.32 J**	**0.42 J**	**0.19 J**	**0.50 J**	**20**	**0.75 J**	**0.32 J**
Sodium	--	--	--		**120 J**	**34 J**	**240 J**	< 300 U	< 290 U	**1600**	**38 J**	< 300 U	< 300 U	< 290 U	**250 J**	**140 J**	**83 J**	**140 J**	< 290 U	**37 J**	< 280 U	**20 J**	**26 J**	**44 J**	**20 J**	**47 J**	**240 J**	**54 J**	**7500**	**1000**	**2300**	< 280 U
Vanadium	--	--	1500		**6.7 J**	**6.8 J**	**7.8 J**	**12**	**17**	**11 J**	**13**	**9.5 J**	**12**	**12**	**11 J**	**13**	**13**	**14**	**10 J**	**15**	**9.9 J**	**12**	**8.9 J**	**15**	**5.5 J**	**11 J**	**12**	**12**	**16**	**17**	**16**	**12**
Zinc	290	23000	12000		**33**	**49**	**34**	**52**	**50**	**62**	**72**	**45**	**720**	**50**	**58**	**64**	**93**	**100**	**89**	**59**	**44**	**60**	**35**	**190**	**9.9 J**	**73**	**48**	**98**	**72**	**300**	**55**	**50**
Detected Misc.																																		
% Solids	--	--	--		**89**	**92**	**92**	**84**	**85**	**84**	**85**	**82**	**83**	**87**	**90**	**88**	**85**	**87**	**85**	**84**	**88**	**85**	**92**	**86**	**86**	**82**	**83**	**88**	**83**	**86**	**83**	**88**
Eh	--	--	--		**150**	**130**	**140**	**160**	**150**	**140**	**170**	**290**	**130**	**150**	**200**	**210**	**220**	**210**	**270**	**270**	**170**	**170**	**190**	**200**	**270**	**230**	**190**	**220**	**200**	**200**	**130**	**220**
pH	--	--	--		**7.7**	**7.5**	**7.6**	**7.2**	**6.7**	**8.5**	**7.2**	**5.2**	**7**	**7.2**	**7**	**7**	**7.1**	**7.9**	**6.3**	**6**	**6.7**	**6.7**	**6.1**	**7.8**	**3.5**	**6.6**	**6**	**6.1**	**6.8**	**6.2**	**7.6**	**6.9**
S.U.	--	--	--		**7.7**	**7.5**	**7.6**	**7.2**	**6.7**	**8.5**	**7.2**	**5.2**	**7**	**7.2**	**7**	**7**	**7.1**	**7.9**	**6.3**	**6**	**6.7**	**6.7**	**6.1**	**7.8**	**3.5**	**6.6**	**6**	**6.1**	**6.8**	**6.2**	**7.6**	**6.9**
Detected SVOCs																																		
1,1'-Biphenyl	0.0087	51	790		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.039 U	< 0.041 U	< 0.040 U	< 0.038 U	< 0.037 U	< 0.038 U	**0.013 J**	< 0.038 U	< 0.039 U	< 0.040 U	< 0.038 U	< 0.039 U	< 0.036 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.040 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.038 U
2-Methylnaphthalene	0.14	310	600		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.039 U	< 0.041 U	< 0.040 U	< 0.038 U	< 0.037 U	< 0.038 U	**0.042**	< 0.038 U	< 0.039 U	< 0.040 U	< 0.038 U	< 0.039 U	< 0.036 U	**0.020 J**	< 0.039 U	< 0.041 U	< 0.040 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.038 U
Acenaphthene	4.1	3400	2700		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.039 U	< 0.041 U	< 0.040 U	< 0.038 U	< 0.037 U	< 0.038 U	**0.35**	< 0.038 U	< 0.039 U	< 0.040 U	< 0.038 U	< 0.039 U	< 0.036 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.040 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.038 U
Acenaphthylene	--	--	2500		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.039 U	< 0.041 U	**0.012 J**	< 0.038 U	< 0.037 U	< 0.038 U	< 0.039 U	< 0.038 U	**0.012 J**	< 0.040 U	< 0.038 U	< 0.039 U	< 0.036 U	**0.0068 J**	< 0.039 U	< 0.041 U	< 0.040 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.038 U
Anthracene	42	17000	350		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.039 U	< 0.041 U	**0.010 J**	< 0.038 U	< 0.037 U	< 0.038 U	**0.41**	< 0.038 U	**0.11**	**0.011 J**	< 0.038 U	< 0.039 U	< 0.036 U	**0.0057 J**	< 0.039 U	< 0.041 U	< 0.040 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.038 U
Benzo[a]anthracene	0.01	0.15	5.7		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	< 0.039 U	**0.0046 J**	**0.022 J**	< 0.041 U	**0.064**	< 0.038 U	< 0.037 U	< 0.038 U	**0.74**	**0.010 J**	**0.52**	**0.056**	< 0.038 U	**0.0094 J**	< 0.036 U	**0.039 J**	< 0.039 U	**0.0051 J**	< 0.040 U	**0.011 J**	< 0.040 U	**0.0074 J**	< 0.040 U	**0.0092 J**
Benzo[a]pyrene	0.24	0.015	0.57		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	< 0.039 U	< 0.040 U	**0.018 J**	< 0.041 U	**0.07**	< 0.038 U	< 0.037 U	< 0.038 U	**0.63**	**0.0079 J**	**0.32**	**0.037 J**	< 0.038 U	**0.0057 J**	< 0.036 U	**0.04**	< 0.039 U	< 0.041 U	< 0.040 U	**0.0078 J**	< 0.040 U	**0.0045 J**	< 0.040 U	**0.0065 J**
Benzo[b]fluoranthene	0.035	0.15	5.7		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	< 0.039 U	< 0.040 U	**0.029 J**	< 0.041 U	**0.11**	< 0.038 U	< 0.037 U	**0.042**	**0.91**	< 0.038 U	**0.49**	**0.059**	< 0.038 U	**0.0088 J**	< 0.036 U	**0.064**	< 0.039 U	< 0.041 U	< 0.040 U	**0.016 J**	< 0.040 U	**0.0068 J**	< 0.040 U	**0.0094 J**
Benzo[g,h,i]perylene	--	--	180		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	< 0.039 U	< 0.040 U	**0.011 J**	< 0.041 U	**0.052**	< 0.038 U	< 0.037 U	< 0.038 U	**0.36**	< 0.038 U	**0.11**	**0.037 J**	< 0.038 U	< 0.039 U	< 0.036 U	**0.041**	< 0.039 U	< 0.041 U	< 0.040 U	**0.0045 J**	< 0.040 U	< 0.039 U	< 0.040 U	< 0.038 U
Benzo[k]fluoranthene	0.35	1.5	57		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	< 0.039 U	< 0.040 U	**0.013 J**	< 0.041 U	**0.029 J**	< 0.038 U	< 0.037 U	< 0.038 U	**0.25**	< 0.038 U	**0.17**	**0.023 J**	< 0.038 U	**0.0053 J**	< 0.036 U	**0.020 J**	< 0.039 U	< 0.041 U	< 0.040 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.040 U	**0.0040 J**
bis(2-Ethylhexyl)phthalate	1.4	35	130		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	**0.011 J**	**0.010 J**	< 0.039 U	< 0.041 U	< 0.040 U	**0.0097 J**	**0.098**	< 0.038 U	< 0.039 U	**0.012 J**	< 0.039 U	**0.039 J**	< 0.038 U	**0.0098 J**	< 0.036 U	**0.013 J**	< 0.039 U	< 0.041 U	**0.024 J**	< 0.038 U	< 0.040 U	**0.027 J**	< 0.040 U	< 0.038 U
Carbazole	--	--	21		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.039 U	< 0.041 U	**0.0073 J**	< 0.038 U	< 0.037 U	< 0.038 U	**0.22**	< 0.038 U	**0.0076 J**	**0.012 J**	< 0.038 U	< 0.039 U	< 0.036 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.040 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.038 U
Chrysene	1.1	15	230		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	< 0.039 U	< 0.040 U	**0.022 J**	< 0.041 U	**0.09**	< 0.038 U	< 0.037 U	< 0.038 U	**0.73**	**0.013 J**	**0.45**	**0.064**	< 0.038 U	**0.0060 J**	< 0.036 U	**0.046**	< 0.039 U	< 0.041 U	< 0.040 U	**0.011 J**	< 0.040 U	**0.0059 J**	< 0.040 U	**0.0073 J**
Dibenzo[a,h]anthracene	0.011	0.015	0.57		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.039 U	< 0.041 U	**0.015 J**	< 0.038 U	< 0.037 U	< 0.038 U	**0.084**	< 0.038 U	**0.049**	**0.0098 J**	< 0.038 U	< 0.039 U	< 0.036 U	**0.011 J**	< 0.039 U	< 0.041 U	< 0.040 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.038 U
Dibenzofuran	0.11	78	95		< 0.0094 U	< 0.0091 U	< 0.0091 U	< 0.0099 U	< 0.0098 U	< 0.0099 U	< 0.0098 U	< 0.010 U	< 0.010 U	< 0.0096 U	< 0.0093 U	< 0.0095 U	**0.15**	< 0.0096 U	< 0.0098 U	< 0.0099 U	< 0.0095 U	< 0.0098 U	< 0.0091 U	**0.0065 J**	< 0.0097 U	< 0.010 U	< 0.010 U	< 0.0095 U	< 0.010 U	< 0.0097 U	< 0.010 U	< 0.0095 U
Di-n-butylphthalate	1.7	6100	1500		< 0.019 U	< 0.018 U	< 0.018 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.020 U	< 0.019 U	< 0.019 U	< 0.019 U	< 0.020 U	< 0.019 U	< 0.020 U	< 0.020 U	< 0.019 U	< 0.020 U	< 0.018 U	< 0.019 U	< 0.019 U	< 0.020 U	< 0.020 U	< 0.019 U	< 0.020 U	< 0.019 U	< 0.020 U	< 0.019 U
Di-n-octylphthalate	--	--	8800		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.039 U	< 0.041 U	< 0.040 U	< 0.038 U	< 0.037 U	< 0.038 U	< 0.039 U	< 0.038 U	< 0.039 U	< 0.040 U	< 0.038 U	< 0.039 U	< 0.036 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.040 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.038 U
Fluoranthene	70	2300	3200		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	< 0.039 U	< 0.040 U	**0.036 J**	< 0.041 U	**0.16**	< 0.038 U	< 0.037 U	**0.066**	**1.7**	**0.019 J**	**0.93**	**0.13**	< 0.038 U	**0.0068 J**	< 0.036 U	**0.047**	< 0.039 U	< 0.041 U	< 0.040 U	**0.017 J**	< 0.040 U	**0.0095 J**	< 0.040 U	**0.013 J**
Fluorene	4	2300	3000		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.039 U	< 0.041 U	< 0.040 U	< 0.038 U	< 0.037 U	< 0.038 U	**0.22**	< 0.038 U	**0.011 J**	< 0.040 U	< 0.038 U	< 0.039 U	< 0.036 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.040 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.038 U
Indeno[1,2,3-cd]pyrene	0.12	0.15	5.7		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	< 0.039 U	< 0.040 U	**0.011 J**	< 0.041 U	**0.046**	< 0.038 U	< 0.037 U	< 0.038 U	**0.31**	< 0.038 U	**0.13**	**0.036 J**	< 0.038 U	< 0.039 U	< 0.036 U	**0.034 J**	< 0.039 U	< 0.041 U	< 0.040 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.038 U
Naphthalene	0.00047	3.6	25		< 0.0094 U	< 0.0091 U	< 0.0091 U	< 0.0099 U	< 0.0098 U	< 0.0099 U	**0.0070 J**	< 0.010 U	< 0.010 U	< 0.0096 U	< 0.0093 U	< 0.0095 U	**0.15**	**0.0051 J**	< 0.0098 U	**0.0059 J**	< 0.0095 U	< 0.0098 U	< 0.0091 U	**0.015**	< 0.0097 U	< 0.010 U	< 0.010 U	**0.0053 J**	< 0.010 U	< 0.0097 U	< 0.010 U	**0.0048 J**
Phenanthrene	--	--	10000		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	< 0.039 U	< 0.040 U	**0.018 J**	< 0.041 U	**0.079**	< 0.038 U	< 0.037 U	**0.071**	**1.8**	**0.011 J**	**0.34**	**0.069**	< 0.038 U	**0.0046 J**	< 0.036 U	**0.033 J**	< 0.039 U	< 0.041 U	< 0.040 U	**0.011 J**	< 0.040 U	**0.0042 J**	< 0.040 U	**0.0083 J**
Phenol	2.6	18000	200		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.039 U	< 0.041 U	< 0.040 U	< 0.038 U	< 0.037 U	< 0.038 U	< 0.039 U	< 0.038 U	< 0.039 U	< 0.040 U	< 0.038 U	< 0.039 U	< 0.036 U	< 0.039 U	< 0.039 U	< 0.041 U	< 0.040 U	< 0.038 U	< 0.040 U	< 0.039 U	< 0.040 U	< 0.038 U
Pyrene	9.5	1700	2200		< 0.037 U	< 0.036 U	< 0.036 U	< 0.040 U	< 0.039 U	< 0.040 U	**0.033 J**	< 0.041 U	**0.11**	< 0.038 U	< 0.037 U	**0.059**	**1.5**	**0.019 J**	**0.75**	**0.13**	< 0.038 U	**0.0097 J**	< 0.036 U	**0.06**	< 0.039 U	**0.0048 J**	< 0.040 U	**0.015 J**	< 0.040 U	**0.0075 J**	< 0.040 U	**0.012 J**
VOCs																																		
1,1,1-Trichloroethane	0.07	8700	20		< 0.0022 U	< 0.0023 U	< 0.0020 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	**0.00046 J**	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0023 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0023 U	< 0.0021 U	< 0.0022 U	< 0.0023 U	< 0.0022 U	< 0.0024 U	< 0.0022 U
1,2,3-Trichlorobenzene	0.015	49	--		< 0.0022 U	< 0.0023 U	< 0.0020 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0020 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	**0.0019 J**	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0023 U	< 0.0021 U	< 0.0022 U	< 0.0023 U	**0.0011 J**	< 0.0024 U	< 0.0022 U
1,2,4-Trichlorobenzene	0.2	22	27		< 0.0022 U	< 0.0023 U	< 0.0020 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0020 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	**0.0014 J**	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0023 U	< 0.0021 U	< 0.0022 U	< 0.0023 U	**0.00074 J**	< 0.0024 U	< 0.0022 U
1,2-Dichlorobenzene	0.58	1900	60		< 0.0022 U	< 0.0023 U	< 0.0020 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0020 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	**0.00075 J**	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0023 U	< 0.0021 U	< 0.0022 U	< 0.0023 U	**0.00047 J**	< 0.0024 U	< 0.0022 U
1,3-Dichlorobenzene	--	--	61		< 0.0022 U	< 0.0023 U	< 0.0020 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0020 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	**0.00064 J**	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0023 U	< 0.0021 U	< 0.0022 U	< 0.0023 U	< 0.0022 U	< 0.0024 U	< 0.0022 U
1,4-Dichlorobenzene	0.072	2.4	10		< 0.0022 U	< 0.0023 U	< 0.0020 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0020 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	**0.00078 J**	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0023 U	< 0.0021 U	< 0.0022 U	< 0.0023 U	< 0.0022 U	< 0.0024 U	< 0.0022 U
Acetone	2.4	61000	3300		< 0.011 U	< 0.011 U	< 0.0099 U	< 0.011 U	< 0.011 U	< 0.011 U	**0.053**	< 0.012 U	< 0.011 U	< 0.0099 U	< 0.011 U	< 0.011 U	< 0.011 U	< 0.011 U	< 0.011 U	**0.019**	< 0.011 U	< 0.011 U	< 0.011 U	< 0.011 U	< 0.011 U	**0.029**	< 0.011 U	< 0.011 U	< 0.012 U	**0.026**	< 0.012 U	< 0.011 U
Carbon disulfide	0.21	820	150		< 0.0022 U	< 0.0023 U	< 0.0020 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	**0.00045 J**	< 0.0023 U	< 0.0023 U	< 0.0020 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	**0.00030 J**	< 0.0021 U	**0.00045 J**	< 0.0021 U	< 0.0023 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0023 U	< 0.0021 U	< 0.0022 U	< 0.0023 U	< 0.0022 U	< 0.0024 U	< 0.0022 U
Chloroform	0.022	0.29	8		< 0.0022 U	< 0.0023 U	< 0.0020 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0020 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0023 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0023 U	< 0.0021 U	**0.00045 J**	**0.00058 J**	**0.0013 J**	< 0.0024 U	< 0.0022 U
cis-1,2-Dichloroethene	0.021	160	7		< 0.0022 U	< 0.0023 U	< 0.0020 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0020 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0023 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0023 U	< 0.0021 U	< 0.0022 U	< 0.0023 U	< 0.0022 U	< 0.0024 U	< 0.0022 U
m&p-Xylenes	--	--	--		< 0.0011 U	< 0.0011 U	< 0.00099 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0012 U	< 0.0011 U	< 0.00099 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0012 U	< 0.0011 U	< 0.0012 U	< 0.0011 U
Styrene	0.11	6300	24		< 0.0022 U	< 0.0023 U	< 0.0020 U	< 0.0023 U	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0020 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0023 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0023 U	< 0.0021 U	< 0.0022 U	< 0.0023 U	**0.00036 J**	< 0.0024 U	< 0.0022 U
Tetrachloroethene	0.0023	0.55	0.5		< 0.0022 U	< 0.0023 U	< 0.0020 U	**0.0038**	< 0.0022 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0023 U	< 0.0020 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0021 U	< 0.0023 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0023 U	**0.0082**	< 0.0022 U	< 0.0023 U	< 0.0022 U	< 0.0024 U	< 0.0022 U
Toluene	0.69	5000	100		< 0.0011 U	< 0.0011 U	< 0.00099 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0012 U	< 0.0011 U	< 0.00099 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	**0.00023 J**	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0012 U	< 0.0011 U	< 0.0012 U	< 0.0011

Table B-1
Remedial Investigation Soil Samples Compared to Residential Criteria
Solvay, Inc.
Morrisville, Pennsylvania

Constituent (mg/kg)	EPA Soil-to-GW SSL	EPA RES SOIL RSL	Res PADEP MSC	Location ID Start Depth End Depth Date	IA-13 12.0 13.0 4/3/2012	IA-14 1.7 2.3 4/4/2012	IA-14 12.0 13.0 4/4/2012	IA-15 3.5 4.0 4/2/2012	IA-15 14.5 15.0 4/2/2012	IA-16 3.5 4.0 4/2/2012	IA-16 4.5 5.0 4/2/2012	IA-17 2.0 3.0 4/3/2012	IA-17 11.0 12.0 4/3/2012	IA-18 1.5 2.0 4/2/2012	IA-18 5.5 6.0 4/2/2012	IA-18 12.5 13.0 4/13/2012	IA-19 1.5 2.0 4/2/2012	IA-19 4.5 5.0 4/2/2012	IA-20 2.0 2.5 4/2/2012	IA-20 13.0 13.5 4/2/2012	IA-21 1.5 2.0 4/2/2012	IA-21 14.5 15.0 4/2/2012	WP-01 1.5 2.0 4/5/2012	WP-01 6.0 6.5 4/5/2012	WP-02 1.0 2.0 4/5/2012	WP-02 6.5 7.0 4/5/2012	WP-03 1.0 2.0 4/5/2012	WP-03 3.0 4.0 4/5/2012
Detected Metals																												
Aluminum	23000	77000	190000		**7300**	**7400**	**4700**	**7100**	**8400**	**6000**	**8500**	**7700**	**4500**	**6700**	**7700**	**4800**	**6600**	**9100**	**8100**	**8200**	**8500**	**4800**	**8300**	**7900**	**9500**	**11000**	**7900**	**9100**
Antimony	0.27	31	27		< 2.2 U	< 2.3 U	< 2.2 U	**1.4 J**	< 2.4 U	< 2.2 U	< 2.4 U	< 2.3 U	< 2.1 U	< 2.3 U	< 2.3 U	< 2.1 U	< 2.3 U	< 2.3 U	< 2.2 U	< 2.3 U	< 2.3 U	< 2.2 U	< 2.3 U	< 2.4 U	< 2.5 U	< 2.6 U	< 2.5 U	< 2.4 U
Arsenic	0.29	0.39	12		**4.9**	**4.2**	**4.9**	**3.8**	**5.8**	**2.7**	**4.9**	**4.7**	**3.8**	**5**	**5**	**4.3**	**6.3**	**5.1**	**5.1**	**6.7**	**5.6**	**4.4**	**9.9**	**4.4**	**15**	**5**	**19**	**23**
Barium	82	15000	8200		**30**	**73**	**18**	**78**	**60**	**65**	**42**	**81**	**27**	**38**	**110**	**33**	**96**	**100**	**92**	**38**	**64**	**36**	**73**	**45**	**90**	**180**	**100**	**110**
Beryllium	3.2	160	320		**0.39 J**	**0.50 J**	**0.22 J**	**0.36 J**	**0.35 J**	**0.34 J**	**0.38 J**	**0.55 J**	**0.23 J**	**0.26 J**	**0.45 J**	**0.15 J**	**0.40 J**	**0.43 J**	**0.49 J**	**0.24 J**	**0.39 J**	**0.13 J**	**0.65 JB**	**0.55 JB**	**0.77 B**	**0.96 B**	**0.70 JB**	**0.76 B**
Cadmium	0.38	70	38		**0.27 J**	**0.26 J**	**0.26 J**	< 0.67 U	**0.11 J**	< 0.67 U	< 0.71 U	**0.30 J**	**0.24 J**	< 0.68 U	< 0.69 U	**0.15 J**	**0.12 J**	**0.12 J**	< 0.67 U	< 0.70 U	< 0.68 U	< 0.65 U	**0.34 JB**	**0.26 JB**	**1.4 B**	**0.38 JB**	**0.78 B**	**0.69 JB**
Calcium	--	--	--		**630 JB**	**490 JB**	**140 JB**	**2200 B**	**400 JB**	**600 JB**	**560 JB**	**640 JB**	**270 JB**	**640 JB**	**670 JB**	**340 J**	**1200 B**	**480 JB**	**1300 B**	**250 JB**	**800 JB**	**270 JB**	**210 JB**	**480 JB**	**2700 B**	**810 JB**	**1200 JB**	**1100 JB**
Chromium	180000	--	--		**14**	**8.6 B**	**6.1 B**	**9.5**	**9.5**	**9.1**	**10**	**8.4**	**5.7**	**7.9**	**7.9**	**6.2**	**7.9**	**10**	**10**	**9.4**	**10**	**6.3**	**9.6**	**9.2**	**18**	**13**	**11**	**12**
Cobalt	0.21	23	50		**6.3**	**6.5**	**4.8**	**5.8**	**8.4**	**5.1**	**7.8**	**7**	**4.2**	**5.8**	**5.3**	**5**	**4.9**	**8**	**6.5**	**8**	**6.5**	**7**	**6.6**	**6.6**	**5.5**	**9.2**	**9.1**	**8.7**
Copper	46	3100	8100		**11**	**10 B**	**8.0 B**	**12**	**14**	**13**	**12**	**14**	**7.7**	**11**	**10**	**7.6**	**12**	**10**	**12**	**14**	**10**	**7.8**	**9.4**	**8.7**	**23**	**11**	**12**	**12**
Cr (Hexavalent)	0.00059	0.29	190		< 1.1 U	< 1.1 U	< 1.1 U	< 1.1 U	< 1.2 U	< 1.1 U	< 1.2 U	< 1.1 U	< 1.0 U	< 1.1 U	< 1.1 U	< 1.1 U	< 1.1 U	< 1.1 U	< 1.1 U	< 1.2 U	< 1.1 U	< 1.1 U	< 1.2 U	< 1.2 U	< 1.2 U	< 1.3 U	< 1.2 U	< 1.2 U
Iron	270	55000	150000		**18000**	**14000**	**12000**	**15000**	**19000**	**13000**	**19000**	**13000**	**11000**	**15000**	**14000**	**12000**	**11000**	**19000**	**16000**	**19000**	**18000**	**12000**	**16000**	**15000**	**17000**	**19000**	**16000**	**18000**
Lead	14	400	450		**6.9**	**11**	**5.3 J**	**91**	**9.7**	**7.5**	**8.8**	**19**	**4.5 J**	**9.3**	**13**	**5.2 J**	**22**	**8.8**	**9.8**	**9.7**	**7.8**	**5.5**	**7.6**	**6.6**	**75**	**11**	**22**	**14**
Magnesium	--	--	--		**2700**	**2300**	**2000**	**2600**	**2800**	**2400**	**2800**	**2300**	**1900**	**2400**	**2100**	**2200**	**1900**	**3000**	**3200**	**3000**	**2700**	**2100**	**2400**	**2500**	**2500**	**3400**	**2500**	**3000**
Manganese	21	1800	2000		**400**	**500**	**310**	**540**	**780**	**520**	**660**	**380**	**330**	**180**	**660**	**500**	**670**	**690**	**700**	**650**	**550**	**480**	**550**	**520**	**380**	**720**	**1000**	**910**
Mercury	0.1	10	10		**0.26**	< 0.096 U	< 0.090 U	**0.027 J**	**0.028 J**	**0.018 J**	**0.026 J**	< 0.095 U	< 0.087 U	**0.019 J**	**0.046 J**	< 0.088 U	**0.11**	**0.021 J**	**0.053 J**	**0.012 J**	**0.045 J**	**0.011 J**	**0.011 J**	< 0.099 U	**0.33**	**0.014 J**	**0.032 J**	**0.082 J**
Nickel	20	1500	650		**14**	**13**	**10**	**13**	**15**	**12**	**16**	**12**	**9.4**	**12**	**12**	**11**	**9.9**	**16**	**15**	**16**	**14**	**11**	**13**	**13**	**23**	**21**	**26**	**22**
Potassium	--	--	--		**730**	**570 J**	**390 J**	**620 B**	**570 JB**	**560 B**	**730 B**	**620**	**460 J**	**550 JB**	**550 JB**	**480 J**	**460 JB**	**710 B**	**1000 B**	**690 B**	**690 B**	**370 JB**	**480 J**	**500 J**	**580 J**	**590 J**	**690**	**700**
Selenium	0.26	390	26		< 2.0 U	< 2.1 U	< 1.9 U	< 2.0 U	< 2.1 U	< 2.0 U	< 2.1 U	< 2.0 U	< 1.9 U	< 2.0 U	< 2.1 U	< 1.9 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.1 U	< 2.0 U	< 1.9 U	< 2.1 U	< 2.1 U	< 2.2 U	< 2.3 U	< 2.2 U	< 2.2 U
Silver	0.6	390	84		**0.39 J**	**0.37 J**	**0.34 J**	**0.18 J**	**0.26 J**	**0.19 J**	**0.24 J**	**0.29 J**	**0.28 J**	**0.23 J**	**0.21 J**	< 1.6 U	**0.20 J**	**0.38 J**	**0.19 J**	**0.26 J**	**0.27 J**	**0.22 J**	**0.22 J**	**0.20 J**	**0.30 J**	**0.18 J**	**0.23 J**	**0.26 J**
Sodium	--	--	--		**13 J**	< 290 U	**180 J**	**770**	**2100**	**190 J**	**1200**	< 280 U	< 260 U	**14 J**	**18 J**	< 260 U	**22 J**	**15 J**	**170 J**	**510**	**16 J**	**80 J**	< 290 U	< 300 U	**29 J**	< 320 U	< 310 U	< 300 U
Vanadium	--	--	1500		**13**	**10 J**	**7.1 J**	**11 J**	**11 J**	**8.3 J**	**12**	**11 J**	**7.0 J**	**10 J**	**9.5 J**	**7.9 J**	**8.8 J**	**13**	**13**	**12 J**	**12**	**7.7 J**	**11 J**	**10 J**	**17**	**14**	**15**	**13**
Zinc	290	23000	12000		**43**	**41**	**29**	**47**	**45**	**40**	**54**	**47**	**28**	**40**	**45**	**31**	**40**	**52**	**57**	**46**	**47**	**32**	**45**	**43**	**380**	**64**	**140**	**82**
Detected Misc.																												
% Solids	--	--	--		**91**	**87**	**93**	**89**	**84**	**90**	**85**	**88**	**96**	**88**	**87**	**95**	**88**	**88**	**90**	**86**	**88**	**93**	**86**	**84**	**80**	**77**	**81**	**83**
Eh	--	--	--		**220**	**140**	**110**	**170**	**180**	**180**	**150**	**200**	**200**	**190**	**190**	**190**	**190**	**190**	**220**	**200**	**210**	**180**	**210**	**260**	**220**	**240**	**230**	**210**
pH	--	--	--		**7.3**	**7.2**	**7.7**	**8.3**	**7.4**	**8.1**	**9.6**	**7.4**	**6.6**	**6.9**	**6.5**	**6.8**	**7.3**	**7.3**	**7.4**	**7.3**	**7.5**	**6.7**	**6**	**5**	**6.7**	**6.3**	**6.3**	**6.5**
S.U.	--	--	--		**7.3**	**7.2**	**7.7**	**8.3**	**7.4**	**8.1**	**9.6**	**7.4**	**6.6**	**6.9**	**6.5**	**6.8**	**7.3**	**7.3**	**7.4**	**7.3**	**7.5**	**6.7**	**6**	**5**	**6.7**	**6.3**	**6.3**	**6.5**
Detected SVOCs																												
1,1'-Biphenyl	0.0087	51	790		< 0.037 U	< 0.038 U	< 0.036 U	< 0.037 U	< 0.040 U	**0.0043 J**	< 0.039 U	< 0.038 U	< 0.035 U	< 0.038 U	< 0.038 U	< 0.035 U	< 0.038 U	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	< 0.17 U	< 0.043 U	< 0.041 U	< 0.040 U
2-Methylnaphthalene	0.14	310	600		< 0.037 U	< 0.038 U	< 0.036 U	**0.0092 J**	< 0.040 U	**0.015 J**	< 0.039 U	< 0.038 U	< 0.035 U	**0.0059 J**	< 0.038 U	< 0.035 U	< 0.038 U	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	**0.076 J**	< 0.043 U	< 0.041 U	< 0.040 U
Acenaphthene	4.1	3400	2700		< 0.037 U	< 0.038 U	< 0.036 U	< 0.037 U	< 0.040 U	**0.0039 J**	< 0.039 U	< 0.038 U	< 0.035 U	< 0.038 U	< 0.038 U	< 0.035 U	< 0.038 U	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	< 0.17 U	< 0.043 U	< 0.041 U	< 0.040 U
Acenaphthylene	--	--	2500		< 0.037 U	< 0.038 U	< 0.036 U	**0.0058 J**	< 0.040 U	**0.0046 J**	< 0.039 U	< 0.038 U	< 0.035 U	**0.015 J**	< 0.038 U	< 0.035 U	**0.0042 J**	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	**0.055 J**	< 0.043 U	< 0.041 U	< 0.040 U
Anthracene	42	17000	350		< 0.037 U	< 0.038 U	< 0.036 U	**0.011 J**	< 0.040 U	**0.014 J**	< 0.039 U	< 0.038 U	< 0.035 U	**0.0094 J**	< 0.038 U	< 0.035 U	**0.0066 J**	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	**0.066 J**	< 0.043 U	< 0.041 U	< 0.040 U
Benzo[a]anthracene	0.01	0.15	5.7		**0.0066 J**	**0.0064 J**	**0.0039 J**	**0.026 J**	< 0.040 U	**0.045**	< 0.039 U	**0.011 J**	< 0.035 U	**0.031 J**	**0.0066 J**	< 0.035 U	**0.049**	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	**0.22**	< 0.043 U	**0.021 J**	**0.0068 J**
Benzo[a]pyrene	0.24	0.015	0.57		< 0.037 U	**0.0048 J**	< 0.036 U	**0.021 J**	< 0.040 U	**0.021 J**	< 0.039 U	**0.0097 J**	< 0.035 U	**0.053**	**0.0046 J**	< 0.035 U	**0.043**	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	**0.18**	< 0.043 U	**0.021 J**	**0.0046 J**
Benzo[b]fluoranthene	0.035	0.15	5.7		**0.010 J**	**0.0077 J**	< 0.036 U	**0.038**	< 0.040 U	**0.082**	< 0.039 U	**0.014 J**	< 0.035 U	**0.13**	**0.0084 J**	< 0.035 U	**0.067**	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	**0.37**	< 0.043 U	**0.031 J**	**0.0062 J**
Benzo[g,h,i]perylene	--	--	180		< 0.037 U	< 0.038 U	< 0.036 U	**0.018 J**	< 0.040 U	**0.024 J**	< 0.039 U	**0.0050 J**	< 0.035 U	**0.049**	< 0.038 U	< 0.035 U	**0.021 J**	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	**0.23**	< 0.043 U	**0.014 J**	< 0.040 U
Benzo[k]fluoranthene	0.35	1.5	57		< 0.037 U	< 0.038 U	< 0.036 U	**0.015 J**	< 0.040 U	**0.030 J**	< 0.039 U	**0.0059 J**	< 0.035 U	**0.043**	< 0.038 U	< 0.035 U	**0.024 J**	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	**0.081 J**	< 0.043 U	**0.014 J**	< 0.040 U
bis(2-Ethylhexyl)phthalate	1.4	35	130		< 0.037 U	**0.0098 J**	**0.010 J**	**0.035 J**	**0.011 J**	**0.0085 J**	< 0.039 U	< 0.038 U	< 0.035 U	**0.012 J**	< 0.038 U	< 0.035 U	**0.017 J**	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	**0.32**	< 0.043 U	**0.018 J**	< 0.040 U
Carbazole	--	--	21		< 0.037 U	< 0.038 U	< 0.036 U	< 0.037 U	< 0.040 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	**0.0052 J**	< 0.038 U	< 0.035 U	< 0.038 U	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	**0.036 J**	< 0.043 U	< 0.041 U	< 0.040 U
Chrysene	1.1	15	230		**0.0096 J**	**0.0052 J**	< 0.036 U	**0.032 J**	< 0.040 U	**0.064**	< 0.039 U	**0.011 J**	< 0.035 U	**0.062**	**0.0053 J**	< 0.035 U	**0.059**	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	**0.24**	< 0.043 U	**0.024 J**	**0.0052 J**
Dibenzo[a,h]anthracene	0.011	0.015	0.57		< 0.037 U	< 0.038 U	< 0.036 U	**0.0048 J**	< 0.040 U	**0.0090 J**	< 0.039 U	< 0.038 U	< 0.035 U	**0.015 J**	< 0.038 U	< 0.035 U	**0.0084 J**	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	**0.064 J**	< 0.043 U	< 0.041 U	< 0.040 U
Dibenzofuran	0.11	78	95		< 0.0092 U	< 0.0096 U	< 0.0090 U	**0.0076 J**	< 0.0099 U	**0.015**	< 0.0098 U	< 0.0095 U	< 0.0087 U	< 0.0095 U	< 0.0096 U	< 0.0088 U	< 0.0095 U	< 0.0095 U	< 0.0093 U	< 0.0097 U	< 0.0095 U	< 0.0090 U	< 0.0097 U	< 0.0099 U	**0.019 J**	< 0.011 U	< 0.010 U	< 0.010 U
Di-n-butylphthalate	1.7	6100	1500		< 0.018 U	< 0.019 U	< 0.018 U	< 0.019 U	< 0.020 U	< 0.019 U	< 0.020 U	< 0.019 U	**0.024**	< 0.019 U	< 0.019 U	< 0.018 U	< 0.019 U	< 0.019 U	< 0.019 U	< 0.019 U	< 0.019 U	< 0.018 U	< 0.019 U	< 0.020 U	< 0.084 U	< 0.022 U	< 0.021 U	< 0.020 U
Di-n-octylphthalate	--	--	8800		< 0.037 U	< 0.038 U	< 0.036 U	< 0.037 U	< 0.040 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.038 U	< 0.038 U	< 0.035 U	< 0.038 U	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	< 0.17 U	< 0.043 U	< 0.041 U	< 0.040 U
Fluoranthene	70	2300	3200		**0.015 J**	**0.0097 J**	< 0.036 U	**0.041**	< 0.040 U	**0.086**	< 0.039 U	**0.015 J**	< 0.035 U	**0.038 J**	**0.0095 J**	< 0.035 U	**0.068**	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	**0.41**	< 0.043 U	**0.035 J**	**0.0074 J**
Fluorene	4	2300	3000		< 0.037 U	< 0.038 U	< 0.036 U	< 0.037 U	< 0.040 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.038 U	< 0.038 U	< 0.035 U	< 0.038 U	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	< 0.17 U	< 0.043 U	< 0.041 U	< 0.040 U
Indeno[1,2,3-cd]pyrene	0.12	0.15	5.7		< 0.037 U	< 0.038 U	< 0.036 U	**0.016 J**	< 0.040 U	**0.025 J**	< 0.039 U	**0.0048 J**	< 0.035 U	**0.046**	< 0.038 U	< 0.035 U	**0.023 J**	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	**0.17**	< 0.043 U	**0.012 J**	< 0.040 U
Naphthalene	0.00047	3.6	25		< 0.0092 U	< 0.0096 U	< 0.0090 U	**0.0096**	< 0.0099 U	**0.016**	< 0.0098 U	**0.0066 J**	< 0.0087 U	**0.0064 J**	< 0.0096 U	< 0.0088 U	< 0.0095 U	< 0.0095 U	< 0.0093 U	< 0.0097 U	< 0.0095 U	< 0.0090 U	< 0.0097 U	< 0.0099 U	**0.029 J**	< 0.011 U	**0.0059 J**	< 0.010 U
Phenanthrene	--	--	10000		**0.012 J**	< 0.038 U	< 0.036 U	**0.032 J**	< 0.040 U	**0.061**	< 0.039 U	**0.0056 J**	< 0.035 U	**0.015 J**	**0.0053 J**	< 0.035 U	**0.025 J**	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	**0.23**	< 0.043 U	**0.017 J**	**0.0046 J**
Phenol	2.6	18000	200		< 0.037 U	< 0.038 U	< 0.036 U	< 0.037 U	< 0.040 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.035 U	< 0.038 U	< 0.038 U	< 0.035 U	< 0.038 U	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	< 0.17 U	< 0.043 U	< 0.041 U	< 0.040 U
Pyrene	9.5	1700	2200		**0.014 J**	**0.0076 J**	**0.0040 J**	**0.042**	< 0.040 U	**0.06**	< 0.039 U	**0.013 J**	< 0.035 U	**0.045**	**0.0096 J**	< 0.035 U	**0.074**	< 0.038 U	< 0.037 U	< 0.039 U	< 0.038 U	< 0.036 U	< 0.039 U	< 0.040 U	**0.39**	< 0.043 U	**0.035 J**	**0.0077 J**
VOCs																												
1,1,1-Trichloroethane	0.07	8700	20		< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0019 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0025 U	< 0.0023 U	< 0.0024 U
1,2,3-Trichlorobenzene	0.015	49	--		< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0019 U	**0.00087 J**	< 0.0022 U	< 0.0023 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	**0.0015 J**	< 0.0022 U	< 0.0023 U	< 0.0025 U	< 0.0023 U	< 0.0024 U
1,2,4-Trichlorobenzene	0.2	22	27		< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0019 U	**0.00068 J**	< 0.0022 U	< 0.0023 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	**0.0013 J**	< 0.0022 U	< 0.0023 U	< 0.0025 U	< 0.0023 U	< 0.0024 U
1,2-Dichlorobenzene	0.58	1900	60		< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0019 U	**0.00037 J**	< 0.0022 U	< 0.0023 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	**0.00074 J**	< 0.0022 U	< 0.0023 U	< 0.0025 U	< 0.0023 U	< 0.0024 U
1,3-Dichlorobenzene	--	--	61		< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0019 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	**0.00059 J**	< 0.0022 U	< 0.0023 U	< 0.0025 U	< 0.0023 U	< 0.0024 U
1,4-Dichlorobenzene	0.072	2.4	10		< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0019 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	**0.00064 J**	< 0.0022 U	< 0.0023 U	< 0.0025 U	< 0.0023 U	< 0.0024 U
Acetone	2.4	61000	3300		< 0.010 U	< 0.011 U	< 0.0099 U	< 0.010 U	< 0.011 U	< 0.011 U	< 0.011 U	< 0.011 U	< 0.0097 U	< 0.011 U	< 0.011 U	< 0.012 U	< 0.010 U	< 0.011 U	< 0.011 U	< 0.011 U	< 0.011 U	< 0.010 U	< 0.011 U	< 0.011 U	< 0.012 U	< 0.012 U	< 0.012 U	< 0.012 U
Carbon disulfide	0.21	820	150		< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0019 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0025 U	< 0.0023 U	< 0.0024 U
Chloroform	0.022	0.29	8		< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0019 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0025 U	< 0.0023 U	< 0.0024 U
cis-1,2-Dichloroethene	0.021	160	7		< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0019 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0025 U	< 0.0023 U	< 0.0024 U
m&p-Xylenes	--	--	--		< 0.0010 U	< 0.0011 U	< 0.00099 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.00097 U	**0.0018**	< 0.0011 U	< 0.0012 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0012 U	< 0.0012 U	< 0.0012 U	< 0.0012 U
Styrene	0.11	6300	24		< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0019 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	**0.00036 J**	< 0.0022 U	< 0.0023 U	< 0.0025 U	< 0.0023 U	< 0.0024 U
Tetrachloroethene	0.0023	0.55	0.5		< 0.0021 U	< 0.0021 U	< 0.0020 U	< 0.0021 U	< 0.0022 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0019 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	**0.00043 J**	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0021 U	< 0.0021 U	< 0.0022 U	< 0.0022 U	< 0.0023 U	< 0.0025 U	< 0.0023 U	< 0.0024 U
Toluene	0.69	5000	100		**0.00026 J**	< 0.0011 U	< 0.00099 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.00097 U	**0.00064 J**	< 0.0011 U	< 0.0012 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0012 U	< 0.0012 U	< 0.0012 U	< 0.0012 U
Xylenes (Total)	9.8	630	1000		< 0.0010 U	< 0.0011 U	< 0.00099 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.00097 U	**0.0018**	< 0.0011 U	< 0.0012 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0011 U	< 0.0010 U	< 0.0011 U	< 0.0011 U	< 0.0012 U	< 0.0012 U	< 0.0012 U	< 0.0012 U

Notes:

All units are in mg/kg.

Bold font indicates a detected result.

= concentration above EPA Soil RSL.

= concentration above PADEP MSC.

= concentration above EPA Soil-to-GW SSL.

If a concentration was above both the EPA RSL and the PADEP MSC, it is highlighted yellow.

< U = Analyte not detected above the specified laboratory detection limit.

J = Estimated concentration above the laboratory method detection limit but below the reporting limit.

B = Analyte was detected in the laboratory method blank.

Table B-2
Remedial Investigation Sediment Samples Compared to Residential Criteria - Area 10
Solvay Inc.
Morrisville, Pennsylvania

	Location ID Sample Date Start Depth End Depth	A10-01 4/10/2012 0 0.5	A10-01 4/10/2012 0.5 1	A10-02 4/10/2012 0 0.5	A10-02 4/10/2012 0.5 1	A10-03 4/10/2012 0 0.5	A10-03 4/10/2012 0.5 1	A10-04 4/10/2012 0 0.5	A10-04 4/10/2012 0.5 1	A10-05 4/10/2012 0 0.5	A10-05 4/10/2012 0.5 1	A10-06 4/10/2012 0 0.5	A10-06 4/10/2012 0.5 1
Constituent (mg/kg)	Min of PA Soil-GW and Direct Contact MSC												
Detected Metals													
Aluminum	190000	**15000**	--	**12000**	--	**13000**	--	**16000**	--	**12000**	--	**7600**	--
Antimony	27	**96**	--	**36**	--	**55**	--	**120**	--	**21**	--	**54**	--
Arsenic	12	**230**	--	**740**	--	**81**	--	**120**	--	**47**	--	**81**	--
Barium	8200	**420**	--	**320**	--	**270**	--	**340**	--	**230**	--	**230**	--
Beryllium	320	**0.66 J**	--	**0.51 J**	--	**0.42 J**	--	**0.54 J**	--	**0.42 J**	--	**0.19 J**	--
Cadmium	38	**10**	--	**11**	--	**7.3**	--	**11**	--	**1.8**	--	**4.5**	--
Calcium	--	**55000 B**	--	**43000 B**	--	**55000 B**	--	**58000 B**	--	**22000 B**	--	**43000 B**	--
Chromium	--	**350**	--	**160**	--	**210**	--	**290**	--	**150**	--	**180**	--
Cobalt	50	**13**	--	**11**	--	**7.3 J**	--	**8.7 J**	--	**11**	--	**5.3 J**	--
Copper	8100	**530**	--	**960**	--	**300**	--	**430**	--	**240**	--	**220**	--
Iron	150000	**43000**	--	**30000**	--	**32000**	--	**38000**	--	**27000**	--	**23000**	--
Lead	450	**380**	--	**340**	--	**260**	--	**280**	--	**57**	--	**150**	--
Magnesium	--	**2400**	--	**3400**	--	**1900 J**	--	**1700 J**	--	**3300**	--	**2200**	--
Manganese	2000	**690**	--	**540**	--	**580**	--	**690**	--	**440**	--	**370**	--
Mercury	10	**11**	--	**11**	--	**4.9**	--	**6.2**	--	**5.3**	--	**4.7**	--
Nickel	650	**3100**	--	**1400**	--	**1000**	--	**1200**	--	**1500**	--	**1500**	--
Potassium	--	**780 JB**	--	**930 JB**	--	**690 JB**	--	**790 JB**	--	**1200 JB**	--	**410 JB**	--
Silver	84	**10**	--	**17**	--	**7.6**	--	**6.6 J**	--	**3.5 J**	--	**3.9 J**	--
Sodium	--	**1600**	--	**1300**	--	**1500**	--	**1700**	--	**620 J**	--	**1100**	--
Vanadium	1500	**31 J**	--	**28 J**	--	**26 J**	--	**27 J**	--	**17 J**	--	**17 J**	--
Zinc	12000	**1600**	--	**1100**	--	**1100**	--	**1400**	--	**520**	--	**820**	--
Misc.	--												
% Solids	--	**25**	**25**	**33**	**33**	**25**	**25**	**21**	**21**	**40**	**40**	**30**	**30**
Eh	--	-3.2	--	-56	--	**5.9**	--	**5.1**	--	-1.2	--	-22	--
pH	--	**6.8**	--	**7**	--	**6.7**	--	**6.9**	--	**7**	--	**6.7**	--
S.U.	--	**6.8**	--	**7**	--	**6.7**	--	**6.9**	--	**7**	--	**6.7**	--
Total Organic Carbon	--	**53000**	--	**28000**	--	**47000**	--	**41000**	--	**19000**	--	**36000**	--

Table B-2
Remedial Investigation Sediment Samples Compared to Residential Criteria - Area 10
Solvay Inc.
Morrisville, Pennsylvania

	Location ID	A10-01	A10-01	A10-02	A10-02	A10-03	A10-03	A10-04	A10-04	A10-05	A10-05	A10-06	A10-06
	Sample Date	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012
	Start Depth	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5	0	0.5
	End Depth	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1
Constituent (mg/kg)	Min of PA Soil-GW and Direct Contact MSC												
Detected SVOCs													
1,2,4,5-Tetrachlorobenzene	5.1	**1.8**	--	**0.35**	--	< 0.67 U	--	**0.16 J**	--	**0.19 J**	--	**0.75**	--
2-Chloronaphthalene	6200	< 0.67 U	--	**0.064 J**	--	**0.24 J**	--	**0.094 J**	--	**0.096 J**	--	< 0.33 U	--
2-Methylnaphthalene	600	**0.19 J**	--	**0.049 J**	--	**0.12 J**	--	**0.072 J**	--	**0.045 J**	--	**0.11 J**	--
Acenaphthylene	2500	**0.089 J**	--	**0.061 J**	--	< 0.67 U	--	**0.048 J**	--	**0.052 J**	--	**0.084 J**	--
Anthracene	350	**0.18 J**	--	**0.12 J**	--	**0.22 J**	--	**0.13 J**	--	**0.069 J**	--	**0.12 J**	--
Benzo[a]anthracene	5.7	**0.63 J**	--	**0.41**	--	**0.67**	--	**0.56**	--	**0.32**	--	**0.6**	--
Benzo[a]pyrene	0.57	**0.59 J**	--	**0.37**	--	**0.78**	--	**0.5**	--	**0.24 J**	--	**0.46**	--
Benzo[b]fluoranthene	5.7	**1.6**	--	**0.77**	--	**1.9**	--	**1.3**	--	**0.64**	--	**1.1**	--
Benzo[g,h,i]perylene	180	**0.8**	--	**0.44**	--	**0.98**	--	**0.65**	--	**0.29**	--	**0.54**	--
Benzo[k]fluoranthene	57	**0.43 J**	--	**0.22 J**	--	**0.52 J**	--	**0.39 J**	--	**0.18 J**	--	**0.33 J**	--
bis(2-Ethylhexyl)phthalate	130	**25**	--	**11**	--	**37**	--	**21**	--	**14**	--	**17**	--
Carbazole	21	**0.13 J**	--	< 0.30 U	--	< 0.67 U	--	< 0.48 U	--	**0.045 J**	--	**0.099 J**	--
Chrysene	230	**1.4**	--	**0.81**	--	**1.6**	--	**1.1**	--	**0.67**	--	**0.98**	--
Dibenzo[a,h]anthracene	0.57	**0.20 J**	--	< 0.30 U	--	**0.22 J**	--	**0.16 J**	--	< 0.25 U	--	**0.18 J**	--
Dibenzofuran	95	< 0.17 U	--	**0.050 J**	--	**0.11 J**	--	**0.054 J**	--	**0.047 J**	--	**0.048 J**	--
Di-n-octylphthalate	8800	< 0.67 U	--	< 0.30 U	--	**0.40 J**	--	**0.49**	--	< 0.25 U	--	**0.39**	--
Fluoranthene	3200	**2.1**	--	**1.2**	--	**3**	--	**1.7**	--	**0.95**	--	**1.7**	--
Fluorene	3000	**0.096 J**	--	**0.10 J**	--	< 0.67 U	--	< 0.48 U	--	**0.049 J**	--	**0.067 J**	--
Hexachlorobenzene	0.96	< 0.67 U	--	**0.69**	--	**0.78**	--	**1.1**	--	**0.33**	--	**0.77**	--
Indeno[1,2,3-cd]pyrene	5.7	**0.64 J**	--	**0.29 J**	--	**0.79**	--	**0.61**	--	**0.22 J**	--	**0.49**	--
Naphthalene	25	< 0.17 U	--	**0.038 J**	--	< 0.17 U	--	< 0.12 U	--	< 0.062 U	--	< 0.083 U	--
Phenanthrene	10000	**1.1**	--	**0.79**	--	**1.2**	--	**0.75**	--	**0.45**	--	**0.82**	--
Pyrene	2200	**1.7**	--	**1.3**	--	**2.2**	--	**1.4**	--	**0.6**	--	**1.2**	--
VOCs													
1,2,3-Trichlorobenzene	--	--	< 0.0073 U	--	< 0.29 U	--	< 0.0068 U	--	< 0.0094 U	--	< 0.0048 U	--	**0.019**
1,2,4-Trichlorobenzene	27	--	< 0.0073 U	--	< 0.29 U	--	< 0.0068 U	--	< 0.0094 U	--	< 0.0048 U	--	**0.13**
1,2-Dichlorobenzene	60	--	< 0.0073 U	--	< 0.29 U	--	< 0.0068 U	--	< 0.0094 U	--	< 0.0048 U	--	**0.00068 J**
1,3-Dichlorobenzene	61	--	**0.0035 J**	--	**0.96**	--	**0.036**	--	**0.073**	--	**0.034**	--	**0.18**
1,4-Dichlorobenzene	10	--	**0.0018 J**	--	**0.22 J**	--	**0.023**	--	**0.036**	--	**0.01**	--	**0.015**
Acetone	3300	--	< 0.036 U	--	< 2.9 U	--	< 0.034 U	--	< 0.047 U	--	< 0.024 U	--	**0.071**
Carbon disulfide	150	--	**0.0098**	--	**0.15 J**	--	**0.0099**	--	**0.11**	--	**0.13**	--	**0.0044 J**
Chlorobenzene	10	--	< 0.0073 U	--	< 0.29 U	--	< 0.0068 U	--	< 0.0094 U	--	< 0.0048 U	--	**0.0025 J**
cis-1,2-Dichloroethene	7	--	< 0.0073 U	--	< 0.29 U	--	< 0.0068 U	--	< 0.0094 U	--	< 0.0048 U	--	**0.00090 J**
m&p-Xylenes	--	--	< 0.0036 U	--	< 0.29 U	--	< 0.0034 U	--	< 0.0047 U	--	< 0.0024 U	--	**0.004**
Toluene	100	--	< 0.0036 U	--	< 0.29 U	--	< 0.0034 U	--	< 0.0047 U	--	< 0.0024 U	--	**0.00087 J**
Xylenes (Total)	1000	--	< 0.0036 U	--	< 0.29 U	--	< 0.0034 U	--	< 0.0047 U	--	< 0.0024 U	--	**0.004**

Notes:
All units are in mg/kg.
Bold font indicates a detected result.
=concentration above PADEP MSC.
< U = Analyte not detected above the specified laboratory detection limit.

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Appendix C

Soil Boring and Monitoring Well Completion Logs

ARCADIS **SOIL BORING LOG**

Boring/Well AR-1 Project/No. Rhodia Morrisville / NP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 6/19/13 Drilling Completed 6/19/13

Total Depth Drilled 9 Feet Hole Diameter ____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device 5' Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used NA Drilling Method DPT

Drilling Contractor Zebra Driller Nick Helper Pat

Prepared By B. Preusser Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	70%		Asphalt surface, dark brown to black very fine
	1		0.0	sand with some medium subangular to angular
	3		0.0	gravel, sl. moist, no oder. @ ~2.5' silt with some
	5		0.0	clay, brown, sl. moist, no odor
5		100%		
	7		0.0	
	9		0.0	~8.5 moist to wet reddish brown, very fine to
				fine sand

ARCADIS **SOIL BORING LOG**

Boring/Well AR-2 Project/No. Rhodia Morrisville / NP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 6/19/13 Drilling Completed 6/19/13

Total Depth Drilled 9 Feet Hole Diameter ____ inches Type of Sample/ Coring Device Geoprobe

Length and Diameter of Coring Device 5 Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used NA Drilling Method ____

Drilling Contractor Zebra Driller Nick Helper Pat

Prepared By B. Preusser Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	70%		Concrete at surface, silt, trace clay, brown, sl. moist
	1		0.0	no odor
	3		0.0	at ~3' silt w/ some clay, brown, sl. moist, no
	5		0.0	odor, clay slowly increasing with depth
5	9	90%		
	7		0.0	at ~9' wet very fine to fine sand, brown, no dor
	9		0.0	

ARCADIS **SOIL BORING LOG**

Boring/Well AR-3 Project/No. Rhodia Morrisville / NP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 6/19/13 Drilling Completed 6/19/13

Total Depth Drilled 9 Feet Hole Diameter ____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device 5' Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used NA Drilling Method DPT

Drilling Contractor Zebra Driller Nick Helper Pat

Prepared By B. Preusser Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	80%		silt with some clay, brown, sl. moist, no odor
	1			wet layer @ ~4-4.5', very fine and fine sand, trace
	3			silt then silt with trace clay
	5			
5	9	100%		same as above, clay declines with depth to 7'
	7			~8' wet layer to ~8.5', same as 4-4.5' then moist
	9			silt and very fine sand with some clay

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SOIL BORING LOG

Boring/Well AR-4 Project/No. Rhodia Morrisville /NP000448.0003 Page 1 of 1

Site Location Morrisville, PA

Drilling Started 6/19/13 Drilling Completed 6/19/13

Total Depth Drilled 9 Feet Hole Diameter ____ inches Type of Sample/ Coring Device Geoprobe

Length and Diameter of Coring Device 5' Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used NA Drilling Method DPT

Drilling Contractor Zebra Driller Nick Helper Pat

Prepared By B. Preusser Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	60%		very fine to fine sand, trace med. sand, trace
	1			angular fine to med. gravel, sl. moist
	3			~4' transitions to silt w/ some clay, moist
	5			
5	9	60%		~6' same as at surface
	7			~7' silt w/ some clay, clay increases slowly with
	9			depth

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SOIL BORING LOG

Boring/Well AR-5 Project/No. Rhodia Morrisville/NP000448.0003 Page 1 of 1

Site Location Morrisville, PA

Drilling Started 6/19/13 Drilling Completed 6/19/13

Total Depth Drilled 13 Feet Hole Diameter ____ inches Type of Sample/ Coring Device Geoprobe

Length and Diameter of Coring Device 5' Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used ____ Drilling Method DPT

Drilling Contractor Zebra Driller Nick Helper Pat

Prepared By B. Preusser Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	75%		silt, trace clay, dark brown, sl. moist, no odor
	1		0.0	~1' changes to light brown, silt w/ trace very
	3		0.0	fine sand
	5		0.0	
5	10	100%		same as above with trace clay
	6		0.0	
	8		0.0	wet layer ~8-8.5 silt and very fine sand
	10		0.0	followed by silt w/ trace very fine sand, at
10	13	60%		~9 becomes silt with some clay
	11		0.0	~12' becomes silt and very fine sand, moist
	13		0.0	

ARCADIS

SOIL BORING LOG

Boring/Well AR-6 Project/No. Rhodia Morrisville NP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 6/18/13 Drilling Completed 6/18/13

Total Depth Drilled 5 Feet Hole Diameter ____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device 5' Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used NA Drilling Method DPT

Drilling Contractor Zebra Driller Nick Helper Pat

Prepared By B. Preusser Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	50%		Silt with trace clay, transitions to silt with some
	1		0.0	clay, brown, moist, no odor
	3		0.0	
	5		0.0	

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SOIL BORING LOG

Boring/Well AR-7 Project/No. Rhodia Morrisville/NP000448.0003 Page 1 of 1

Site Location Morrisville, PA

Drilling Started 6/18/13 Drilling Completed 6/18/13

Total Depth Drilled 6 Feet Hole Diameter ____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device 5' Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used NA Drilling Method DPT

Drilling Contractor Zebra Driller Nick Helper Pat

Prepared By B. Preusser Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	6	80%		silt, trace clay, transitioning to clayey silt at
	1		0.0	~5', brown, moist, no odor
	3		0.0	
	5		0.0	

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SOIL BORING LOG

Boring/Well AR-8 Project/No. Rhodia Morrisville/NP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 6/18/13 Drilling Completed 6/18/13

Total Depth Drilled 10 Feet Hole Diameter ____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device 5' Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used NA Drilling Method DPT

Drilling Contractor Zebra Driller Nick Helper Pat

Prepared By B. Preusser Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	45%		Silt, trace clay + very fine sand, brown, moist,
	1			no odor
	3			
	5			
5	10	70%		same as above, increasing moisture content,
	6			saturated @6-7'
	8			
	10			

ARCADIS **SOIL BORING LOG**

Boring/Well AR-9 Project/No. Rhodia Morrisville /NP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 6/18/13 Drilling Completed 6/18/13

Total Depth Drilled 10 Feet Hole Diameter ____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device 5' Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used NA Drilling Method ____

Drilling Contractor Zebra Driller Nick Helper Pat

Prepared By B. Preusser Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	75%		silty clay, moist, brown, no odor
	1		0.0	
	3		0.0	transitions to silt with some very fine sand
	5		0.0	between 3-5'
5	10	80%		
	6		0.0	
	8		0.0	
	10		0.0	

ARCADIS **SOIL BORING LOG**

Boring/Well AR-10 Project/No. Rhodia Morrisville /NP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 6/19/13 Drilling Completed 6/19/13

Total Depth Drilled 5 Feet Hole Diameter ____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device 5' Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used NA Drilling Method ____

Drilling Contractor Zebra Driller Nick Helper Pat

Prepared By B. Preusser Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5			Silt, trace clay, brown, sl. moist, no odor
	1			
	3			wet layer from ~4-4.5', silt, trace very fine
	5			sand followed by sl. moist silt w/ some clay

ARCADIS

SOIL BORING LOG

Boring/Well AR-11 Project/No. Rhodia Morrisville / NP000448.0003 Page 1 of 1

Site Location Morrisville, PA

Drilling Started 6/19/13 Drilling Completed 6/19/13

Total Depth Drilled 9 Feet Hole Diameter ____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device 5' Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used NA Drilling Method DPT

Drilling Contractor Zebra Driller Nick Helper Pat

Prepared By B. Preusser Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	80%		silt, some clay, sl. moist, no odor, brown
	1		0.0	16" wet layer at ~4', wet layer is silt, trace
	3		0.0	clay, then returns to silt w/ some clays, sl. moist
	5		0.0	
5	9	100%		silt, very fine sand, trace clay, light brown, sl.
	7		0.0	moist, no odor, transitions to silt w/ trace clay
	9		0.1	at ~6'
				DUP collected at AR-11(1.5-2.0)

ARCADIS

SOIL BORING LOG

Boring/Well AR-12 Project/No. Rhodia Morrisville /NP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 6/18/13 Drilling Completed 6/18/13

Total Depth Drilled _____ Feet Hole Diameter _____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device 5' Sampling Interval _____ feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used NA Drilling Method DPT

Drilling Contractor Zebra Driller Nick Helper Pat

Prepared By B. Preusser Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5			very fine sand and silt, dark brown, no odor,
	1			sl. moist
	3			@ ~2-3' silt, trace clay, brown, no odor, moist
	5			
5	10			clayey silt, light brown, no odor, moist
	6			
	8			~8' clay, some silt, no odor, brown, moist
	10			

ARCADIS **SOIL BORING LOG**

Boring/Well AR-13 Project/No. Rhodia Morrisville /NP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 6/18/13 Drilling Completed 6/18/13

Total Depth Drilled 14 Feet Hole Diameter ____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device 5' Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used NA Drilling Method DPT

Drilling Contractor Zebra Driller Nick Helper Pat

Prepared By B. Preusser Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	60%		very fine sand, trace sub-rounded medium gravel,
	1		0.0	light brown, no odor, sl. moist
	3		0.0	at ~3' silt w/ some clay, moist, light brown, no
	5		0.0	odor
5	10	75%		
	6		0.0	~7.5' silt + very fine sand, trace clay, brown,
	8		0.0	moist to wet, no odor
	10		0.0	
10	14	75%		same as 3', clay content declines with depth,
	12		0.0	by ~12' silt ~~and~~ with trace clay, brown, moist,
	14		0.0	no odor

ARCADIS **SOIL BORING LOG**

Boring/Well AR-14 Project/No. Rhodia Morrisville INP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 6/18/13 Drilling Completed 6/18/13

Total Depth Drilled 6 Feet Hole Diameter ____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device 5' Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used NA Drilling Method DPT

Drilling Contractor Zebra Driller Nick Helper Pat

Prepared By B. Preusser Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	6	80%		silt, trace clay, sl. moist, brown, transitions to
	2		0.0	clayey silt at ~4', moisture increases with depth
	4		0.0	
	6		0.0	

ARCADIS

SOIL BORING LOG

Boring/Well AR-15 Project/No. Rhodia Morrisville INP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 6/18/13 Drilling Completed 6/18/13

Total Depth Drilled 10 Feet Hole Diameter ____ inches Type of Sample/ Coring Device Geoprobe

Length and Diameter of Coring Device 5' Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used NA Drilling Method DPT

Drilling Contractor Zebra Driller Nick Helper Pat

Prepared By B. Preusser Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	75%		silt, trace clay, moist, brown, no odor, brown
	1		0.0	
	3		0.0	
	5		0.0	
5	10	80%		same as above, wet, very soft, had to push to
	5		0.0	10' to prevent sample from sloughing out of
	7		0.0	sleeve, light brown
	9		0.0	

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SOIL BORING LOG

Boring/Well AR-16 Project/No. Rhodia Morrisville/ND000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 6/18/13 Drilling Completed 6/18/13

Total Depth Drilled 10 Feet Hole Diameter ____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device 5' Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used NA Drilling Method DPT

Drilling Contractor Zebra Driller Nick Helper Pat

Prepared By B. Preusser Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	60%		Silt, some clay, brown, moist, no odor
	1			
	3			
	5			
5	10	70%		clayey silt, increasing moisture with depth,
	6			transition to light brown ~8'
	8			
	10			

ARCADIS **SOIL BORING LOG**

Boring/Well AR-18 Project/No. Rhodia Morrisville INP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 6/19/13 Drilling Completed 6/19/13

Total Depth Drilled 10 Feet Hole Diameter ____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device ____ Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used ____ Drilling Method DPT

Drilling Contractor Zebra Driller Nick Helper Pat

Prepared By B. Preusser Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	80%		silt, very fine sand, trace clay, brown, no odor
	1		0.0	sl. moist, @ ~1.5' - 3-4" band of fine white silty
	3		0.0	material than silt with trace clay, 3-4" band
	5		0.0	of fine/med. sand and trace gravel at ~2.-2.5'
5	10	90%		then silt w/some clay
	6		0.0	
	8		0.0	~9' wet, very fine to fine brown sand
	10		0.0	

redrilled due to poor recovery on first attempt

ARCADIS

SOIL BORING LOG

Boring/Well AR-19 Project/No. Rhodia Morrisville | NP000448.0003 Page 1 of 1

Site Location Morrisville, PA

Drilling Started 6/19/13 Drilling Completed 6/19/13

Total Depth Drilled 9 Feet Hole Diameter ____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device 5' Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used NA Drilling Method DPT

Drilling Contractor Zebra Driller Nick Helper Pat

Prepared By B. Preusser Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	80%		silt, some clay, brown, no odor, sl. moist
	1		0.0	
	3		0.0	
	5		0.0	~6'-6.5' wet layers, very fine sand, trace silt,
5	9	100%		and fine sand, then same as above
	7		0.0	
	9		0.6	
				DUP-1 collected at 1.5-2.0'

ARCADIS **SOIL BORING LOG**

Boring/Well WP-4 Project/No. Former Rhodia Facility: NP000948.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 11/26/13 Drilling Completed 11/26/13

Total Depth Drilled 4 Feet Hole Diameter 2.25" inches Type of Sample/ Coring Device dual tube liner

Length and Diameter of Coring Device 4' x 2"

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum ground surface Sampling Interval _____ feet

Drilling Fluid Used None Drilling Method geoprobe

Drilling Contractor Uni-Tech Driller Dave Helper John

Prepared By Irena Gorski Hammer Weight N/A Hammer Drop N/A inches

Sample Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading with depth interval (ppm)	Description: principal components, (angularity, plasticity, dilatency); minor components, (angularity, plasticity, dilatency); sorting, moisture content, consistency/density, color, addtl. comments
0	4	1.60		0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0
				0 - 2.75 = sand some silt trace organic matter, sand is vf to f, sub a to sub r, well sorted, dry, brown
				2.75 - 4.0 = silt some sand, little to no plasticity, medium stiff, dry, brown
				Sampled 1.5 - 2.0 run sample
				sampled 1.5 - 2.0 (0948)

ARCADIS **SOIL BORING LOG**

Boring/Well WP-5 Project/No. Former Rhodia Facility: NFD004482003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 11/26/13 Drilling Completed 11/26/13

Total Depth Drilled 4 Feet Hole Diameter 2.25" inches Type of Sample/ Coring Device dual tube liner

Length and Diameter of Coring Device 4' x 2"

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum ground surface Sampling Interval _____ feet

Drilling Fluid Used None Drilling Method geoprobe

Drilling Contractor UniTech Driller Dave Helper John

Prepared By Irena Gorski Hammer Weight N/A Hammer Drop N/A inches

Sample Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading with depth interval (ppm)	Description: principal components, (angularity, plasticity, dilatency); minor components, (angularity, plasticity, dilatency); sorting, moisture content, consistency/density, color, addtl. comments
0	4	1.8		0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0
				0-4.0 = sand some silt trace organic matter first 0.5 ft, sand is vf to f, sb a to sub r, well sorted, dry, brown
				Sampled 1.5-2.0 run sample
				Sampled 1.5-2.0 (0953)

ARCADIS **SOIL BORING LOG**

Boring/Well WP-6 Project/No. Former Rhodia Facility NP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 11/26/13 Drilling Completed 11/26/13

Total Depth Drilled 4 Feet Hole Diameter 2.25" inches Type of Sample/ Coring Device dual tube liner

Length and Diameter of Coring Device 4' x 2" Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ground surface

Drilling Fluid Used None Drilling Method geoprobe

Drilling Contractor Uni-Tech Driller Dave Helper John

Prepared By Irena Gorski Hammer Weight N/A Hammer Drop N/A inches

Sample Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading with depth interval (ppm)	Description: principal components, (angularity, plasticity, dilatency); minor components, (angularity, plasticity, dilatency); sorting, moisture content, consistency/density, color, addtl. comments
0	4	1.5		0.0|0.0|0.0|0.0|0.0|0.0|0.0|0.0|0.0
				0-3.0 = Sand some silt trace organic matter, sand is vf to f, gvp a to subr, well sorted, dry, brown
				3.0-4.0 = silt some sand, little to no plasticity, stiff, dry, brown
				Sampled 1.5-2.0 on hold Arsenic only
				Sampled 1.5-2.0 (0959)

ARCADIS **SOIL BORING LOG**

Boring/Well WP-7 Project/No. Former Rhodia Facility NP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 11/26/13 Drilling Completed 11/26/13

Total Depth Drilled 4 Feet Hole Diameter 2.25" inches Type of Sample/ Coring Device dual tube liner

Length and Diameter of Coring Device 4' x 2"

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ground surface Sampling Interval ____ feet

Drilling Fluid Used None Drilling Method geoprobe

Drilling Contractor Uni-Tech Driller Dave Helper John

Prepared By Rich Malzio Hammer Weight N/A Hammer Drop N/A inches

Sample Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading with depth interval (ppm)	Description: principal components, (angularity, plasticity, dilatency); minor components, (angularity, plasticity, dilatency); sorting, moisture content, consistency/density, color, addtl. comments
0	4	1.7	0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0	
				0-2.5 = sand some silt trace organic matter sand is vf to f, sub a to sub r, well sorted, dry, brown
				2.5-4.0 = silt little sand little to no plasticity, stiff, dry, brown
				Sampled
				1.5-2.0 contingency sample
				sampled 1.5-2.0 (0942)

ARCADIS **SOIL BORING LOG**

Boring/Well: WP-8 Project/No.: Former Rhodia Facility; NP0004480003 Page 1 of 1

Site Location: Morrisville PA Drilling Started: 11/26/13 Drilling Completed: 11/26/13

Total Depth Drilled: 4 Feet Hole Diameter: 2.25" inches Type of Sample/Coring Device: dual tube liner

Length and Diameter of Coring Device: 4' x 2" Sampling Interval: ____ feet

Land-Surface Elev.: ____ feet ☐ Surveyed ☐ Estimated Datum: ground surface

Drilling Fluid Used: None Drilling Method: geoprobe

Drilling Contractor: Uni-Tech Driller: Dave Helper: John

Prepared By: Rich Malizia Hammer Weight: N/A Hammer Drop: N/A inches

Sample Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading with depth interval (ppm)	Description: principal components, (angularity, plasticity, dilatency); minor components, (angularity, plasticity, dilatency); sorting, moisture content, consistency/density, color, addtl. comments
0	4	3.0	→	0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0
				0-1.3 = sand some silt trace organic matter sand is vf to f, sub a to subr, well sorted, dry, brown
				1.3-2.8 = silt little sand, trace clay, little to no plasticity, medium stiff, dry, brown
				2.8-4.0 = silt and vf sand, trace clay, little to no placitity, soft, moist, brown
				Sampled 1.5-2.0 (run sample) + 3.5-4.0
				Sampled 1.5-2.0 (0930) 3.5-4.0 (0930)

ARCADIS **SOIL BORING LOG**

Boring/Well WP-9 Project/No. Former Rhodic Facility; NPDES 0048003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 11/26/13 Drilling Completed 11/26/13

Total Depth Drilled 4 Feet Hole Diameter 2.25" inches Type of Sample/ Coring Device dual tube liner

Length and Diameter of Coring Device 4' x 2" Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ground surface

Drilling Fluid Used None Drilling Method geoprobe

Drilling Contractor Uni-tech Driller Dave Helper John

Prepared By Rich Ralzik Hammer Weight N/A Hammer Drop N/A inches

Sample Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading with depth interval (ppm)	Description: principal components, (angularity, plasticity, dilatency); minor components, (angularity, plasticity, dilatency); sorting, moisture content, consistency/density, color, addtl. comments
0	4	2.7	→	0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0
				0-1.2 = Sand some silt trace organic matter sand is vf to f, sub a to sub r, well sorted, dry, brown
				1.2-4.0 = silt little sand, trace clay little to no plasticity, medium stiff, dry brown
				Sampled 1.5-2.0 (run sample + 3.5-4.0
				Sampled 1.5-2.0 (0920), 3.5-4.0 (0920)

ARCADIS **SOIL BORING LOG**

Boring/Well WP-10 Project/No. Former Rhodia Facility NP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 11/26/13 Drilling Completed 11/26/13

Total Depth Drilled 4 Feet Hole Diameter 2.25" inches Type of Sample/ Coring Device dual tub liner

Length and Diameter of Coring Device 4' x 2" Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ground surface

Drilling Fluid Used None Drilling Method geoprobe

Drilling Contractor Uni-Tech Driller Dave Helper John

Prepared By Rich Malizia Hammer Weight N/A Hammer Drop N/A inches

Sample Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading with depth interval (ppm)	Description: principal components, (angularity, plasticity, dilatency); minor components, (angularity, plasticity, dilatency); sorting, moisture content, consistency/density, color, addtl. comments
0	4	3.3		0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
				0-1.0 = sand some silt trace organic matter sand is vf to f, sub a to subr, well sorted, dry, brown
				1.0-3.0 = silt little sand, trace clay, little to no plasticity, medium stiff dry, brown
				3.0-4.0 = silt and vf sand, trace clay, little to no plasticity, soft, moist, brown
				Sampled 1.5-2.0 contingent ~~FOR Sa~~ sample + 3.5-4.0
				Sampled 1.5-2.0 (0940) 3.5-4.0 (0940)

ARCADIS **SOIL BORING LOG**

Boring/Well NP-11 Project/No. Former Rhodia Facility/NP000448.0003 Page 1 of ____

Site Location Morrisville PA Drilling Started 11/26/13 Drilling Completed 11/26/13

Total Depth Drilled 4.0 Feet Hole Diameter 2.25 inches Type of Sample/ Coring Device dual tube

Length and Diameter of Coring Device 4' x 2" Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ground surface

Drilling Fluid Used None Drilling Method geoprobe

Drilling Contractor ~~Uni~~ Tech Driller Dave Helper John

Prepared By Rich Malzahn Hammer Weight N/A Hammer Drop N/A inches

Sample Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading with depth interval (ppm)	Description: principal components, (angularity, plasticity, dilatency); minor components, (angularity, plasticity, dilatency); sorting, moisture content, consistency/density, color, addtl. comments
0	4	3.2	→	0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0
				0.0 - 1.2 = SAND some silt, trace organic matter, sand is vf to f, sub a to sub r, well sorted, dry, brown
				1.2 - 4.0 = Silt little sand, trace clay, little to no plasticity, medium stiff, dry, brown
				Sampled 1.5-2.0 + 3.5-4.0 (contingent samples)
				Sample de 1.5-2.0 (0910) @ 3.5-4.0 (0912)

ARCADIS **SOIL BORING LOG**

Boring/Well A3-9 Project/No. Former Rhodia Facility: NP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 11/26/13 Drilling Completed 11/26/13

Total Depth Drilled 2 Feet Hole Diameter ____ inches Type of Sample/ Coring Device hand augering

Length and Diameter of Coring Device ____ Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ground surface

Drilling Fluid Used None Drilling Method ____

Drilling Contractor N/A Driller ____ Helper ____

Prepared By RM, FG, JW Hammer Weight ____ Hammer Drop ____ inches

Sample Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading with depth interval (ppm)	Description: principal components, (angularity, plasticity, dilatency); minor components, (angularity, plasticity, dilatency); sorting, moisture content, consistency/density, color, addtl. comments
0	2		0.0	Sand fine to medium, sub a to sub r, dry, small to very large pebbles, dry, brown

Sampled
Benzo(a) pyrene and AS
A3-9(1.5-2.0)(a) (13:05)
A3-9(1.5-2.0)(1300)
A3-9(1.5-2.0)MS/MSD (13:00)
A3-9(1.5-2.0) MS/MSD (13:00)

ARCADIS **SOIL BORING LOG**

Boring/Well AS-10 Project/No. Former Rhodia Facility NP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 11/26/13 Drilling Completed 11/26/13

Total Depth Drilled 2 Feet Hole Diameter ____ inches Type of Sample/ Coring Device Hand augering

Length and Diameter of Coring Device ____ Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ground surface

Drilling Fluid Used None Drilling Method ____

Drilling Contractor N/A Driller ____ Helper ____

Prepared By RM, IG, JW Hammer Weight ____ Hammer Drop ____ inches

Sample Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading with depth interval (ppm)	Description: principal components, (angularity, plasticity, dilatency); minor components, (angularity, plasticity, dilatency); sorting, moisture content, consistency/density, color, addtl. comments
0	2		0.0	Sand Fine to medium, some small to medium pebbles, SW a to SW a to subr, dry, brown
				Sampled Benzo(a) Pyrene + Arsenic A-3-10 (1.5-2.0) (12:55)

ARCADIS **SOIL BORING LOG**

Boring/Well A3-11 Project/No. Former Rhodia Facility - NP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 11/26/13 Drilling Completed 11/26/13

Total Depth Drilled 2 Feet Hole Diameter ____ inches Type of Sample/ Coring Device ~~geo~~ hand augering

Length and Diameter of Coring Device ____ Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ground surface

Drilling Fluid Used ____ Drilling Method ____

Drilling Contractor ____ Driller ____ Helper ____

Prepared By RM, IG, JW Hammer Weight ____ Hammer Drop ____ inches

Sample Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading with depth interval (ppm)	Description: principal components, (angularity, plasticity, dilatency); minor components, (angularity, plasticity, dilatency); sorting, moisture content, consistency/density, color, addtl. comments
0.0	2.0		0.0	Sand Fine to medium moderately sorted, sub a ~~ab~~ sub r, dry, small to large pebbles, brown
				Sampled AS only 12:40 A3-11 (1.5-2.0)

ARCADIS **SOIL BORING LOG**

Boring/Well A3-12 Project/No. Former Rhodia Facility: NP000748.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 11/20/13 Drilling Completed 11/20/13

Total Depth Drilled 2 Feet Hole Diameter _____ inches Type of Sample/ Coring Device Hand augering

Length and Diameter of Coring Device _____ Sampling Interval _____ feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum ground surface

Drilling Fluid Used None Drilling Method _____

Drilling Contractor N/A Driller _____ Helper _____

Prepared By RM, IG, JW Hammer Weight _____ Hammer Drop _____ inches

Sample Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading with depth interval (ppm)	Description: principal components, (angularity, plasticity, dilatency); minor components, (angularity, plasticity, dilatency); sorting, moisture content, consistency/density, color, addtl. comments
0	2		0.0	SP sand fine to medium, SW a to SW c dry, small to large pebbles, brown

Sampled As only

(12:50) A3-12 (1.5-2.0)

ARCADIS **SOIL BORING LOG**

Boring/Well A3-13 Project/No. Former Rhodia Facility; NP000448.0053 Page 1 of 1

Site Location Morrisville, PA Drilling Started 11/26/13 Drilling Completed 11/26/13

Total Depth Drilled 2 Feet Hole Diameter ____ inches Type of Sample/ Coring Device hand augering

Length and Diameter of Coring Device ____ Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ground surface

Drilling Fluid Used None Drilling Method ____

Drilling Contractor N/A Driller ____ Helper ____

Prepared By BM, EG, JW Hammer Weight ____ Hammer Drop ____ inches

Sample Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading with depth interval (ppm)	Description: principal components, (angularity, plasticity, dilatency); minor components, (angularity, plasticity, dilatency); sorting, moisture content, consistency/density, color, addtl. comments
0	2		0.0	Sand Fine to medium trace small to medium rounded pebbles, sub r to sub r; dry, brown
				Sampled Benzo a Pyrene & Arsenic
				A3-13 (1.5-2.0) (13:10)

ARCADIS **SOIL BORING LOG**

Boring/Well: A3-14 Project/No.: Former Rhodia Facility NP000449.0005 Page: 1 of 1

Site Location: Morrisville, PA Drilling Started: 11/26/13 Drilling Completed: 11/26/13

Total Depth Drilled: 2 Feet Hole Diameter: ____ inches Type of Sample/ Coring Device: Handhand augers

Length and Diameter of Coring Device: ____ Sampling Interval: ____ feet

Land-Surface Elev.: ____ feet ☐ Surveyed ☐ Estimated Datum: ground surface

Drilling Fluid Used: None Drilling Method: ____

Drilling Contractor: N/A Driller: ____ Helper: ____

Prepared By: RM, IG, JW Hammer Weight: ____ Hammer Drop: ____ inches

Sample Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading with depth interval (ppm)	Description: principal components, (angularity, plasticity, dilatency); minor components, (angularity, plasticity, dilatency); sorting, moisture content, consistency/density, color, addtl. comments
0	2		0.0	Sand fine to medium, sub a to sub r; dry, small to large pebbles, brown
				Sampled A3 only 12:40 A3-14(1.5-2.0)

ARCADIS

SOIL BORING LOG

Boring/Well A3-15 Project/No. Former Rhodia Facility; NFO004[illegible]P0037 Page 1 of 1

Site Location Morrisville, PA Drilling Started 11/26/13 Drilling Completed 11/26/13

Total Depth Drilled 2 Feet Hole Diameter _____ inches Type of Sample/ Coring Device hand augering

Length and Diameter of Coring Device _____ Sampling Interval _____ feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum ground surface

Drilling Fluid Used None Drilling Method _____

Drilling Contractor N/A Driller _____ Helper _____

Prepared By RM, IG, JW Hammer Weight _____ Hammer Drop _____ inches

Sample Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading with depth interval (ppm)	Description: principal components, (angularity, plasticity, dilatency); minor components, (angularity, plasticity, dilatency); sorting, moisture content, consistency/density, color, addtl. comments
0	2	0.0	0.0	sand fine to medium, sub r to sub r, dry, brown
				Sampled As only
				(~~[illegible]~~) 12:50 A3-15(1.5-2.0)

ARCADIS **SOIL BORING LOG**

Boring/Well IA-23 Project/No. Former Rhodia Facility: NP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 11/26/13 Drilling Completed 11/26/13

Total Depth Drilled 7.0 Feet Hole Diameter 2.25 inches Type of Sample/ Coring Device dual tube liner

Length and Diameter of Coring Device 3' x 2", 4' x 2" Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ground surface

Drilling Fluid Used None Drilling Method geoprobe

Drilling Contractor Uni-Tech Driller Dave Helper John

Prepared By Rich Malizia Hammer Weight N/A Hammer Drop N/A inches

Sample Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading with depth interval (ppm)	Description: principal components, (angularity, plasticity, dilatency); minor components, (angularity, plasticity, dilatency); sorting, moisture content, consistency/density, color, addtl. comments
0.0	3.0	1.75		0.0 / 0.0 / 0.0 / 0.0 / 0.0 / 0.0
				0 - 3.0 = Fill material (asphalt, crushed
				concrete, glass fragments)
3.0	7.0	2.0		0.0 / 0.0 / 0.0 / 0.0 / 0.0 / 0.0 / 0.0 / 0.0
				3.0 - 4.0 = SAA
				4.0 - 6.5 = sand little silt, dry,
				hard, brown
				6.5 - 7.0 = Fill material (asphalt)
				Sampled 5.5-6.0 Benzo a pyrene only
				(1130)

ARCADIS **SOIL BORING LOG**

Boring/Well IA-23 Project/No. Former Rhodia Facility NP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 11/26/13 Drilling Completed 11/26/13

Total Depth Drilled 7 Feet Hole Diameter 2.25 inches Type of Sample/ Coring Device dual tube liner

Length and Diameter of Coring Device 3' x 2"

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ground surface Sampling Interval ____ feet

Drilling Fluid Used None Drilling Method geoprobe

Drilling Contractor Uni-Tech Driller Dave Helper John

Prepared By Rick Mollica Hammer Weight N/A Hammer Drop N/A inches

Sample Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading with depth interval (ppm)	Description: principal components, (angularity, plasticity, dilatency); minor components, (angularity, plasticity, dilatency); sorting, moisture content, consistency/density, color, addtl. comments
0	3	1.9		0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0
				0.0-1.0 = asphalt
				1.0-1.5 = Fine to medium sand, (asphalt leveling sand)
				1.5-2.0 = asphalt
				2.0-3.0 = Fine to medium sand trace coarse sand, moderately sorted, s/r a to r, dry, light red brown
3.0				
3.0	7			0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0
				3.0-3.5 = SAA
				3.5-5.0 = fill material (asphalt, crushed concrete)
				5.0-6.5 = Silt - trace clay trace vf sand, no plasticity, hard, dry, brown
				6.5-7.0 = wood fragments
				Sampled 5.5-6.0 Bezo a pyre only contingent (1120)

ARCADIS **SOIL BORING LOG**

Boring/Well #8-6 Project/No. Former Rhodia Facility NP000448.0003 Page 1 of 1

Site Location Morrisville, PA Drilling Started 11/26/13 Drilling Completed 11/26/13

Total Depth Drilled 07.5 Feet Hole Diameter 2.25" inches Type of Sample/ Coring Device dual tube liner

Length and Diameter of Coring Device 4' x 2" Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ground surface

Drilling Fluid Used None Drilling Method geoprobe

Drilling Contractor Uni-Tech Driller Dave Helper John

Prepared By Rick Malzian Hammer Weight N/A Hammer Drop N/A inches

Sample Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading with depth interval (ppm)	Description: principal components, (angularity, plasticity, dilatency); minor components, (angularity, plasticity, dilatency); sorting, moisture content, consistency/density, color, addtl. comments
0	4	2.8		0.0 10.0 10.0 10.4 10.1 10.2 10.1 10.1
				0.0 - 3.5 = Fill material (asphalt, crushed concrete, gravel)
				3.5-4.0 = SAND, vf to f, sub a to subr, well sorted, trace silt, dry, brown
4	7.5	3.0		0.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0
				4.0-4.8 = silt some vf sand, stiff, no plasticity, dry, brown
				4.8 - 6.0 = silt little vf sand trace to little clay, stiff, little to no plasticity, dry, dark brown
				6.0 - 6.5 = silt and clay, trace vf sand, very soft, medium plasticity, moist, dark grey
				6.5 - 7.5 = silty clay trace vf sand, medium stiff, little to no plasticity, slightly moist, grey
				Sampling 7.0-7.5 As only (1040)

ARCADIS **SOIL BORING LOG**

Boring/Well: A8-7 Project/No.: Former Rhodia Facility; NF000448.0003 Page 1 of 1

Site Location: Morrisville, PA Drilling Started: 11/26/13 Drilling Completed: ~~dual tube liner~~ 11/26/13

Total Depth Drilled: 7.5 Feet Hole Diameter: 2.25" inches Type of Sample/Coring Device: dual tube liner

Length and Diameter of Coring Device: 4' x 2" Sampling Interval: ____ feet

Land-Surface Elev.: ____ feet ☐ Surveyed ☐ Estimated Datum: ground surface

Drilling Fluid Used: None Drilling Method: geo probe

Drilling Contractor: Uni-Tech Driller: Dave Helper: John

Prepared By: Irena Gorski Hammer Weight: N/A Hammer Drop: N/A inches

Sample Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading with depth interval (ppm)	Description: principal components, (angularity, plasticity, dilatency); minor components, (angularity, plasticity, dilatency); sorting, moisture content, consistency/density, color, addtl. comments
0	4	2.3		Spray / paint scent PID high
				0-4.0 = fill material (crushed asphalt, concrete)
4.0	7.5	2.9		2.7 / 2.1 / 1.1 / 0.0
				4.0 - 7.5 = sand little silt, well sorted, dry, stiff, brown
				Sampled 7 - 7.5 (1055) As Only Contingent

ARCADIS

Sample/Core Log

Boring/Well AR-20 Project/No. NP448.3.10 Page 1 of ___

Site Location Rhodia / Morrisville Drilling Started ___ Drilling Completed 9/24/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2' x 2" Sampling Interval 2 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used ___ Drilling Method ___

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By B McCann / A. Poling Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—	—	0-0.5 LOAM, organics, moist, brown
0.5	1.0	0.5	—	—	0.5-2.0 SILT, brown, some f sand,
1.0	1.5	0.5	—	—	moist to wet @ 1 ft, soft, plastic,
1.5	2.0	0.5	—	—	poor soft
					AR-20-0.5-1.0 @ 1020
					Duplicate BD-02-09242013
					MS/MSD

ARCADIS

Sample/Core Log

Boring/Well AR-21 Project/No. NP448.3.10 Page 1 of ___

Site Location Rhodia/Morrisville, PA Drilling Started ___ Drilling Completed 9/24/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2' x 2" Sampling Interval 2 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used ___ Drilling Method Hand Auger

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By A. Poling / B. McCann Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—	—	0-0.5 LOAM, brown, organics, dry
0.5	1.0	0.5	—	—	0.5-2.0 Brown SILT, with some f sand, moist to wet @ 1.5, organics, plastic, soft, poor sort.
1.0	1.5	0.5	—	—	
1.5	2.0	0.5	—	—	
					AR-21_1.0-1.5 @ 950

ARCADIS

Sample/Core Log

Boring/Well AR-22 Project/No. NP148.3.10 Page 1 of ___

Site Location Rhodia / Morrisville, PA Drilling Started ___ Drilling Completed 9/24/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2' x 2" Sampling Interval 2 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used — Drilling Method Hand Auger

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By B. McCann & A. Poling Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—	—	0-0.5 LOAM, brown, organics, dry
0.5	1.0	0.5	—	—	0.5-2.0 Brown SILT, some f sand,
1.0	1.5	0.5	—	—	moist, soft, organics, poor sort, plastic
1.5	2.0	0.5	—	—	
					AR-22_1.5-2.0 @ 835

ARCADIS

Sample/Core Log

Boring/Well AR-23 Project/No. NP448.3.10 Page 1 of ___

Site Location Rhodia / Morrisville, PA Drilling Started ___ Drilling Completed 9/23/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2" x 2' Sampling Interval 2 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used ___ Drilling Method Hand Auger

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By A. Poling / B. McCann Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—	—	0.0-0.5 LOAM, organics, brown, dry
0.5	1.0	0.5	—	—	0.5-2.0 Brown, SILT, some f sand,
1.0	1.5	0.5	—	—	organics, dry to moist, soft, low plasticity
1.5	2.0	0.5	—	—	
					AR-23_1.5-2.0@1450

ARCADIS

Sample/Core Log

Boring/Well AR-24 Project/No. NP448.3.10 Page 1 of ___

Site Location Rhodia | Marrisville

Drilling Started ___ Drilling Completed 9/23/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2" x 2' Sampling Interval 2 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used ___ Drilling Method Hand Auger

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By A Poling | B McCann Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—	—	0.0-0.5 LOAM, brown, dry, organics
0.5	1.0	0.5	—	—	0.5-2.0 Brown, SILT, some f Sand
1.0	1.5	0.5	—	—	soft, low plasticity, moist, organics
1.5	2.0	0.5	—	—	
					AR-24-1.5-2.0 @ 1405

ARCADIS

Sample/Core Log

Boring/Well AR-25 Project/No. NP448.3.10 Page 1 of ___

Site Location Rhodia/Morrisville, PA Drilling Started ___ Drilling Completed 9/23/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 2" x 2' Sampling Interval 2 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used ___ Drilling Method Hand Augers

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By A. Poling/B. McCann Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—	—	0-0.5 Brown, LOAM, organics, moist
0.5	1.0	0.5	—	—	0.5-1.5 Brown SILT, ~~some~~ trace f sand, organics, moist to wet 1.5' soft
1.0	1.5	0.5	—	—	
1.5	2.0	0.5	—	—	1.5-2.0 Brown f SAND, some silt, organics, wet, soft, poor sorting
					AR-25_1.0-1.5 @13:30

ARCADIS

Sample/Core Log

Boring/Well AR-26 Project/No. NP448.3.10 Page 1 of ___

Site Location Rhodia / Morrisville. Drilling Started ___ Drilling Completed 9/23/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Augers

Length and Diameter of Coring Device 2" x 2' Sampling Interval 2 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used ___ Drilling Method Hand Augers

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By A. Poling / B. McCann Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	–	–	0-0.5 Brown LOAM, moist, organics
0.5	1.0	0.5	–	–	0.5-2.0 Brown SILT, some f sand, organics
1.0	1.5	0.5	–	–	plastic, soft, wet at 1.5'
1.5	2.0	0.5	–	–	
					AR-26 - 1.0-1.5 @ 1320

ARCADIS

Sample/Core Log

Boring/Well AR-27 Project/No. NP448.3.10 Page 1 of ___

Site Location Rhodia/Morrisville, PA Drilling Started ___ Drilling Completed 9/24/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 2"x2" Sampling Interval 2 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used — Drilling Method Hand Auger

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By A. Poling & B. McCann Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—	—	0-0.5 LOAM, brown, organics dry
0.5	1.0	0.5	—	—	0.5-2.0 Brown SILT, some f sand, soft,
1.0	1.5	0.5	—	—	plastic, moist, Organics
1.5	2.0	0.5	—	—	
					AR-27_1.5-2.0 @ 8:05

ARCADIS

Sample/Core Log

Boring/Well AR-28 Project/No. NP448.3.10 Page 1 of

Site Location Rhodia/Morrisville Drilling Started Drilling Completed 9/24/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Augers

Length and Diameter of Coring Device 2' x 2" Sampling Interval 2 feet

Land-Surface Elev. feet ☐ Surveyed ☐ Estimated Datum

Drilling Fluid Used Drilling Method Hand Augers

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By A. Poling / B. McCann Hammer Weight Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—	—	0-0.5 LOAM, brown, organic
0.5	1.0	0.5	—	—	0.5-2.0 Brown, SILT, some f sand,
1.0	1.5	0.5	—	—	dry, organics, low plasticity, poor SM,
1.5	2.0	0.5	—	—	soft
					AR-28_1.5-2.0@1040

ARCADIS

Sample/Core Log

Boring/Well AR-29 Project/No. NP448.3.10 Page 1 of ___

Site Location Rhodia / Morrisville

Drilling Started ___ Drilling Completed 9/24/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2' x 2" Sampling Interval 2 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used ___ Drilling Method Hand Auger

Drilling Contractor Arcadis Driller BM Helper ___

Prepared By A. Poling / B McCann Hammer Weight AP Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	~	—	0-0.5 10YR, organic, dry, brown
0.5	1.0	0.5	~	—	0.5-2.0 Brown SILT w some f sand,
1.0	1.5	0.5	—	—	soft, low plasticity, dry, poor set
1.5	2.0	0.5	~	—	
					AR-29_1.5-2.0C 1035

ARCADIS

Sample/Core Log

Boring/Well AR-30 Project/No. NP448.3.10 Page 1 of ___

Site Location Rhodia/Momsville Drilling Started ___ Drilling Completed 9/24/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2' x 2" Sampling Interval 2 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used ___ Drilling Method Hand Auger

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By A Poling / B. McCann Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—	—	0-0.5 LOAM, brown, dry, organics
0.5	1.0	0.5	—	—	0.5-2.0 Brown SILT, some f sand,
1.0	1.5	0.5	—	—	trace Coarse round cobble, ~~silt~~ dry, soft
1.5	2.0	0.5	—	—	organics, low plasticity
					AR-30_1.5-2.0 @ 955

ARCADIS

Sample/Core Log

Boring/Well AR-31 Project/No. NP448.3.10 Page 1 of ___

Site Location Rhodia | Morrisville, PA Drilling Started ___ Drilling Completed 9/24/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2' x 2" Sampling Interval 2 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used ___ Drilling Method Hand Auger

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By B. McCann & A. Poling Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—	—	0-0.5 LOAM, organics, dry, brown
0.5	1.0	0.5	—	—	0.5-2.0 Brown SILT, some f sand, dry
1.0	1.5	0.5	—	—	to moist, soft, plastic, poor soft
1.5	2.0	0.5	—	—	
					AR-31_1.5-2.0 @ 938

ARCADIS

Sample/Core Log

Boring/Well AR-32 Project/No. NP448.3.10 Page 1 of ___

Site Location Rhodia / Morrisville Drilling Started ___ Drilling Completed 9/24/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 2' x 2" Sampling Interval 2 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used ___ Drilling Method Hand Auger

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By A Poling / B McCann Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—	—	0-0.5 LOAM, organics, dry, brown
0.5	1.0	0.5	—	—	1.5-2.0 Brown SILT, some f sand,
1.0	1.5	0.5	—	—	organics, dry, soft, low plasticity
1.5	2.0	0.5	—	—	
					AR-32_1.5-2.0@820

ARCADIS

Sample/Core Log

Boring/Well AR-33 Project/No. NP448.3.10 Page 1 of ___

Site Location Rhodia/Morrisville, PA Drilling Started ___ Drilling Completed 9/23/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/Coring Device Hand Augers

Length and Diameter of Coring Device 2'x 2" Sampling Interval 2 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used ___ Drilling Method Hand Augers

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By A. Poling / B. McCann Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—	—	0-0.5 Brown dry LOAM, organics
0.5	1.0	0.5	—	—	0.5-2.0 Brown, SILT, some f sand,
1.0	1.5	0.5	—	—	dry, organics, soft
1.5	2.0	0.5	—	—	
					AR-33-1.5-2.0 @ 1440

ARCADIS

Sample/Core Log

Boring/Well AR-34 Project/No. NP448.3.10 Page 1 of ___

Site Location Rhodia / Morrisville, PA Drilling Started ___ Drilling Completed 9/23/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Augers

Length and Diameter of Coring Device 2' x 2" Sampling Interval 2 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used ___ Drilling Method Hand Augers

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By A. Poling / B McCann Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—	—	0.0-0.5 LOAM, brown, organics, dry
0.5	1.0	0.5	—	—	0.5-2.0 Brown, SILT, some f sand,
1.0	1.5	0.5	—	—	dry, soft, low plasticity, organics
1.5	2.0	0.5	—	—	
					AR-34_1.5-2.0 @ 1420

ARCADIS

Sample/Core Log

Boring/Well AR-35 Project/No. NP448.3.10 Page 1 of ___

Site Location ___ Drilling Started ___ Drilling Completed 9/23/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Augers

Length and Diameter of Coring Device 2" x 2' Sampling Interval 2 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used ___ Drilling Method Hand Auger

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By A. Poling / B. McCann Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	0	—	0-0.5 LOAM, organics, brown, moist
0.5	1.0	0.5	—	—	0.5-1.0 Brown SILT, some f Sand,
1.0	1.5	0.5	—	—	soft, moist, low plasticity, organics
1.5	2.0	0.5	—	—	1.0-2.0 Brown f SAND, some Silt,
					moist, Organics, poor sorting
					AR-35_1.5-2.0 @ 1355

ARCADIS

Sample/Core Log

Boring/Well AR-36 Project/No. NP448.3.10 Page 1 of ___

Site Location Rhodia / Morrisville, PA Drilling Started ___ Drilling Completed 9/23/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Augers

Length and Diameter of Coring Device 2' x 2" Sampling Interval 2 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used ___ Drilling Method Hand Augers

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By B McCann / Ashley Poling Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—	—	0-0.5 Dark Brown LOAM, organics
0.5	1.0	0.5	—	—	0.5-1.25 Brown SILT, some clay, trace f sand, organics, moist, soft, plastic
1.0	1.5	0.5	—	—	
1.25	2.0	0.5	—	—	1.25-1.5 Brown SILT, some f sand organics, soft, wet, plastic
					AR-36-0.75-1.25 @1105

ARCADIS

Sample/Core Log

Boring/Well AR-37 Project/No. NP-448.3.10 Page 1 of ___

Site Location Rhodia, Morrisville, PA Drilling Started ___ Drilling Completed 9/23/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2" x 2' Sampling Interval 2 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used ___ Drilling Method Hand Auger

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By B. McCann & A. Poling Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—		0-0.5 LOAM, gray brown, organics
0.5	1.0	0.5	—		0.5-2.0 Brown SILT, some clay, soft
1.0	1.5	0.5	—		moist, plastic, trace f sand, organics
1.5	2.0	0.5	—		
					AR-37_1.5-2.0 @ 1035

ARCADIS

Sample/Core Log

Boring/Well AR-38 Project/No. NP448.3.10 Page ____ of ____

Site Location Morrisville, PA

Drilling Started 9/23/13 Drilling Completed 9/23/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Auger 16"

Length and Diameter of Coring Device 0.5' x 2' Sampling Interval 6" feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used - Drilling Method Hand Auger

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By Brian McCann / Ashley Poling Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	-	0-0.5	Gray brown loam, organics, moist
0.5	1.0	0.5	-	0.5-2.0:	Brown, SILT, some clay, plastic,
1.5	2.0	0.5	-		soft, organics, trace f sand, moist
					Sample AR-38_1.5-2.0 @ 855
					BD-01-092313
					AR-38_1.5-2.0_MS/MSD

ARCADIS

Sample/Core Log

Boring/Well AR-39 Project/No. NP448.3.10 Page 1 of 1

Site Location Morrisville, PA Drilling Started Drilling Completed 9/23/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 0.5' x 2' Sampling Interval 0.5 feet

Land-Surface Elev. feet ☐ Surveyed ☐ Estimated Datum

Drilling Fluid Used — Drilling Method Hand Auger

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By B. McCann / A. Poling Hammer Weight Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—		0-0.5': Gray brown LOAM, organics, moist
0.5	1.0	0.5	—		0.5-~~1.5~~ 2.0': Gray brown SILT, some clay, plastic, moist, organics, plastic, trace f sand
1.0	1.5	0.5	—		
1.5	2.0	0.5	—		1.5-2.0': Brown CLAY, some silt, trace f sand, wet, plastic, organics, soft
					AR-39_1.0-1.5 @ 935
					~~BD-02-09232013~~ No sample
					~~AR-39-1.0-1.5-MS/MSD~~ No Sample

ARCADIS

Sample/Core Log

Boring/Well AR-40 Project/No. NP448.3.10 Page 1 of ___

Site Location Rhodia Morrisville, PA Drilling Started ___ Drilling Completed 9/23/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2"x2' Sampling Interval 0.5 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used — Drilling Method Hand Auger

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By B. McCann & A. Poling Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—	—	0-0.2: Gray brown LOAM, organics, moist
0.5	1.0	0.5	—	—	0.2-0.5: Brown SILT, some clay, trace f sand, soft, moist to wet @ 0.5', plastic, organic
1.0	1.5	0.5	—	—	
1.5	2.0	0.5	—	—	0.5-2': Brown SILT, some f sand, organics, soft, wet, plastic
					AR-40-00-0.5 @ 10:07

ARCADIS

Sample/Core Log

Boring/Well AR-41 Project/No. NP448.3.10 Page 1 of ___

Site Location Morrisville (BJ) PA Drilling Started 9/23/13 Drilling Completed ___

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2'x 2' Sampling Interval 0.5 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used — Drilling Method Hand Auger

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By B. McCann & A. Poling Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—		0-0.5: Gray brown, LOAM, organics, moist
0.5	1.0	0.5	—		0.5-2.0: Brown SILT, some clay, trace
1.0	1.5	0.5	—		f sand, organics, moist
1.5	2.0	0.5	—		
					AR-41-1.5-2.0 @ 945

ARCADIS

Sample/Core Log

Boring/Well AR-42 Project/No. NP448.3.10 Page 1 of ___

Site Location Rhodia / Morrisville, PA Drilling Started ___ Drilling Completed 9/23/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2" x 2' Sampling Interval 0.5 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used — Drilling Method Hand Auger

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By B. McCann & A. Poling Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0.0	0.5	0.5	—	—	0-0.5 Brown LOAM, organics
0.5	1.0	0.5	—	—	0.5-2.0 Gray brown SILT, some clay
1.0	1.5	0.5	—	—	trace f sand, organics, moist to wet @
1.5	2.0	0.5	—	—	1.8', plastic, soft
					AR-42_1.0-1.5 @ 1135

ARCADIS

Sample/Core Log

Boring/Well AR-43 Project/No. NP448.3.10 Page 1 of ___

Site Location Rhodia / Morrisville, PA Drilling Started ___ Drilling Completed 9/23/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2' x 2" Sampling Interval 2 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used — Drilling Method Hand Augers

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By B McCann & A. Poling Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—	—	0.0-0.5 Brown LOAM, organics, dry
0.5	1.0	0.5	—	—	0.5-2.0 SILT, brown, trace f sand,
1.0	1.5	0.5	—	—	organics, dry, plastic, soft
1.5	2.0	0.5	—	—	
					AR-93-1.5-2.0 @ 1150

ARCADIS

Sample/Core Log

Boring/Well AR-44 Project/No. NP448.3.10 Page 1 of —

Site Location Rhodia | Morrisville, PA Drilling Started — Drilling Completed 9/24/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand Augers

Length and Diameter of Coring Device 2' x 2" Sampling Interval 2 feet

Land-Surface Elev. — feet ☐ Surveyed ☐ Estimated Datum —

Drilling Fluid Used — Drilling Method Hand Augers

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By B. McCann & A. Poling Hammer Weight — Hammer Drop — ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—	—	0.0 - 0.5 LOAM, organics, dry, brown
0.5	1.0	0.5	—	—	0.5 - 1.0 SILT, brown, some f sand, plastic, soft, poor soft
1.0	1.5	0.5	—	—	
1.5	2.0	0.5	—	—	1.0 - 2.0 F SAND, brown, some silt, poor soft, organics, moist, soft
					AR-44-1.5-2.0 @ 925

ARCADIS

Sample/Core Log

Boring/Well AR-45 Project/No. NP448.3.10 Page 1 of ___

Site Location Rhodia/Morrisville Drilling Started ___ Drilling Completed 9/24/13

Total Depth Drilled 2 Feet Hole Diameter 2 inches Type of Sample/Coring Device Hand Augers

Length and Diameter of Coring Device 2' x 2" Sampling Interval 2 feet

Land-Surface Elev. ___ feet ☐ Surveyed ☐ Estimated Datum ___

Drilling Fluid Used ___ Drilling Method Hand Augers

Drilling Contractor Arcadis Driller BM Helper AP

Prepared By B. McCam / A. Poling Hammer Weight ___ Hammer Drop ___ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
0	0.5	0.5	—	—	0-0.5 LOAM, dry, organics, brown
0.5	1.0	0.5	—	—	0.5-2.0 Brown, SILT, some f sand,
1.0	1.5	0.5	—	—	plastic, moist, organics, soft
1.5	2.0	0.5	—	—	
					AR-45_1.5-2.0_20150915

ARCADIS **SOIL BORING LOG**

Boring/Well AR-44A Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Marrisville Drilling Started _____ Drilling Completed 5/19/14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAm, brown, organics, moist
0.5	1	0.5	0	Silt, brown, some clay and fine sand, plastic
1	1.5	0.5	0	↓
1.5	2	0.5	0	
				No As detected
				AR-44A-1.5-2.0 0935
				BD-01-05192014
				AR-44A-1.5-2.0-MS/MSD

ARCADIS **SOIL BORING LOG**

Boring/Well AR-45A Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay / Morrisville Drilling Started _____ Drilling Completed 5/19/2014

Total Depth Drilled 2' Feet Hole Diameter 3" inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device 2' x 3" Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DK Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, some organics, moist
0.5	1.0	0.5	0	LOAM, brown, some organics (small roots), moist
1.0	1.5	0.5	0	↓
1.5	2.0	0.5	0	and plastic
				No As detected
				AR-45A-1.5-2.0 09:50

ARCADIS **SOIL BORING LOG**

Boring/Well AR-46 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay / Morrisville

Drilling Started

Drilling Completed 5/19/14

Total Depth Drilled 2 Feet

Hole Diameter 3" inches

Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2' x 3"

Sampling Interval 1.5-2 feet

Land-Surface Elev. feet ☐ Surveyed ☐ Estimated Datum

Drilling Fluid Used

Drilling Method hand auger

Drilling Contractor Arcadis

Driller DL Helper LK

Prepared By D. Lipik / L. Kratz

Hammer Weight

Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, organics, moist
0.5	1.0	0.5	0	LOAM, brown, some organics, moist, plastic
1.0	1.5	0.5	0	↓
1.5	2.0	0.5	0	
				No As detected
				AR-46-1.5-2.0 10:05

ARCADIS **SOIL BORING LOG**

Boring/Well AR-47 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5/19/14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device hand auger

Length and Diameter of Coring Device 2' x 3" Sampling Interval 1.5-2.0 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method hand auger

Drilling Contractor ARCADIS Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	Brown, LOAM, moist, organics
0.5	1.0	0.5	0	LOAM, brown, moist, plastic, dense
1.0	1.5	0.5	0	↓
1.5	2.0	0.5	0	silt and some clay, brown, water hit @ 2.0 ft bgs
				NO As detected
				AR-47_1.5-2.0 11:00

ARCADIS **SOIL BORING LOG**

Boring/Well AR-48 Project/No. MP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5/19/14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, organics, moist
0.5	1	0.5	0	LOAM, brown, moist, plastic
1	1.5	0.5	0	silt and some clay, plastic, moist
1.5	2	0.5	0	↓
				No As detected
				AR-48-1.5-2.0 10:45

ARCADIS **SOIL BORING LOG**

Boring/Well AR-49 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5/19/14

Total Depth Drilled 2 Feet Hole Diameter 3" inches Type of Sample/ Coring Device hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2.0 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	brown silt, some organics, moist, some clay
0.5	1.0	0.5	0	brown, silt, some clay, trace organics, moist,
1.0	1.5	0.5	0	brown, silt, some clay, plastic, moist
1.5	2.0	0.5	0	silt and clay, plastic, brown, moist
				NO As detected
				AR-49_1.5-2.0 10:20

ARCADIS **SOIL BORING LOG**

Boring/Well AR-50 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay/Morrisville Drilling Started _____ Drilling Completed 5/19/14

Total Depth Drilled 2 Feet Hole Diameter 3" inches Type of Sample/ Coring Device hand auger

Length and Diameter of Coring Device 2'x3" Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, organics (roots), moist
0.5	1.0	0.5	0	LOAM, brown, organics, moist, plastic
1.0	1.5	0.5	0	LOAm, brown, organics, ~~red~~ plastic, moist
1.5	2.0	0.5	0	LOAM, brown, plastic, wet, water @ ~1.75
				No As detected
				AR-50-1.5-2.0 ~~LK~~ 11:15

ARCADIS **SOIL BORING LOG**

Boring/Well AR-51 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5/19/14

Total Depth Drilled 2 Feet Hole Diameter 3" inches Type of Sample/ Coring Device hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	Silt, some clay, dark brown, damp, organics (roots)
0.5	1.0	0.5	0	↓
1.0	1.5	0.5	0	Silt, some clay, dark brown, wet ~~water~~ @ 1.5
1.5	2.0	0.5	0	Silt and clay, dark brown, organics, ~~water~~ wet
				No As detected
				AR-51-1.5-2.0 12:45 *hold

ARCADIS **SOIL BORING LOG**

Boring/Well AR-52 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5/19/14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By L. Kratz / D. Lapik Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, dry, small rocks at 1/2 ft bgs. organics
0.5	1	0.5	0	LOAM, brown, dry, small rocks, organics
1	1.5	0.5	0	LOAM, brown, moist, organics
1.5	2	0.5	0	silt and clay, brown, organics, plastic
				AR-52_1.5-2.0 13:00

ARCADIS **SOIL BORING LOG**

Boring/Well AR-53 Project/No. INP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5/19/14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, light brown, organics, dry
0.5	1.0	0.5	0	dry
1.0	1.5	0.5	0	moist
1.5	2.0	0.5	0	sand with silt, some clay, brown, moist
				No As detected
				AR-53-1.5-2.0 1355

ARCADIS

SOIL BORING LOG

Boring/Well AR-54 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started

Drilling Completed 5/19

Total Depth Drilled 2' Feet

Hole Diameter 3" inches

Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device

Sampling Interval 1.5-2 feet

Land-Surface Elev. feet ☐ Surveyed ☐ Estimated

Datum

Drilling Fluid Used

Drilling Method Hand auger

Drilling Contractor Arcadis

Driller DL Helper LK

Prepared By D. Lipiki / L. Kratz

Hammer Weight

Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5		LOAM, brown, some organics, dry
0.5	1.0	0.5		LOAM, brown, some organics, moist
1.0	1.5	0.5		↓
1.5	2.0	0.5		silt and clay, brown, moist, dense
				No As detected
				AR-54-1.5-2.0 1330

ARCADIS

SOIL BORING LOG

Boring/Well AR-55 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started _____ Drilling Completed 5/19/14

Total Depth Drilled 2 Feet Hole Diameter 3" inches

Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____

Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller _____ Helper _____

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LoAM, dark grey brown, organics, dry
0.5	1	0.5	0	Brown silt, some clay, soft, moist, plastic, orgaics
1	1.5	0.5	0	↓
1.5	2.0	0.5	0	Brown, silt and clay, plastic, wet
				No As detected
				AR-55_1.5-2.0 1345

ARCADIS

SOIL BORING LOG

Boring/Well AR-54A Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Marrisville Drilling Started _____ Drilling Completed 5/19/14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Handauger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D.Lipik/L.Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, moist, brown, organics
0.5	1	0.5	0	↓
1	1.5	0.5	0	↓
1.5	2.0	0.5	0	Sand with silt, light brown, moist
				No As detected
				AR-54A_1.5-2.0 1425

ARCADIS

SOIL BORING LOG

Boring/Well AR-SSA Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5/19/14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, organics, brown, dry
0.5	1	0.5	0	LOAM, organics, brown, moist
1	1.5	0.5	0	↓
1.5	2.0	0.5	0	Silt and some clay, brown, moist, dense
				No As detected
				AR-SSA_1.5-2.0 1415

ARCADIS

SOIL BORING LOG

Boring/Well AR-56 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started ____ Drilling Completed 5/19/14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device ____ Sampling Interval ____ feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used ____ Drilling Method ____

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D Lipik / L. Kretz Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	Silt with some sand, dry, dark brown/black
0.5	1	0.5	0	Silt with fine sand, dark brown, moist
1	1.5	0.5	0	↓
1.5	2	0.5	0	Silt with fine sand, dark brown, wet
				No As detected
				AR-56-1.5-2.0 1405

ARCADIS **SOIL BORING LOG**

Boring/Well AR-57 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started

Drilling Completed 5/19/14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device

Sampling Interval 1.5-2 feet

Land-Surface Elev. feet ☐ Surveyed ☐ Estimated Datum

Drilling Fluid Used

Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz

Hammer Weight

Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, grey brown, organics
0.5	1	0.5	0	Silt (brown), some clay, soft, moist, organics
1	1.5	0.5	0	↓
1.5	2	0.5	0	
				No As detected
				AR-57_1.5-2.0 1430

ARCADIS **SOIL BORING LOG**

Boring/Well AR-58 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Marisville Drilling Started _____ Drilling Completed 5-19-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D.Lipik / L.Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, dry
0.5	1	0.5	0	LOAM, brown, dry
1	1.5	0.5	0	LOAM, brown, dry
1.5	2	0.5	0	silt and some clay, brown, moist
				No As detected
				AR-58_1.5-2.0 1440

ARCADIS **SOIL BORING LOG**

Boring/Well AR-59 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5/20/14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D.Lipik / L.Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, dark brown, ~~well rounded rock~~ organics, dry
0.5	1	0.5	0	LOAM, dark brown, well rounded rocks, moist
1	1.5	0.5	0	↓
1.5	2.0	0.5	0	
				No As detected
				AR-59_0.5-2.0 1445

ARCADIS **SOIL BORING LOG**

Boring/Well AR-60 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5/20/14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, organics, dry
0.5	1	0.5	0	↓
1	1.5	0.5	0	↓
1.5	2.0	0.5	0	fine sand and silt, brown, dry
				No As detected
				AR-60_1.5-2.0 0745

ARCADIS

SOIL BORING LOG

Boring/Well AR-61 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started _____ Drilling Completed 5/20/14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, organics (roots), dry
0.5	1	0.5	0	LOAM, brown, dry
1	1.5	0.5	0	↓
1.5	2	0.5	0	LOAM, brown, moist, dense
				No Ab detected
				AR-61_1.5-2.0 0755

ARCADIS **SOIL BORING LOG**

Boring/Well AR-62 Project/No. NPOC0448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	fine to med. sand, some silt, dark brown, moist
0.5	1	0.5	0	f and m. sand, mica flakes, silt and trace clay,
1	1.5	0.5	0	dark brown, moist SAA
1.5	2	0.5	0	SAA, Wet
				No As detected
				AR-62-1.5-2.0 0800

ARCADIS **SOIL BORING LOG**

Boring/Well AR-63 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started

Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches

Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device

Sampling Interval 1.5-2 feet

Land-Surface Elev. feet ☐ Surveyed ☐ Estimated Datum

Drilling Fluid Used

Drilling Method Hand auger

Drilling Contractor Arcadis

Driller DL Helper LK

Prepared By D Lipiec/L. Kratz

Hammer Weight

Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, light brown, organics, dry
0.5	1	0.5	0	↓
1	1.5	0.5	0	
1.5	2.0	0.5	0	LOAM, light brown, moist
				No As detected
				AR-63_1.5-2.0 0810
				BD-02-05202014
				AR-63_1.5-2.0-MS/MSD 0810

ARCADIS **SOIL BORING LOG**

Boring/Well AR-64 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Marcellus Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, organics, brown, dry
0.5	1	0.5	0	LOAM, organic, brown, moist
1	1.5	0.5	0	fine sand, some silt, brown, moist
1.5	2	0.5	0	↓
				No As detected
				AR-64-1.5-20 0820

ARCADIS **SOIL BORING LOG**

Boring/Well AR-GS Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D.Lipik / L.Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	fine sand, some silt, dark brown, organics, moist
0.5	1	0.5	0	↓
1	1.5	0.5	0	
1.5	2	0.5	0	fine sand, some silt, light brown, moist
				No As detected
				AR-GS-1.5-2.0 0825

ARCADIS **SOIL BORING LOG**

Boring/Well AR-66 Project/No. ND000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed ~~Hand auger~~ LK 5 20 ~14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, dark brown, organics, dry
0.5	1	0.5	0	LOAM, dark brown, moist
1	1.5	0.5	0	silt and f. sandy, soft, moist
1.5	2	0.5	0	↓
				No As detected
				AR-66-1.5-2.0 0835

ARCADIS **SOIL BORING LOG**

Boring/Well AR-67 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D.Lipik / L.Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, organics, moist
0.5	1	0.5	0	↓
1	1.5	0.5	0	↓
1.5	2	0.5	0	very fine sand, some silt, moist, organics
				No As detected
				AR-67-1.5-2.0 0840

ARCADIS **SOIL BORING LOG**

Boring/Well AR-68 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started

Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches

Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device

Sampling Interval 1.5-2 feet

Land-Surface Elev. feet ☐ Surveyed ☐ Estimated Datum

Drilling Fluid Used

Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By L. Kratz / D. Lipik

Hammer Weight

Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, organics, moist
0.5	1	0.5	0	LOAM, brown, organics (roots), moist
1	1.5	0.5	0	fine sand, brown, some silt, moist
1.5	2	0.5	0	↓
				No As detected
				AR-68-1.5-2.0 ~~0855~~ 0905

ARCADIS

SOIL BORING LOG

Boring/Well AR-69 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started

Drilling Completed 5/20/14

Total Depth Drilled 2 Feet

Hole Diameter 3 inches

Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device

Sampling Interval 1.5-2 feet

Land-Surface Elev. feet ☐ Surveyed ☐ Estimated Datum

Drilling Fluid Used

Drilling Method Hand auger

Drilling Contractor Arcadis

Driller DL Helper LK

Prepared By D. Lipik / L. Kratz

Hammer Weight

Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, organics, dry
0.5	1	0.5	0	↓ moist
1	1.5	0.5	0	fine sand and silt, brown, moist
1.5	2	0.5	0	↓
				No AS detected
				AR-69_1.5-2.0 0910

ARCADIS **SOIL BORING LOG**

Boring/Well AR-70 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Marisville Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	Loam, brown, organic, moist
0.5	1	0.5	0	↓
1	1.5	0.5	0	↓
1.5	2	0.5	0	Silt and some clay, brown, moist
				No As detected
				AR-70-1.5-2.0 0915

ARCADIS **SOIL BORING LOG**

Boring/Well AR-71 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5/20/14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By L. Kretz / D. Lipik Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, organics, moist
0.5	1	0.5	0	↓
1	1.5	0.5	0	↓
1.5	2	0.5	0	very fine sand, brown, some silt, moist
				NO As detected
				AR-71_1.5-2.0 0855

ARCADIS

SOIL BORING LOG

Boring/Well AR-72 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started _____ Drilling Completed 5/20/14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kretz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, organics, brown, dry
0.5	1	0.5	0	LOAM, organics, brown, moist
1	1.5	0.5	0	↓
1.5	2	0.5	0	
				No As detected
				AR-72-1.5-2.0 1015

ARCADIS

SOIL BORING LOG

Boring/Well AR-73 Project/No. ND00448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D.Lipik / L.Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, dense, organics, dry
0.5	1	0.5	0	LOAM, brown, organics, moist
1	1.5	0.5	0	
1.5	2	0.5	0	↓
				No As detected
				AR-73_1.5-2.0 1350

ARCADIS **SOIL BORING LOG**

Boring/Well AR-74 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Marcellus Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller OL Helper LK

Prepared By O. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, organic, moist
0.5	1	0.5	0	↓
1	1.5	0.5	0	Silt and clay, brown, moist, dense
1.5	2	0.5	0	↓
				No Ab detected
				AR-74-1.5-2.0 1340

ARCADIS **SOIL BORING LOG**

Boring/Well AR-75 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand augers

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM brown, moist, organics
0.5	1	0.5	0	silt and clay, dense, moist, brown
1	1.5	0.5	0	↓
1.5	2	0.5	0	
				No As detected
				AR-75-1.5-2.0. 1030

ARCADIS **SOIL BORING LOG**

Boring/Well AR-76 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started

Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches

Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device

Sampling Interval 1.5-2 feet

Land-Surface Elev. feet ☐ Surveyed ☐ Estimated Datum

Drilling Fluid Used

Drilling Method Hand auger

Drilling Contractor Arcadis

Driller DL Helper LK

Prepared By D. Lipsik / L. Kratz

Hammer Weight

Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, organics, brown, dry
0.5	1	0.5	0	very fine and fine sand, some silt, brown, dry
1	1.5	0.5	0	↓
1.5	2	0.5	0	
				AR-76-1.5-2.0 1040

ARCADIS

SOIL BORING LOG

Boring/Well AR-77 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, organics, dark brown, small rocks @~0.75'
0.5	1	0.5	0	LOAM, organics, dark brown, dry
1	1.5	0.5	0	↓
1.5	2	0.5	0	fine to medium sand, ~~gray~~ dark brown, moist, poorly sorted 2 rounded ~~cobbles~~ pebbles ~1.5' diameter
				No As detected
				AR-77_1.5-2.0 1400

ARCADIS **SOIL BORING LOG**

Boring/Well AR-78 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morristown Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Libik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, organics, dry
0.5	1	0.5	0	silt and clay, moist, brown, dense
1	1.5	0.5	0	↓
1.5	2	0.5	0	silt and f. sand, moist, brown
				AR-78 - 1.5-2.0 1045

ARCADIS **SOIL BORING LOG**

Boring/Well AR-79 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed ~~Han~~ 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Liplik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, organics, dry
0.5	1	0.5	0	↓
1	1.5	0.5	0	↓
1.5	2	0.5	0	LOAM, brown, roots, moist
				No As detected

ARCADIS

SOIL BORING LOG

Boring/Well AR-80 Project/No. NP000448.0003 Page 1 of 1

Site Location ~~NY~~ Solvay, Morrisville

Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DA Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, organics, dry
0.5	1	0.5	0	↓
1	1.5	0.5	0	↓
1.5	2	0.5	0	fine to medium sands, dark brown, some silt, poorly sorted
				No As detected
				AR-80 _1.5-2.0 1405

ARCADIS **SOIL BORING LOG**

Boring/Well AR2-81 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method _____

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, dry, organics
0.5	1	0.5	0	LOAM, brown, moist
1	1.5	0.5	0	silt and clay, dense, brown, moist
1.5	2	0.5	0	↓
				No As detected
				AR-81-1.5-20 1050

ARCADIS **SOIL BORING LOG**

Boring/Well AR-82 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Mounsville Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, dry, organics
0.5	1	0.5	0	LOAM, brown, moist
1	1.5	0.5	0	silt and clay, plastic, moist
1.5	2	0.5	0	↓
				No As detected
				AR-82-1.5-2.0 1420

ARCADIS **SOIL BORING LOG**

Boring/Well AR-83 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown organics, dry
0.5	1	0.5	0	silt and clay, organics, moist, dense
1	1.5	0.5	0	↓
1.5	2	0.5	0	silt and f. sand, moist, dense
				AR-83-1.5-2.0 1415

ARCADIS **SOIL BORING LOG**

Boring/Well AR-84 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay Drilling Started _____ Drilling Completed 5/20/14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, organics, dry
0.5	1	0.5	0	dry
1	1.5	0.5	0	moist
1.5	2	0.5	0	silt and clay, brown, wet, dense
				No As detected
				AR-84-1.5-2.0
				BD-03-05202014
				AR-84-1.5-2.0-MS/MSD

ARCADIS **SOIL BORING LOG**

Boring/Well AR-85 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Marrisville Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, organics, dry
0.5	1	0.5	0	↓
1	1.5	0.5	0	moist
1.5	2	0.5	0	silt and clay, dense, moist, brown
				No As detected
				AR-85_1.5-2.0 1435

ARCADIS

SOIL BORING LOG

Boring/Well AR-86 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, organic, dry
0.5	1	0.5	0	dry
1	1.5	0.5	0	moist
1.5	2	0.5	0	silt and some clay, moist, brown, dense
				No As detected
				AR-86-1.5-2.0 H25

ARCADIS

SOIL BORING LOG

Boring/Well AR-87 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller _____ Helper _____

Prepared By D. Libik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, dry, organics
0.5	1	0.5	0	LOAM, brown, moist
1	1.5	0.5	0	↓
1.5	2	0.5	0	Silt and clay, wet, brown, dense.
				No As detected
				AR-87-1.5-2.0 1105

ARCADIS

SOIL BORING LOG

Boring/Well AR-88 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled _____ Feet Hole Diameter _____ inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, organics, dark brown, dry
0.5	1	0.5	0	dry
1	1.5	0.5	0	moist
1.5	2	0.5	0	silt and clay, some F. sand, moist, brown
				AR-88_1.5-2.0 1440

ARCADIS **SOIL BORING LOG**

Boring/Well AR-89 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method _____

Drilling Contractor Arcadis Driller DL Helper ZK

Prepared By D. Lipik / L. Kretz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, organics, brown, dry
0.5	1	0.5	0	LOAM, organics, brown, moist
1	1.5	0.5	0	↓
1.5	2	0.5	0	silt and some f. sand, brown, moist
				AR-89-1.5-20140520

ARCADIS **SOIL BORING LOG**

Boring/Well AR-90 Project/No. WP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started

Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches

Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device

Sampling Interval 1.5-2 feet

Land-Surface Elev. feet ☐ Surveyed ☐ Estimated Datum

Drilling Fluid Used

Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D.Lipik / L.Kratz

Hammer Weight Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, organics (roots), dry
0.5	1	0.5	0	LOAM, brown, organics, moist
1	1.5	0.5	0	↓ wet
1.5	2	0.5	0	wet
				AR-90_1.5-2.0 1220

ARCADIS **SOIL BORING LOG**

Boring/Well AR-91 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started

Drilling Completed 5-21-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches

Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device

Sampling Interval 1.5-2.0 feet

Land-Surface Elev. feet ☐ Surveyed ☐ Estimated Datum

Drilling Fluid Used

Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D.Lipik / L.Kratz

Hammer Weight Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, organics (roots) moist
0.5	1	0.5	0	LOAM, brown, some organics, moist
1	1.5	0.5	0	silt and some fine sand, moist, plastic
1.5	2	0.5	6	↓
				AR-91_1.5-2.0 1350

ARCADIS **SOIL BORING LOG**

Boring/Well AR-92 Project/No. WP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started

Drilling Completed 5-21-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches

Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device

Sampling Interval 1.5-2 feet

Land-Surface Elev. feet ☐ Surveyed ☐ Estimated Datum

Drilling Fluid Used

Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Krotz

Hammer Weight Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, organic, moist
0.5	1	0.5	0	LOAM, brown, organics, moist
1	1.5	0.5	0	↓
1.5	2	0.5	0	silt and clay, some f. sand, moist, brown
				AR-92 – 1.5-2.0 1410

ARCADIS **SOIL BORING LOG**

Boring/Well AR-93 Project/No. N90004481.0003 Page 1 of 1

Site Location Solvay Drilling Started ____ Drilling Completed 5.20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device ____ Sampling Interval 1.5-2 feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used ____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, moist, dense, organics
0.5	1	0.5	0	LOAM, brown, moist, dense
1	1.5	0.5	0	↓
1.5	2	0.5	0	silt and clay, moist, dense
				AR-93-1.5-2.0 1115

ARCADIS **SOIL BORING LOG**

Boring/Well AR-94 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method _____

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipiki / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, organics, brown, moist
0.5	1	0.5	0	↓
1	1.5	0.5	0	↓
1.5	2	0.5	0	Silt and clay, some f. sand, moist, brown, dense
				No As detected
				AR-94-1.5-2.0 1420

ARCADIS **SOIL BORING LOG**

Boring/Well AR-95 Project/No. NP Page 1 of 1

Site Location Solvay Drilling Started _____ Drilling Completed ~~5-21-14~~ 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method _____

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	Loam, ~~brown~~, organic, moist
0.5	1	0.5	0	↓
1	1.5	0.5	0	↓
1.5	2	0.5	0	silt and clay, medium sand, moist, brown
				No As detected
				~~As~~ AR-95-1.5-2.0

ARCADIS **SOIL BORING LOG**

Boring/Well AR-96 Project/No. NP000448.0003 Page 1 of 1

Site Location Solway Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By O. Lipsik / L. Krotz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
				Sample pt next to standing water (~1 in deep)
0	0.5	0.5	0	LOAM, organic, brown, wet
0.5	1	0.5	0	↓
1.	1.5	0.5	0	↓
1.5	2	0.5	0	silt and clay, plastic, brown, wet
				No AS detected
				AR-96_1.5-2.0 1115

ARCADIS **SOIL BORING LOG**

Boring/Well AR-97 Project/No. WP000448.0003 Page 1 of 1

Site Location Solvay, Manlius ville

Drilling Started

Drilling Completed 5-20-14

Total Depth Drilled ~2 Feet

Hole Diameter 3 inches

Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device

Sampling Interval 1.5-2 feet

Land-Surface Elev. feet ☐ Surveyed ☐ Estimated

Datum

Drilling Fluid Used

Drilling Method Hand auger

Drilling Contractor Arcadis

Driller DL Helper LK

Prepared By D. Lipik / L. Krotz

Hammer Weight

Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, brown, organics, dry
0.5	1	0.5	0	dry
1	1.5	0.5	0	moist
1.5	2	0.5	0	moist
				AR97_1.5-2.0 1230

ARCADIS **SOIL BORING LOG**

Boring/Well AR-98 Project/No. NP000448.0003 Page 1 of 1

Site Location Conway Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, small ~~pebbles~~ rocks (~1.5" in diameter) encountered at 0.25' bgs
0.5	1	0.5	0	dark brown, dry
1	1.5	0.5	0	↓ moist
1.5	2	0.5	0	Silt and f. sand, small rocks (SAA) throughout, brown, moist
				AR-98_1.5-2.0 1305

ARCADIS **SOIL BORING LOG**

Boring/Well AR-99 Project/No. WD000448.0003 Page 1 of 1

Site Location Solvay, Marcisville Drilling Started _____ Drilling Completed 5/20/14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	Silt, some fine sand, organics, black, dry
0.5	1	0.5	0	↓
1	1.5	0.5	0	Loam, brown, moist, organics
1.5	2	0.5	0	↓
				AR-99_1.5-2.0 @ 1235

ARCADIS

SOIL BORING LOG

Boring/Well AR-100 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches

Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____

Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated

Datum _____

Drilling Fluid Used _____

Drilling Method Hand auger

Drilling Contractor Arcadis

Driller DL Helper LK

Prepared By D.Lipik / L.Kratz

Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, organics, brown, dry
0.5	1	0.5	0	LOAM, organics, brown, moist
1	1.5	0.5	0	silt and clay, brown, plastic, moist
1.5	2	0.5	0	↓
				No As detected
				AR-100_1.5-2.0 1300

ARCADIS **SOIL BORING LOG**

Boring/Well AR-101 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5-20-14

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	LOAM, organics, small rocks (<1.5" diameter), black, dry
0.5	1	0.3	0	LOAM, organics, small rocks ~1.5" diameter, brown, dry
1	1.5	0.5	0	encountered many small rocks ~0.75" LOAM, organics, brown, dry
1.5	2	0.5	6	silt and clay, brown, moist, dense
				No As detected
				AR-101_1.5-2.0 1240

ARCADIS **SOIL BORING LOG**

Boring/Well AR-102 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started

Drilling Completed 5-22-14

Total Depth Drilled 4 Feet Hole Diameter 3 inches

Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device

Sampling Interval see below feet

Land-Surface Elev. feet ☐ Surveyed ☐ Estimated Datum

Drilling Fluid Used

Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By P. Lipik / L. Kratz

Hammer Weight

Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5			Silt and clay, wet, brown, some organics, dense
0.5	1			↓
1	1.5			
1.5	2			
2	2.5			silt and clay, moist, brown, stiff
2.5	3			
3	3.5			silt and clay, some fine sand, stiff, brown, moist
3.5	4			silt and clay, fine sand, brown, moist
				~~No As detected~~ LK
				AR-102 — 0842 1.5-2.0 hold
				AR-102 — 0844 2.5-3.0 hold
				AR-102 — 0846 3.5-4.0 hold

ARCADIS **SOIL BORING LOG**

Boring/Well AR-103 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5-22-14

Total Depth Drilled 4 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval Screened feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	2	2	0	silt and clay, wet, brown, organics, dense
2	3	1	0	silt and clay, wet, brown, stiff
3	4	1	0	silt, clay and fine sand, brown, wet
				AR-103_1.5-2.0. 0852
				BD-04-0522 2014 0854
				AR-103_1.5-2.0-MS/MSD 0852
				AR-103_3.5-4.0 (hold) 0854 0856
				AR-103_2.5-3.0 0854

ARCADIS **SOIL BORING LOG**

Boring/Well AR-104 Project/No. NPD00445.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started ____ Drilling Completed 5/22/14

Total Depth Drilled 4 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device ____ Sampling Interval See below feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used ____ Drilling Method ____

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
				too wet to walk to boring location (~1ft of water) called OK and adjusted boring location
0	2	2	0	Silt and clay, organics, brown, plastic, wet
2	4	2	0	clay with silt, brown, plastic, wet
				AR-104- ~~0940~~ 0940 1.5-2.0 hold
				~~0942~~ 0942 2.5-3.0 ↓
				~~0944~~ 0944 3.5-4.0

ARCADIS

SOIL BORING LOG

Boring/Well AR-105 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Marrisville

Drilling Started _____ Drilling Completed 5-22-14

Total Depth Drilled 34 Feet Hole Diameter 2 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval See below feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LIC

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	2	2	0	silt and clay, wet, brown
2	4	2	6	clay, some silt, wet, brown, plastic
				AR-105 — 1.5-2 1018
				2.5-3 1020
				3.5-4 1022

ARCADIS

SOIL BORING LOG

Boring/Well AR-106 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started _____ Drilling Completed 5-22-14

Total Depth Drilled 4 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval see below feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	2	2	0	silt and clay, wet, brown, plastic
2	4	2	0	clay and silt, some fine sand, brown, plastic
				AR-106_1.5-2.0 0952
				AR-106_3.5-4.0 *hold 0956
				AR-106 2.5-3 0954

ARCADIS **SOIL BORING LOG**

Boring/Well AR-107 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started _____ Drilling Completed 5-22-14

Total Depth Drilled 4 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval see below feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipix / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	3	3	0	clay and silt, wet, organics (roots) brown,
3	4	1		fine sand, some silt and clay, wet, brown
				AR-107 - @ 1.5-2 1007
				2.5-3 1009
				3.5-4 1011

ARCADIS

SOIL BORING LOG

Boring/Well AR-108 Project/No. WSP0004448.0003 Page 1 of 1

Site Location Bray, Morrisville

Drilling Started _____ Drilling Completed 5-22-14

Total Depth Drilled 4 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval 1.5-2 feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D Lipik / L. Kretz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	silt and clay, organics (roots), plastic, brown
0.5	4	3.5	0	clay and silt, some f. sand, brown, wet, plastic
				AR-108-1.5-2.0
				AR-108 2.5-3.0
				AR-108 3.5-4.0
				~~AR-108-1.5-2.0 1032~~
				~~AR-109-2.5-3.0 1034~~
				~~DUP-05-05222014~~
				~~AR-109-1.5-2.0-MS/MSD 1032~~
				~~AR-109-3.5-4.0 1036~~ LNK

ARCADIS

SOIL BORING LOG

Boring/Well AR-109 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Memsville

Drilling Started _____ Drilling Completed 5-22-14

Total Depth Drilled 4 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device _____ Sampling Interval see below feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method Hand auger

Drilling Contractor Arcadis Driller DL Helper LK

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	0.5	0.5	0	Silt and clay, organics, hot pipe, plastic, wet
0.5	4	3.5	0	clay with some silt, brown, wet, plastic
				AR-109_1.5-2.0 1032
				AR-109_3.5-4.0 1036
				AR-109-1.5-2.0 MS/MSD 1032
				DUP-05-05222014

AR109_2.5-3 1034

ARCADIS

SOIL BORING LOG

Boring/Well AR-110 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay

Drilling Started

Drilling Completed 5-22-14

Total Depth Drilled 4 Feet Hole Diameter 3 inches

Type of Sample/ Coring Device Hand auger

Length and Diameter of Coring Device

Sampling Interval see below feet

Land-Surface Elev. feet ☐ Surveyed ☐ Estimated

Datum

Drilling Fluid Used

Drilling Method Hand auger

Drilling Contractor Arcadis

Driller DL Helper LK

Prepared By D. Lipik | L. Kratz

Hammer Weight

Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	2	2	0	Silt and clay, organics, plastic, wet
2	4	2	0	Clay w/ silt, dense, wet
				AR-100-1.5-2
				AR-100-2.5-3
				AR-100-3.5-4

ARCADIS **SOIL BORING LOG**

Boring/Well WP-12 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5-21-14

Total Depth Drilled 10 Feet Hole Diameter _____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device _____ Sampling Interval See below feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method geoprobe

Drilling Contractor Zebra Driller _____ Helper _____

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	3.3		0/0/0/0/0 0-1.8 LOAM, brown, organics, moist
				1.8-3.3 clay and silt, plastic, moist, brown
5	10	5		0/0/0/0/0
				water @ 5 ft bgs
				5-7.3 very fine to fine sand, some silt, brown
				wet
				7.3-10 fine to medium sand, some silt, brown,
				wet
				WP-12 —
				1010 1.5-2.0
				1012 3.5-4.0
				1014 5.5-6.0 hold
				1016 7.5-8.0 hold

ARCADIS **SOIL BORING LOG**

Boring/Well WP-13 Project/No. NPD00448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5-21-14

Total Depth Drilled 10 Feet Hole Diameter _____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device _____ Sampling Interval see below feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method geoprobe

Drilling Contractor Zebra Driller _____ Helper _____

Prepared By D. Lipik / L. Krotz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	3.3		0/0/0/0/0 0-1.2 LOAM, brown, organics, moist
				1.2-1.9 clay and silt, brown, moist
				1.9-3.3 very fine to fine sand, some silt and clay, brown, wet. water at 3.1
5	10	5		0/0/0/0/0 5-7.3 SSA
				7.3-10 fine to medium sand, some silt, dark brown, wet
				WP-13_
				0954 1.5-2.0
				0956 3.5-4.0
				0958 5.5-6.0
				~~0955~~ 1000 7.5-8.0 hold

ARCADIS **SOIL BORING LOG**

Boring/Well WP-14 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville PA Drilling Started _____ Drilling Completed 5-21-14

Total Depth Drilled 10 Feet Hole Diameter _____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device _____ Sampling Interval see below feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method geoprobe

Drilling Contractor Zebra Driller _____ Helper _____

Prepared By D Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	3.3		0/0/0/0/0
				1-1.5 LOAM, brown, organics, moist
				1.5-3.3 clay with silt, dense, brown,
5	10	3.2		0/0/0/0/0
				5-8.2 fine to medium sand and silt, water at 6.1', brown, wet
				WP-14-
				0946 1.5-2.0
				0948 3.5-4.0
				0950 5.5-6 hold
				0952 7.5-8.0 hold
				DUP-06-05212014
				WP-14_1.5-2.0_MS/MSD 0946

ARCADIS **SOIL BORING LOG**

Boring/Well WP-15 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed ~~geoprobe~~ 5-21-14

Total Depth Drilled 10 Feet Hole Diameter _____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device _____ Sampling Interval see below feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method geoprobe

Drilling Contractor Zebra Driller _____ Helper _____

Prepared By D. Kirik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	3.2		0/0/0/0/0
				0-1.4 LOAM, organic, brown, moist
				1.4-3.2 clay and silt, moist, brown, plastic
5	10	5		5-7.3 clay and silt, moist, brown, plastic, dense
				7.3-10 fine to medium sand, some silt, brown, moist
				WP-15 —
				1252 1.5-2.0
				1254 3.5-4.0
				1256 5.5-6.0 hold
				1258 7.5-8.0 hold

ARCADIS **SOIL BORING LOG**

Boring/Well WP-16 Project/No. NPOCO445.0003 Page 1 of 1

Site Location Solvay, Marcisville Drilling Started _____ Drilling Completed 5-21-14

Total Depth Drilled 10 Feet Hole Diameter _____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device _____ Sampling Interval see below feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method geoprobe

Drilling Contractor Zebra Driller _____ Helper _____

Prepared By L. Krotz / D. Lipik Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	4.2		0/0/0/0/0
				0-2.2 LOAM, brown, moist
				2.2-4.2 clay and silt, moist, brown
5	10	3.9		5-8.1 SSA
				water at 8.1 ft
				8.1-9.9 fine to medium sand, brown, wet
				WP-16 —
				1308 1.5-2.0
				1310 3.5-4.0
				1312 5.5-6.0 hold
				1314 7.5-8.0 hold

ARCADIS **SOIL BORING LOG**

Boring/Well WP-17 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5-21-14

Total Depth Drilled 10 Feet Hole Diameter _____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device _____ Sampling Interval see below feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method geoprobe

Drilling Contractor Zebra Driller _____ Helper _____

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	3.4		0/6/0/0 0-1.8 LOAM, brown, organics, moist
				1.8-2.9 - clay and some silt, brown, moist
				2.9-3.4 - very fine to fine sand and some silt, brown, moist
5	10	4.3		5-6.3 very fine to fine sand and some silt, brown, ~~organic~~, moist
				water at 7.8
				7.8-8.3 medium sand and silt, brown, wet
				1018 WP-17 — 1.5-2.0 mud
				1020 WP-17 — 3.5-4.0
				1022 WP-17 — 5.5-6.0
				1024 WP-17 — 7.5-8.0

ARCADIS **SOIL BORING LOG**

Boring/Well WP-18 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5-22-14

Total Depth Drilled 10 Feet Hole Diameter _____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device _____ Sampling Interval See below feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method geoprobe

Drilling Contractor Zebra Driller _____ Helper _____

Prepared By D.Lipik / L.Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	3.7		0/0/0/0 0-2.3 LOAM, organics, moist, brown
				2.3-3.7 clay and some silt, brown, dense, moist
				2.7-3.7 - fine to medium sand, brown, moist
5	10	4.1		water @ 6.2'
				5-8.3 fine to medium sand, brown, wet
				8.3-9.1 medium sand, some silt, brown, wet
				1002 WP-18 - 1.5-2.0 hold
				1004 WP-18 - 3.5-4.0 ↓
				1006 WP-18 - 5.5-6.0
				1008 WP-18 - 7.5-8.0

ARCADIS **SOIL BORING LOG**

Boring/Well WP-19 Project/No. NJ000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started _____ Drilling Completed 5-21-14

Total Depth Drilled 10 Feet Hole Diameter _____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device _____ Sampling Interval See below feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method geoprobe

Drilling Contractor Zebra Driller _____ Helper _____

Prepared By D Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	3.8		0/0/0/0/0
				0 - ~~3.5~~ 1.5 LOAM, brown, organics, moist
				1.5 - 3.8 clay with silt, moist, dense
5	10	2.6		0/0/0/0/0
				water at 5.3
				5.3 - 7.6 fine to medium sand and silt, brown, wet
				0938 1.5-2.0 hold
				0940 3.5-4.0
				0942 5.5-6.0
				0944 7.5-8.0

ARCADIS **SOIL BORING LOG**

Boring/Well WP-20 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started

Drilling Completed 5-21-14

Total Depth Drilled 10 Feet Hole Diameter ____ inches

Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device

Sampling Interval see below feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum

Drilling Fluid Used

Drilling Method geoprobe

Drilling Contractor Zebra Driller ____ Helper ____

Prepared By D. Lipik / L. Kratz

Hammer Weight ____ Hammer Drop ____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	3.8	0	0/0/0/0/0 loamy, brown, moist, organics
5	10	3.3	0	2/0/0/0/0
				5-6.2 Loamy, brown, moist water @ 6.2
				6.2-10 Fine sand and silt, brown, wet
				0930
				930 WP-20 1.5-2.0 hold
				932 WP-20 3.5-4.0
				934 WP-20 5.5-6.0
				936 WP-20 7.5-8.0

ARCADIS **SOIL BORING LOG**

Boring/Well WP-21 Project/No. WP000448.0003 Page 1 of 1

Site Location Solvay, Morrisville

Drilling Started

Drilling Completed 5-21-14

Total Depth Drilled 10 Feet Hole Diameter ____ inches

Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device

Sampling Interval see below feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum

Drilling Fluid Used

Drilling Method geoprobe

Drilling Contractor Zebra Driller Helper

Prepared By D. Lipik / L. Kratz

Hammer Weight Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	2.8		C.C / C.C / C.C / C.C / C.C /
5	10	3.8		0-2.8 LOAM, brown, moist, organics
↓	↓	↓		0.0 / 0.0 / 0.0 / 0.0 / 0.0
				water @ 6.7' 5-6.5 LOAM, brown, moist
				6.5-10 fine to medium, sand, brown, wet
				0915 WP-21 1.5-2.0 hold
				0917 WP-21 3.5-4.0
				0920 WP-21 5.5-6.0
				0923 WP-21 7.5-8.0

ARCADIS **SOIL BORING LOG**

Boring/Well WP-22 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Morainville Drilling Started _____ Drilling Completed 5-22-14

Total Depth Drilled 10 Feet Hole Diameter _____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device _____ Sampling Interval see below feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method geoprobe

Drilling Contractor Zebra Driller _____ Helper _____

Prepared By D.Lipik / L.Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	2.7		0/0/0/0/0
				0 - 1.1 LOAM, brown, moist
				1.1 - 2.7 clay and silt, dense, brown, moist
5	10	4.6		0/0/0/0/0
				5 - 5.7 SAA
				5.7 - 9.6 fine to medium sand, some silt, wet, brown
				water @ 5.7 ft
				1316 WP-22-1.5-2.0 mud
				1318 WP-22 3.5-4.0
				1320 WP-22 5.5-6.0
				1322 WP-22_7.5-8.0

ARCADIS **SOIL BORING LOG**

Boring/Well WP-23 Project/No. NP000448.0003 Page 1 of 1

Site Location Solvay, Marysville Drilling Started _____ Drilling Completed 5-21-14

Total Depth Drilled 10 Feet Hole Diameter _____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device _____ Sampling Interval see below feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method _____

Drilling Contractor Zebra Driller _____ Helper _____

Prepared By D. Lipik / L. Kratz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	4		0/6/0/0/0
				0-3.3 LOAM, organics, brown, moist
				3.3-4 clay with silt, dense, brown, moist
5	10	4.1		5-6.2 SSA
				water at 6.2
				6.2-9.1 - fine to medium sand, brown, wet
				1300 WP-23_1.5-2.0 hold
				1302 WP-23_3.5-4.0 ↓
				1304 WP-23_5.5-6.0
				1306 WP-23_7.5-8.0

ARCADIS **SOIL BORING LOG**

Boring/Well WP-24 Project/No. ND000448.0023 Page 1 of 1

Site Location Solvay, Morrisville Drilling Started _____ Drilling Completed 5-2-14

Total Depth Drilled 10 Feet Hole Diameter _____ inches Type of Sample/ Coring Device geoprobe

Length and Diameter of Coring Device _____ Sampling Interval see below feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used _____ Drilling Method geoprobe

Drilling Contractor Zebra Driller _____ Helper _____

Prepared By D. Lipik / L. Kvetz Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Description: principal components, (aungularity, plasticity, dilatency); minor components, (angularity, plasticitiy, dilatency); sorting, moisture content, consistency/density, color, addtil. Comments
0	5	4.4		0/0/0/0/0 0-2.9 LOAM, brown, organic, moist
				2.9-4.4 clay and silt, brown, moist, dense
5	10	4.5		0/0/0/0/0
				S- 8.3 SAA
				8.3-9.5 fine to medium sand, with some silt, brown, moist
				~~WP-24~~ 1324 WP-24-1.5-2.0 hold
				1326 WP-24-3.5-4.0
				1328 WP-24-5.5-6.0
				1330 WP-24-7.5-8.0

ARCADIS

Sample/Core Log

Boring/Well AR-111 Project/No. NP.448.4.3 Page 1 of 1

Site Location Solvay (Former Rhodia) - Morrisville, PA

Drilling Started 4/21/2015 Drilling Completed 4/21/2015

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2 ft X 3 in Sampling Interval 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used NA Drilling Method _____

Drilling Contractor ARCADIS Driller BP/AL Helper BP/AL

Prepared By B. Prowser ~~Ashley Poling~~ and Andy Leavitt Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
Surface			0.0		leaf & plant debris
0	2		0.0		silty clay, moist, brown, no odor or staining, coarse rounded gravel ~1.75", increasing fine sand at bottom of interval
					1445 - sampled AR-111 (1.5-2.0) 042215

ARCADIS

Sample/Core Log

Boring/Well AR 112 Project/No. NP.448.4.3 Page 1 of 1

Site Location Solvay (Former Rhodia) - Morrisville, PA

Drilling Started 4/21/2015 Drilling Completed 4/21/2015

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2 ft X 3 in Sampling Interval 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used NA Drilling Method _____

Drilling Contractor ARCADIS Driller BP/AL Helper BP/AL

Prepared By Bernhard Preusser Ashley Poling and Andy Leavitt Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
Surface			0.0		leaves/plant debris
0	2		0.0		Alternating med to fine grey sand & brown silty clay, slightly to moist, no odor or staining
					1435 sampled AR-112 (1.5-2.0) -042215

ARCADIS

Sample/Core Log

Boring/Well AR-113 Project/No. NP.448.4.3 Page 1 of 1

Site Location Solvay (Former Rhodia) - Morrisville, PA

Drilling Started 4/21/2015 Drilling Completed 4/21/2015

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2 ft X 3 in Sampling Interval 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used NA Drilling Method _____

Drilling Contractor ARCADIS Driller ~~AP~~/AL RP Helper ~~AP~~/AL RP

Prepared By ~~Ashley Poling~~ Bernhard Preuster and Andy Leavitt Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
Surface			0.0		Grass
0	2		0.0		silty clay, some very fine sand, brown, sl. moist, no odor or staining
					1316 - Sample AR-113(1.5-2.0)-042215 + MS/MSD + Dup-02-042215

ARCADIS

Sample/Core Log

Boring/Well AR-114 Project/No. NP.448.4.3 Page 1 of 1

Site Location Solvay (Former Rhodia) - Morrisville, PA

Drilling Started 4/21/2015 Drilling Completed 4/21/2015

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2 ft X 3 in Sampling Interval 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used NA Drilling Method _____

Drilling Contractor ARCADIS Driller BP/~~AP~~/AL Helper BP/~~AP~~/AL

Prepared By ~~Bernhard Preusser~~ ~~Ashley Poling~~ and Andy Leavitt Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
surface			0.0		Grass
0	2		0.0		clay, some silt & very fine sand, brown, moist no odor or staining
					1307 - sample AR-114 (1.5-2.0) - 042215

ARCADIS

Sample/Core Log

Boring/Well AR-115 Project/No. NP.448.4.3 Page 1 of 1

Site Location Solvay (Former Rhodia) - Morrisville, PA

Drilling Started 4/21/2015 Drilling Completed 4/21/2015

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2 ft X 3 in Sampling Interval 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used NA Drilling Method _____

Drilling Contractor ARCADIS Driller ~~AP~~/AL BP Helper ~~AP~~/AL BP

Prepared By Bernhard Preusser ~~Ashley Poling~~ and Andy Leavitt Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
Surface			0.0		Grass/moss
0	2		0.0		very fine sand, silt, clay, s. moist, brown, no odor, or staining
					1300 - Sampled AR-115 (1.5-2.0) -042215

ARCADIS

Sample/Core Log

Boring/Well AR-116 Project/No. NP.448.4.3 Page 1 of 1

Site Location: Solvay (Former Rhodia) - Morrisville, PA

Drilling Started: 4/21/2015 Drilling Completed: 4/21/2015

Total Depth Drilled: 2 Feet Hole Diameter: 3 inches Type of Sample/ Coring Device: Hand Auger

Length and Diameter of Coring Device: 2 ft X 3 in Sampling Interval: 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used: NA Drilling Method _____

Drilling Contractor: ARCADIS Driller: BP AP/AL Helper: BP AP/AL

Prepared By: Bernhard Preusser ~~Ashley Poling and Andy Leavitt~~ Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
Surface			0.0		Grass
0	2		0.0		Very fine sand, some silt; first 8" contained some coarse gravel; dark brown; slightly moist; No odor or staining.
					1345 - sampled AR-116 (1.5-2.0) 042215

ARCADIS

Sample/Core Log

Boring/Well AR-117 Project/No. NP.448.4.3 Page 1 of 1

Site Location: Solvay (Former Rhodia) - Morrisville, PA

Drilling Started: 4/21/2015 Drilling Completed: 4/21/2015

Total Depth Drilled: 2 Feet Hole Diameter: 3 inches Type of Sample/ Coring Device: Hand Auger

Length and Diameter of Coring Device: 2 ft X 3 in Sampling Interval: 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used: NA Drilling Method _____

Drilling Contractor: ARCADIS Driller: ~~AP~~/AL BP Helper: ~~AP~~/AL BP

Prepared By: Bernhard Preusser ~~Ashley Poling and Andy Leavitt~~ Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
Surface			0.0		Grass
0	2		0.0		silty clay; ~~some~~ very fine sand; brown slightly moist; no odor or staining
					Sampled 1335 AR-117 (1.5-2.0) 04 2215

ARCADIS

Sample/Core Log

Boring/Well AR-118 Project/No. NP.448.4.3 Page 1 of 1

Site

Location Solvay (Former Rhodia) - Morrisville, PA

Drilling Started 4/21/2015 Drilling Completed 4/21/2015

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2 ft X 3 in Sampling Interval 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum

Drilling Fluid Used NA Drilling Method

Drilling Contractor ARCADIS Driller AP/AL Helper AP/AL

Prepared By Bernhard Preusser ~~Ashley Poling~~ and Andy Leavitt Hammer Weight Hammer Drop ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
Surface			0.0		Grass
0	2		0.0		silty clay; some very fine sand; brown; slightly moist; no odor or staining.
					1326 Sampled ~~AR-118~~

AR-118 (1.5-2.0) 01/22/15

ARCADIS

Sample/Core Log

Boring/Well AR-119 Project/No. NP.448.4.3 Page 1 of 1

Site Location: Solvay (Former Rhodia) - Morrisville, PA

Drilling Started: 4/21/2015 Drilling Completed: 4/21/2015

Total Depth Drilled: 2 Feet Hole Diameter: 3 inches Type of Sample/Coring Device: Hand Auger

Length and Diameter of Coring Device: 2 ft X 3 in Sampling Interval: 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used: NA Drilling Method _____

Drilling Contractor: ARCADIS Driller: ~~AP~~/AL BP Helper: ~~AP~~/AL BP

Prepared By: Bernhard Preusser ~~Ashley Poling~~ and Andy Leavitt Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
Surface			0.0		grass
0	1		0.0		fine & very fine sand, brown, sl. moist, no odor or staining
1	2				fine sand, rounded coarse gravel & cobbles
					1410 - sample AR-119 (1.5-2.0)-042215

ARCADIS

Sample/Core Log

Boring/Well AR-120 Project/No. NP.448.4.3 Page 1 of 1

Site Location: Solvay (Former Rhodia) - Morrisville, PA

Drilling Started: 4/21/2015 Drilling Completed: 4/21/2015

Total Depth Drilled: 2 Feet Hole Diameter: 3 inches Type of Sample/Coring Device: Hand Auger

Length and Diameter of Coring Device: 2 ft X 3 in Sampling Interval: 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used: NA Drilling Method _____

Drilling Contractor: ARCADIS Driller: AP/AL Helper: AP/AL

Prepared By: Bernhard Preusser, ~~Ashley Poling~~ and Andy Leavitt Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
Surface			0.0		dead vegetation
0	2		0.0		silty clay, brown, moist, no odor or staining, saturated at ~1.75'
					Sampled @ 0955 - AR-120-(1.5-2.0)

ARCADIS

Sample/Core Log

Boring/Well AR-121 Project/No. NP.448.4.3 Page 1 of 1

Site Location: Solvay (Former Rhodia) - Morrisville, PA

Drilling Started: 4/21/2015 Drilling Completed: 4/21/2015

Total Depth Drilled: 2 Feet Hole Diameter: 3 inches Type of Sample/Coring Device: Hand Auger

Length and Diameter of Coring Device: 2 ft X 3 in Sampling Interval: 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used: NA Drilling Method _____

Drilling Contractor: ARCADIS Driller: BP/AP/AL Helper: BP/AP/AL

Prepared By: Berhard Preusser ~~Ashley Polling~~ and Andy Leavitt Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
Surface			0.0		Dead vegetation
0	2		0.0		silty clay, moist, wet @ ~1.75' no odor OR staining, brown
					1025 - sampled - AR-121 (1.5-2.0)-042215

ARCADIS

Sample/Core Log

Boring/Well AR-122 Project/No. NP.448.4.3 Page 1 of 1

Site Location: Solvay (Former Rhodia) - Morrisville, PA

Drilling Started: 4/21/2015 Drilling Completed: 4/21/2015

Total Depth Drilled: 2 Feet Hole Diameter: 3 inches Type of Sample/ Coring Device: Hand Auger

Length and Diameter of Coring Device: 2 ft X 3 in Sampling Interval: 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used: NA Drilling Method _____

Drilling Contractor: ARCADIS Driller: BP AP/AL Helper: BP AP/AL

Prepared By: ~~Ashley Poling~~ Bernhard Preusser and Andy Leavitt Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
surface			0.0		Dead vegetation
0	2		0.0		silty clay, moist, wet at ~1.75', no odor or staining, brown
					1015 - Sampled AR-122 (1.5-2.0) -042215 +MS/MSD + BD-01-042215

ARCADIS

Sample/Core Log

Boring/Well AR-123 Project/No. NP.448.4.3 Page 1 of 1

Site Location Solvay (Former Rhodia) - Morrisville, PA

Drilling Started 4/21/2015 Drilling Completed 4/21/2015

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2 ft X 3 in Sampling Interval 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used NA Drilling Method _____

Drilling Contractor ARCADIS Driller B AP/AL Helper B AP/AL

Prepared By Bernhard Preusser Ashley Poling and Andy Leavitt Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
Surface			0.0		Road Vegetation
0	2		0.0		silty clay, moist, wet ~1.75', no odor or staining, brown
					collected AR-123(1.5-2.5) @ 1005

ARCADIS

Sample/Core Log

Boring/Well AR-124 Project/No. NP.448.4.3 Page 1 of 1

Site Location: Solvay (Former Rhodia) - Morrisville, PA

Drilling Started: 4/21/2015 Drilling Completed: 4/21/2015

Total Depth Drilled: 2 Feet Hole Diameter: 3 inches Type of Sample/ Coring Device: Hand Auger

Length and Diameter of Coring Device: 2 ft X 3 in Sampling Interval: 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used: NA Drilling Method _____

Drilling Contractor: ARCADIS Driller: BP/AL Helper: BP/AL

Prepared By: Bernhard Preusser, Ashley Poling and Andy Leavitt Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
Surface			0.0		Dead vegetation
0	2		0.0		silty clay, moist, no odor or staining, brown, some angular med. to coarse gravel at bottom of interval
					1040 - sample AP-124(1.5-2.0)-042215

ARCADIS

Sample/Core Log

Boring/Well AR-125 Project/No. NP.448.4.3 Page 1 of 1

Site Location: Solvay (Former Rhodia) - Morrisville, PA

Drilling Started: 4/21/2015 Drilling Completed: 4/21/2015

Total Depth Drilled: 2 Feet Hole Diameter: 3 inches Type of Sample/ Coring Device: Hand Auger

Length and Diameter of Coring Device: 2 ft X 3 in Sampling Interval: 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used: NA Drilling Method _____

Drilling Contractor: ARCADIS Driller: BP/AL Helper: BP/AL

Prepared By: Barnhart/Preusser ~~Ashley Poling~~ and Andy Leavitt Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
Surface			0.0		Dead vegetation
0	2		0.0		silty clay, moist, no odor or staining, brown
					1032 sampled AR-125(1.5-2.0)-042215

ARCADIS

Sample/Core Log

Boring/Well AR-126 Project/No. NP.448.4.3 Page 1 of 1

Site Location Solvay (Former Rhodia) - Morrisville, PA

Drilling Started 4/21/2015 Drilling Completed 4/21/2015

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2 ft X 3 in Sampling Interval 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used NA Drilling Method _____

Drilling Contractor ARCADIS Driller ~~AP~~/AL BP Helper ~~AP~~/AL BP

Prepared By ~~Ashley Poling~~ Bernhard Preusser and Andy Leavitt Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
Surface			0.0		Dead Vegetation
0	2		0.0		Silty clay, brown, moist, no odor or staining
					1119 Sampled AR-126(1.5-2.0)-042215

ARCADIS

Sample/Core Log

Boring/Well AR127 Project/No. NP.448.4.3 Page 1 of 1

Site Location Solvay (Former Rhodia) - Morrisville, PA

Drilling Started 4/21/2015 Drilling Completed 4/21/2015

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2 ft X 3 in Sampling Interval 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used NA Drilling Method _____

Drilling Contractor ARCADIS Driller BP/AL Helper BP/AL

Prepared By ~~Ashley Poling~~ Bernhard Preusser and Andy Leavitt Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
Surface			0.0		Dead vegetation
0	2				small (<1") void ~ 1', silty clay, moist, brown, no odor or staining, brown, transitions to clayey silt by bottom of interval
					1113 - Sample ID AR-127(1.5-2.0)-041215

ARCADIS

Sample/Core Log

Boring/Well AR-128 Project/No. NP.448.4.3 Page 1 of 1

Site Location Solvay (Former Rhodia) - Morrisville, PA

Drilling Started 4/21/2015 Drilling Completed 4/21/2015

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2 ft X 3 in Sampling Interval 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum -

Drilling Fluid Used NA Drilling Method _____

Drilling Contractor ARCADIS Driller ~~AP~~/AL BP Helper ~~AP~~/AL BP

Prepared By ~~Ashley Poling~~ Bernhard Preusser and Andy Leavitt Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
Surface			0.0		Dead vegetation
0	2		0.0		silty clay, moist, no odor or staining, brown
					1105 sampled AR-128(1.5-2.0)-042215

ARCADIS

Sample/Core Log

Boring/Well AR-129 Project/No. NP.448.4.3 Page 1 of 1

Site Location Solvay (Former Rhodia) - Morrisville, PA

Drilling Started 4/21/2015 Drilling Completed 4/21/2015

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2 ft X 3 in Sampling Interval 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used NA Drilling Method _____

Drilling Contractor ARCADIS Driller BP/AL Helper BP/AL

Prepared By Bernhard Preussler ~~Ashley Poling~~ and Andy Leavitt Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
Surface			0.0		Dead vegetation
0	2		0.0		silty clay, moist to wet, no odor or staining, brown
					1100 - sampled AR-129 (1.5-2.0)-042215

ARCADIS

Sample/Core Log

Boring/Well AR-130 Project/No. NP.448.4.3 Page 1 of 1

Site Location Solvay (Former Rhodia) - Morrisville, PA

Drilling Started 4/21/2015 Drilling Completed 4/21/2015

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2 ft X 3 in Sampling Interval 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used NA Drilling Method _____

Drilling Contractor ARCADIS Driller BP Helper BP

Prepared By Brad Preusser Ashley Poling and Andy Leavitt Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
Surface			0.0		Peat vegetation
0	2				silty clay, light brown, moist to wet, no odor or staining
					1155 - sampled AR-130 (1.5-2.0) - 042215

ARCADIS

Sample/Core Log

Boring/Well AR-131 Project/No. NP.448.4.3 Page 1 of 1

Site Location Solvay (Former Rhodia) - Morrisville, PA

Drilling Started 4/21/2015 Drilling Completed 4/21/2015

Total Depth Drilled 2 Feet Hole Diameter 3 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 2 ft X 3 in Sampling Interval 1.5-2.0

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used NA Drilling Method _____

Drilling Contractor ARCADIS Driller ~~AP~~/AL Helper ~~AP~~/AL

Prepared By ~~Ashley Poling~~ and Andy Leavitt Hammer Weight _____ Hammer Drop _____ ins.

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	PID Reading (ppm)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
Surface					Dead vegetation
0	2				silty clay, moist to wet, no odor or staining, brown
					1050 - Sample AR-131(1.5-2.0)-042215

Appendix D

Ecological Risk Assessment

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Infrastructure · Water · Environment · Buildings

Imagine the result

Solvay, Inc.

Ecological Risk Assessment

Morrisville, Pennsylvania Facility
USEPA ID No. PAD002336410

July 2015

ARCADIS

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Morrisville, Pennsylvania Facility

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Date:
July 2015

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A Threatened and Endangered Species Results

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Acronyms and Abbreviations

95UCL	95th upper confidence limit
ADD	average daily dose
As	arsenic
AVS	acid volatile sulfide
BSAF	biota-sediment accumulation factors
BTAG	Biological Technical Advisory Group
Cd	cadmium
CPEC	constituent of potential ecological concern
CSM	conceptual Site model
Cu	copper
DMAA	dimethylarsinousacid
ESBTU	equilibrium partitioning sediment benchmark sum toxic unit
EPC	exposure point concentration
ERA	Ecological Risk Assessment
FCV	final chronic value
HASP	Health and Safety Plan
HQ	hazard quotient
K_{oc}	organic-carbon partitioning coefficient
LOAEL	lowest observed adverse effects level
MMAA	monomethylarsonousacid
MOA	Memorandum of Agreement
Ni	nickel
NOAEL	no observed adverse effects level
NPDES	National Pollutant Discharge Elimination System
PADEP	Pennsylvania Department of Environmental Protection
PAH	polycyclic aromatic hydrocarbon
Pb	lead
PNDI	Pennsylvania Natural Diversity Index
RCRA	Resource Conservation and Recovery Act
RI	remedial investigation
RIR	Remedial Investigation Report
ROL	release of liability

SEM	simultaneously extracted metals
SOP	Standard Operating Procedure
SSS	Site-Specific Standard
SUF	Site use factor
SVOC	semi-volatile organic compound
TRV	toxicity reference values
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
Zn	zinc

1. Introduction

This Ecological Risk Assessment (ERA) has been prepared by ARCADIS U.S., Inc. on behalf of Solvay, Inc. (Solvay; formerly Rhodia, Inc.) for its Morrisville, Pennsylvania Facility located at 2300 South Pennsylvania Avenue in Morrisville, Pennsylvania (the "Site", see **Figure 1**). This ERA evaluates potential risk to ecological receptors that may utilize the Site, specifically the on-Site Settling Pond (Area 10).

In 2012, remedial investigation (RI) activities, including the sampling and analysis of soil, sediment, and groundwater at the Site were conducted to assess the path forward for obtaining a Site-wide release of liability (ROL) for soil and groundwater in accordance with a Site-Specific Standard (SSS).

As part of the Remedial Investigation Report Addendum (RIRA), this ERA has been prepared in accordance with the Pennsylvania Department of Environmental Protection (PADEP) Land Recycling Program Technical Guidance Manual (PADEP 2002) and the United States Environmental Protection Agency (USEPA) ecological risk assessment guidance (USEPA 1992, 1997, 1998).

2. Background

2.1 Site Description

The Site is located in Falls Township, Bucks County, Pennsylvania, and occupies approximately 90-acres, 50 acres of which are undeveloped and forested. The location of the Site is shown on **Figure 1**. It is bordered to the north by commercial properties, to the south by Biles Creek and vacant property, to the east by the Delaware River, and to the west by wooded areas and Pennsylvania Avenue, and is fenced to restrict access. The Site Plan is presented on **Figure 2**.

The 40 acres of the developed portion of the Site consist of the former facility area, which operated as an inorganic chemical production facility from 1948 until December 2001. Within this 40 acres is a an approximately 100 x 250 ft Settling Pond (Area 10) that was used for both stormwater runoff and process waste streams. It is also known as the Equalization Basin or Surface Impoundment.

2.2 Site History

The Site was not used for industrial purposes prior to 1948. Since that time it has had several different owners/operators, beginning with Victor Chemical in 1948 and Stauffer Chemical (Stauffer) in the mid-1960s. It was subsequently acquired by Rhône-Poulenc Basic Chemicals (Rhône-Poulenc) in 1987. In 1997, Rhône-Poulenc transferred its chemical assets, including the Morrisville Facility, to Solvay, Inc. (formerly known as Rhodia Inc.) which was incorporated as a separate company in 1998. Operations discontinued in late 2001 and, in early 2002, Solvay began to demolish buildings and process equipment down to concrete slabs. The Site remained dormant from late 2002 through 2008. In 2008, demolition was reinitiated and the remaining buildings were razed. The only building currently remaining onSite is a former office building.

Throughout its operations history, numerous inorganic chemical products were produced at the Site for use in a variety of products, including food additives, dental paste, household cleaners, water treatment, dyes, flame retardants, and desiccants. The primary chemical produced at the Site was phosphoric acid. The main raw material for the production of phosphoric acid is phosphorus, which contains trace amounts of arsenic. During the phosphoric acid manufacturing process, trace amounts of arsenic were precipitated out of the phosphoric acid in the form of arsenic sulfide. The

phosphoric acid was then filtered through diatomaceous earth to separate and collect the arsenic sulfide precipitate.

As previously noted, the Settling Pond (Area 10) was used for both stormwater runoff and process waste streams. Beginning in 1980, the Settling Pond was regulated under the Resource Conservation and Recovery Act (RCRA) because influent was occasionally corrosive (pH below 2.0 or above 12.5). National Pollutant Discharge Elimination System (NPDES) Permit No. PA0011720 was issued in 1981 for the discharge of water from the Settling Pond to Biles Creek. This discharge was monitored downstream of the pond's discharge outlet, before Biles Creek. In January 1983, a new neutralization tank system was implemented that neutralized the influent to a pH between 4 and 9 before it entered the pond. Therefore, the pond was no longer receiving hazardous waste and was eventually released from RCRA requirements. In December 1990, a treatment system was installed on-Site, and contaminated process wastewaters were pre-treated and discharged to the Municipal Authority's water treatment system. This reduced the influent to the pond to non-process wastewater, such as stormwater runoff, boiler/cooling tower blow-downs, and steam condensate. By late December 2001, when cooling tower operations ceased, the pond received stormwater only.

For the purpose of the RI, the entire 90-acre area of the property encompasses the "Site" (**Figure 2**), as the ROL is being pursued for the entire area within the property boundary. However, the 50 acres of undeveloped land are forested, were not used for, and remain un-impacted by, industrial processes or waste management activities. Since development, the Site has been used for the same purpose (i.e., production plant for inorganic chemicals). Additionally, during review of historical documents, no evidence was encountered that led Solvay to believe that there was historical use of the forested land not occupied by the industrial portion of the facility. Framed aerial photographs in the Site office building confirm that the forested land was not used for industrial purposes.

2.3 Current and Future Use

The only building remaining on Site is the former office building. The building is occupied by one Solvay employee for oversight of the Facility during the work week. Access to the property is restricted by fencing. Groundwater at the Site is not used as a source of drinking water and will not be used as drinking water supply in the future. The Site will remain dormant until leased or sold. It was recently re-zoned from Industrial to

mixed Commercial/Residential, and has potential to be part of a redevelopment project in the future.

2.4 Ecological Habitat

As discussed, approximately 50 acres of the Site is comprised of undeveloped, forested land. However, because there is no evidence that this area was impacted by industrial processes, evaluation of that habitat is not included in this ERA. The only other relevant habitat that may have been impacted by historical processes is the Settling Pond. While the Settling Pond is not identified as wetlands habitat according to the National Wetlands Inventory (**Figure 3**), it is surrounded by several wetland areas and appears to provide adequate habitat to support a limited aquatic ecosystem. Runoff from the area is minimal. It is surrounded by a landfill to the east, a wetlands area to the west, the facility area to the north, and a mosaic of upland and wetland forest as well as Biles Creek to the south.

The pond is approximately 5 feet deep at its deepest point. It is surrounded by a man-made berm and chain link fence to prevent trespassers. There is limited emergent vegetation along the edges, including common reed (*Phragmites australis*) and arrow arum (*Peltandra virginica*). The pond is surrounded by a sparse canopy of mature deciduous trees, such as maples (*Acer spp.*) and oaks (*Quercus spp.*). The understory surrounding the pond consists of saplings of species found in the canopy and several invasive species such as multiflora rose (*Rosa multiflora*) and Japanese knotweed (*Fallopia japonica*). During several Site visits, frogs and turtles were noted in the pond. It likely supports a small fish community but none were observed.

2.4.1 Threatened and Endangered Species

As part of the RI, the presence or absence of threatened and endangered species at the Site was evaluated. As an initial step in this review, a Pennsylvania Natural Diversity Index (PNDI) search was performed in December 2013 for the Site which identified several species of concern in the area for further evaluation. Results are provided in **Appendix A**. In an additional request to the Pennsylvania Fish and Boat Commission (**Appendix A**), The Pennsylvania Fish and Boat Commission, in their response letter dated January 14, 2014 (Appendix A), identified that the following species have the potential to occur at the Site:

- Eastern redbelly turtle (*Pseudemys rubriventris*)
- Eastern spadefoot (*Scaphiopus holbrookii*)
- New Jersey chorus frog (*Pseudacris kalmi*)

- Northern cricket frog (*Acris crepitans*)
- Southern leopard frog (*Lithobates sphenocephalus utricularius*)

The Pennsylvania Fish and Boat Commission indicated that if wetlands or waterways are not proposed to be altered, and provided that best management practices are employed and strict erosion and sediment control measures are maintained in any project work, adverse impacts to the species listed above are not anticipated.

Based on a notice on the PNDI Environmental Review Tool that all reviews conducted before May 4, 2015 would require rescreening for information regarding addition the federally-listed threatened northern long-eared bat to the PNDI, a new PNDI search was performed in June 2015 (**Appendix A**). Only minor differences were observed in the results. However, for completeness a new request for PNDI information was submitted to the Pennsylvania Fish and Boat Commission. Subsequent correspondence with the Fish and Boat Commission on June 24, 2015 concluded that no further action was needed as long as the footprint of the Site did not change.

3. Constituents of Potential Ecological Concern

As part of the RI, six surface sediment (0-0.5 ft) samples were collected from the Settling Pond in April 2012. Sampling locations consisted of three linear rows (north to south) that consisted of two sample locations per row ("A10-1" through "A10-6"). Results were compared to USEPA Region 3 Biological Technical Advisory Group (BTAG) Freshwater Sediment Screening Benchmarks (USEPA 2006) for the protection of benthic organisms. Benchmarks were exceeded in the majority of samples for most metals (**Appendix B**). Only cobalt and selenium were detected in sediments at concentrations below their respective benchmarks and were eliminated as constituents of potential ecological concern (CPECs). Most volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) were not detected in sediment samples. The major 17 priority pollutant polycyclic aromatic hydrocarbons (PAHs), hexachlorobenzene, 1,2,4,5-tetrachlorobenzene, and bis(2-ethylhexyl)phthalate were detected in sediments at concentrations above their respective screening values and were identified as CPECs.

Based on the above exceedances, eight additional surface sediment (0-0.5 ft) samples were collected in June 2013 and analyzed for metals and PAHs. Since arsenic is a known Site-related constituent of concern from industrial processes, arsenic speciation was also conducted on the sediment samples. In addition, to evaluate the potential toxicity of metals to benthic organisms, acid volatile sulfide (AVS) and simultaneously extracted metals (SEM) analyses were conducted on the sediment samples. Physical parameters in sediments included total organic carbon, pH, redox potential, and percent solids. Co-located surface water and porewater samples were also collected and analyzed for total and dissolved metals. Sediment, surface water, and porewater datasets are provided in **Appendix B.** Summary statistics for each dataset are provided in **Tables 1 through 3**.

4. Ecological Conceptual Site Model

Based on the ecological habitat, identified CPECs, and description of the Settling Pond, four ecological receptor groups were selected for further evaluation in this ERA:

- Benthic invertebrate community
- Amphibians, reptiles, and fish (i.e., aquatic community)
- Raccoon (*Procyon lotor*)
- Great blue heron (*Ardea herodias*)

The benthic invertebrate community was selected as a receptor of concern because benthic invertebrates have the greatest exposure to bottom sediments that potentially contain CPECs. They are also an important link in the aquatic food web as a food source for other aquatic life (i.e., frogs, fish, and turtles). They were evaluated for exposures to metals, PAHs and other organic chemicals.

Amphibians such as frogs, reptiles such as turtles, and fish are considered to comprise the aquatic community. They are the dominant organisms in the water column and may be exposed to CPECs in sediment and surface water, as well as from the benthic community upon which they feed. These organisms also represent a food source to upper-trophic level wildlife predators (e.g., birds and mammals). These receptors were only evaluated for exposure to metals. PAHs are known to metabolize and be excreted from fish and other aquatic organisms more efficiently than in invertebrates (Meador et al. 1995). As a result PAH concentrations in fish are much lower than in invertebrates and PAHs do not biomagnify through the food web.

The raccoon and heron were selected as upper-trophic level wildlife receptors because the biological success of local populations of these organisms can be tied to the environmental health of supporting habitats. Both species have the potential to be found in the area. They are conservatively assumed to feed on fish and/or frogs, so they can be tied via the food web to the sediments and surface water of the Site area. Additionally, both species are sensitive to CPECs that biomagnify in the food web.

A graphical depiction of the ecological conceptual Site model (CSM) is provided in **Figure 4.**

5. Ecological Exposure Assessment

The exposure assessment describes the dose of each CPEC to which the identified receptors are exposed. Exposure to lower-trophic level organisms (e.g., benthic invertebrate community and aquatic community) is defined solely by the concentrations in Site-collected media. Exposure to upper-trophic level wildlife (birds and mammals) is estimated using a wildlife dose model that incorporates predicted (or measured) concentrations of prey tissue items and is described in Section 5.2.

5.1 Exposure Point Concentrations

Estimates of chemical concentrations at points of potential exposure are necessary for evaluating CPEC intakes by potentially exposed receptors. The concentrations of CPECs in the exposure medium (sediment or surface water) at the exposure point are termed "exposure point concentrations" (EPC). For this ERA, the 95th upper confidence limit (95UCL) of the mean of the dataset was used as the EPC. This process is conservative, ensures that potential ecological threats are not overlooked, and is consistent with values typically required by USEPA and other state agencies for conducting ERAs. EPCs were calculated using ProUCL Version 4.1.00 and are provided in **Tables 4 and 5** for each detected chemical in sediment and surface water that exceeded respective benchmarks.

5.1.1 Surface Sediment

As previously discussed, surface sediment samples were collected from the Settling Pond during two separate sampling events in April 2012 and 2013. Data from each of these sampling events were combined to develop exposure point concentrations to evaluate potential adverse effects to ecological receptors from exposure to CPECs in Settling Pond sediment. Summary statistics for the sediment dataset are provided in **Table 1**. The entire sediment dataset is presented in **Appendix B**.

5.1.2 Surface Water

Surface water data including both total and dissolved metals were collected in June 2013 from mid-water column in the Settling Pond. A total of 8 samples were collected, co-located with the sediment samples collected at the same time. Dissolved metals are used to evaluate risk to aquatic life and benthic invertebrates, while total metals are used in the food web modeling for upper trophic level wildlife receptors. Total metals data include suspended solids and other particulates that may have constituents bound

or associated with the particles. While these particulate-bound constituents may be ingested by wildlife drinking water, they are generally not available for uptake into gills of fish or via direct absorption into tissue. Summary statistics for the surface water dataset are provided in **Table 2**. The entire surface water dataset is presented in **Appendix B**.

5.1.3 Porewater

Porewater is the interstitial water trapped among sediment particles and provides the primary exposure pathway for uptake of chemicals into benthic invertebrates. Because porewater provides a better indication of potential risk to the benthic community than bulk sediment data, porewater data for dissolved metals were also collected from each of the 8 locations where sediment and surface water were collected in 2013. Three porewater devices consisting of glass jars with 0.2 micron mesh covers were deployed at each sampling location within the top six inches of sediment. The jars were filled with deoxygenated, deionized water prior to deployment. The jars were allowed to equilibrate for approximately 2 weeks, when they were retrieved and analyzed for select dissolved metals (antimony, arsenic, cadmium, chromium, copper, lead, mercury, nickel, silver, zinc). Summary statistics for the porewater dataset are provided in **Table 3**. The entire porewater dataset is presented in **Appendix B**.

5.2 Wildlife Exposure Food Web Model

To evaluate potential effects to upper-trophic level wildlife (e.g., mammals and birds) from CPECs, a dose-exposure model is used to estimate the daily intake of CPECs by each receptor:

$$ADD = \frac{\{[(IR_f \times C_f) + (IR_s \times C_s) + (IR_w \times C_w)] \times SUF\}}{BW}$$

Where:

ADD	=	Average daily dose of CPEC (mg/kg-day);
IR_f	=	Daily ingestion of food (kg/d);
C_f	=	Concentration of a CPEC in food (mg/kg);
IR_s	=	Daily incidental ingestion rate of sediment (kg/day);
C_s	=	Concentration of a CPEC in sediment (mg/kg);
IR_w	=	Daily ingestion rate of water (L/day);
C_w	=	Concentration of water (mg/L);
SUF	=	Site use factor (unitless);

Exposure to each CPEC is estimated by calculating an average daily dose (ADD) using: (1) exposure media-specific concentrations, (2) estimated exposure-point concentrations for prey tissue, and (3) receptor-specific exposure parameters. The ADD represents the amount of CPEC that an individual member of a receptor population would ingest if it foraged for at least a portion of the time within the exposure area.

5.2.1 Exposure Model Input Parameters

Receptor-specific exposure parameters from the scientific literature were used to calculate the ADD for the raccoon and great blue heron. Receptor-specific exposure parameters include body weight, food ingestion rate, water ingestion rate, and incidental sediment ingestion rate. An additional exposure parameter, foraging habitat and range, was used to determine the Site use factor (SUF). Because both raccoons and great blue heron will utilize a much larger area for foraging than just the Settling Pond, the SUF was adjusted according to the percentage of total foraging area that the Settling Pond represents. The species-specific life history parameters used to calculate exposure for various receptors are listed in **Table 6**.

5.2.2 Food Input Parameters

To estimate a concentration of prey tissue that a raccoon or heron would consume, biota-sediment accumulation factors (BSAFs) from the literature were used to calculate tissue concentrations for each CPEC in sediment. BSAFs and resulting tissue concentrations are provided in **Tables 7 and 8.**

5.3 Ecological Effects Assessment

The ecological effects assessment describes the potential adverse effects associated with the identified CPECs to ecological receptors, and reflects the type of assessment endpoints selected. A line of evidence approach was used to evaluate potential effects to benthic invertebrates. This line of evidence approach consisted of the following: AVS and SEM approach to evaluate potential toxicity from metals, and an equilibrium partitioning sediment benchmark sum toxic unit (∑ESBTU) approach to evaluate potential toxicity from PAHs.

To evaluate potential effects to the aquatic community, surface water data are compared to surface water criteria for the protection of aquatic life.

To evaluate potential effects to upper-trophic level wildlife (birds and mammals) wildlife toxicity reference values (TRVs) from the literature were selected and compared to the ADD calculated in the food web models in the exposure assessment.

5.3.1 Ecotoxicological Screening Benchmarks

Conservative ecotoxicological benchmarks are risk-based screening concentrations that are used to conduct the preliminary screen and identify CPECs in surface water and sediment. They are chemical-specific and represent chemical concentrations in a matrix below which adverse effects are unlikely to occur.

Two sets of ecotoxicological benchmarks were utilized to identify CPECs: freshwater sediment screening benchmarks and surface water quality criteria for the protection of aquatic life. Each is discussed in the following sections.

5.3.1.1 Freshwater Sediment Screening Benchmarks

USEPA Region 3 BTAG Freshwater Sediment Screening Benchmarks (USEPA 2006) were used to screen the bulk sediment data and provide the list of CPECs for additional evaluation. Sediment screening benchmarks are provided in the sediment dataset in **Appendix B.**

5.3.1.2 Surface Water Quality Criteria

Surface water and porewater analytical data were compared to 25 Pa. Code § 16.51 Pennsylvania's Aquatic Life Criteria for Toxic Substances for chronic effects (available: http://www.pacode.com/secure/data/025/chapter93/s93.8c.html) and supplemented with USEPA Region 3 BTAG Freshwater Screening Benchmarks (USEPA 2006).

Site-specific hardness values were incorporated into the water quality criteria, as appropriate for specific metals that are hardness-dependent. The surface water screening values are provided in the surface water data tables in **Appendix B**. **Tables B-1b and B-2b** provide the hardness-specific surface water quality criteria used to screen the surface water and porewater data.

5.3.2 Site-specific Ecotoxicological Benchmarks

The conservative sediment benchmarks discussed in the previous section are not intended to serve as reference levels that will trigger specific actions if exceeded. The exceedance of a conservative screening benchmark is not confirmation that an adverse ecological effect is occurring. Rather, the benchmarks are primarily intended to help focus and prioritize project objectives and data requirements during the planning and implementation of Site-specific investigations by identifying constituents and particular areas of Sites that may pose potential risks to aquatic receptors.

To provide a more Site-specific evaluation of potential risk to benthic invertebrates, an evaluation using the results of AVS and SEM data collected from the Settling Pond was conducted for metals in sediment. In addition, the ∑ESBTU evaluation was conducted to evaluate potential effects to benthic invertebrates from PAHs in pond sediment. Both are described below.

5.3.2.1 AVS and SEM Evaluation

AVS is used to predict the toxicity in sediments of divalent metals, including copper (Cu), cadmium (Cd), nickel (Ni), lead (Pb) and zinc (Zn) (Di Toro et al. 1992, Ankley et al.1996, Berry et al. 1996). The rationale is that the AVS present in sediment reacts with the SEM, the reactive metal fraction that is measured in the cold acid extract used to measure AVS. This reaction forms an insoluble metal sulfide that is relatively non-available for uptake by benthic organisms. Therefore the amount of AVS present in sediments serves a critical role in setting the limits of metal availability and toxicity. The appropriate measure of the sediment metal concentration to use in comparing the concentration of sediment metals to AVS is the SEM concentration, which is the sum of all of the divalent metals that is extracted simultaneously with sulfide in the analytical procedure used to measure AVS, and is denoted as ΣSEM. For divalent metals, one mole of SEM will react with one mole of AVS in sediments.

Equilibrium partitioning theory predicts that the divalent metals partition in sediment between AVS, interstitial (pore) water, benthic organisms, and other sediment phases such as organic carbon. Biological responses of benthic organisms to these metals in sediments are different across sediments when the sediment concentrations are expressed on a dry weight basis, but similar when sediments are normalized to ∑SEM-AVS. The difference between the sum of the molar concentrations of simultaneously extracted metal (∑SEM, the metal extracted in the AVS extraction procedure) minus the molar concentration of AVS predicts which sediments are not toxic (USEPA 2005).

Using AVS and SEM results, organic carbon content in sediments, and the theory of equilibrium partitioning, sediments collected at the eight locations in the Settling Pond were evaluated. $(\sum SEM\text{-}AVS)/f_{oc}$ represents the amount of ∑SEM in excess of AVS normalized to organic carbon, where ∑SEM was calculated according to USEPA (2005) as the molar sum of the concentrations of Cd, Cu, Pb, Ni, and Zn, extracted simultaneously with AVS. The results provide a benchmark for potential acute toxicity to benthic organisms.It should be noted that while this approach can be used to predict the absence of toxicity, it is a less accurate indicator of the presence of toxicity. In other words, results suggesting that some metals may be bioavailable based on the amount of AVS present does not take into account other site-specific factors that could affect bioavailability and related toxicity.

- If $(\sum SEM\text{-}AVS)/f_{oc}$ <130 umol/g_{oc}, metals are unlikely to be bioavailable and sediments are likely to have limited toxicity due to Cd, Cu, Pb, Ni, or Zn.

- If 130 umol/g_{oc} < $(\sum SEM\text{-}AVS)/f_{oc}$ < 3000 umol/g_{oc}, metals may be bioavailable.

- If $(\sum SEM\text{-}AVS)/f_{oc}$ > 3000 umol/g_{oc}, metals are likely to be bioavailable.

The evaluation of AVS and SEM in sediments is provided in **Table 9**.

5.3.2.2 Equilibrium Partitioning Sediment Benchmark Evaluation

Potential risks to benthic invertebrates from PAHs in the Settling Pond were evaluated using the equilibrium partitioning approach developed for mixtures of PAHs (USEPA 2003). This approach evaluates the additive potential toxicity of PAHs and addresses Site-specific conditions that may affect their bioavailability. To evaluate the potential toxicity and additivity of individual PAHs via equilibrium partitioning, Site-specific concentrations of individual PAHs ($C_{oc,PAHi}$) in surface sediments were normalized to Site-specific organic carbon and compared to organic carbon-normalized TRVs for each individual PAH ($C_{oc,PAHi,\ FCVi}$). Each TRV ($C_{oc,PAHi,\ FCVi}$) was calculated as the product of an individual PAH's final chronic value (FCV; developed for the National Ambient Water Quality Criteria) and organic-carbon partitioning coefficient (K_{oc}). Thus, these TRVs ($C_{oc,PAHi,\ FCVi}$) represent sediment PAH concentrations that, according to chemical partitioning theory, would result in the maximum dissolved PAH concentrations in interstitial water that are protective of benthic organisms.

A comparison of the organic carbon-normalized sediment concentration ($C_{oc,PAHi}$) to the organic carbon-normalized equilibrium partitioning TRVs ($C_{oc,PAHi,\ FCVi}$) results in the calculation of the Equilibrium Partitioning Sediment Benchmark Toxic Unit (ESBTU) for each individual PAH. The ESBTUs are then summed to derive a total PAH value (∑ESBTU). Summed values equivalent to, or less than, 1.0 indicate a lack of predicted effects from mixtures of PAHs. The approach was developed based on analysis of 34 individual PAH compounds. The eight surface sediment samples collected in 2013 were analyzed for all of these PAH compounds; therefore no uncertainty factors were required (USEPA 2003). ∑ESBTU values were calculated for each of the eight sediment sampling locations evaluated in the Settling Pond (**Table 10**).

5.3.3 Wildlife Toxicity Reference Values

Potential ecological impacts to wildlife receptors (raccoon and great blue heron) were assessed by comparing calculated doses of CPECs to conservative wildlife TRVs that are derived from available toxicological data. Two TRVs were derived for each CPEC and wildlife receptor: a no observed adverse effects level (NOAEL) and a lowest observed adverse effects level (LOAEL). The NOAEL corresponds to the highest exposure concentration (dose) at which no adverse effects on growth, reproduction, or survival are expected to be observed. The LOAEL corresponds to the lowest dose at which adverse effects on growth, reproduction, or survival may be observed. TRVs were selected from the following sources:

- USEPA's Ecological Soil Screening Level Guidance (2007)
- Toxicological studies cited in Sample et al. (1996)

An uncertainty factor of 10 was applied to the TRV in cases where a NOAEL TRV was available but a LOAEL was not. **Table 11** presents the TRVs used as benchmarks for upper-trophic level wildlife.

Wildlife TRVs are compared to the estimated ADD from the food web dose models to obtain a hazard quotient (HQ). Hazard quotients exceeding a value of 1 indicate the potential for adverse effects.

6. Risk Characterization

Risk characterization combines Site-related exposures and the potential for ecotoxicological effects to estimate the likelihood of ecological risks. The risk characterization is conducted for each receptor of concern, using multiple lines of evidence.

6.1 Benthic Invertebrate Community

Potential ecological risks to the benthic invertebrate community were evaluated using site-specific sediment and porewater chemistry data. The results of each line of evidence evaluated for the benthic invertebrate community are presented below by chemical grouping:

6.1.1 Metals

AVS and SEM analyses were conducted to evaluate the potential toxicity of metals in bulk sediment, as described in Section 5.3.1.3. Results of the AVS and SEM evaluation are provided in **Appendix B (B-4)** and summarized below**.** Results indicate that concentrations of metals in sediment (particularly cadmium, copper, lead, mercury, nickel, and zinc) could potentially be toxic to benthic invertebrates. However, while all samples show results of $\sum$SEM-AVS/f_{oc} greater than 130 umol/$g_{oc,}$, all are below 3000 umol/$g_{oc.}$ So, while there is the possibility that these metals in Site sediments could be toxic, no samples have results greater than 3000 umol/g_{oc}, which would more definitively indicate bioavailable metals and toxicity.

Sample ID	($\sum$SEM-AVS) / f_{oc}
SED-1	1771
SED-2	905
SED-2 (duplicate)	1313
SED-3	1639
SED-4	851
SED-5	2213
SED-6	2290
SED-7	2444
SED-8	2416

Porewater provides another estimate of the exposure of benthic organisms to chemicals in sediment than bulk sediment chemistry data. This is because porewater is the media that is actually ingested by benthic organisms and can be directly absorbed into invertebrate tissues. Porewater was evaluated for dissolved metals and compared to surface water quality criteria described in Section 5.3.1.2. Based on this screen, only four metals (aluminum, cadmium, iron, and manganese) have concentrations in porewater that exceed surface water quality criteria in some samples. Only iron exceeds its water quality criteria value in all samples. Cadmium and manganese concentrations each exceed criteria in only two samples; aluminum concentrations exceed criteria in only one sample.

Based on the results of these analyses, there is unlikely to be any risk to the benthic invertebrate community from metals in sediment. Although the AVS/SEM analysis indicates that metals may be bioavailable, the lack of detected concentrations in the porewater suggests that other chemical or physical factors may be affecting the availability of these chemicals.

The Site is known to have high levels of arsenic in environmental media; therefore arsenic speciation was used to evaluate the particular form of arsenic that is in the sediments and evaluate its bioavailability potential. Specifically, speciation determined the quantity of inorganic arsenic (As [III], As [V]), and organic arsenic species (dimethylarsinousacid [DMAA] and monomethylarsonousacid [MMAA]) in sediment. Results are provided in **Appendix B (B-3)**. While the majority of arsenic is in the inorganic As (III) form in sediments, it does not appear to be leaching into porewater, since all porewater concentrations of arsenic are below their respective water quality criterion **(Appendix B-2a)**. Thus exposure and uptake of arsenic to benthic organisms is low and there is unlikely to be any adverse ecological effects from arsenic in sediment.

Overall, the metals present in bulk sediments do not appear to be leaching from sediment into porewater and are therefore are not likely to be available for uptake by benthic organisms. This lack of bioavailability and exposure indicates limited potential adverse ecological effects from metals to the benthic community residing in the Settling Pond.

6.1.2 Polycyclic Aromatic Hydrocarbons

PAHs were further evaluated using the ∑ESBTU approach described in Section 5.3.1.4. Results of the ∑ESBTU evaluation are provided in **Appendix B (B-5)** and

summarized below. Results are all less than or equal to 1, thereby demonstrating a lack of predicted effects to the benthic community from the mixture of PAHs in sediment.

Sample	∑ESBTU
SED-1	0.6
SED-2 *	1.0
SED-3	0.6
SED-4	0.2
SED-5	0.5
SED-6	0.4
SED-7	0.5
SED-8	0.3

Note:
* Average of parent and duplicate sample

6.1.3 Other Organic Compounds

Hexachlorobenze,1,2,4,5-tetrachlorobenzene, benzene, hexachlorobenzene, bis(2-ethylhexyl)phthalate, and m,p-xylene also exceed their respective sediment screening benchmarks in various sediment samples. Because these compounds were sporadically detected at low concentrations, are generally volatile, not likely to remain tightly bound to sediment particles, and are not considered bioaccumulative, there is no anticipated adverse ecological effects predicted from exposure of benthic invertebrates to these compounds.

6.2 Aquatic Community

Potential ecological risks to the aquatic community, consisting of fish, amphibians, and turtles were evaluated by comparing dissolved metals concentrations in surface water to surface water quality criteria for the protection of aquatic life. Results are presented in **Appendix B (B-1a)**. Only dissolved cadmium (in three samples) and dissolved copper (in one sample) concentrations exceed surface water quality criteria. The arithmetic average concentration of cadmium is lower than the average cadmium surface water quality criterion.

6.3 Upper-trophic Level Wildlife

Potential ecological risks to upper-trophic level wildlife (i.e., birds and mammals) were evaluated using surface water and sediment chemistry data in a food web dose model. To be conservative, all detected constituents that exceeded sediment screening benchmarks were evaluated in the food web model. This included metals, PAHs, and VOCs. Results for the raccoon and great blue heron are provided in **Tables 12 and 13,** respectively. A summary of results is provided below and discussed in the following subsections.

6.3.1 Raccoon

Hazard quotients for the raccoon are provided in **Table 12.** Both NOAEL and LOAEL-based HQs are below 1 for all CPECs evaluated. Therefore there is no potential for risk to the raccoon from exposure to CPECs in Settling Pond media.

6.3.2 Great Blue Heron

Hazard quotients for the great blue heron are provided in **Table 13.** Both NOAEL and LOAEL-based HQs are below 1 for all CPECs evaluated except for nickel which has a NOAEL-based HQ of 2. The less conservative LOAEL-based HQ is 0.2. Therefore there is no potential for risk to the great blue heron from exposure to CPECs in Settling Pond media.

CPEC	Raccoon		Great Blue Heron	
	NOAEL	LOAEL	NOAEL	LOAEL
Metals				
Antimony	<1	<1	NA	NA
Arsenic	<1	<1	<1	<1
Cadmium	<1	<1	<1	<1
Chromium	<1	<1	<1	<1
Copper	<1	<1	<1	<1
Lead	<1	<1	<1	<1
Manganese	<1	<1	<1	<1
Mercury	<1	<1	<1	<1
Nickel	<1	<1	**2**	<1
Silver	<1	<1	<1	<1
Zinc	<1	<1	<1	<1

CPEC	Raccoon		Great Blue Heron	
	NOAEL	LOAEL	NOAEL	LOAEL
PAHs				
2-Methylnaphthalene	<1	<1	<1	<1
Acenaphthene	<1	<1	<1	<1
Acenaphthylene	<1	<1	<1	<1
Anthracene	<1	<1	<1	<1
Benzo(a)anthracene	<1	<1	<1	<1
Benzo(a)pyrene	<1	<1	<1	<1
Benzo(g,h,i)perylene	<1	<1	<1	<1
Benzo(k)fluoranthene	<1	<1	<1	<1
Chrysene	<1	<1	<1	<1
Dibenzo(a,h)anthracene	<1	<1	<1	<1
Fluoranthene	<1	<1	<1	<1
Fluorene	<1	<1	<1	<1
Indeno(1,2,3-cd)pyrene	<1	<1	<1	<1
Phenanthrene	<1	<1	<1	<1
Pyrene	<1	<1	<1	<1
Other Organics				
Benzene	<1	<1	NA	NA
Bis(2-Ethylhexyl)phthalate	<1	<1	<1	<1
m,p-Xylene	<1	<1	NA	NA

7. Uncertainty

As with all risk assessments, a level of uncertainty exists with this ERA. Key sources of uncertainty include data uncertainty and the conservative assumptions used regarding exposure to, and uptake of, contaminated media. Uncertainties that impact the results are briefly described below.

7.1 Data

For a limited number of constituents, mainly in water, detection limits exceeded the conservative benchmarks, which could potentially lead to an underestimation of risk. In addition, potential risk associated with a number of metals in sediment could not be quantitatively evaluated because screening benchmarks are unavailable. For most of these metals, little is known about their environmental fate, transport, and/or toxicity or the information available indicates that they are unlikely to pose significant risk to ecological receptors. Because there is limited toxicity and/or scientific information on these constituents, the magnitude of extent on the potential for risk is unknown.

7.2 Exposure Parameters

Risk assessment requires assumptions regarding the extent to which organisms are exposed to constituents at the Site. The exposure parameters used to conduct food web models for birds and mammals were selected to represent conservative feeding strategies for each of the selected receptors. These exposure parameters are not Site-specific. Because Site-specific habitat characteristics (e.g., availability, distribution, and quality of food) influence feeding strategies and, therefore, exposure parameters, there is uncertainty associated with using non Site-specific exposure parameters.

Non-Site-specific, modeled accumulation factors were utilized to estimate dietary tissue uptake, which introduce a high degree of uncertainty. Furthermore, BSAFs are highly variable and dependent upon the species tested, the lipid content of the organism, and the organic carbon content of the sediment. To date only non-polar organic compounds have been shown to uphold to the relationship between sediment organic content and tissue lipids, and even these chemicals show a wide variation in BSAF values (USACE ERDC EL 2011). The direction and magnitude of this uncertainty are not measurable.

8. Summary and Conclusion

This ERA considers several lines of evidence to predict potential risk to four groups of ecological receptors using the on-Site Settling Pond: benthic invertebrates, the aquatic community (consisting of frogs, reptiles, fish), mammals, and birds. Although some of the lines of evidence suggest limited potential for risk, this ERA predicts negligible risk to all ecological receptor groups from the CPECs identified in Settling Pond media.

9. References

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ARCADIS

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Appendix A

Threatened and Endangered Species Results

ARCADIS

Appendix B

Datasets

ARCADIS

Tables

Table 1. Sediment Summary Statistics
Solvay
Morrisville, Pennsylvania Facility

CAS	Chemical	Units	Detection Frequency	Detection Frequency (%)	Minimum Detect	Maximum Detect	Max Detect Location	Non-Detect Range	Median Value	Arithmetic Average	Geometric Mean	Standard Deviation
AVS/SEM												
ARC-AVS	Acid Volatile Sulfide	umol/g	0/8	0				0.19 - 0.49				
7440-43-9	Cadmium	umol/g	8/8	100	0.0498	0.15	SED-04		0.106	0.103	0.097	0.034
7440-50-8	Copper	umol/g	8/8	100	5.56	10.4	SED-03		8.36	8.33	8.2	1.5
7439-92-1	Lead	umol/g	8/8	100	1.265	2.57	SED-08		1.71	1.79	1.75	0.428
7439-97-6	Mercury	umol/g	2/8	25	0.00011	0.000165	SED-05	0.0001 - 0.00019	0.000138	0.000138	0.000135	0.0000389
7440-02-0	Nickel	umol/g	8/8	100	10.2	58.1	SED-07		19.1	25.6	22	16.8
7440-66-6	Zinc	umol/g	8/8	100	17.7	42.8	SED-04		25.8	26.9	25.8	8.21
Metals												
7429-90-5	Aluminum	mg/kg	14/14	100	7560	38900	SED-04		13100	15100	13700	7830
7440-36-0	Antimony	mg/kg	14/14	100	18.7	207	SED-01		72.6	79.2	64.8	50.7
7440-38-2	Arsenic	mg/kg	14/14	100	47	740	A10-02		117	176	131	178
7440-39-3	Barium	mg/kg	14/14	100	160	720	SED-08		330	343	318	143
7440-41-7	Beryllium	mg/kg	12/14	85.7	0.19	2	SED-04	0.48 - 0.9	0.6	0.816	0.671	0.552
7440-43-9	Cadmium	mg/kg	14/14	100	1.8	20.7	SED-01		7.55	8.52	7.18	5.01
7440-70-2	Calcium	mg/kg	14/14	100	22000	116000	SED-08		55000	61000	54900	28600
7440-47-3	Chromium	mg/kg	14/14	100	101	758	SED-08		268	286	250	166
18540-29-9	Chromium VI	mg/kg	0/6	0				2.5 - 4.8				
7440-48-4	Cobalt	mg/kg	7/14	50	5.3	24.8	SED-01	11 - 30	11	11.6	10.4	6.37
7440-50-8	Copper	mg/kg	14/14	100	220	1020	SED-01		336	435	386	253
7439-89-6	Iron	mg/kg	14/14	100	16800	91200	SED-08		35000	38600	34900	19400
7439-92-1	Lead	mg/kg	14/14	100	57	478	SED-01		270	277	243	127
7439-95-4	Magnesium	mg/kg	11/14	78.6	1300	3620	SED-07	2000 - 2750	2390	2470	2340	828
7439-96-5	Manganese	mg/kg	14/14	100	326	1120	SED-04		650	654	615	236
7439-97-6	Mercury	mg/kg	14/14	100	4.4	14.8	SED-07		6.15	7.54	6.95	3.37
7440-02-0	Nickel	mg/kg	14/14	100	490	3180	SED-08		1300	1490	1270	878
7440-09-7	Potassium	mg/kg	6/14	42.9	410	1200	A10-05	2300 - 6000	785	800	761	261
7782-49-2	Selenium	mg/kg	0/14	0				4.5 - 12				
7440-22-4	Silver	mg/kg	12/14	85.7	2.5	17	A10-02	2.75 - 3	7.25	7.93	6.96	4.12
7440-23-5	Sodium	mg/kg	6/14	42.9	620	1700	A10-04	2300 - 6000	1400	1300	1240	398
7440-28-0	Thallium	mg/kg	0/14	0				2.3 - 6				
7440-62-2	Vanadium	mg/kg	12/14	85.7	15.3	72.5	SED-04	22 - 27.5	23	26.5	24	15.4
7440-66-6	Zinc	mg/kg	14/14	100	520	2800	SED-01		1170	1280	1140	691
Arsenic Speciation												
ARC-AS3	Arsenate (+5)	mg/kg	2/8	25	14.7	18	SED-07	5.5 - 37.2	16.4	16.4	16.3	2.33
7440-38-2	Inorganic Arsenic	mg/kg	8/8	100	15.7	348	SED-05		23.7	72.4	37.5	113
ARC-AS5	Arsenite (+3)	mg/kg	8/8	100	12	327	SED-05		22.3	64.5	32.3	107
DMA	DMA	mg/kg	0/8	0				0.3 - 0.3				
MMA	MMA	mg/kg	0/8	0				0.3 - 0.3				
Miscellaneous												
ARC-ORP	Oxidation Reduction Potential	mV	6/6	100	-56	5.9	A10-03		-2.2	-11.9	2040	23.8
ARC-PSOL	Percent Solids	%	14/14	100	21	40	A10-05		30.6	30.8	30.3	5.82
ARC-pH	pH	SU	6/6	100	6.7	7	A10-02,A10-05		6.85	6.85	6.85	0.138
ARC-TOC	Total Organic Carbon	mg/kg	14/14	100	19000	74000	SED-04		36400	37500	35000	14700
SVOCs												
92-52-4	1,1-Biphenyl	mg/kg	8/14	57.1	0.0167	0.0704	SED-02(6/19/2013 2:30:00 PM)	0.25 - 0.67	0.0386	0.0377	0.0345	0.0166
526-73-8	1,2,3-Trimethylbenzene	mg/kg	8/8	100	0.008	0.0334	SED-04		0.011	0.0142	0.0126	0.0085
95-63-6	1,2,4-Trimethylbenzene	mg/kg	6/8	75	0.0077	0.02025	SED-02(6/19/2013 2:30:00 PM)	0.014 - 0.02	0.0131	0.013	0.0121	0.00522
108-67-8	1,3,5-Trimethylbenzene	mg/kg	3/8	37.5	0.005	0.0105	SED-02(6/19/2013 2:30:00 PM)	0.0092 - 0.028	0.0088	0.0081	0.00773	0.00282

Table 1. Sediment Summary Statistics
Solvay
Morrisville, Pennsylvania Facility

CAS	Chemical	Units	Detection Frequency	Detection Frequency (%)	Minimum Detect	Maximum Detect	Max Detect Location	Non-Detect Range	Median Value	Arithmetic Average	Geometric Mean	Standard Deviation
243-17-4	11H-Benzo[b]fluorene	mg/kg	8/8	100	0.0188	0.196	SED-02(6/19/2013 2:30:00 PM)		0.0512	0.0652	0.0499	0.0572
90-12-0	1-Methylnaphthalene	mg/kg	8/8	100	0.0197	0.074	SED-02(6/19/2013 2:30:00 PM)		0.0385	0.0433	0.0397	0.0192
2381-21-7	1-Methyl-Pyrene	mg/kg	8/8	100	0.0154	0.0977	SED-07		0.0461	0.0519	0.0439	0.0295
3891-98-3	2,6,10 Trimethyldodecane (1380)	mg/kg	8/8	100	0.0678	0.8845	SED-02(6/19/2013 2:30:00 PM)		0.167	0.255	0.176	0.272
3891-99-4	2,6,10 Trimethyltridecane (1470)	mg/kg	8/8	100	0.151	1.695	SED-02(6/19/2013 2:30:00 PM)		0.308	0.492	0.359	0.509
1921-70-6	2,6,10,14-Tetramethylpentadecane	mg/kg	8/8	100	0.546	3.985	SED-02(6/19/2013 2:30:00 PM)		1.11	1.4	1.1	1.15
91-57-6	2-Methylnaphthalene	mg/kg	14/14	100	0.0328	0.19	A10-01		0.0632	0.0805	0.0711	0.0438
3442-78-2	2-Methylpyrene	mg/kg	8/8	100	0.0235	0.139	SED-07		0.0699	0.0804	0.0694	0.0429
135-98-8	2-Phenylbutane	mg/kg	0/8	0				0.0085 - 0.028				
3353-12-6	4-Methylpyrene	mg/kg	8/8	100	0.0208	0.172	SED-07		0.0715	0.0832	0.0674	0.0536
205-12-9	7H-Benzo[c]fluorene	mg/kg	8/8	100	0.0096	0.06895	SED-02(6/19/2013 2:30:00 PM)		0.0216	0.0261	0.0216	0.0191
83-32-9	Acenaphthene	mg/kg	8/14	57.1	0.0089	0.05085	SED-02(6/19/2013 2:30:00 PM)	0.25 - 0.67	0.0207	0.0241	0.0214	0.0129
208-96-8	Acenaphthylene	mg/kg	13/14	92.9	0.048	0.256	SED-02(6/19/2013 2:30:00 PM)	0.67 - 0.67	0.089	0.123	0.106	0.0711
120-12-7	Anthracene	mg/kg	14/14	100	0.0622	0.4345	SED-02(6/19/2013 2:30:00 PM)		0.163	0.171	0.151	0.0938
71-43-2	Benzene	mg/kg	8/8	100	0.0486	0.327	SED-04		0.109	0.134	0.115	0.0856
56-55-3	Benzo(a)Anthracene	mg/kg	14/14	100	0.0917	1.099	SED-02(6/19/2013 2:30:00 PM)		0.429	0.459	0.387	0.256
50-32-8	Benzo(a)Pyrene	mg/kg	14/14	100	0.117	1.28	SED-02(6/19/2013 2:30:00 PM)		0.485	0.506	0.43	0.294
205-99-2	Benzo(b)fluoranthene	mg/kg	14/14	100	0.162	1.9	A10-03		0.864	0.959	0.794	0.539
192-97-2	Benzo(e)Pyrene	mg/kg	8/8	100	0.144	1.39	SED-02(6/19/2013 2:30:00 PM)		0.599	0.586	0.473	0.393
191-24-2	Benzo(g,h,i)Perylene	mg/kg	14/14	100	0.118	1.255	SED-02(6/19/2013 2:30:00 PM)		0.57	0.575	0.487	0.31
207-08-9	Benzo(k)Fluoranthene	mg/kg	14/14	100	0.131	1.555	SED-02(6/19/2013 2:30:00 PM)		0.41	0.506	0.41	0.367
239-35-0	Benzo[b]naphtho[2,1-d]thiophene	mg/kg	8/8	100	0.0274	0.313	SED-02(6/19/2013 2:30:00 PM)		0.112	0.122	0.0953	0.0902
11095-43-5	Benzothiophene	mg/kg	2/8	25	0.0107	0.0148	SED-02(6/19/2013 2:30:00 PM)	0.0085 - 0.028	0.0128	0.0128	0.0126	0.0029
ARC-C17	C-17	mg/kg	8/8	100	0.168	4.275	SED-02(6/19/2013 2:30:00 PM)		0.369	0.939	0.52	1.38
ARC-C18	C-18	mg/kg	8/8	100	0.054	2.31	SED-02(6/19/2013 2:30:00 PM)		0.2	0.504	0.253	0.753
ARC-C1BENZ	C1-Benzene	mg/kg	8/8	100	0.0723	0.433	SED-04		0.128	0.173	0.148	0.116
ARC-PAH-BT1	C1-Benzo(b)thiophenes	mg/kg	7/8	87.5	0.0054	0.02165	SED-02(6/19/2013 2:30:00 PM)	0.028 - 0.028	0.0099	0.0106	0.00959	0.0054
ARC-C1CHR-BNAAN	C1-Chrysenes/Benzo(a)anthracenes	mg/kg	8/8	100	0.145	0.5525	SED-02(6/19/2013 2:30:00 PM)		0.262	0.267	0.244	0.133
ARC-PAH-D1	C1-Decalins	mg/kg	8/8	100	0.0398	0.264	SED-02(6/19/2013 2:30:00 PM)		0.0833	0.111	0.0891	0.0799
ARC-C1-DBTHIOP	C1-Dibenzothiophenes	mg/kg	8/8	100	0.0466	0.3285	SED-02(6/19/2013 2:30:00 PM)		0.0793	0.116	0.0937	0.0933
ARC-C1-FLUO-PYR	C1-Fluoranthenes/Pyrenes	mg/kg	8/8	100	0.264	1.2555	SED-02(6/19/2013 2:30:00 PM)		0.499	0.579	0.522	0.311
ARC-C1-FLUOR	C1-Fluorenes	mg/kg	8/8	100	0.036	0.2245	SED-02(6/19/2013 2:30:00 PM)		0.0711	0.0834	0.0708	0.0603
ARC-PAH-N1	C1-Naphthalenes	mg/kg	8/8	100	0.0315	0.1179	SED-02(6/19/2013 2:30:00 PM)		0.0562	0.0682	0.0622	0.0314
ARC-PAH-NBT1	C1-Naphthobenzothiophenes	mg/kg	8/8	100	0.0459	0.244	SED-02(6/19/2013 2:30:00 PM)		0.102	0.113	0.0986	0.0637
ARC-C1-PHN-ATH	C1-Phenanthrenes/Anthracenes	mg/kg	8/8	100	0.173	1.228	SED-02(6/19/2013 2:30:00 PM)		0.399	0.454	0.384	0.33
ARC-C2BENZ	C2-Benzenes	mg/kg	8/8	100	0.0943	0.393	SED-04		0.155	0.196	0.174	0.111
ARC-PAH-BT2	C2-Benzo(b)thiophenes	mg/kg	0/8	0				0.0085 - 0.028				
ARC-C2CHR-BNAAN	C2-Chrysenes/Benzo(a)anthracenes	mg/kg	8/8	100	0.102	0.354	SED-02(6/19/2013 2:30:00 PM)		0.167	0.194	0.178	0.0892
ARC-PAH-D2	C2-Decalins	mg/kg	8/8	100	0.0673	0.457	SED-02(6/19/2013 2:30:00 PM)		0.144	0.182	0.151	0.128
ARC-C2-DBTHIOP	C2-Dibenzothiophenes	mg/kg	8/8	100	0.166	0.9765	SED-02(6/19/2013 2:30:00 PM)		0.504	0.491	0.417	0.276
ARC-C2-FLUO-PYR	C2-Fluoranthenes/Pyrenes	mg/kg	8/8	100	0.176	0.746	SED-07		0.361	0.427	0.387	0.199
ARC-PAH-F2	C2-Fluorenes	mg/kg	7/8	87.5	0.0751	0.61	SED-02(6/19/2013 2:30:00 PM)	0.028 - 0.028	0.218	0.241	0.202	0.172
ARC-PAH-N2	C2-Naphthalenes	mg/kg	8/8	100	0.175	0.741	SED-02(6/19/2013 2:30:00 PM)		0.249	0.314	0.28	0.186
ARC-PAH-NBT2	C2-Naphthobenzothiophenes	mg/kg	8/8	100	0.0791	0.3465	SED-02(6/19/2013 2:30:00 PM)		0.164	0.17	0.155	0.0834
ARC-PAH-PA2	C2-Phenanthrenes/Anthracenes	mg/kg	8/8	100	0.181	1.32	SED-02(6/19/2013 2:30:00 PM)		0.509	0.586	0.49	0.365
ARC-C3BENZ	C3-Benzenes	mg/kg	1/8	12.5	0.0762	0.0762	SED-02(6/19/2013 2:30:00 PM)	0.0085 - 0.028	0.0762	0.0762	0.0762	
ARC-PAH-BT3	C3-Benzo(b)thiophenes	mg/kg	0/8	0				0.0085 - 0.028				
ARC-C3CHR-BNAAN	C3-Chrysenes/Benzo(a)anthracenes	mg/kg	3/8	37.5	0.208	0.498	SED-07	0.014 - 0.028	0.228	0.311	0.287	0.162
ARC-PAH-D3	C3-Decalins	mg/kg	8/8	100	0.0674	0.3755	SED-02(6/19/2013 2:30:00 PM)		0.118	0.149	0.127	0.101

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Solvay
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CAS	Chemical	Units	Detection Frequency	Detection Frequency (%)	Minimum Detect	Maximum Detect	Max Detect Location	Non-Detect Range	Median Value	Arithmetic Average	Geometric Mean	Standard Deviation
ARC-PAH-DBT3	C3-Dibenzothiophenes	mg/kg	8/8	100	0.0732	0.59	SED-02(6/19/2013 2:30:00 PM)		0.16	0.219	0.171	0.176
ARC-C3-FLUO-PYR	C3-Fluoranthenes/Pyrenes	mg/kg	8/8	100	0.106	0.625	SED-07		0.271	0.305	0.259	0.18
ARC-C3-FLUOR	C3-Fluorenes	mg/kg	7/8	87.5	0.104	0.673	SED-02(6/19/2013 2:30:00 PM)	0.028 - 0.028	0.24	0.288	0.249	0.183
ARC-PAH-N3	C3-Naphthalenes	mg/kg	8/8	100	0.0956	1.54	SED-02(6/19/2013 2:30:00 PM)		0.44	0.513	0.388	0.444
ARC-PAH-NBT3	C3-Naphthobenzothiophenes	mg/kg	8/8	100	0.0808	0.336	SED-02(6/19/2013 2:30:00 PM)		0.16	0.169	0.154	0.0805
ARC-PAH-PA3	C3-Phenanthrenes/Anthracenes	mg/kg	8/8	100	0.132	0.827	SED-02(6/19/2013 2:30:00 PM)		0.425	0.46	0.391	0.256
ARC-C4BENZ	C4-Benzenes	mg/kg	0/8	0				0.0085 - 0.028				
ARC-PAH-BT4	C4-Benzo(b)thiophenes	mg/kg	0/8	0				0.0085 - 0.028				
ARC-C4CHR-BNAAN	C4-Chrysenes/Benzo(a)anthracenes	mg/kg	3/8	37.5	0.104	0.314	SED-07	0.014 - 0.028	0.135	0.184	0.164	0.113
ARC-PAH-D4	C4-Decalins	mg/kg	4/8	50	0.148	0.628	SED-02(6/19/2013 2:30:00 PM)	0.0085 - 0.028	0.219	0.303	0.258	0.219
ARC-C4-DBTHIOP	C4-Dibenzothiophenes	mg/kg	8/8	100	0.0716	0.3885	SED-02(6/19/2013 2:30:00 PM)		0.133	0.159	0.136	0.104
ARC-C4-NAPH	C4-Naphthalenes	mg/kg	7/8	87.5	0.134	1.24	SED-02(6/19/2013 2:30:00 PM)	0.028 - 0.028	0.403	0.512	0.425	0.351
ARC-PAH-NBT4	C4-Naphthobenzothiophenes	mg/kg	8/8	100	0.0425	0.197	SED-02(6/19/2013 2:30:00 PM)		0.0907	0.0991	0.0892	0.0494
ARC-C4-PHN-ATH	C4-Phenanthrenes/Anthracenes	mg/kg	8/8	100	0.0801	0.4475	SED-02(6/19/2013 2:30:00 PM)		0.25	0.265	0.223	0.147
ARC-C5BENZ	C5-Benzenes	mg/kg	0/8	0				0.0085 - 0.028				
218-01-9	Chrysene	mg/kg	14/14	100	0.201	2.225	SED-02(6/19/2013 2:30:00 PM)		0.906	0.967	0.827	0.524
191-07-1	Coronene	mg/kg	8/8	100	0.0338	0.4145	SED-02(6/19/2013 2:30:00 PM)		0.171	0.171	0.132	0.121
99-87-6	Cymene	mg/kg	6/8	75	0.0048	0.0203	SED-02(6/19/2013 2:30:00 PM)	0.02 - 0.028	0.0094	0.0107	0.00971	0.0053
53-70-3	Dibenzo(a,h)Anthracene	mg/kg	12/14	85.7	0.0259	0.2985	SED-02(6/19/2013 2:30:00 PM)	0.25 - 0.3	0.148	0.144	0.12	0.0775
132-64-9	Dibenzofuran	mg/kg	13/14	92.9	0.0221	0.11	A10-03	0.17 - 0.17	0.054	0.0592	0.0539	0.0259
132-65-0	Dibenzothiophene	mg/kg	8/8	100	0.019	0.1495	SED-02(6/19/2013 2:30:00 PM)		0.055	0.0631	0.0523	0.0412
100-41-4	Ethylbenzene	mg/kg	8/8	100	0.0097	0.0505	SED-04		0.0163	0.0218	0.0191	0.0133
206-44-0	Fluoranthene	mg/kg	14/14	100	0.353	4.925	SED-02(6/19/2013 2:30:00 PM)		1.57	1.75	1.45	1.15
86-73-7	Fluorene	mg/kg	12/14	85.7	0.0245	0.13225	SED-02(6/19/2013 2:30:00 PM)	0.48 - 0.67	0.0574	0.0645	0.0577	0.0316
118-74-1	Hexachlorobenzene	mg/kg	5/6	83.3	0.33	1.1	A10-04	0.67 - 0.67	0.77	0.734	0.685	0.275
77-47-4	Hexachlorocyclopentadiene	mg/kg	0/6	0				0.25 - 0.67				
67-72-1	Hexachloroethane	mg/kg	0/6	0				0.25 - 0.67				
638-36-8	Hexadecane, 2,6,10,14-tetramethyl-	mg/kg	8/8	100	0.336	2.64	SED-02(6/19/2013 2:30:00 PM)		0.816	1.02	0.847	0.728
193-39-5	Indeno(1,2,3-cd)Pyrene	mg/kg	14/14	100	0.115	1.325	SED-02(6/19/2013 2:30:00 PM)		0.557	0.539	0.45	0.314
98-82-8	Isopropylbenzene	mg/kg	0/8	0				0.0085 - 0.028				
ARC-mpXyl	m,p-Xylene	mg/kg	8/8	100	0.14	0.674	SED-04		0.262	0.336	0.292	0.199
108-87-2	Methylcyclohexane	mg/kg	0/8	0				0.0085 - 0.028				
91-20-3	Naphthalene	mg/kg	9/14	64.3	0.0159	0.08535	SED-02(6/19/2013 2:30:00 PM)	0.062 - 0.17	0.038	0.0423	0.0377	0.0219
493-01-6	Naphthalene, decahydro-, cis-	mg/kg	3/8	37.5	0.0085	0.01815	SED-02(6/19/2013 2:30:00 PM)	0.0085 - 0.028	0.0127	0.0131	0.0125	0.00484
104-51-8	N-Butylbenzene	mg/kg	8/8	100	0.0081	0.0818	SED-04		0.0207	0.0266	0.0207	0.0236
98-95-3	Nitrobenzene	mg/kg	0/6	0				0.25 - 0.67				
621-64-7	N-Nitrosodi-N-Propylamine	mg/kg	0/6	0				0.062 - 0.17				
86-30-6	N-nitrosodiphenylamine	mg/kg	0/6	0				0.25 - 0.67				
3892-00-0	Norpristane (1650)	mg/kg	8/8	100	0.151	1.47	SED-02(6/19/2013 2:30:00 PM)		0.338	0.468	0.35	0.437
103-65-1	N-Propylbenzene	mg/kg	6/8	75	0.0056	0.0499	SED-04	0.016 - 0.02	0.0155	0.0193	0.0155	0.0156
95-47-6	o-Xylene	mg/kg	8/8	100	0.0091	0.0435	SED-04		0.0147	0.0187	0.0163	0.0116
106-47-8	p-Chloroaniline	mg/kg	0/6	0				0.12 - 0.32				
87-86-5	Pentachlorophenol	mg/kg	0/6	0				1.2 - 3.3				
198-55-0	Perylene	mg/kg	8/8	100	0.0263	0.333	SED-02(6/19/2013 2:30:00 PM)		0.13	0.132	0.102	0.0965
85-01-8	Phenanthrene	mg/kg	14/14	100	0.185	1.56	SED-02(6/19/2013 2:30:00 PM)		0.691	0.713	0.617	0.379
108-95-2	Phenol	mg/kg	0/6	0				0.25 - 0.67				
129-00-0	Pyrene	mg/kg	14/14	100	0.389	3.48	SED-02(6/19/2013 2:30:00 PM)		1.25	1.32	1.12	0.801
483-65-8	Retene	mg/kg	8/8	100	0.0744	0.2565	SED-02(6/19/2013 2:30:00 PM)		0.132	0.132	0.122	0.0594
100-42-5	Styrene (Monomer)	mg/kg	8/8	100	0.113	0.41	SED-04		0.221	0.23	0.211	0.0998

Table 1. Sediment Summary Statistics
Solvay
Morrisville, Pennsylvania Facility

CAS	Chemical	Units	Detection Frequency	Detection Frequency (%)	Minimum Detect	Maximum Detect	Max Detect Location	Non-Detect Range	Median Value	Arithmetic Average	Geometric Mean	Standard Deviation
98-06-6	Tert-Butylbenzene	mg/kg	0/8	0				0.0085 - 0.028				
108-88-3	Toluene	mg/kg	8/8	100	0.112	0.64	SED-04		0.194	0.259	0.223	0.171
493-02-7	trans-Decahydronaphthalene	mg/kg	7/8	87.5	0.0096	0.0574	SED-02(6/19/2013 2:30:00 PM)	0.028 - 0.028	0.0255	0.0279	0.0232	0.0174
Other Organics												
95-94-3	1,2,4,5-Tetrachlorobenzene	mg/kg	5/6	83.3	0.16	1.8	A10-01	0.67 - 0.67	0.35	0.65	0.428	0.685
108-60-1	2,2-Oxybis(1-Chloropropane)	mg/kg	0/6	0				0.062 - 0.17				
58-90-2	2,3,4,6-Tetrachlorophenol	mg/kg	0/6	0				0.25 - 0.67				
95-95-4	2,4,5-Trichlorophenol	mg/kg	0/6	0				0.25 - 0.67				
88-06-2	2,4,6-Trichlorophenol	mg/kg	0/6	0				0.25 - 0.67				
120-83-2	2,4-Dichlorophenol	mg/kg	0/6	0				0.062 - 0.17				
105-67-9	2,4-Dimethylphenol	mg/kg	0/6	0				0.25 - 0.67				
51-28-5	2,4-Dinitrophenol	mg/kg	0/6	0				1.2 - 3.3				
121-14-2	2,4-Dinitrotoluene	mg/kg	0/6	0				0.25 - 0.67				
606-20-2	2,6-Dinitrotoluene	mg/kg	0/6	0				0.25 - 0.67				
91-58-7	2-Chloronaphthalene	mg/kg	4/6	66.7	0.064	0.24	A10-03	0.33 - 0.67	0.095	0.124	0.109	0.079
95-57-8	2-Chlorophenol	mg/kg	0/6	0				0.25 - 0.67				
534-52-1	2-Methyl-4,6-Dinitrophenol	mg/kg	0/6	0				1.2 - 3.3				
95-48-7	2-Methylphenol	mg/kg	0/6	0				0.062 - 0.17				
88-74-4	2-Nitroaniline	mg/kg	0/6	0				0.25 - 0.67				
88-75-5	2-Nitrophenol	mg/kg	0/6	0				0.25 - 0.67				
91-94-1	3,3-Dichlorobenzidine	mg/kg	0/6	0				0.25 - 0.67				
78-59-1	3,5,5-Trimethyl-2-Cyclohexene-1-One	mg/kg	0/6	0				0.25 - 0.67				
99-09-2	3-Nitroaniline	mg/kg	0/6	0				0.25 - 0.67				
101-55-3	4-Bromophenyl Phenyl Ether	mg/kg	0/6	0				0.25 - 0.67				
59-50-7	4-Chloro-3-Methylphenol	mg/kg	0/6	0				0.25 - 0.67				
7005-72-3	4-Chlorophenyl Phenyl Ether	mg/kg	0/6	0				0.25 - 0.67				
106-44-5	4-Methylphenol	mg/kg	0/6	0				0.062 - 0.17				
100-01-6	4-Nitroaniline	mg/kg	0/6	0				0.25 - 0.67				
100-02-7	4-Nitrophenol	mg/kg	0/6	0				0.25 - 0.67				
98-86-2	Acetophenone	mg/kg	0/6	0				0.25 - 0.67				
1912-24-9	Atrazine	mg/kg	0/6	0				0.25 - 0.67				
100-52-7	Benzaldehyde	mg/kg	0/6	0				0.25 - 0.67				
85-68-7	Benzyl Butyl Phthalate	mg/kg	0/6	0				0.25 - 0.67				
111-91-1	Bis(2-Chloroethoxy)methane	mg/kg	0/6	0				0.25 - 0.67				
111-44-4	Bis(2-Chloroethyl)ether	mg/kg	0/6	0				0.062 - 0.17				
117-81-7	Bis(2-Ethylhexyl)phthalate	mg/kg	6/6	100	11	37	A10-03		19	20.8	19.2	9.35
105-60-2	Caprolactam	mg/kg	0/6	0				0.25 - 0.67				
86-74-8	Carbazole	mg/kg	3/6	50	0.045	0.13	A10-01	0.3 - 0.67	0.099	0.0913	0.0834	0.043
84-66-2	Diethyl Phthalate	mg/kg	0/6	0				0.25 - 0.67				
131-11-3	Dimethyl Phthalate	mg/kg	0/6	0				0.25 - 0.67				
84-74-2	Di-N-Butyl Phthalate	mg/kg	0/6	0				0.13 - 0.34				
117-84-0	Di-n-Octyl Phthalate	mg/kg	3/6	50	0.39	0.49	A10-04	0.25 - 0.67	0.4	0.427	0.424	0.0551
87-68-3	Hexachloro-1,3-Butadiene	mg/kg	0/6	0				0.25 - 0.67				

Notes:
mg/kg = milligrams per kilogram
NA = not available/not applicable

Table 2. Surface Water Summary Statistics
Solvay
Morrisville, Pennsylvania Facility

CAS	Chemical	Units	Detection Frequency	Detection Frequency (%)	Minimum Detect	Maximum Detect	Max Detect Location	Minimum Non-Detect	Maximum Non-Detect	Median Value	Arithmetic Average	Geometric Mean	Standard Deviation
Dissolved Fraction													
7429-90-5	Aluminum	ug/l	6/8	75	22	38	SW-06	180	180	27.5	28.7	28	6.68
7440-36-0	Antimony	ug/l	8/8	100	3.8	9.4	SW-07	NA	NA	6.5	6.33	6.06	1.94
7440-38-2	Arsenic	ug/l	8/8	100	9.5	15	SW-01,SW-06	NA	NA	12.5	12.5	12.3	2.29
7440-39-3	Barium	ug/l	8/8	100	1.2	1.9	SW-03	NA	NA	1.45	1.46	1.45	0.239
7440-41-7	Beryllium	ug/l	3/8	37.5	0.23	0.255	SW-02	4	4	0.24	0.242	0.241	0.0126
7440-43-9	Cadmium	ug/l	7/8	87.5	0.51	1.4	SW-03	3.5	3.5	0.8	0.889	0.822	0.372
7440-70-2	Calcium	ug/l	8/8	100	6900	7550	SW-02	NA	NA	7050	7110	7100	234
7440-47-3	Chromium	ug/l	5/8	62.5	0.45	0.84	SW-05	50	50	0.67	0.686	0.67	0.157
7440-48-4	Cobalt	ug/l	0/8	0	NA	NA	NA	20	20	NA	NA	NA	NA
7440-50-8	Copper	ug/l	7/8	87.5	1.8	3.7	SW-04	50	50	2.6	2.6	2.54	0.6
7439-89-6	Iron	ug/l	8/8	100	93	120	SW-05	NA	NA	98.5	103	102	9.48
7439-92-1	Lead	ug/l	0/8	0	NA	NA	NA	4	4	NA	NA	NA	NA
7439-95-4	Magnesium	ug/l	8/8	100	2000	2100	SW-06,SW-07,SW-08	NA	NA	2030	2040	2040	49.6
7439-96-5	Manganese	ug/l	8/8	100	14	27	SW-05	NA	NA	17.5	18.3	17.8	4.33
7439-97-6	Mercury	ug/l	0/8	0	NA	NA	NA	0.7	0.7	NA	NA	NA	NA
7440-02-0	Nickel	ug/l	8/8	100	5.85	7.3	SW-04	NA	NA	7.05	6.71	6.68	0.609
7440-09-7	Potassium	ug/l	8/8	100	2200	2500	SW-07	NA	NA	2400	2370	2370	88.4
7782-49-2	Selenium	ug/l	0/8	0	NA	NA	NA	40	40	NA	NA	NA	NA
7440-22-4	Silver	ug/l	0/8	0	NA	NA	NA	20	20	NA	NA	NA	NA
7440-23-5	Sodium	ug/l	8/8	100	2800	3100	SW-06,SW-07,SW-08	NA	NA	2950	2970	2970	122
7440-28-0	Thallium	ug/l	0/8	0	NA	NA	NA	10	10	NA	NA	NA	NA
7440-62-2	Vanadium	ug/l	8/8	100	2.7	4	SW-01	NA	NA	3.25	3.28	3.25	0.462
7440-66-6	Zinc	ug/l	8/8	100	12	24	SW-04	NA	NA	18	18	17.5	4.44
Total Fraction													
7429-90-5	Aluminum	ug/l	8/8	100	140	200	SW-04	NA	NA	175	173	171	21.2
7440-36-0	Antimony	ug/l	8/8	100	3.8	11	SW-04	NA	NA	7.6	7.2	6.85	2.27
7440-38-2	Arsenic	ug/l	8/8	100	7.6	15.5	SW-02	NA	NA	11	11	10.7	2.47
7440-39-3	Barium	ug/l	8/8	100	4.4	21	SW-08	NA	NA	5.15	7.2	6.16	5.63
7440-41-7	Beryllium	ug/l	5/8	62.5	0.037	0.265	SW-02	4	4	0.25	0.172	0.125	0.118
7440-43-9	Cadmium	ug/l	7/8	87.5	0.5	1.4	SW-01,SW-03	3.5	3.5	0.97	0.98	0.909	0.39
7440-70-2	Calcium	ug/l	8/8	100	7200	7850	SW-02	NA	NA	7400	7470	7470	205
7440-47-3	Chromium	ug/l	8/8	100	0.84	5.1	SW-05	NA	NA	1.95	2.4	1.96	1.64
7440-48-4	Cobalt	ug/l	0/8	0	NA	NA	NA	20	20	NA	NA	NA	NA
7440-50-8	Copper	ug/l	8/8	100	1.5	5.4	SW-05	NA	NA	4.25	3.71	3.31	1.67
7439-89-6	Iron	ug/l	8/8	100	470	690	SW-04	NA	NA	610	580	576	75
7439-92-1	Lead	ug/l	0/8	0	NA	NA	NA	4	4	NA	NA	NA	NA
7439-95-4	Magnesium	ug/l	8/8	100	1900	2150	SW-02	NA	NA	2100	2060	2050	82.1
7439-96-5	Manganese	ug/l	8/8	100	53	60	SW-04	NA	NA	55	55.5	55.5	2.2
7439-97-6	Mercury	ug/l	0/8	0	NA	NA	NA	0.7	0.7	NA	NA	NA	NA
7440-02-0	Nickel	ug/l	8/8	100	6.6	10	SW-06	NA	NA	8.45	8.29	8.22	1.13
7440-09-7	Potassium	ug/l	8/8	100	2100	2600	SW-05	NA	NA	2450	2410	2410	155
7782-49-2	Selenium	ug/l	0/8	0	NA	NA	NA	40	40	NA	NA	NA	NA
7440-22-4	Silver	ug/l	1/8	12.5	0.46	0.46	SW-05	20	20	0.46	0.46	0.46	NA
7440-23-5	Sodium	ug/l	8/8	100	2500	3000	SW-04	NA	NA	2900	2810	2810	173
7440-28-0	Thallium	ug/l	0/8	0	NA	NA	NA	10	10	NA	NA	NA	NA
7440-62-2	Vanadium	ug/l	8/8	100	3.1	4.3	SW-02	NA	NA	3.55	3.59	3.57	0.356
7440-66-6	Zinc	ug/l	8/8	100	16	46	SW-05	NA	NA	27	27.5	26.2	9.32
ARC-Hard	Total Hardness	mg CaCO3/L	8/8	100	18	28.5	SW-02	NA	NA	27	25.2	24.8	4.17

Notes:
NA = not available/not applicable
ug/l = micrograms per liter

Table 3. Pore Water Summary Statistics
Solvay
Morrisville, Pennsylvania Facility

CAS	Chemical	Units	Detection Frequency	Detection Frequency (%)	Minimum Detect	Maximum Detect	Max Detect Location	Minimum Non-Detect	Maximum Non-Detect	Median Value	Arithmetic Average	Geometric Mean	Standard Deviation
7429-90-5	Aluminum	ug/l	3/8	37.5	51	100	PW-02	180	180	77	76	73.2	24.5
7440-36-0	Antimony	ug/l	5/8	62.5	4	6.8	PW-03	12	12	4.3	4.84	4.74	1.16
7440-38-2	Arsenic	ug/l	8/8	100	5.6	14	PW-01	NA	NA	10	9.74	9.33	2.95
7440-39-3	Barium	ug/l	6/8	75	1.1	15	PW-02	50	50	6.9	7.95	5.98	5.31
7440-41-7	Beryllium	ug/l	2/8	25	0.2	0.21	PW-07	4	4	0.205	0.205	0.205	0.00707
7440-43-9	Cadmium	ug/l	2/8	25	1	1.2	PW-07	3.5	3.5	1.1	1.1	1.1	0.141
7440-70-2	Calcium	ug/l	8/8	100	36000	72000	PW-02	NA	NA	46300	47800	46800	11100
7440-47-3	Chromium	ug/l	3/8	37.5	0.72	3.2	PW-02	50	50	1.1	1.67	1.36	1.34
7440-48-4	Cobalt	ug/l	0/8	0	NA	NA	NA	20	20	NA	NA	NA	NA
7440-50-8	Copper	ug/l	0/8	0	NA	NA	NA	50	50	NA	NA	NA	NA
7439-89-6	Iron	ug/l	8/8	100	560	2100	PW-04	NA	NA	945	1200	1060	631
7439-92-1	Lead	ug/l	0/8	0	NA	NA	NA	4	4	NA	NA	NA	NA
7439-95-4	Magnesium	ug/l	8/8	100	3700	25000	PW-07	NA	NA	5400	8260	6620	7150
7439-96-5	Manganese	ug/l	8/8	100	46	190	PW-04	NA	NA	99	106	96.8	48
7439-97-6	Mercury	ug/l	0/8	0	NA	NA	NA	0.7	0.7	NA	NA	NA	NA
7440-02-0	Nickel	ug/l	7/8	87.5	0.72	7.4	PW-02	50	50	0.985	2	1.37	2.42
7440-09-7	Potassium	ug/l	8/8	100	3000	4400	PW-05	NA	NA	3580	3620	3600	444
7782-49-2	Selenium	ug/l	0/8	0	NA	NA	NA	40	40	NA	NA	NA	NA
7440-22-4	Silver	ug/l	2/8	25	0.62	0.625	PW-03	20	20	0.623	0.623	0.622	0.00354
7440-23-5	Sodium	ug/l	8/8	100	4000	11000	PW-07	NA	NA	4750	6100	5650	2730
7440-28-0	Thallium	ug/l	0/8	0	NA	NA	NA	10	10	NA	NA	NA	NA
7440-62-2	Vanadium	ug/l	7/8	87.5	0.77	6.1	PW-07	50	50	1.3	2.15	1.67	1.89
7440-66-6	Zinc	ug/l	4/8	50	5.1	16	PW-02	50	50	7.75	9.15	8.18	5.08

Notes:
NA = not available/not applicable
ug/l = micrograms per liter

Table 4. Exposure Point Concentrations for Sediment
Solvay
Morrisville, Pennsylvania Facility

COPEC	Sediment EPC (mg/kg)	Basis
Metals		
Antimony	1.0E+02	95% Student's-t UCL
Arsenic	2.6E+02	95% Approximate Gamma UCL
Cadmium	1.1E+01	95% Student's-t UCL
Chromium	3.7E+02	95% Approximate Gamma UCL
Copper	5.6E+02	95% Approximate Gamma UCL
Iron	4.9E+04	95% Approximate Gamma UCL
Lead	3.4E+02	95% Student's-t UCL
Manganese	7.7E+02	95% Student's-t UCL
Mercury	9.4E+00	95% H-UCL
Nickel	1.9E+03	95% Student's-t UCL
Silver	9.2E+00	95% KM (t) UCL
Zinc	1.7E+03	95% Approximate Gamma UCL
Semivolatile Organics		
2-Methylnaphthalene	1.0E-01	95% Approximate Gamma UCL
Acenaphthene	3.2E-02	95% KM (t) UCL
Acenaphthylene	1.6E-01	95% KM (t) UCL
Anthracene	2.2E-01	95% Approximate Gamma UCL
Benzo(a)anthracene	5.8E-01	95% Student's-t UCL
Benzo(a)pyrene	6.5E-01	95% Student's-t UCL
Benzo(g,h,i)perylene	7.2E-01	95% Student's-t UCL
Benzo(k)fluoranthene	7.1E-01	95% Approximate Gamma UCL
Bis(2-Ethylhexyl)phthalate	3.7E+01	Maximum*
Chrysene	1.2E+00	95% Student's-t UCL
Dibenzo(a,h)anthracene	1.8E-01	95% KM (t) UCL
Fluoranthene	2.4E+00	95% Approximate Gamma UCL
Fluorene	8.1E-02	95% KM (t) UCL
Indeno(1,2,3-cd)pyrene	6.9E-01	95% Student's-t UCL
Phenanthrene	8.9E-01	95% Student's-t UCL
Pyrene	1.8E+00	95% Approximate Gamma UCL
Volatile Organics		
1,2,4,5-Tetrachlorobenzene	1.8E+00	Maximum*
Benzene	2.1E-01	95% Approximate Gamma UCL
Hexachlorobenzene	1.1E+00	Maximum*
m,p-Xylene	4.7E-01	95% Student's-t UCL

Abbreviations:
COPEC = chemical of potential ecological concern
EPC = exposure point concentration
mg/kg = milligrams per kilogram
UCL = upper confidence limit

Notes:
* Data insufficient to calculate 95UCL; value is maximum.

Table 5. Exposure Point Concentrations for Surface Water
Solvay
Morrisville, Pennsylvania Facility

COPEC	Surface Water EPC (mg/L)	Basis
Metals		
Aluminum	1.9E-01	95% Student's-t UCL
Cadmium	1.3E-03	95% KM (t) UCL
Copper	4.8E-03	95% Student's-t UCL
Iron	6.3E-01	95% Student's-t UCL

Abbreviations:
COPEC = chemical of potential ecological concern
EPC = exposure point concentration
mg/L = milligrams per liter
UCL = upper confidence limit

Table 6. Exposure Parameters for Aquatic Wildlife
Solvay
Morrisville, Pennsylvania Facility

Common Name	Scientific Name	Feeding Guild	Body Weight (kg)	Notes	Dietary Composition (%) Fish	Invertebrates	Notes	Food Ingestion Rate (kg/day dw)	Notes	Sediment Ingestion Rate (%)	Notes	Sediment Ingestion Rate (kg/day dw)	Notes	Water Ingestion Rate (L/day)	Notes	Home Range (ha)	Notes	Site Use Factor (%)	Notes
Aquatic Species																			
Raccoon	*Procyon lotor*	Carnivorous	6.66	a		100%	b	0.326	a	9	c	0.030644	d	0.537	e	630	a	0.04%	h
Great Blue Heron	*Ardea herodias*	Carnivorous	2.39	f	100%		b	0.43	g	2	c	0.008604	c	0.1058	a	4.5	a	5.6%	h

Notes:
a. USEPA 1993
b. Diet is varied but is conservatively assumed to be 100% invertebrates (raccoon) and 100% fish (heron)
c. Beyer et al. 1994
d. Calculated by multiplying the soil ingestion rate times the dry weight daily ingestion rate.
e. Calder and Braun 1983
f. Dunning 1993
g. Kushlan 1978
h. Fraction of the receptor's home range provided by the settling pond exposure area (0.25 ha).

Table 7. Biota-Sediment Accumulation Factors
Solvay
Morrisville, Pennsylvania Facility

COPEC	$BSAF_{fish}$	Notes	$BSAF_{invert}$	Notes
Metals [a]				
Antimony	Cs	b	Cs	b
Arsenic	0.127	c	0.127	c
Cadmium	0.614	c	0.614	c
Chromium	0.108	c	0.108	c
Copper	0.515	b	0.515	b
Iron	NA		NA	
Lead	0.07	c	0.07	c
Manganese	e^(0.682 * LN(Cs) - 0.809)	b	e^(0.682 * LN(Cs) - 0.809)	b
Mercury	1.081	c	1.081	c
Nickel	0.818	c	0.818	c
Silver	2.045	b	2.045	b
Zinc	2.33	c	2.33	c
Semivolatile Organics				
2-Methylnaphthalene	0.080	d	0.50	d
Acenaphthene	0.026	d	0.15	e
Acenaphthylene	0.0086	d	0.14	e
Anthracene	0.0055	d	0.097	e
Benzo(a)anthracene	0.0026	d	0.24	e
Benzo(a)pyrene	0.0014	d	0.090	e
Benzo(g,h,i)perylene	0.0069	d	0.024	e
Benzo(k)fluoranthene	0.0016	d	0.097	e
Bis(2-Ethylhexyl)phthalate	0.5	f	0.5	f
Chrysene	0.0018	d	0.12	e
Dibenzo(a,h)anthracene	0.0016	d	0.027	e
Fluoranthene	0.0020	d	0.35	e
Fluorene	0.018	d	0.72	e
Indeno(1,2,3-cd)pyrene	0.0028	d	0.023	e
Phenanthrene	0.0076	d	0.19	e
Pyrene	0.0051	d	0.26	e
Volatile Organics				
1,2,4,5-Tetrachlorobenzene	NA		NA	
Benzene	NA		NA	
Hexachlorobenzene	NA		NA	
m,p-Xylene	NA		NA	

Abbreviations:

BSAF = biota sediment accumulation factor

COPEC = chemical of potential ecological concern

Cs = concentration in soil (mg/kg dw)

NA = not applicable; not a COPEC for wildlife

USEPA = United States Environmental Protection Agency

Notes:

a. BSAFs are not available for all metals, BAFs for earthworms are used as a substitute for both fish and sediment-associated invertebrates.

b. USEPA 2007

c. Bechtel Jacobs 1998

d. Geometric mean values from USEPA BSAF database 2008. BSAF Data Set Version 1.0. Prepared for USEPA Office of Research and Development, National Health and Environmental Effects Research Laboratory, Mid-Continent Ecology Division. Prepared by Computer Sciences Corporation. January. Available at: http://www.epa.gov/med/Prods_Pubs/bsaf.htm.

e. Geometric mean values from USACE BSAF database for all whole-body aquatic invertebrates or fish. Last updated August 17, 2009. Available at: http://el.erdc.usace.mil/bsafnew/.

f. Staples et al. 1997

Table 8. Exposure Point Concentrations for Tissue
Solvay
Morrisville, Pennsylvania Facility

COPEC	Sediment EPC (mg/kg)	BSAF		Tissue EPC (mg/kg dw)	
		Fish	Inverts	Fish	Inverts
Metals					
Antimony	103.2	Cs	Cs	1.03E+02	1.03E+02
Arsenic	262.6	0.127	0.127	3.34E+01	3.34E+01
Cadmium	10.89	0.614	0.614	6.69E+00	6.69E+00
Chromium	373.1	0.108	0.108	4.03E+01	4.03E+01
Copper	561.5	0.515	0.515	2.89E+02	2.89E+02
Iron	48784	NA	NA	NA	NA
Lead	336.6	0.07	0.07	2.36E+01	2.36E+01
Manganese	765.7	e^(0.682 * LN(Cs) - 0.809)	e^(0.682 * LN(Cs) - 0.809)	4.13E+01	4.13E+01
Mercury	9.44	1.081	1.081	1.02E+01	1.02E+01
Nickel	1905	0.818	0.818	1.56E+03	1.56E+03
Silver	9.194	2.045	2.045	1.88E+01	1.88E+01
Zinc	1659	2.33	2.33	3.87E+03	3.87E+03
Semivolatile Organics					
2-Methylnaphthalene	0.104	0.080	0.50	3.26E-02	3.19E-02
Acenaphthene	0.0322	0.026	0.15	3.23E-03	3.28E-03
Acenaphthylene	0.158	0.0086	0.14	5.33E-03	3.70E-04
Anthracene	0.222	0.0055	0.097	4.75E-03	1.49E-04
Benzo(a)anthracene	0.581	0.0026	0.24	6.02E-03	3.49E-05
Benzo(a)pyrene	0.645	0.0014	0.090	3.54E-03	9.80E-06
Benzo(g,h,i)perylene	0.721	0.0069	0.024	1.96E-02	2.41E-04
Benzo(k)fluoranthene	0.708	0.0016	0.097	4.49E-03	1.31E-05
Bis(2-Ethylhexyl)phthalate	37	0.5	0.5	7.25E+01	1.25E+00
Chrysene	1.215	0.0018	0.12	8.58E-03	1.62E-05
Dibenzo(a,h)anthracene	0.182	0.0016	0.027	1.14E-03	1.28E-05
Fluoranthene	2.41	0.0020	0.35	1.88E-02	1.99E-05
Fluorene	0.0807	0.018	0.72	5.79E-03	1.68E-03
Indeno(1,2,3-cd)pyrene	0.687	0.0028	0.023	7.64E-03	4.02E-05
Phenanthrene	0.893	0.0076	0.19	2.66E-02	2.89E-04
Pyrene	1.772	0.0051	0.26	3.57E-02	1.32E-04
Volatile Organics					
1,2,4,5-Tetrachlorobenzene	1.8	NA	NA	NA	NA
Benzene	0.205	NA	NA	NA	NA
Hexachlorobenzene	1.1	NA	NA	NA	NA
m,p-Xylene	0.469	NA	NA	NA	NA

Abbreviations:

BSAF = biota sediment accumulation factors

Cs = concentration in soil (mg/kg dw)

EPC = exposure point concentration

mg/kg = milligrams per kilogram

mg/kg dw= milligrams per kilogram, dry weight

Notes:

Invert or fish tissue concentrations of nonpolar organic compounds calculated using the equation: $C_{tissue} = (BSAF \times C_{sed} \times f_{lipid})/f_{oc}$

and converted to dry weight assuming a percent moisture content of 68% for fish tissue and 84% for invertebrate tissue (USEPA 2007)

where: f_{lipid} assumes an average lipid content of 3% for inverts; 5% for fish

f_{oc} assumes an average organic carbon content of 3.75%, or f_{oc} = 0.0375, based on Site data

Table 9. AVS and SEM Evaluation
Solvay
Morrisville, Pennsylvania Facility

Analyte	Units	SED-1 (0-0.5)			SED-2 (0-0.5)			SED-BD-20		
		Result	Ratio of SEM/AVS	(SEM-AVS)/f_{oc}	Result	Ratio of SEM/AVS	(SEM-AVS)/f_{oc}	Result	Ratio of SEM/AVS	(SEM-AVS)/f_{oc}
Cadmium	umol/g	0.125	0.298	-9	0.102	0.291	-6	0.12	0.364	-5
Copper	umol/g	7.57	18.02	212	7.88	22.51	173	7.59	23.00	167
Lead	umol/g	1.47	3.50	31	1.28	3.66	21	1.25	3.79	21
Mercury	umol/g	0.00017 U			0.00014 U			0.00013 U		
Nickel	umol/g	18.2	43.33	526	9.76	27.89	216	22	66.67	497
Zinc	umol/g	32.9	78.3	961	20.8	59.4	469	26.6	80.6	603
AVS	umol/g	0.42 U			0.35 U			0.33 U		
TOC	mg/kg	33800			43600			43600		
f_{oc}	unitless	0.0338			0.0436			0.0436		
(∑SEM-AVS) / foc	umol/g_{oc}			1771			905			1313

Notes:
AVS = acid volatile sulfide
f_{oc} = fraction organic carbon
mg/kg = milligrams per kilogram
SEM = simultaneously extracted metals
umol/g = micromole per gram
U = not detected

Table 9. AVS and SEM Evaluation
Solvay
Morrisville, Pennsylvania Facility

Analyte	Units	SED-3 (0-0.5)			SED-4 (0-0.5)			SED-5 (0-0.5)		
		Result	Ratio of SEM/AVS	(SEM-AVS)/f_{oc}	Result	Ratio of SEM/AVS	(SEM-AVS)/f_{oc}	Result	Ratio of SEM/AVS	(SEM-AVS)/f_{oc}
Cadmium	umol/g	0.133	0.380	-6	0.15	0.306	-5	0.0498	0.262	-7
Copper	umol/g	10.4	29.7	274	8.29	16.92	105	5.56	29.26	281
Lead	umol/g	1.76	5.03	38	2.06	4.20	21	1.65	8.68	76
Mercury	umol/g	0.00014 U			0.00019 U			0.000165		
Nickel	umol/g	19.9	56.86	533	10.2	20.82	131	17.5	92.11	906
Zinc	umol/g	28.3	81	762	42.8	87.3	572	17.7	93.2	917
AVS	umol/g	0.35 U			0.49 U			0.19 U		
TOC	mg/kg	36700			74000			19100		
f_{oc}	unitless	0.0367			0.074			0.0191		
(∑SEM-AVS) / foc	$umol/g_{oc}$			1639			851			2213

Notes:
AVS = acid volatile sulfide
f_{oc} = fraction organic carbon
mg/kg = milligrams per kilogram
SEM = simultaneously extracted metals
umol/g = micromole per gram
U = not detected

Table 9. AVS and SEM Evaluation
Solvay
Morrisville, Pennsylvania Facility

Analyte	Units	SED-6 (0-0.5)			SED-7 (0-0.5)			SED-8 (0-0.5)		
		Result	Ratio of SEM/AVS	(SEM-AVS)/f_{oc}	Result	Ratio of SEM/AVS	(SEM-AVS)/f_{oc}	Result	Ratio of SEM/AVS	(SEM-AVS)/f_{oc}
Cadmium	umol/g	0.0703	0.281	-9	0.101	0.35	-5	0.0801	0.308	-5
Copper	umol/g	8.42	33.7	389	8.73	30.1	214	9.95	38.27	289
Lead	umol/g	1.46	5.84	58	2.1	7.2	46	2.57	9.88	69
Mercury	umol/g	0.0001 U			0.00011 U			0.00011		
Nickel	umol/g	19.9	79.60	936	58.1	200.34	1464	45.5	175.00	1350
Zinc	umol/g	18.5	74	869	27.8	96	696	23.1	88.8	682
AVS	umol/g	0.25 U			0.29 U			0.26 U		
TOC	mg/kg	21000			39500			33500		
f_{oc}	unitless	0.021			0.0395			0.0335		
(∑SEM-AVS) / foc	$umol/g_{oc}$			2290			2444			2416

Notes:
AVS = acid volatile sulfide
f_{oc} = fraction organic carbon
mg/kg = milligrams per kilogram
SEM = simultaneously extracted metals
umol/g = micromole per gram
U = not detected

Table 10. ∑ESBTU Evaluation
Solvay
Morrisville, Pennsylvania
Facility

Sample Location (Depth) / Forensic Category:	SED-1 (0 - 0.5 ft bss) /						SED-2 (0 - 0.5 ft bss) /					
Fraction Organic Carbon:	0.0338						0.0436					
Polycyclic Aromatic Hydrocarbons	$C_{OC,PAHi,FCVi}$ (ug/goc)	$C_{OC,PAHi,MAXi}$ (ug/goc)	Dry Weight Sediment Concentration (ug/g)	Organic Carbon Normalized Concentration (ug/goc)	ESBTU (unitless)	Percent Contribution to ESBTU (%)	$C_{OC,PAHi,FCVi}$ (ug/goc)	$C_{OC,PAHi,MAXi}$ (ug/goc)	Dry Weight Sediment Concentration (ug/g)	Organic Carbon Normalized Concentration (ug/goc)	ESBTU (unitless)	Percent Contribution to ESBTU (%)
naphthalene	385	61700	0.0306	0.9053	0.0024	0.4%	385	61700	0.08535	1.9576	0.0051	0.5%
C1-naphthalenes	444	-	0.0558	1.6509	0.0037	0.7%	444	-	0.1179	2.7041	0.0061	0.6%
acenaphthylene	452	24000	0.15	4.4379	0.0098	1.8%	452	24000	0.256	5.8716	0.0130	1.2%
acenaphthene	491	33400	0.0212	0.6272	0.0013	0.2%	491	33400	0.05085	1.1663	0.0024	0.2%
C2-naphthalenes	510	-	0.356	10.5325	0.0207	3.7%	510	-	0.741	16.9954	0.0333	3.2%
fluorene	538	26000	0.0545	1.6124	0.0030	0.5%	538	26000	0.13225	3.0333	0.0056	0.5%
C3-naphthalenes	581	-	0.567	16.7751	0.0289	5.2%	581	-	1.54	35.3211	0.0608	5.8%
anthracene	594	1300	0.205	6.0651	0.0102	1.8%	594	1300	0.4345	9.9656	0.0168	1.6%
phenanthrene	596	34300	0.632	18.6982	0.0314	5.6%	596	34300	1.56	35.7798	0.0600	5.7%
C1-fluorenes	611	-	0.0827	2.4467	0.0040	0.7%	611	-	0.2245	5.1491	0.0084	0.8%
C4-naphthalenes	657	-	0.403	11.9231	0.0181	3.3%	657	-	1.24	28.4404	0.0433	4.1%
C1-phenanthrene/anthracenes	670	-	0.413	12.2189	0.0182	3.3%	670	-	1.228	28.1651	0.0420	4.0%
C2-fluorenes	686	-	0.218	6.4497	0.0094	1.7%	686	-	0.61	13.9908	0.0204	1.9%
pyrene	697	9090	1.37	40.5325	0.0582	10.4%	697	9090	3.48	79.8165	0.1145	10.9%
fluoranthene	707	23870	2.03	60.0592	0.0849	15.2%	707	23870	4.925	112.9587	0.1598	15.3%
C2-phenanthrene/anthracenes	746	-	0.48	14.2012	0.0190	3.4%	746	-	1.32	30.2752	0.0406	3.9%
C3-fluorenes	769	-	0.223	6.5976	0.0086	1.5%	769	-	0.673	15.4358	0.0201	1.9%
C1-pyrene/fluoranthenes	770	-	0.521	15.4142	0.0200	3.6%	770	-	1.2555	28.7959	0.0374	3.6%
C3-phenanthrene/anthracenes	829	-	0.307	9.0828	0.0110	2.0%	829	-	0.827	18.9679	0.0229	2.2%
benz(a)anthracene	841	4153	0.448	13.2544	0.0158	2.8%	841	4153	1.099	25.2064	0.0300	2.9%
chrysene	844	826	1.01	29.8817	0.0354	6.4%	844	826	2.225	51.0321	0.0605	5.8%
C4-phenanthrenes/anthracenes	913	-	0.179	5.2959	0.0058	1.0%	913	-	0.4475	10.2638	0.0112	1.1%
C1-benzanthracene/chrysenes	929	-	0.234	6.9231	0.0075	1.3%	929	-	0.5525	12.6720	0.0136	1.3%
benzo(a)pyrene	965	3840	0.571	16.8935	0.0175	3.1%	965	3840	1.28	29.3578	0.0304	2.9%
perylene	967	431	0.145	4.2899	0.0044	0.8%	967	431	0.333	7.6376	0.0079	0.8%
benzo(e)pyrene	967	4300	0.641	18.9645	0.0196	3.5%	967	4300	1.39	31.8807	0.0330	3.2%
benzo(b)fluoranthene	979	2169	0.885	26.1834	0.0267	4.8%	979	2169	1.825	41.8578	0.0428	4.1%
benzo(k)fluoranthene	981	1220	0.702	20.7692	0.0212	3.8%	981	1220	1.555	35.6651	0.0364	3.5%
C2-benzanthracene/chrysenes	1008	-	0.14	4.1420	0.0041	0.7%	1008	-	0.354	8.1193	0.0081	0.8%
benzo(ghi)perylene	1095	648	0.6	17.7515	0.0162	2.9%	1095	648	1.255	28.7844	0.0263	2.5%
C3-benzanthracene/chrysenes	1112	-	ND	0.0000	0.0000	0.0%	1112	-	ND	0.0000	0.0000	0.0%
indeno(1,2,3-cd)pyrene	1115	-	0.631	18.6686	0.0167	3.0%	1115	-	1.325	30.3899	0.0273	2.6%
dibenz(a,h)anthracene	1123	2389	0.138	4.0828	0.0036	0.7%	1123	2389	0.2985	6.8463	0.0061	0.6%
C4-benzanthracene/chrysenes	1214	-	ND	0.0000	0.0000	0.0%	1214	-	ND	0.0000	0.0000	0.0%
Sum $ESBTU_{FCVi}$					**0.5573**	**100.0%**					**1.0459**	**100.0%**
Sum $ESBTU_{FCVi}$ (2 or 3 Ring PAHs)					**0.2054**	**36.9%**					**0.4120**	**39.4%**
Sum $ESBTU_{FCVi}$ (4 Ring PAHs)					**0.2258**	**40.5%**					**0.4238**	**40.5%**
Sum $ESBTU_{FCVi}$ (5 or 6 Ring PAHs)					**0.1261**	**22.6%**					**0.2100**	**20.1%**

Notes:

$C_{OC,PAHi,FCVi}$ = effect concentration of a PAH in sediment on an organic carbon basis calculated from the product of its FCV and K_{OC}

$C_{OC,PAHi,MAXi}$ = maximum solubility limited PAH concentration in sediment on an organic carbon basis

FCV = final chronic value

ESBTU = equilibrium partitioning sediment benchmark toxic unit

$ESBTU_{FCVi}$ = ESBTU for PAH_i based on the FCV

PAH = polycyclic aromatic hydrocarbon

Table 10. ∑ESBTU Evaluation
Solvay
Morrisville, Pennsylvania
Facility

Sample Location (Depth) / Forensic Category:	SED-3 (0 - 0.5 ft bss) /						SED-4 (0 - 0.5 ft bss) /					
Fraction Organic Carbon:	0.0436						0.074					
Polycyclic Aromatic Hydrocarbons	$C_{OC,PAHi,FCVi}$ (ug/goc)	$C_{OC,PAHi,MAXi}$ (ug/goc)	Dry Weight Sediment Concentration (ug/g)	Organic Carbon Normalized Concentration (ug/goc)	ESBTU (unitless)	Percent Contribution to ESBTU (%)	$C_{OC,PAHi,FCVi}$ (ug/goc)	$C_{OC,PAHi,MAXi}$ (ug/goc)	Dry Weight Sediment Concentration (ug/g)	Organic Carbon Normalized Concentration (ug/goc)	ESBTU (unitless)	Percent Contribution to ESBTU (%)
naphthalene	385	61700	0.0499	1.3597	0.0035	0.6%	385	61700	0.042	0.5676	0.0015	0.8%
C1-naphthalenes	444	-	0.0835	2.2752	0.0051	0.9%	444	-	0.0453	0.6122	0.0014	0.8%
acenaphthylene	452	24000	0.193	5.2589	0.0116	2.1%	452	24000	0.235	3.1757	0.0070	3.8%
acenaphthene	491	33400	0.0296	0.8065	0.0016	0.3%	491	33400	0.0202	0.2730	0.0006	0.3%
C2-naphthalenes	510	-	0.337	9.1826	0.0180	3.2%	510	-	0.202	2.7297	0.0054	2.9%
fluorene	538	26000	0.0726	1.9782	0.0037	0.6%	538	26000	0.0472	0.6378	0.0012	0.6%
C3-naphthalenes	581	-	0.508	13.8420	0.0238	4.2%	581	-	0.0956	1.2919	0.0022	1.2%
anthracene	594	1300	0.231	6.2943	0.0106	1.9%	594	1300	0.194	2.6216	0.0044	2.4%
phenanthrene	596	34300	0.784	21.3624	0.0358	6.3%	596	34300	0.375	5.0676	0.0085	4.6%
C1-fluorenes	611	-	0.0905	2.4659	0.0040	0.7%	611	-	0.036	0.4865	0.0008	0.4%
C4-naphthalenes	657	-	0.401	10.9264	0.0166	2.9%	657	-	ND	0.0000	0.0000	0.0%
C1-phenanthrene/anthracenes	670	-	0.466	12.6975	0.0190	3.3%	670	-	0.173	2.3378	0.0035	1.9%
C2-fluorenes	686	-	0.22	5.9946	0.0087	1.5%	686	-	ND	0.0000	0.0000	0.0%
pyrene	697	9090	1.5	40.8719	0.0586	10.3%	697	9090	1.07	14.4595	0.0207	11.3%
fluoranthene	707	23870	2.13	58.0381	0.0821	14.5%	707	23870	1.43	19.3243	0.0273	14.9%
C2-phenanthrene/anthracenes	746	-	0.537	14.6322	0.0196	3.5%	746	-	0.181	2.4459	0.0033	1.8%
C3-fluorenes	769	-	0.24	6.5395	0.0085	1.5%	769	-	ND	0.0000	0.0000	0.0%
C1-pyrene/fluoranthenes	770	-	0.568	15.4768	0.0201	3.5%	770	-	0.398	5.3784	0.0070	3.8%
C3-phenanthrene/anthracenes	829	-	0.375	10.2180	0.0123	2.2%	829	-	0.132	1.7838	0.0022	1.2%
benz(a)anthracene	841	4153	0.522	14.2234	0.0169	3.0%	841	4153	0.381	5.1486	0.0061	3.3%
chrysene	844	826	1.09	29.7003	0.0352	6.2%	844	826	0.831	11.2297	0.0133	7.3%
C4-phenanthrenes/anthracenes	913	-	0.212	5.7766	0.0063	1.1%	913	-	0.0801	1.0824	0.0012	0.6%
C1-benzanthracene/chrysenes	929	-	0.297	8.0926	0.0087	1.5%	929	-	0.289	3.9054	0.0042	2.3%
benzo(a)pyrene	965	3840	0.664	18.0926	0.0187	3.3%	965	3840	0.589	7.9595	0.0082	4.5%
perylene	967	431	0.163	4.4414	0.0046	0.8%	967	431	0.159	2.1486	0.0022	1.2%
benzo(e)pyrene	967	4300	0.729	19.8638	0.0205	3.6%	967	4300	0.685	9.2568	0.0096	5.2%
benzo(b)fluoranthene	979	2169	0.987	26.8937	0.0275	4.8%	979	2169	0.842	11.3784	0.0116	6.3%
benzo(k)fluoranthene	981	1220	0.791	21.5531	0.0220	3.9%	981	1220	0.687	9.2838	0.0095	5.2%
C2-benzanthracene/chrysenes	1008	-	0.182	4.9591	0.0049	0.9%	1008	-	0.124	1.6757	0.0017	0.9%
benzo(ghi)perylene	1095	648	0.681	18.5559	0.0169	3.0%	1095	648	0.693	9.3649	0.0086	4.7%
C3-benzanthracene/chrysenes	1112	-	ND	0.0000	0.0000	0.0%	1112	-	ND	0.0000	0.0000	0.0%
indeno(1,2,3-cd)pyrene	1115	-	0.712	19.4005	0.0174	3.1%	1115	-	0.708	9.5676	0.0086	4.7%
dibenz(a,h)anthracene	1123	2389	0.15	4.0872	0.0036	0.6%	1123	2389	0.146	1.9730	0.0018	1.0%
C4-benzanthracene/chrysenes	1214	-	ND	0.0000	0.0000	0.0%	1214	-	ND	0.0000	0.0000	0.0%
Sum $ESBTU_{FCVi}$					**0.5669**	**100.0%**					**0.1834**	**100.0%**
Sum $ESBTU_{FCVi}$ (2 or 3 Ring PAHs)					**0.2090**	**36.9%**					**0.0430**	**23.5%**
Sum $ESBTU_{FCVi}$ (4 Ring PAHs)					**0.2266**	**40.0%**					**0.0804**	**43.8%**
Sum $ESBTU_{FCVi}$ (5 or 6 Ring PAHs)					**0.1313**	**23.2%**					**0.0600**	**32.7%**

Notes:

$C_{OC,PAHi,FCVi}$ = effect concentration of a PAH in sediment on an organic carbon basis calculated from the product of its FCV and K_{OC}

$C_{OC,PAHi,MAXi}$ = maximum solubility limited PAH concentration in sediment on an organic carbon basis

FCV = final chronic value

ESBTU = equilibrium partitioning sediment benchmark toxic unit

$ESBTU_{FCVi}$ = ESBTU for PAH_i based on the FCV

PAH = polycyclic aromatic hydrocarbon

Table 10. ∑ESBTU Evaluation
Solvay
Morrisville, Pennsylvania
Facility

Sample Location (Depth) / Forensic Category:	SED-5 (0 - 0.5 ft bss) /						SED-6 (0 - 0.5 ft bss) /					
Fraction Organic Carbon:	0.0191						0.021					
Polycyclic Aromatic Hydrocarbons	$C_{OC,PAHi,FCVi}$ (ug/goc)	$C_{OC,PAHi,MAXi}$ (ug/goc)	Dry Weight Sediment Concentration (ug/g)	Organic Carbon Normalized Concentration (ug/goc)	ESBTU (unitless)	Percent Contribution to ESBTU (%)	$C_{OC,PAHi,FCVi}$ (ug/goc)	$C_{OC,PAHi,MAXi}$ (ug/goc)	Dry Weight Sediment Concentration (ug/g)	Organic Carbon Normalized Concentration (ug/goc)	ESBTU (unitless)	Percent Contribution to ESBTU (%)
naphthalene	385	61700	0.0159	0.8325	0.0022	0.4%	385	61700	0.0246	1.1714	0.0030	0.7%
C1-naphthalenes	444	-	0.0315	1.6492	0.0037	0.7%	444	-	0.0468	2.2286	0.0050	1.2%
acenaphthylene	452	24000	0.0702	3.6754	0.0081	1.6%	452	24000	0.0837	3.9857	0.0088	2.0%
acenaphthene	491	33400	0.0089	0.4660	0.0009	0.2%	491	33400	0.0133	0.6333	0.0013	0.3%
C2-naphthalenes	510	-	0.209	10.9424	0.0215	4.2%	510	-	0.175	8.3333	0.0163	3.8%
fluorene	538	26000	0.0245	1.2827	0.0024	0.5%	538	26000	0.0272	1.2952	0.0024	0.6%
C3-naphthalenes	581	-	0.485	25.3927	0.0437	8.5%	581	-	0.297	14.1429	0.0243	5.6%
anthracene	594	1300	0.0622	3.2565	0.0055	1.1%	594	1300	0.0894	4.2571	0.0072	1.7%
phenanthrene	596	34300	0.185	9.6859	0.0163	3.2%	596	34300	0.257	12.2381	0.0205	4.7%
C1-fluorenes	611	-	0.0692	3.6230	0.0059	1.2%	611	-	0.0485	2.3095	0.0038	0.9%
C4-naphthalenes	657	-	0.583	30.5236	0.0465	9.1%	657	-	0.32	15.2381	0.0232	5.4%
C1-phenanthrene/anthracenes	670	-	0.385	20.1571	0.0301	5.9%	670	-	0.263	12.5238	0.0187	4.3%
C2-fluorenes	686	-	0.182	9.5288	0.0139	2.7%	686	-	0.146	6.9524	0.0101	2.3%
pyrene	697	9090	0.389	20.3665	0.0292	5.7%	697	9090	0.464	22.0952	0.0317	7.3%
fluoranthene	707	23870	0.353	18.4817	0.0261	5.1%	707	23870	0.572	27.2381	0.0385	8.9%
C2-phenanthrene/anthracenes	746	-	0.729	38.1675	0.0512	10.0%	746	-	0.459	21.8571	0.0293	6.8%
C3-fluorenes	769	-	0.302	15.8115	0.0206	4.0%	769	-	0.174	8.2857	0.0108	2.5%
C1-pyrene/fluoranthenes	770	-	0.477	24.9738	0.0324	6.3%	770	-	0.383	18.2381	0.0237	5.5%
C3-phenanthrene/anthracenes	829	-	0.588	30.7853	0.0371	7.3%	829	-	0.475	22.6190	0.0273	6.3%
benz(a)anthracene	841	4153	0.0917	4.8010	0.0057	1.1%	841	4153	0.135	6.4286	0.0076	1.8%
chrysene	844	826	0.201	10.5236	0.0125	2.4%	844	826	0.322	15.3333	0.0182	4.2%
C4-phenanthrenes/anthracenes	913	-	0.375	19.6335	0.0215	4.2%	913	-	0.287	13.6667	0.0150	3.5%
C1-benzanthracene/chrysenes	929	-	0.158	8.2723	0.0089	1.7%	929	-	0.161	7.6667	0.0083	1.9%
benzo(a)pyrene	965	3840	0.117	6.1257	0.0063	1.2%	965	3840	0.173	8.2381	0.0085	2.0%
perylene	967	431	0.0263	1.3770	0.0014	0.3%	967	431	0.0431	2.0524	0.0021	0.5%
benzo(e)pyrene	967	4300	0.144	7.5393	0.0078	1.5%	967	4300	0.214	10.1905	0.0105	2.4%
benzo(b)fluoranthene	979	2169	0.162	8.4817	0.0087	1.7%	979	2169	0.275	13.0952	0.0134	3.1%
benzo(k)fluoranthene	981	1220	0.131	6.8586	0.0070	1.4%	981	1220	0.215	10.2381	0.0104	2.4%
C2-benzanthracene/chrysenes	1008	-	0.195	10.2094	0.0101	2.0%	1008	-	0.152	7.2381	0.0072	1.7%
benzo(ghi)perylene	1095	648	0.118	6.1780	0.0056	1.1%	1095	648	0.183	8.7143	0.0080	1.8%
C3-benzanthracene/chrysenes	1112	-	0.135	7.0681	0.0064	1.2%	1112	-	0.104	4.9524	0.0045	1.0%
indeno(1,2,3-cd)pyrene	1115	-	0.115	6.0209	0.0054	1.1%	1115	-	0.184	8.7619	0.0079	1.8%
dibenz(a,h)anthracene	1123	2389	0.0259	1.3560	0.0012	0.2%	1123	2389	0.0416	1.9810	0.0018	0.4%
C4-benzanthracene/chrysenes	1214	-	0.135	7.0681	0.0058	1.1%	1214	-	0.104	4.9524	0.0041	0.9%
Sum $ESBTU_{FCVi}$					**0.5116**	**100.0%**					**0.4334**	**100.0%**
Sum $ESBTU_{FCVi}$ (2 or 3 Ring PAHs)					**0.3310**	**64.7%**					**0.2271**	**52.4%**
Sum $ESBTU_{FCVi}$ (4 Ring PAHs)					**0.1372**	**26.8%**					**0.1437**	**33.2%**
Sum $ESBTU_{FCVi}$ (5 or 6 Ring PAHs)					**0.0435**	**8.5%**					**0.0626**	**14.4%**

Notes:

$C_{OC,PAHi,FCVi}$ = effect concentration of a PAH in sediment on an organic carbon basis calculated from the product of its FCV and K_{OC}

$C_{OC,PAHi,MAXi}$ = maximum solubility limited PAH concentration in sediment on an organic carbon basis

FCV = final chronic value

ESBTU = equilibrium partitioning sediment benchmark toxic unit

$ESBTU_{FCVi}$ = ESBTU for PAH_i based on the FCV

PAH = polycyclic aromatic hydrocarbon

Table 10. ∑ESBTU Evaluation
Solvay
Morrisville, Pennsylvania
Facility

Sample Location (Depth) / Forensic Category:	SED-7 (0 - 0.5 ft bss) /						SED-8 (0 - 0.5 ft bss) /					
Fraction Organic Carbon:	0.0395						0.0335					
Polycyclic Aromatic Hydrocarbons	$C_{OC,PAHi,FCVi}$ (ug/goc)	$C_{OC,PAHi,MAXi}$ (ug/goc)	Dry Weight Sediment Concentration (ug/g)	Organic Carbon Normalized Concentration (ug/goc)	ESBTU (unitless)	Percent Contribution to ESBTU (%)	$C_{OC,PAHi,FCVi}$ (ug/goc)	$C_{OC,PAHi,MAXi}$ (ug/goc)	Dry Weight Sediment Concentration (ug/g)	Organic Carbon Normalized Concentration (ug/goc)	ESBTU (unitless)	Percent Contribution to ESBTU (%)
naphthalene	385	61700	0.0664	1.6810	0.0044	0.9%	385	61700	0.0283	0.8448	0.0022	0.8%
C1-naphthalenes	444	-	0.108	2.7342	0.0062	1.3%	444	-	0.0566	1.6896	0.0038	1.3%
acenaphthylene	452	24000	0.177	4.4810	0.0099	2.1%	452	24000	0.104	3.1045	0.0069	2.3%
acenaphthene	491	33400	0.0291	0.7367	0.0015	0.3%	491	33400	0.0198	0.5910	0.0012	0.4%
C2-naphthalenes	510	-	0.289	7.3165	0.0143	3.0%	510	-	0.2	5.9701	0.0117	4.0%
fluorene	538	26000	0.0602	1.5241	0.0028	0.6%	538	26000	0.0436	1.3015	0.0024	0.8%
C3-naphthalenes	581	-	0.394	9.9747	0.0172	3.6%	581	-	0.215	6.4179	0.0110	3.8%
anthracene	594	1300	0.198	5.0127	0.0084	1.8%	594	1300	0.146	4.3582	0.0073	2.5%
phenanthrene	596	34300	0.606	15.3418	0.0257	5.4%	596	34300	0.479	14.2985	0.0240	8.2%
C1-fluorenes	611	-	0.073	1.8481	0.0030	0.6%	611	-	0.0424	1.2657	0.0021	0.7%
C4-naphthalenes	657	-	0.503	12.7342	0.0194	4.0%	657	-	0.134	4.0000	0.0061	2.1%
C1-phenanthrene/anthracenes	670	-	0.456	11.5443	0.0172	3.6%	670	-	0.249	7.4328	0.0111	3.8%
C2-fluorenes	686	-	0.234	5.9241	0.0086	1.8%	686	-	0.0751	2.2418	0.0033	1.1%
pyrene	697	9090	1.13	28.6076	0.0410	8.6%	697	9090	0.619	18.4776	0.0265	9.1%
fluoranthene	707	23870	1.42	35.9494	0.0508	10.6%	707	23870	0.984	29.3731	0.0415	14.2%
C2-phenanthrene/anthracenes	746	-	0.774	19.5949	0.0263	5.5%	746	-	0.209	6.2388	0.0084	2.9%
C3-fluorenes	769	-	0.301	7.6203	0.0099	2.1%	769	-	0.104	3.1045	0.0040	1.4%
C1-pyrene/fluoranthenes	770	-	0.769	19.4684	0.0253	5.3%	770	-	0.264	7.8806	0.0102	3.5%
C3-phenanthrene/anthracenes	829	-	0.776	19.6456	0.0237	4.9%	829	-	0.199	5.9403	0.0072	2.5%
benz(a)anthracene	841	4153	0.343	8.6835	0.0103	2.2%	841	4153	0.222	6.6269	0.0079	2.7%
chrysene	844	826	0.774	19.5949	0.0232	4.8%	844	826	0.522	15.5821	0.0185	6.3%
C4-phenanthrenes/anthracenes	913	-	0.441	11.1646	0.0122	2.6%	913	-	0.0944	2.8179	0.0031	1.1%
C1-benzanthracene/chrysenes	929	-	0.303	7.6709	0.0083	1.7%	929	-	0.145	4.3284	0.0047	1.6%
benzo(a)pyrene	965	3840	0.469	11.8734	0.0123	2.6%	965	3840	0.287	8.5672	0.0089	3.0%
perylene	967	431	0.115	2.9114	0.0030	0.6%	967	431	0.0728	2.1731	0.0022	0.8%
benzo(e)pyrene	967	4300	0.557	14.1013	0.0146	3.0%	967	4300	0.327	9.7612	0.0101	3.5%
benzo(b)fluoranthene	979	2169	0.688	17.4177	0.0178	3.7%	979	2169	0.446	13.3134	0.0136	4.7%
benzo(k)fluoranthene	981	1220	0.581	14.7089	0.0150	3.1%	981	1220	0.348	10.3881	0.0106	3.6%
C2-benzanthracene/chrysenes	1008	-	0.303	7.6709	0.0076	1.6%	1008	-	0.102	3.0448	0.0030	1.0%
benzo(ghi)perylene	1095	648	0.507	12.8354	0.0117	2.4%	1095	648	0.306	9.1343	0.0083	2.9%
C3-benzanthracene/chrysenes	1112	-	0.314	7.9494	0.0071	1.5%	1112	-	ND	0.0000	0.0000	0.0%
indeno(1,2,3-cd)pyrene	1115	-	0.503	12.7342	0.0114	2.4%	1115	-	0.322	9.6119	0.0086	2.9%
dibenz(a,h)anthracene	1123	2389	0.102	2.5823	0.0023	0.5%	1123	2389	0.0698	2.0836	0.0019	0.6%
C4-benzanthracene/chrysenes	1214	-	0.314	7.9494	0.0065	1.4%	1214	-	ND	0.0000	0.0000	0.0%
Sum $ESBTU_{FCVi}$					**0.4792**	**100.0%**					**0.2923**	**100.0%**
Sum $ESBTU_{FCVi}$ (2 or 3 Ring PAHs)					**0.2108**	**44.0%**					**0.1157**	**39.6%**
Sum $ESBTU_{FCVi}$ (4 Ring PAHs)					**0.1803**	**37.6%**					**0.1123**	**38.4%**
Sum $ESBTU_{FCVi}$ (5 or 6 Ring PAHs)					**0.0881**	**18.4%**					**0.0642**	**22.0%**

Notes:

$C_{OC,PAHi,FCVi}$ = effect concentration of a PAH in sediment on an organic carbon basis calculated from the product of its FCV and K_{OC}

$C_{OC,PAHi,MAXi}$ = maximum solubility limited PAH concentration in sediment on an organic carbon basis

FCV = final chronic value

ESBTU = equilibrium partitioning sediment benchmark toxic unit

$ESBTU_{FCVi}$ = ESBTU for PAH_i based on the FCV

PAH = polycyclic aromatic hydrocarbon

Table 11. Toxicity Reference Values for Wildlife
Solvay
Morrisville, Pennsylvania Facility

COPEC	Toxicity Reference Values (mg/kg/day)					
	Mammals		Notes	Birds		Notes
	NOAEL	LOAEL		NOAEL	LOAEL	
Metals						
Aluminum	NA	NA		NA	NA	
Antimony	0.059	0.59	a	NA	NA	
Arsenic	1.04	1.66	a	2.24	3.6	a
Cadmium	0.77	7.7	a	1.47	14.7	a
Chromium	2.4	24	a	2.66	26.6	a
Copper	5.6	9.34	a	4.05	12.1	a
Iron	NA	NA		NA	NA	
Lead	4.7	8.9	a	1.63	3.3	a
Manganese	51.5	515	a	179	1790	a
Mercury	0.69	6.9	b	0.45	0.9	c
Nickel	1.7	3.4	a	6.71	67.1	a
Silver	6.02	60.2	a	2.02	20.2	a
Zinc	75.4	754	a	66.1	661	a
Semivolatile Organics						
2-Methylnaphthalene	65.6	328	a	1653	16530	a
Acenaphthene	65.6	328	a	1653	16530	a
Acenaphthylene	65.6	328	a	1653	16530	a
Anthracene	65.6	328	a	1653	16530	a
Benzo(a)anthracene	0.615	3.07	a	2	20	a
Benzo(a)pyrene	0.615	3.07	a	2	20	a
Benzo(g,h,i)perylene	0.615	3.07	a	2	20	a
Benzo(k)fluoranthene	0.615	3.07	a	2	20	a
Bis(2-Ethylhexyl)phthalate	5.2	52	b	1.1	11	c
Chrysene	0.615	3.07	a	2	20	a
Dibenzo(a,h)anthracene	0.615	3.07	a	2	20	a
Fluoranthene	0.615	3.07	a	2	20	a
Fluorene	65.6	328	a	1653	16530	a
Indeno(1,2,3-cd)pyrene	0.615	3.07	a	2	20	a
Phenanthrene	65.6	328	a	1653	16530	a
Pyrene	0.615	3.07	a	2	20	a
Volatile Organics						
1,2,4,5-Tetrachlorobenzene	NA	NA		NA	NA	
Benzene	7.5	75.3	b	NA	NA	
Hexachlorobenzene	NA	NA		NA	NA	
m,p-Xylene	0.6	0.743	b	NA	NA	

Notes:
a. EcoSSLs (2003-2008). EcoSSLs identify the NOAEL; the LOAEL is from either the corresponding study, or is extrapolated from the NOAEL using a multiplying factor of 10. USEPA did not identify a TRV for PAHs for birds, so the lowest reported effect level from the studies assigned an Evaluation Source greater than 10 was
b. Sample et al.1996 values for red fox; where LOAEL unavailable, value extrapolated from NOAEL using a multiplying factor of 10.
c. Sample et al.1996 values for great blue heron; where LOAEL unavailable, value extrapolated from NOAEL using a multiplying factor of 10.
COPEC = constituent of potential ecological concern
LOAEL = lowest observed adverse effects level
NOAEL = no observed adverse effects level
mg/kg/day = milligrams per kilogram per day
NA = not available

Table 12. Hazard Quotients for Raccoon
Solvay
Morrisville, Pennsylvania Facility

Body Weight (kg)	6.66
Daily Ingestion Rate (kg/day dw)	0.326
Soil/Sed Ingestion Rate (kg/day dw)	0.030644
Surface Water Ingestion Rate (L/day)	0.5370
Site Use Factor	0.04%

COPEC	Sediment EPC (mg/kg dw)	Surface Water EPC (mg/L)	C_{invert} (mg/kg dw)	Daily Dietary Dose (mg/kg/d)	TRV		HQ	
					NOAEL	LOAEL	NOAEL	LOAEL
Metals								
Aluminum	NA	1.87E-01	NA	5.97E-06	NA	NA	NA	NA
Antimony	1.03E+02	NA	1.03E+02	2.19E-03	0.059	0.59	0.04	0.004
Arsenic	2.63E+02	NA	3.34E+01	1.13E-03	1.04	1.66	0.001	0.0007
Cadmium	1.09E+01	1.26E-03	6.69E+00	1.50E-04	0.77	7.7	0.0002	0.00002
Chromium	3.73E+02	NA	4.03E+01	1.46E-03	2.4	24	0.0006	0.00006
Copper	5.62E+02	4.82E-03	2.89E+02	6.64E-03	5.6	9.34	0.001	0.0007
Iron	4.88E+04	6.30E-01	NA	8.91E-02	NA	NA	NA	NA
Lead	3.37E+02	NA	2.36E+01	1.07E-03	4.7	8.9	0.0002	0.0001
Manganese	7.66E+02	NA	4.13E+01	2.20E-03	51.5	515	0.00004	0.000004
Mercury	9.44E+00	NA	1.02E+01	2.15E-04	0.69	6.9	0.0003	0.00003
Nickel	1.91E+03	NA	1.56E+03	3.37E-02	1.7	3.4	0.02	0.01
Silver	9.19E+00	NA	1.88E+01	3.82E-04	6.02	60.2	0.00006	0.000006
Zinc	1.66E+03	NA	3.87E+03	7.81E-02	75.4	754	0.001	0.0001
Semivolatile Organics								
2-Methylnaphthalene	1.04E-01	NA	3.19E-02	8.10E-07	65.6	328	1E-08	2E-09
Acenaphthene	3.22E-02	NA	3.28E-03	1.22E-07	65.6	328	2E-09	4E-10
Acenaphthylene	1.58E-01	NA	3.70E-04	2.96E-07	65.6	328	5E-09	9E-10
Anthracene	2.22E-01	NA	1.49E-04	4.08E-07	65.6	328	6E-09	1E-09
Benzo(a)anthracene	5.81E-01	NA	3.49E-05	1.06E-06	0.615	3.07	0.000002	0.0000003
Benzo(a)pyrene	6.45E-01	NA	9.80E-06	1.18E-06	0.615	3.07	0.000002	0.0000004
Benzo(g,h,i)perylene	7.21E-01	NA	2.41E-04	1.32E-06	0.615	3.07	0.000002	0.0000004
Benzo(k)fluoranthene	7.08E-01	NA	1.31E-05	1.29E-06	0.615	3.07	0.000002	0.0000004
Bis(2-Ethylhexyl)phthalate	3.70E+01	NA	1.25E+00	9.18E-05	5.2	52	0.00002	0.000002
Chrysene	1.22E+00	NA	1.62E-05	2.22E-06	0.615	3.07	0.000004	0.0000007
Dibenzo(a,h)anthracene	1.82E-01	NA	1.28E-05	3.33E-07	0.615	3.07	0.0000005	0.0000001
Fluoranthene	2.41E+00	NA	1.99E-05	4.40E-06	0.615	3.07	0.000007	0.000001
Fluorene	8.07E-02	NA	1.68E-03	1.80E-07	65.6	328	3E-09	5E-10
Indeno(1,2,3-cd)pyrene	6.87E-01	NA	4.02E-05	1.26E-06	0.615	3.07	0.000002	0.0000004
Phenanthrene	8.93E-01	NA	2.89E-04	1.64E-06	65.6	328	2E-08	5E-09
Pyrene	1.77E+00	NA	1.32E-04	3.24E-06	0.615	3.07	0.000005	0.000001
Volatile Organics								
1,2,4,5-Tetrachlorobenzene	1.80E+00	NA	NA	3.29E-06	NA	NA	NA	NA
Benzene	2.05E-01	NA	NA	3.74E-07	7.5	75.3	5E-08	5E-09
Hexachlorobenzene	1.10E+00	NA	NA	2.01E-06	NA	NA	NA	NA
m,p-Xylene	4.69E-01	NA	NA	8.56E-07	0.6	0.743	0.000001	0.000001

Notes:
COPEC = constituent of potential ecological concern
EPC = exposure point concentration
HQ = hazard quotient
LOAEL = lowest observed adverse effects level
NOAEL = no observed adverse effects level
NA = not available
TRV = toxicity reference value

Table 13. Hazard Quotients for Great Blue Heron
Solvay
Morrisville, Pennsylvania Facility

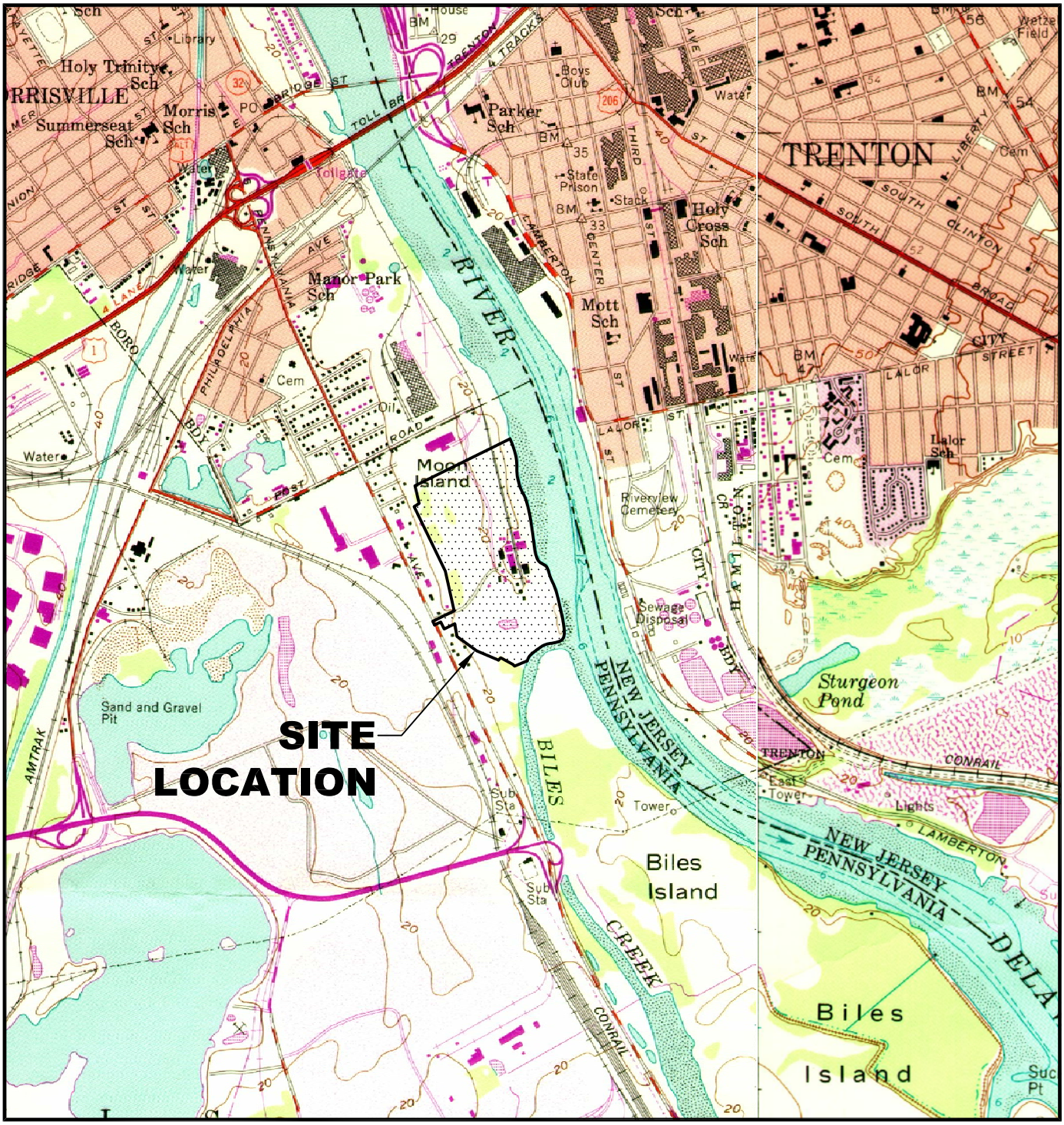
Body Weight (kg)	2.39
Daily Ingestion Rate (kg/day dw)	0.4302
Soil/Sed Ingestion Rate (kg/day dw)	0.008604
Surface Water Ingestion Rate (L/day)	0.1058
Site Use Factor	5.6%

COPEC	Sediment EPC (mg/kg dw)	Surface Water EPC (mg/L)	C_{fish} (mg/kg dw)	Daily Dietary Dose (mg/kg/d)	TRV		HQ	
					NOAEL	LOAEL	NOAEL	LOAEL
Metals								
Aluminum	NA	1.87E-01	NA	4.59E-04	NA	NA	NA	NA
Antimony	1.03E+02	NA	1.03E+02	1.05E+00	NA	NA	NA	NA
Arsenic	2.63E+02	NA	3.34E+01	3.86E-01	2.24	3.6	0.2	0.1
Cadmium	1.09E+01	1.26E-03	6.69E+00	6.90E-02	1.47	14.7	0.05	0.005
Chromium	3.73E+02	NA	4.03E+01	4.78E-01	2.66	26.6	0.2	0.02
Copper	5.62E+02	4.82E-03	2.89E+02	3.00E+00	4.05	12.1	0.7	0.2
Iron	4.88E+04	6.30E-01	NA	9.76E+00	NA	NA	NA	NA
Lead	3.37E+02	NA	2.36E+01	3.03E-01	1.63	3.3	0.2	0.09
Manganese	7.66E+02	NA	4.13E+01	5.66E-01	179	1790	0.003	0.0003
Mercury	9.44E+00	NA	1.02E+01	1.04E-01	0.45	0.9	0.2	0.1
Nickel	1.91E+03	NA	1.56E+03	1.60E+01	6.71	67.1	**2**	0.2
Silver	9.19E+00	NA	1.88E+01	1.90E-01	2.02	20.2	0.09	0.009
Zinc	1.66E+03	NA	3.87E+03	3.90E+01	66.1	661	0.6	0.06
Semivolatile Organics								
2-Methylnaphthalene	1.04E-01	NA	3.26E-02	3.47E-04	1653	16530	0.0000002	2E-08
Acenaphthene	3.22E-02	NA	3.23E-03	3.88E-05	1653	16530	2E-08	2E-09
Acenaphthylene	1.58E-01	NA	5.33E-03	8.49E-05	1653	16530	5E-08	5E-09
Anthracene	2.22E-01	NA	4.75E-03	9.19E-05	1653	16530	6E-08	6E-09
Benzo(a)anthracene	5.81E-01	NA	6.02E-03	1.76E-04	2	20	0.00009	0.000009
Benzo(a)pyrene	6.45E-01	NA	3.54E-03	1.64E-04	2	20	0.00008	0.000008
Benzo(g,h,i)perylene	7.21E-01	NA	1.96E-02	3.40E-04	2	20	0.0002	0.00002
Benzo(k)fluoranthene	7.08E-01	NA	4.49E-03	1.86E-04	2	20	0.00009	0.000009
Bis(2-Ethylhexyl)phthalate	3.70E+01	NA	7.25E+01	7.33E-01	1.1	11	0.7	0.07
Chrysene	1.22E+00	NA	8.58E-03	3.29E-04	2	20	0.0002	0.00002
Dibenzo(a,h)anthracene	1.82E-01	NA	1.14E-03	4.78E-05	2	20	0.00002	0.000002
Fluoranthene	2.41E+00	NA	1.88E-02	6.70E-04	2	20	0.0003	0.00003
Fluorene	8.07E-02	NA	5.79E-03	7.41E-05	1653	16530	4E-08	4E-09
Indeno(1,2,3-cd)pyrene	6.87E-01	NA	7.64E-03	2.14E-04	2	20	0.0001	0.00001
Phenanthrene	8.93E-01	NA	2.66E-02	4.45E-04	1653	16530	0.0000003	3E-08
Pyrene	1.77E+00	NA	3.57E-02	7.12E-04	2	20	0.0004	0.00004
Volatile Organics								
1,2,4,5-Tetrachlorobenzene	1.80E+00	NA	NA	3.60E-04	NA	NA	NA	NA
Benzene	2.05E-01	NA	NA	4.10E-05	NA	NA	NA	NA
Hexachlorobenzene	1.10E+00	NA	NA	2.20E-04	NA	NA	NA	NA
m,p-Xylene	4.69E-01	NA	NA	9.38E-05	NA	NA	NA	NA

Notes:
COPEC = constituent of potential ecological concern
EPC = exposure point concentration
HQ = hazard quotient
LOAEL = lowest observed adverse effects level
NOAEL = no observed adverse effects level
NA = not available
TRV = toxicity reference value

ARCADIS

Figures



REFERENCE: BASE MAP USGS 7.5 MIN. QUADS., TRENTON EAST(1957) AND TRENTON WEST(1955), NEW JERSEY, PHOTOREVISED 1981

2000' 0 2000'

Approximate Scale: 1" = 2000'

PENNSYLVANIA

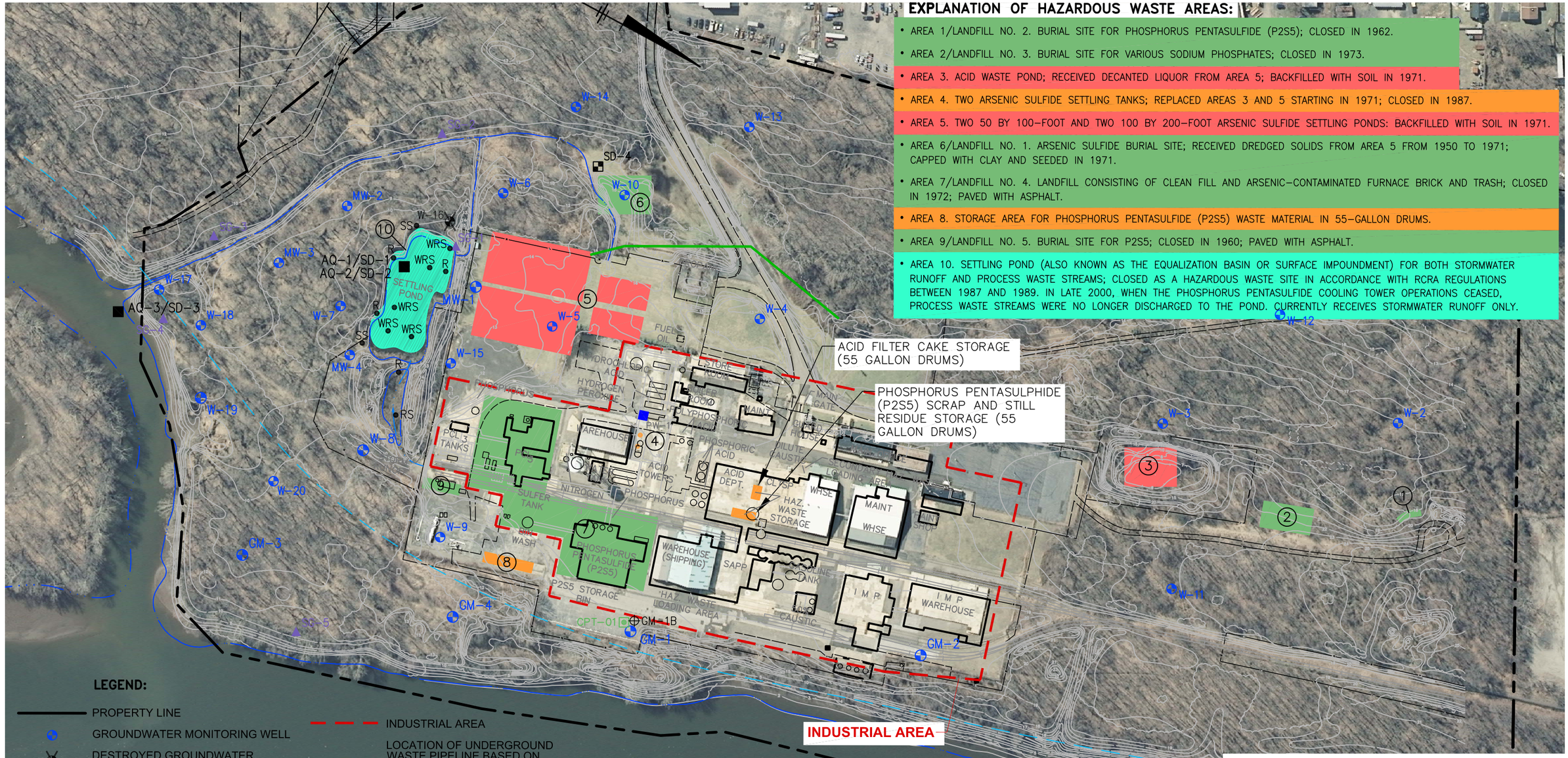
SOLVAY, INC.
MORRISVILLE, PENNSYLVANIA
ECOLOGICAL RISK ASSESSMENT

SITE LOCATION MAP

ARCADIS

FIGURE
1

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER/JMEYER LD:(Opt) PIC:A.HEBERT PM: R.FITZPATRICK TR:C.FOSTER LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACTIVE\NP000448\000041\000004\DWG\NP000448N01.dwg LAYOUT: 1 SAVED: 6/17/2015 10:48 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 7/9/2015 9:51 AM BY: HOWES, DAVID
XREFS: IMAGES: PROJECTNAME: ---
TRENTONE.jpg
TRENTONW.jpg



EXPLANATION OF HAZARDOUS WASTE AREAS:

- AREA 1/LANDFILL NO. 2. BURIAL SITE FOR PHOSPHORUS PENTASULFIDE (P2S5); CLOSED IN 1962.
- AREA 2/LANDFILL NO. 3. BURIAL SITE FOR VARIOUS SODIUM PHOSPHATES; CLOSED IN 1973.
- AREA 3. ACID WASTE POND; RECEIVED DECANTED LIQUOR FROM AREA 5; BACKFILLED WITH SOIL IN 1971.
- AREA 4. TWO ARSENIC SULFIDE SETTLING TANKS; REPLACED AREAS 3 AND 5 STARTING IN 1971; CLOSED IN 1987.
- AREA 5. TWO 50 BY 100-FOOT AND TWO 100 BY 200-FOOT ARSENIC SULFIDE SETTLING PONDS: BACKFILLED WITH SOIL IN 1971.
- AREA 6/LANDFILL NO. 1. ARSENIC SULFIDE BURIAL SITE; RECEIVED DREDGED SOLIDS FROM AREA 5 FROM 1950 TO 1971; CAPPED WITH CLAY AND SEEDED IN 1971.
- AREA 7/LANDFILL NO. 4. LANDFILL CONSISTING OF CLEAN FILL AND ARSENIC-CONTAMINATED FURNACE BRICK AND TRASH; CLOSED IN 1972; PAVED WITH ASPHALT.
- AREA 8. STORAGE AREA FOR PHOSPHORUS PENTASULFIDE (P2S5) WASTE MATERIAL IN 55-GALLON DRUMS.
- AREA 9/LANDFILL NO. 5. BURIAL SITE FOR P2S5; CLOSED IN 1960; PAVED WITH ASPHALT.
- AREA 10. SETTLING POND (ALSO KNOWN AS THE EQUALIZATION BASIN OR SURFACE IMPOUNDMENT) FOR BOTH STORMWATER RUNOFF AND PROCESS WASTE STREAMS; CLOSED AS A HAZARDOUS WASTE SITE IN ACCORDANCE WITH RCRA REGULATIONS BETWEEN 1987 AND 1989. IN LATE 2000, WHEN THE PHOSPHORUS PENTASULFIDE COOLING TOWER OPERATIONS CEASED, PROCESS WASTE STREAMS WERE NO LONGER DISCHARGED TO THE POND. CURRENTLY RECEIVES STORMWATER RUNOFF ONLY.

LEGEND:

- PROPERTY LINE
- GROUNDWATER MONITORING WELL
- DESTROYED GROUNDWATER MONITORING WELL
- HISTORICAL CONE PENETROMETER TEST
- HISTORICAL SOIL BORING
- HISTORICAL STAFF GAUGE
- HISTORICAL AQUEOUS AND SEDIMENT SAMPLE (APPROX. LOCATION, NUS, 1990)
- HISTORICAL SEDIMENT SAMPLE (APPROX. LOCATION, NUS, 1990)
- STORM WATER DRAINAGE PATHWAY
- 100-YEAR FLOOD PLAIN (ZONE 7) AS INDICATED ON FEDERAL INSURANCE MAP (APPROX. LOCATION)
- INDUSTRIAL AREA
- LOCATION OF UNDERGROUND WASTE PIPELINE BASED ON REMEDIAL INVESTIGATION FINDINGS
- ABANDONED DEEP INDUSTRIAL PRODUCTION WELL (APPROX. LOCATION)
- FORMER BURIAL SITE
- FORMER ACID-WASTE (SETTLING) POND
- WASTE MATERIAL STORAGE AREA
- SETTLING POND (SURFACE IMPOUNDMENT)

WRS/RS/S/SS •

W = HISTORICAL AQUEOUS SAMPLE*
R = HISTORICAL SEDIMENT SAMPLE*
S = HISTORICAL SUBSOIL SAMPLE*
SS = HISTORICAL SURROUNDING SOIL SAMPLES*
(* APPROX. LOCATION, P.H. ROUX, 1983)

BASE MAP REFERENCES:

1. SAMPLE LOCATION MAP BY NUS CORP., WELL LOCATIONS BY RHONE POULENC DATED 3-96, FACILITY LAYOUT, SOURCE UNKNOWN.
2. PROPERTY LINE FROM "WELL ELEVATIONS AND LOCATIONS" BY ROBERT F. MUELLER, LEVITTOWN, PA, DATED 10-16-1981.

0 200' 400'
GRAPHIC SCALE

SOLVAY, INC.
MORRISVILLE, PENNSYLVANIA
ECOLOGICAL RISK ASSESSMENT

SITE PLAN

ARCADIS

FIGURE 2

CITY: Syracuse DIV/GROUP: EnvCAD DB: A.Schilling, R. BASSETT LD:(Opt) PIC: A.HEBERT PM: R.FITZPATRICK LYR:(Opt)On=*;OFF=*REF*
G:\ENV\CAD\SYRACUSE\ACTIVE\00044B\000410000410DWG\00448G03.dwg LAYOUT: 2 SAVED: 1/20/2014 4:55 PM ACADVER: 18.1S (LMS TECH)
XREFS: 00448X00 00448X02 IMAGES: 38095X02.jpg PROJECTNAME: ---
PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 7/9/2015 10:10 AM BY: HOWES, DAVID
(LMS TECH)

Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Mar 12, 2013

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

SOLVAY, INC.
MORRISVILLE, PENNSYLVANIA

ECOLOGICAL RISK ASSESSMENT

NATIONAL WETLANDS INVENTORY

ARCADIS

FIGURE
3

PRIMARY SOURCE(S)

PRIMARY RELEASE MECHANISM(S)

EXPOSURE MEDIA

Historical Facility Operations

Direct Discharge to Settling Pond

Surface Sediment

Porewater

Surface Water

Potential Ecological Receptors

EXPOSURE ROUTE(S)	Piscivorous Mammals (e.g., Raccoon)	Piscivorous Birds (e.g., great blue heron)	Aquatic Community (e.g., fish, amphibians, turtles)	Benthic Invertebrate Community
Ingestion (including food-chain transfer)	X	X	O	O
Inhalation	--	--	--	--
Direct Contact	O	O	X	X
Ingestion (including food-chain transfer)	--	--	O	X
Inhalation	--	--	--	--
Direct Contact	--	--	O	X
Ingestion (including food-chain transfer)	X	X	X	O
Inhalation	--	--	--	--
Direct Contact	O	O	X	O

Notes:

X Potentially complete exposure route

O Potentially complete exposure route not significant or directly assessed

-- Not a relevant or significant exposure route

SOLVAY, INC.
MORRISVILLE, PENNSYLVANIA FACILITY
ECOLOGICAL RISK ASSESSMENT

ECOLOGICAL CONCEPTUAL SITE MODEL

ARCADIS

FIGURE 4

07/09/2015 SYRACUSE, NY-ENV/CAD-DJHOWES
NP000448/0004/00004/CDR/00448F01.CDR

ARCADIS

Appendix A

Threatened and
Endangered Species
Results

ARCADIS
Infrastructure · Water · Environment · Buildings

ARCADIS U.S., Inc.
10 Friends Lane
Suite 200
Newtown
Pennsylvania 18940
Tel 267 685 1800
Fax 267 685 1801
www.arcadis-us.com

ENVIRONMENTAL

Pennsylvania Fish and Boat Commission
Division of Environmental Services
450 Robinson Lane
Bellefonte, Pennsylvania 16823-7437

Subject:
Pennsylvania Natural Diversity Index Results
Search ID: 20131219431788
Former Rhodia Facility
2300 South Pennsylvania Avenue
Morrisville, PA 19067
EPA ID No. PAD002336410

Date:
December 19, 2013

Contact:
Deric T. Kearns

Phone:
267.685.1864

Email:
Deric.Kearns@arcadis-us.com

Our ref:
NP000448.0003

Dear Sir/Madam:

ARCADIS U.S., Inc. (ARCADIS) has been performing environmental site investigations at the Rhodia, Inc. (Rhodia) Morrisville, Pennsylvania facility (the Site) for the past several years. As part of the Pennsylvania Department of Environmental Protection's (PADEP) reporting requirements relating to Remedial Investigation Reports (RIR), a Pennsylvania Natural Diversity Index (PNDI) was completed for the Site.

The attached PNDI Project Environmental Review Receipt (**Attachment 1**) identified a number of species during the survey that require further clarification with your agency. We are writing to provide you with a brief narrative for the Site and some supplemental information as requested in the PNDI receipt.

Site Background

The Site is comprised of approximately 80 wooded acres on the Delaware River. Of the 80 acres, historic facility operations occupied approximately 40 acres. The facility primarily manufactured phosphoric acid. The facility operated between the 1940s through 2001; almost all of the buildings onsite have since been decommissioned and demolished and the Site is now inactive. Storm water runoff from impervious surfaces (primarily asphalt and building foundations within the former facility footprint) is collected and channeled into the onsite settling pond (aka Area 10).

Environmental investigations at the Site have found elevated levels of arsenic in surficial and subsurface soils and groundwater above applicable PADEP standards. These areas are primarily Areas 5, 6, 10, and the outfall drainage ditches originating from Areas 6 and 10 (**Attachment 2, Figure 2**). All of these areas are covered in vegetation and comprise an area of roughly 10 acres. Pertinent site photographs have been included in **Attachment 3**.

As of this date there are no plans for active remediation (i.e. excavation, soil capping). The impacted areas will likely be deed restricted and fenced off. There is currently an ecological risk assessment being completed for the Site as well.

If you have any questions, please do not hesitate to contact me at 267.685.1823.

Sincerely,

ARCADIS U.S., Inc.

Deric T. Kearns
Associate Project Manager

Copies:
Ryan Fitzpatrick, ARCADIS
Pennsylvania Department of Conservation and Natural Resources
File

Attachments:
Attachment 1 - Signed PNDI Project Environmental Review Receipt

Attachment 2 - Supplemental Site Figures

Attachment 3 - Site Photos

1. PROJECT INFORMATION

Project Name: **Former Rhodia (olvay) Facility**
Date of review: **12/19/2013 11:45:54 AM**
Project Category: **Hazardous Waste Clean-up, Site Remediation, and Reclamation,Spill (e.g., oil, chemical)**
Project Area: **81.8** acres
County: **Bucks** Township/Municipality: **Falls**
Quadrangle Name: **TRENTON WEST** ~ ZIP Code: **19067**
Decimal Degrees: **40.193174 N, -74.764398 W**
Degrees Minutes Seconds: **40° 11' 35.4" N, -74° 45' 51.8" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
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.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

RESPONSE TO QUESTION(S) ASKED

Q1: "Accurately describe what is known about wetland presence in the project area or on the land parcel by selecting ONE of the following. ""Project"" includes all features of the project (including buildings, roads, utility lines, outfall and intake structures, wells, stormwater retention/detention basins, parking lots, driveways, lawns, etc.), as well as all associated impacts (e.g., temporary staging areas, work areas, temporary road crossings, areas subject to grading or clearing, etc.). Include all areas that will be permanently or temporarily affected -- either directly or indirectly -- by any type of disturbance (e.g., land clearing, grading, tree removal, flooding, etc.). Land parcel = the lot(s) on which some type of project(s) or activity(s) are proposed to occur ."
Your answer is: **"5. The specific project area (that is, project layout or "footprint") has not yet been identified, but the land parcel on which the project will occur has been investigated by someone qualified to identify and delineate wetlands, and wetlands were located on the land parcel. "**

Q2: "Will the entire project area (including any discharge), plus a 300 feet buffer around the project area, all occur in or on an existing building, parking lot, driveway, road, road shoulder, street, runway, paved area, railroad bed, maintained (periodically mown) lawn, crop agriculture field or maintained orchard?"
Your answer is: **2. No**

Q3: 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: **1. Yes**

Q4: Will the entire project occur within an existing building, parking lot, driveway, road, street, or maintained (periodically mowed) lawn?
Your answer is: **2. No**

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 jursidictional 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: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

DCNR Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below. After desktop review, if a botanical survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNR.aspx.)

Scientific Name: Amaranthus cannabinus
Common Name: Waterhemp Ragweed
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

Scientific Name: Bidens bidentoides
Common Name: Swamp Beggar-ticks
Current Status: Threatened
Proposed Status: Endangered

Scientific Name: Bidens laevis
Common Name: Beggar-ticks
Current Status: Special Concern Species*
Proposed Status: Endangered

Scientific Name: Cuscuta cephalanthi
Common Name: Button-bush Dodder
Current Status: Special Concern Species*
Proposed Status: Threatened

Scientific Name: Cyperus refractus
Common Name: Reflexed Flatsedge
Current Status: Endangered
Proposed Status: Endangered

Scientific Name: Freshwater intertidal mudflat
Common Name: Freshwater Intertidal Mudflat
Current Status: Special Concern Resource*
Proposed Status: Special Concern Resource*

Scientific Name: Heteranthera multiflora
Common Name: Multiflowered Mud-plantain
Current Status: Endangered
Proposed Status: Endangered

Scientific Name: Sagittaria subulata
Common Name: Subulate Arrowhead
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

Scientific Name: Schoenoplectus smithii
Common Name: Smith's Bulrush
Current Status: Endangered
Proposed Status: Endangered

Scientific Name: Sensitive Species**
Common Name:
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

Scientific Name: Zizania aquatica
Common Name: Indian Wild Rice
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

PA Fish and Boat Commission

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)
Scientific Name: Lampsilis cariosa
Common Name: Yellow Lampmussel
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

Scientific Name: Sensitive Species**
Common Name:
Current Status: Endangered
Proposed Status: Endangered

Scientific Name: Sensitive Species**
Common Name:
Current Status: Threatened
Proposed Status: Special Concern Species*

Scientific Name: Sensitive Species**
Common Name:
Current Status: Endangered
Proposed Status: Endangered

Scientific Name: Sensitive Species**
Common Name:
Current Status: Endangered
Proposed Status: Endangered

Scientific Name: Sensitive Species**
Common Name:
Current Status: Endangered
Proposed Status: Endangered

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 jurisdictinal 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, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of *Minimum* Materials to be submitted:

____**SIGNED** copy of this Project Environmental Review Receipt
____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.
____Project location information (name of USGS Quadrangle, Township/Mu?icipality, and County)
____USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.
____A basic site plan(particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
____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. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at http://www.naturalheritage.state.pa.us.

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
Fax:(717) 772-0271

U.S. Fish and Wildlife Service
Endangered Species Section
315 South Allen Street, Suite 322, State College, PA. 16801-4851
NO Faxes Please.

PA Fish and Boat Commission
Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

PA Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

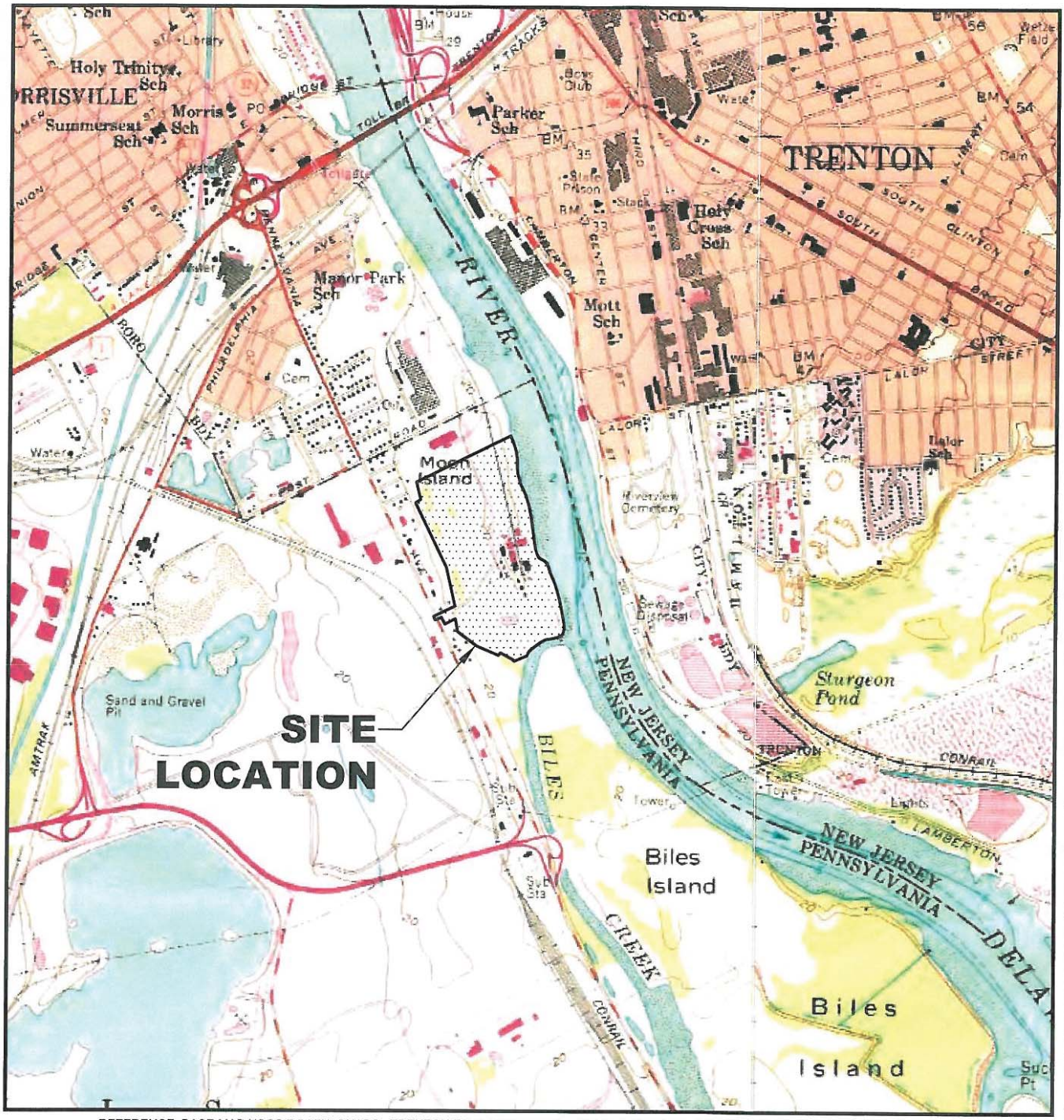
Name: Deric T. Kearns
Company/Business Name: ARCADIS
Address: 10 Friends Lane
City, State, Zip: Newtown PA
Phone:(267) 685-1800 Fax:( )
Email: dkearns@arcadis-us.com

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.

Deric T. Kearns — 12/19/13

applicant/project proponent signature — date



REFERENCE: BASE MAP USGS 7.5 MIN. QUADS., TRENTON EAST(1957) AND TRENTON WEST(1955), NEW JERSEY, PHOTOREVISED 1981

2000' 0 2000'

Approximate Scale: 1" = 2000'

AREA LOCATION

RHODIA INC.
MORRISVILLE, PENNSYLVANIA
REMEDIAL INVESTIGATION REPORT

SITE LOCATION MAP

ARCADIS

FIGURE 1

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER LD:(Opt) PIC:A.HEBERT PM: R.FITZPATRICK TR:C.FOSTER LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACTNP\00044B\00003\000005\DWG\RIWP\00448N01.dwg LAYOUT: 1 SAVED: 6/11/2012 2:00 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 6/11/2012 2:01 PM BY: SCHILLING, ADAM
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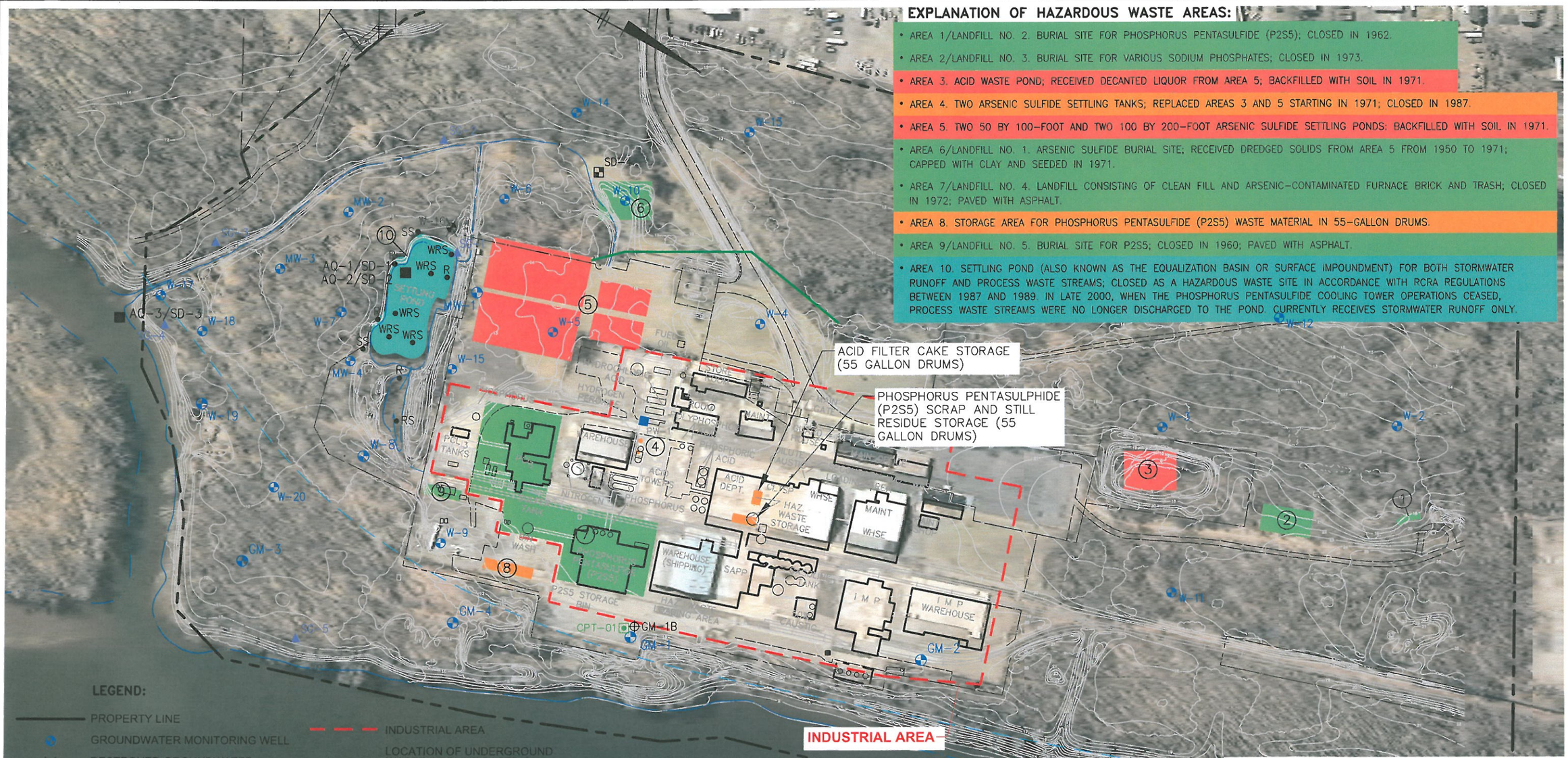
TRENTONW.jpg



EXPLANATION OF HAZARDOUS WASTE AREAS:

- AREA 1/LANDFILL NO. 2. BURIAL SITE FOR PHOSPHORUS PENTASULFIDE (P2S5); CLOSED IN 1962.
- AREA 2/LANDFILL NO. 3. BURIAL SITE FOR VARIOUS SODIUM PHOSPHATES; CLOSED IN 1973.
- AREA 3. ACID WASTE POND; RECEIVED DECANTED LIQUOR FROM AREA 5; BACKFILLED WITH SOIL IN 1971.
- AREA 4. TWO ARSENIC SULFIDE SETTLING TANKS; REPLACED AREAS 3 AND 5 STARTING IN 1971; CLOSED IN 1987.
- AREA 5. TWO 50 BY 100-FOOT AND TWO 100 BY 200-FOOT ARSENIC SULFIDE SETTLING PONDS; BACKFILLED WITH SOIL IN 1971.
- AREA 6/LANDFILL NO. 1. ARSENIC SULFIDE BURIAL SITE; RECEIVED DREDGED SOLIDS FROM AREA 5 FROM 1950 TO 1971; CAPPED WITH CLAY AND SEEDED IN 1971.
- AREA 7/LANDFILL NO. 4. LANDFILL CONSISTING OF CLEAN FILL AND ARSENIC-CONTAMINATED FURNACE BRICK AND TRASH; CLOSED IN 1972; PAVED WITH ASPHALT.
- AREA 8. STORAGE AREA FOR PHOSPHORUS PENTASULFIDE (P2S5) WASTE MATERIAL IN 55-GALLON DRUMS.
- AREA 9/LANDFILL NO. 5. BURIAL SITE FOR P2S5; CLOSED IN 1960; PAVED WITH ASPHALT.
- AREA 10. SETTLING POND (ALSO KNOWN AS THE EQUALIZATION BASIN OR SURFACE IMPOUNDMENT) FOR BOTH STORMWATER RUNOFF AND PROCESS WASTE STREAMS; CLOSED AS A HAZARDOUS WASTE SITE IN ACCORDANCE WITH RCRA REGULATIONS BETWEEN 1987 AND 1989. IN LATE 2000, WHEN THE PHOSPHORUS PENTASULFIDE COOLING TOWER OPERATIONS CEASED, PROCESS WASTE STREAMS WERE NO LONGER DISCHARGED TO THE POND. CURRENTLY RECEIVES STORMWATER RUNOFF ONLY.

LEGEND:

- PROPERTY LINE
- GROUNDWATER MONITORING WELL
- DESTROYED GROUNDWATER MONITORING WELL
- HISTORICAL CONE PENETROMETER TEST
- HISTORICAL SOIL BORING
- HISTORICAL STAFF GAUGE
- HISTORICAL AQUEOUS AND SEDIMENT SAMPLE (APPROX. LOCATION, NUS, 1990)
- HISTORICAL SEDIMENT SAMPLE (APPROX. LOCATION, NUS, 1990)
- STORM WATER DRAINAGE PATHWAY
- 100-YEAR FLOOD PLAIN (ZONE 7) AS INDICATED ON FEDERAL INSURANCE MAP (APPROX. LOCATION)
- INDUSTRIAL AREA
- LOCATION OF UNDERGROUND WASTE PIPELINE BASED ON REMEDIAL INVESTIGATION FINDINGS
- ABANDONED DEEP INDUSTRIAL PRODUCTION WELL (APPROX. LOCATION)
- FORMER BURIAL SITE
- FORMER ACID-WASTE (SETTLING) POND
- WASTE MATERIAL STORAGE AREA
- SETTLING POND (SURFACE IMPOUNDMENT)

WRS/RS/S/SS •
W = HISTORICAL AQUEOUS SAMPLE*
R = HISTORICAL SEDIMENT SAMPLE*
S = HISTORICAL SUBSOIL SAMPLE*
SS = HISTORICAL SURROUNDING SOIL SAMPLES*
(* APPROX. LOCATION, P.H. ROUX, 1983)

BASE MAP REFERENCES:

1. SAMPLE LOCATION MAP BY NUS CORP., WELL LOCATIONS BY RHONE POULENC DATED 3-96, FACILITY LAYOUT, SOURCE UNKNOWN.
2. PROPERTY LINE FROM "WELL ELEVATIONS AND LOCATIONS" BY ROBERT F. MUELLER, LEVITTOWN, PA, DATED 10-16-1981.

0 200' 400'
GRAPHIC SCALE

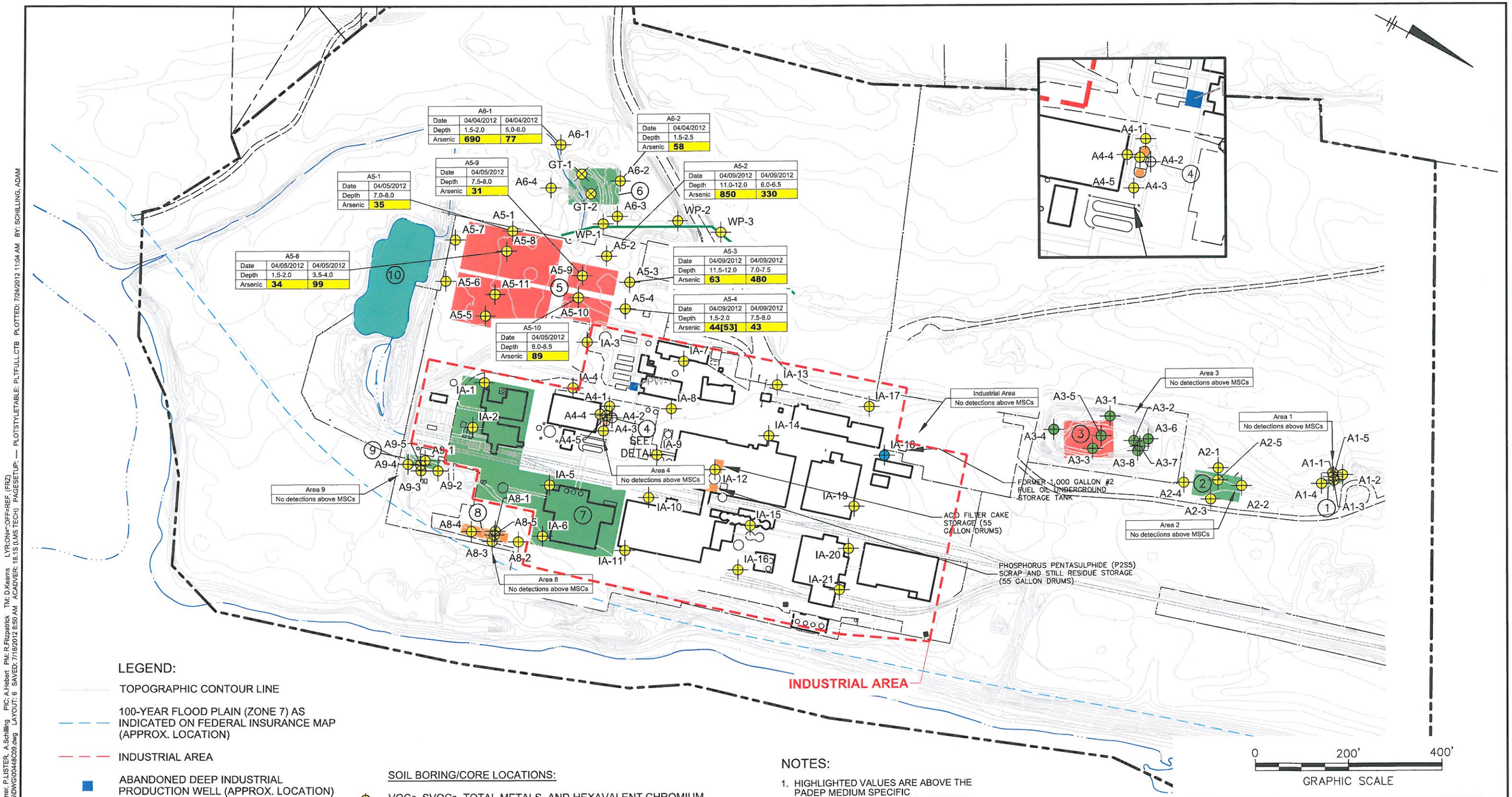
RHODIA INC.
MORRISVILLE, PENNSYLVANIA
REMEDIAL INVESTIGATION REPORT

SITE PLAN

ARCADIS

FIGURE
2

CITY: Syracuse DIV/GROUP: EnvCAD DB: A.Schilling LD:(Opt) PIC: A.HEBERT PM: R.FITZPATRICK LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACT\NP000448\0003\00005\DWG\RIWP\00448G03.dwg LAYOUT: 2 SAVED: 7/24/2012 11:48 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 7/24/2012 12:01 PM BY: SCHILLING, ADAM
XREFS: 00448X00 00448X02 IMAGES: 38095X02.jp2 PROJECTNAME: ----



LEGEND:

- TOPOGRAPHIC CONTOUR LINE
- 100-YEAR FLOOD PLAIN (ZONE 7) AS INDICATED ON FEDERAL INSURANCE MAP (APPROX. LOCATION)
- INDUSTRIAL AREA
- ABANDONED DEEP INDUSTRIAL PRODUCTION WELL (APPROX. LOCATION)
- LOCATION OF UNDERGROUND WASTE PIPELINE BASED ON REMEDIAL INVESTIGATION FINDINGS
- FORMER BURIAL SITE
- FORMER ACID-WASTE (SETTLING) POND
- WASTE MATERIAL STORAGE AREA
- SETTLING POND (SURFACE IMPOUNDMENT)

SOIL BORING/CORE LOCATIONS:

- VOCs, SVOCs, TOTAL METALS, AND HEXAVALENT CHROMIUM
- VOCs, SVOCs, TOTAL METALS, HEXAVALENT CHROMIUM, and PADEP #2 OIL SHORTLIST
- VOCs, SVOCs, TOTAL METALS, HEXAVALENT CHROMIUM, AND pH
- GEOTECHNICAL SAMPLE CORE

BASE MAP REFERENCES:

SAMPLE LOCATION MAP BY NUS CORP., WELL LOCATIONS BY RHONE POULENC DATED 3-96, FACILITY LAYOUT, SOURCE UNKNOWN.

NOTES:

1. HIGHLIGHTED VALUES ARE ABOVE THE PADEP MEDIUM SPECIFIC CONCENTRATION (MSC) FOR SURFACE SOIL.
2. ALL CONCENTRATIONS ARE IN MILLIGRAMS PER KILOGRAM (MG/KG).
3. ONLY ANALYTES THAT WERE ABOVE THE MSC FOR EACH SAMPLE LOCATION ARE PRESENTED ON THIS FIGURE.

Analyte	PADEP MSC
Arsenic	29

RHODIA INC.
MORRISVILLE, PENNSYLVANIA
REMEDIAL INVESTIGATION REPORT

APRIL 2012 SOIL CONCENTRATIONS ABOVE PADEP MSCs

ARCADIS

FIGURE 6

CITY: Syracuse DIV/GROUP: EnvCAD DB: E.Krahmer, P.LISTER, A.Schilling PIC: A.Hebert PM: R.Fitzpatrick TM: D.Kearns LYR:ON=*;OFF=REF, (FR2)
G:\ENVCAD\SYRACUSE\ACT\NP000448\0003\00005\DWG\00448C09.dwg LAYOUT: 6 SAVED: 7/18/2012 8:50 AM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 7/24/2012 11:04 AM BY: SCHILLING, ADAM
XREFS: 00448X00 00448X02 IMAGES: 38095X02.jp2 PROJECTNAME: ----

Attachment 3. Site Photos

Area 5

General Facility Footprint Conditions

Area 6

Area 10

pennsylvania
DEPARTMENT OF CONSERVATION
AND NATURAL RESOURCES

BUREAU OF FORESTRY

27 December 2013 **PNDI Number: 20131219431788**

Deric Kearns
Arcadis
Email: deric.kearns@arcadis-us.com (hard copy will not follow)

Re: Arcadis, Former Rhodia Facility
Falls Township, Bucks County, PA

Dear Mr. Kearns,

Thank you for the submission of the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number **20131219431788** for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

No Impact Anticipated

PNDI records indicate species or resources under DCNR's jurisdiction are located in the vicinity of the project. However, based on the information you submitted concerning the nature of the project, the immediate location, and our detailed resource information, DCNR has determined that no impact is likely. No further coordination with our agency is needed for this project.

This response represents the most up-to-date review of the PNDI data files and is valid for two (2) years only. If project plans change or more information on listed or proposed species becomes available, our determination may be reconsidered. For PNDI project updates, please see the PNHP website at www.naturalheritage.state.pa.us for guidance. As a reminder, this finding applies to potential impacts under DCNR's jurisdiction only. Visit the PNHP website for directions on contacting the Commonwealth's other resource agencies for environmental review.

Should you have any questions or concerns, please contact Su Ann Shupp, Ecological Information Specialist, by phone (717-783-7990) or via email (c-sushupp@pa.gov).

Sincerely,

Rebecca H. Bowen

Rebecca H. Bowen, Section Chief
Bureau of Forestry, Ecological Services Section
Pennsylvania Natural Heritage Program

Pennsylvania Fish & Boat Commission
established 1866

Division of Environmental Services
Natural Diversity Section
450 Robinson Lane
Bellefonte, PA 16823
814-359-5237

January 14, 2014

IN REPLY REFER TO
SIR# 41910

ARCADIS
Deric Kearns
10 Friends Lane
NEWTOWN, Pennsylvania 18940

RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 20131219431788
Former Rhodia (olvay) Facility
BUCKS County: Falls Township

Dear Deric Kearns:

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.

Based on records maintained in the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files, the following rare or protected species are known from the vicinity of the project site and could potentially colonize appropriate habitats on site:

Common Name (Scientific Name, PA Status)
Eastern Redbelly Turtle (*Pseudemys rubriventris*, Threatened)
Eastern Spadefoot (*Scaphiopus holbrookii*, Threatened)
New Jersey Chorus Frog (*Pseudacris kalmi*, Endangered)
Northern Cricket Frog (*Acris crepitans*, Endangered)
Southern Leopard Frog (*Lithobates sphenocephalus utricularius*, Endangered)

If wetlands, waterways, or vernal pools are to be directly or indirectly impacted by proposed project activity, we will need to conduct a more thorough evaluation of the potential adverse impacts to the species of concern. Please provide us with the following information to assist us with our review:

detailed project plans including a project narrative, identification and delineation of wetlands or streams within the direct and indirect impact area, and color photographs (dated, labeled, and keyed to a map) of wetlands, vernal pools, or waterways expected to be impacted. A habitat assessment or presence/absence survey may be necessary for the species of concern. However, if wetlands or water bodies are not to be altered by the proposed activity, and provided that best management practices are employed and strict erosion and sedimentation control measures are maintained, I do not foresee any adverse impacts to the species of concern listed above or any other rare or protected species under Pennsylvania Fish and Boat Commission jurisdiction.

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 # 41910. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

Christopher A. Urban, Chief
Natural Diversity Section

CAU/KDG/dn

1. PROJECT INFORMATION

Project Name: **Rhodia Morrisville PA Facility**
Date of review: **6/11/2015 12:11:44 PM**
Project Category: **Hazardous Waste Clean-up, Site Remediation, and Reclamation,Other**
Project Area: **74.1** acres
County: **Bucks** Township/Municipality: **Falls**
Quadrangle Name: **TRENTON WEST** ~ ZIP Code: **19067**
Decimal Degrees: **40.192214 N, -74.764352 W**
Degrees Minutes Seconds: **40° 11' 32" N, -74° 45' 51.7" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
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.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

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 jursidictional 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: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

DCNR Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below. After desktop review, if a botanical survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNR.aspx.)
Scientific Name: Amaranthus cannabinus
Common Name: Waterhemp Ragweed
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

Scientific Name: Bidens bidentoides
Common Name: Swamp Beggar-ticks
Current Status: Threatened
Proposed Status: Endangered

Scientific Name: Bidens laevis
Common Name: Beggar-ticks
Current Status: Special Concern Species*

Proposed Status: Endangered

Scientific Name: Cuscuta cephalanthi
Common Name: Button-bush Dodder
Current Status: Special Concern Species*
Proposed Status: Threatened

Scientific Name: Cyperus refractus
Common Name: Reflexed Flatsedge
Current Status: Endangered
Proposed Status: Endangered

Scientific Name: Heteranthera multiflora
Common Name: Multiflowered Mud-plantain
Current Status: Endangered
Proposed Status: Endangered

Scientific Name: Sagittaria subulata
Common Name: Subulate Arrowhead
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

Scientific Name: Schoenoplectus smithii
Common Name: Smith's Bulrush
Current Status: Endangered
Proposed Status: Endangered

Scientific Name: Sensitive Species**
Common Name:
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

Scientific Name: Zizania aquatica
Common Name: Indian Wild Rice
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

PA Fish and Boat Commission

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)
Scientific Name: Sensitive Species**
Common Name:
Current Status: Endangered

Scientific Name: Sensitive Species**
Common Name:
Current Status: Threatened

Scientific Name: Sensitive Species**
Common Name:
Current Status: Threatened

Scientific Name: Sensitive Species**
Common Name:
Current Status: Endangered

Scientific Name: Sensitive Species**
Common Name:
Current Status: Endangered

Scientific Name: Sensitive Species**
Common Name:
Current Status: Endangered

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 jurisdictinal 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, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of *Minimum* Materials to be submitted:

____**SIGNED** copy of this Project Environmental Review Receipt
____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.
____Project location information (name of USGS Quadrangle, Township/Municipality, and County)
____USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.
____A basic site plan(particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
____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. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at http://www.naturalheritage.state.pa.us.

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
Fax:(717) 772-0271

U.S. Fish and Wildlife Service
Pennsylvania Field Office
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. 16823-7437
NO Faxes Please

PA Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: Deric T. Kearns
Company/Business Name: ARCADIS
Address: 10 Friends Lane
City, State, Zip: Newtown PA 18940
Phone:(267) 685-1800 Fax:(267) 685-1801
Email: dkearns@arcadis-us.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.

Deric T. Kearns — applicant/project proponent signature

6/17/15 — date

ARCADIS
Infrastructure Water Environment Buildings

ARCADIS U.S., Inc.
10 Friends Lane
Suite 200
Newtown
Pennsylvania 18940
Tel 267 685 1800
Fax 267 685 1801
www.arcadis-us.com

ENVIRONMENTAL

Pennsylvania Fish and Boat Commission
Division of Environmental Services
450 Robinson Lane
Bellefonte, Pennsylvania 16823-7437

Subject:
Pennsylvania Natural Diversity Index Results
Search ID: 20150611517663
Former Rhodia Facility
2300 South Pennsylvania Avenue
Morrisville, PA 19067
EPA ID No. PAD002336410

Date:
June 17, 2015

Contact:
Deric T. Kearns

Phone:
267.685.1864

Email:
Deric.Kearns@arcadis-us.com

Our ref:
NP000448.0003

Dear Sir/Madam:

ARCADIS U.S., Inc. (ARCADIS) has been performing environmental site investigations at the Rhodia, Inc. (Rhodia) Morrisville, Pennsylvania facility (the Site) for the past several years. As part of the Pennsylvania Department of Environmental Protection's (PADEP) reporting requirements relating to Remedial Investigation Reports (RIR), a Pennsylvania Natural Diversity Index (PNDI) search using the online Environmental Review Tool was completed for the Site in December 2013. Based on that receipt further information was requested from the Pennsylvania Fish and Boat Commission, as well as the Pennsylvania Department of Conservation and Natural Resources, and response letters were received in January 2014 (**Attachment 1**) and December 2013, respectively. However, based on the notice on the PNDI Environmental Review Tool that reviews conducted before May 4, 2015 require rescreening due to the addition of information regarding the federally-listed threatened northern long-eared bat, the Site is being rescreened.

The attached updated PNDI Project Environmental Review Receipt (**Attachment 2**) identified a number of species during the survey that require further clarification with your agency and the results vary somewhat from the initial 2013 PNDI Project Environmental Review Receipt (**Attachment 3**). We are writing to request any updated information on species of concern on or in the vicinity of the Site. Environmental site investigations at the Site are ongoing and a brief narrative for the Site and some supplemental information as requested in the PNDI receipt are provided below.

Site Background

The Site is comprised of approximately 80 wooded acres on the Delaware River. Of the 80 acres, historic facility operations occupied approximately 40 acres. The facility primarily manufactured phosphoric acid. The facility operated between the 1940s through 2001; almost all of the buildings onsite have since been decommissioned and demolished and the Site is now inactive. Storm water runoff from impervious surfaces (primarily asphalt and building foundations within the former facility footprint) is collected and channeled into the onsite settling pond (aka Area 10).

Environmental investigations at the Site have found elevated levels of arsenic in surficial and subsurface soils and groundwater above applicable PADEP standards. These areas are primarily Areas 5, 6, 10, and the outfall drainage ditches originating from Areas 6 and 10 (**Attachment 4, Figure 2**). All of these areas are covered in vegetation and comprise an area of roughly 10 acres. Pertinent site photographs have been included in **Attachment 5**.

As of this date there are plans for active remediation (i.e. excavation, soil capping) within Areas 5 and 6. The remaining areas will likely be deed restricted.

If you have any questions, please do not hesitate to contact me at 267.685.1823.

Sincerely,

ARCADIS U.S., Inc.

Deric T. Kearns
Associate Project Manager

Copies:
Ryan Fitzpatrick, ARCADIS
Pennsylvania Department of Conservation and Natural Resources
File

Attachments:

Attachment 1 - Pennsylvania Fish and Boat Commission response letter dated January 14, 2014

Attachment 2 - Signed PNDI Project Environmental Review Receipt – June 2015

Attachment 3 - Signed PNDI Project Environmental Review Receipt – December 2013

Attachment 4 - Supplemental Site Figures

Attachment 5 - Site Photos

ARCADIS

Infrastructure · Water · Environment · Buildings

Attachment 1 - Pennsylvania Fish and Boat Commission response letter dated January 14, 2014

Pennsylvania Fish & Boat Commission

established 1866

Division of Environmental Services
Natural Diversity Section
450 Robinson Lane
Bellefonte, PA 16823
814-359-5237

January 14, 2014

IN REPLY REFER TO
SIR# 41910

ARCADIS
Deric Kearns
10 Friends Lane
NEWTOWN, Pennsylvania 18940

RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 20131219431788
Former Rhodia (olvay) Facility
BUCKS County: Falls Township

Dear Deric Kearns:

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.

Based on records maintained in the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files, the following rare or protected species are known from the vicinity of the project site and could potentially colonize appropriate habitats on site:

Common Name (Scientific Name, PA Status)
Eastern Redbelly Turtle (*Pseudemys rubriventris*, Threatened)
Eastern Spadefoot (*Scaphiopus holbrookii*, Threatened)
New Jersey Chorus Frog (*Pseudacris kalmi*, Endangered)
Northern Cricket Frog (*Acris crepitans*, Endangered)
Southern Leopard Frog (*Lithobates sphenocephalus utricularius*, Endangered)

If wetlands, waterways, or vernal pools are to be directly or indirectly impacted by proposed project activity, we will need to conduct a more thorough evaluation of the potential adverse impacts to the species of concern. Please provide us with the following information to assist us with our review:

detailed project plans including a project narrative, identification and delineation of wetlands or streams within the direct and indirect impact area, and color photographs (dated, labeled, and keyed to a map) of wetlands, vernal pools, or waterways expected to be impacted. A habitat assessment or presence/absence survey may be necessary for the species of concern. However, if wetlands or water bodies are not to be altered by the proposed activity, and provided that best management practices are employed and strict erosion and sedimentation control measures are maintained, I do not foresee any adverse impacts to the species of concern listed above or any other rare or protected species under Pennsylvania Fish and Boat Commission jurisdiction.

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 # 41910. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

Christopher A. Urban, Chief
Natural Diversity Section

CAU/KDG/dn

Attachment 2 - Signed PNDI Project Environmental Review Receipt – June 2015

1. PROJECT INFORMATION

Project Name: **Rhodia Morrisville PA Facility**
Date of review: **6/11/2015 12:11:44 PM**
Project Category: **Hazardous Waste Clean-up, Site Remediation, and Reclamation,Other**
Project Area: **74.1** acres
County: **Bucks** Township/Municipality: **Falls**
Quadrangle Name: **TRENTON WEST** ~ ZIP Code: **19067**
Decimal Degrees: **40.192214 N, -74.764352 W**
Degrees Minutes Seconds: **40° 11' 32" N, -74° 45' 51.7" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
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.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

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 jursidictional 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: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

DCNR Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below. After desktop review, if a botanical survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNR.aspx.)
Scientific Name: Amaranthus cannabinus
Common Name: Waterhemp Ragweed
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

Scientific Name: Bidens bidentoides
Common Name: Swamp Beggar-ticks
Current Status: Threatened
Proposed Status: Endangered

Scientific Name: Bidens laevis
Common Name: Beggar-ticks
Current Status: Special Concern Species*

Proposed Status: Endangered

Scientific Name: Cuscuta cephalanthi
Common Name: Button-bush Dodder
Current Status: Special Concern Species*
Proposed Status: Threatened

Scientific Name: Cyperus refractus
Common Name: Reflexed Flatsedge
Current Status: Endangered
Proposed Status: Endangered

Scientific Name: Heteranthera multiflora
Common Name: Multiflowered Mud-plantain
Current Status: Endangered
Proposed Status: Endangered

Scientific Name: Sagittaria subulata
Common Name: Subulate Arrowhead
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

Scientific Name: Schoenoplectus smithii
Common Name: Smith's Bulrush
Current Status: Endangered
Proposed Status: Endangered

Scientific Name: Sensitive Species**
Common Name:
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

Scientific Name: Zizania aquatica
Common Name: Indian Wild Rice
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

PA Fish and Boat Commission

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)
Scientific Name: Sensitive Species**
Common Name:
Current Status: Endangered

Scientific Name: Sensitive Species**
Common Name:
Current Status: Threatened

Scientific Name: Sensitive Species**
Common Name:
Current Status: Threatened

Scientific Name: Sensitive Species**
Common Name:
Current Status: Endangered

Scientific Name: Sensitive Species**
Common Name:
Current Status: Endangered

Scientific Name: Sensitive Species**
Common Name:
Current Status: Endangered

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 jurisdictinal 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, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of *Minimum* Materials to be submitted:

____**SIGNED** copy of this Project Environmental Review Receipt
____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.
____Project location information (name of USGS Quadrangle, Township/Municipality, and County)
____USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.
____A basic site plan(particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
____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. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at http://www.naturalheritage.state.pa.us.

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
Fax:(717) 772-0271

U.S. Fish and Wildlife Service
Pennsylvania Field Office
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. 16823-7437
NO Faxes Please

PA Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: Deric T. Kearns
Company/Business Name: ARCADIS
Address: 10 Friends Lane
City, State, Zip: Newtown PA 18940
Phone:(267) 685-1800 Fax:(267) 685-1801
Email: dkearns@arcadis-us.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.

Deric T. Kearns — applicant/project proponent signature

6/17/15 — date

Attachment 3 - Signed PNDI Project Environmental Review Receipt – December 2013

1. PROJECT INFORMATION

Project Name: **Former Rhodia (Solvay) Facility**
Date of review: **12/19/2013 11:45:54 AM**
Project Category: **Hazardous Waste Clean-up, Site Remediation, and Reclamation,Spill (e.g., oil, chemical)**
Project Area: **81.8** acres
County: **Bucks** Township/Municipality: **Falls**
Quadrangle Name: **TRENTON WEST** ~ ZIP Code: **19067**
Decimal Degrees: **40.193174 N, -74.764398 W**
Degrees Minutes Seconds: **40° 11' 35.4" N, -74° 45' 51.8" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
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.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

RESPONSE TO QUESTION(S) ASKED

Q1: "Accurately describe what is known about wetland presence in the project area or on the land parcel by selecting ONE of the following. ""Project"" includes all features of the project (including buildings, roads, utility lines, outfall and intake structures, wells, stormwater retention/detention basins, parking lots, driveways, lawns, etc.), as well as all associated impacts (e.g., temporary staging areas, work areas, temporary road crossings, areas subject to grading or clearing, etc.). Include all areas that will be permanently or temporarily affected -- either directly or indirectly -- by any type of disturbance (e.g., land clearing, grading, tree removal, flooding, etc.). Land parcel = the lot(s) on which some type of project(s) or activity(s) are proposed to occur ."
Your answer is: **"5. The specific project area (that is, project layout or "footprint") has not yet been identified, but the land parcel on which the project will occur has been investigated by someone qualified to identify and delineate wetlands, and wetlands were located on the land parcel. "**

Q2: "Will the entire project area (including any discharge), plus a 300 feet buffer around the project area, all occur in or on an existing building, parking lot, driveway, road, road shoulder, street, runway, paved area, railroad bed, maintained (periodically mown) lawn, crop agriculture field or maintained orchard?"
Your answer is: **2. No**

Q3: 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: **1. Yes**

Q4: Will the entire project occur within an existing building, parking lot, driveway, road, street, or maintained (periodically mowed) lawn?
Your answer is: **2. No**

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 jursidictional 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: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

DCNR Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below. After desktop review, if a botanical survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNR.aspx.)
Scientific Name: Amaranthus cannabinus
Common Name: Waterhemp Ragweed
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

Scientific Name: Bidens bidentoides
Common Name: Swamp Beggar-ticks
Current Status: Threatened
Proposed Status: Endangered

Scientific Name: Bidens laevis
Common Name: Beggar-ticks
Current Status: Special Concern Species*
Proposed Status: Endangered

Scientific Name: Cuscuta cephalanthi
Common Name: Button-bush Dodder
Current Status: Special Concern Species*
Proposed Status: Threatened

Scientific Name: Cyperus refractus
Common Name: Reflexed Flatsedge
Current Status: Endangered
Proposed Status: Endangered

Scientific Name: Freshwater intertidal mudflat
Common Name: Freshwater Intertidal Mudflat
Current Status: Special Concern Resource*
Proposed Status: Special Concern Resource*

Scientific Name: Heteranthera multiflora
Common Name: Multiflowered Mud-plantain
Current Status: Endangered
Proposed Status: Endangered

Scientific Name: Sagittaria subulata
Common Name: Subulate Arrowhead
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

Scientific Name: Schoenoplectus smithii
Common Name: Smith's Bulrush
Current Status: Endangered
Proposed Status: Endangered

Scientific Name: Sensitive Species**
Common Name:
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

Scientific Name: Zizania aquatica
Common Name: Indian Wild Rice
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

PA Fish and Boat Commission

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

PFBC Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below.)
Scientific Name: Lampsilis cariosa
Common Name: Yellow Lampmussel
Current Status: Special Concern Species*
Proposed Status: Special Concern Species*

Scientific Name: Sensitive Species**
Common Name:
Current Status: Endangered
Proposed Status: Endangered

Scientific Name: Sensitive Species**
Common Name:
Current Status: Threatened
Proposed Status: Special Concern Species*

Scientific Name: Sensitive Species**
Common Name:
Current Status: Endangered
Proposed Status: Endangered

Scientific Name: Sensitive Species**
Common Name:
Current Status: Endangered
Proposed Status: Endangered

Scientific Name: Sensitive Species**
Common Name:
Current Status: Endangered
Proposed Status: Endangered

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 jurisdictinal 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, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of *Minimum* Materials to be submitted:

____**SIGNED** copy of this Project Environmental Review Receipt
____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.
____Project location information (name of USGS Quadrangle, Township/Mu?icipality, and County)
____USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.
____A basic site plan(particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
____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. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at http://www.naturalheritage.state.pa.us.

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
Fax:(717) 772-0271

U.S. Fish and Wildlife Service

Endangered Species Section
315 South Allen Street, Suite 322, State College, PA. 16801-4851
NO Faxes Please.

PA Fish and Boat Commission

Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

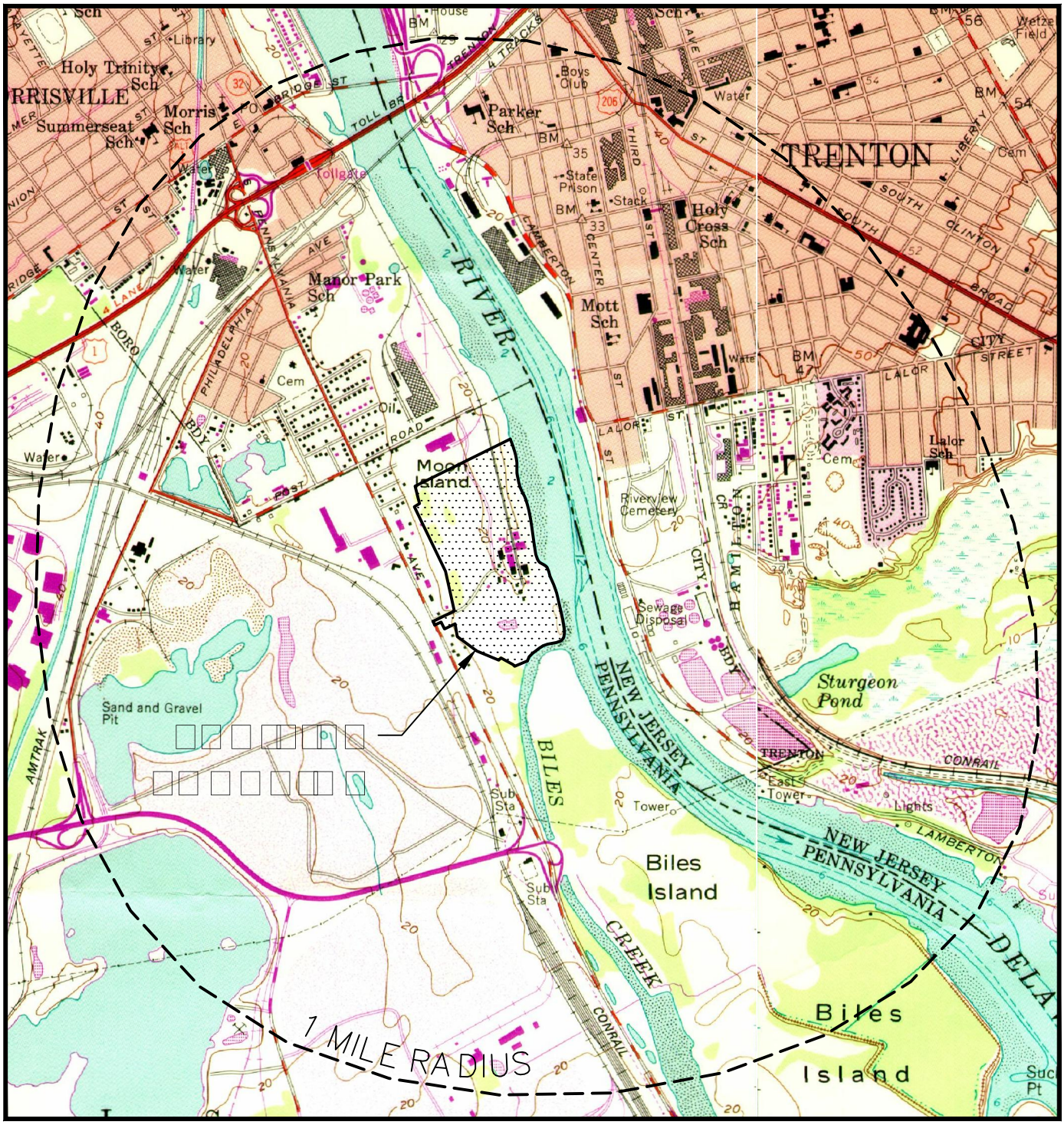
Name:_____
Company/Business Name:_____
Address:_____
City, State, Zip:_____
Phone:(_____)_____Fax:(_____)_____
Email:_____

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

Attachment 4 - Supplemental Site Figures



REFERENCE: BASE MAP USGS 7.5 MIN. □UADS., TRENTON EAST(1957) AND TRENTON WEST(1955), NEW JERSEY, PHOTOREVISED 1981

2000□ 0 2000□

A□□r□□□□ □□□ S□□□□: 1" = 2000□

AREA LOCATION

Former RHODIA, INC. (Solvay)
MORRISVILLE, PENNSYLVANIA

DESCRIPTION OF CURRENT CONDITIONS REPORT

FACILITY LOCATION MAP

ARCADIS

FIGURE
1

CITY: SYRACUSE NY DIV/GROUP: ENVCAD DB: E.KRAHMER LD:(O□) PIC:A.HEBERT PM: R.FITZPATRICK TR:C.FOSTER LYR:(O□)ON=*;OFF=*REF*
G:\ENVCAD\SYRACUSE\ACTIVE\NP000488\0000210002\DWG\00448N01.dwg LAYOUT: 1 SAVED: 3/16/2011 10:21 AM ACADVER: 18.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 3/16/2011 12:05 PM BY: KRAHMER, ERIC

XREFS:
IMAGES: PROJECTNAME: ----
TRENTONE.□g
TRENTONW.□g

Attachment 5 - Site Photos

Attachment 3. Site Photos

Area 5

General Facility Footprint Conditions

Area 6

Area 10

ARCADIS

Appendix B

Datasets

Table B-1a. Surface Water Analytical Data
Solvay
Morrisville, Pennsylvania Facility

				ID	SW-1_20130619	SW-2_20130619	SW-3_20130619	SW-4_20130619	SW-5_20130619	SW-6_20130619	SW-7_20130619	SW-8_20130619
				Location	SW-01	SW-02	SW-03	SW-04	SW-05	SW-06	SW-07	SW-08
				Date	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013
				Type	N	N [FD]	N	N	N	N	N	N
CAS	Chemical	Units	Surface Water Criteria	Source								
Dissolved Fraction												
7429-90-5	Aluminum	ug/l	87	Reg 3	29 J	22 J [< 180 U]	< 180 U	22 J	26 J	38 J	< 180 U	35 J
7440-36-0	Antimony	ug/l	220	Pennsylvania	4.3 JB	5.1 JB [8.7 JB]	3.8 JB	6.5 J	4.9 J	8.3 J	9.4 J	6.5 J
7440-38-2	Arsenic	ug/l	150	Pennsylvania (As3+)	15	14 [15]	12	9.6	11	15	9.5	13
7440-39-3	Barium	ug/l	4100	Pennsylvania	1.4 J	1.5 J [1.7 J]	1.9 J	1.2 J	1.3 J	1.6 J	1.2 J	1.5 J
7440-41-7	Beryllium	ug/l	0.66	Reg 3	0.23 J	0.23 J [0.28 J]	0.24 J	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U
7440-43-9	Cadmium	ug/l	Hardness Dependent*	Pennsylvania	1.2 J	1.3 J [1.1 J]	1.4 J	0.55 JB	0.51 JB	0.56 JB	0.80 JB	< 3.5 U
7440-70-2	Calcium	ug/l	116000	Reg 3	6900	7500 [7600]	7000	6900	6900	7100	7300	7200
7440-47-3	Chromium	ug/l	85	Reg 3	< 50 U	< 50 U [< 50 U]	< 50 U	0.67 JB	0.84 JB	0.45 JB	0.82 JB	0.65 JB
7440-48-4	Cobalt	ug/l	19	Pennsylvania	< 20 U	< 20 U [< 20 U]	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
7440-50-8	Copper	ug/l	Hardness Dependent*	Pennsylvania	< 50 U	< 50 U [2.1 J]	1.8 J	3.7 J	2.7 J	2.5 J	2.6 J	2.8 J
7439-89-6	Iron	ug/l	300	Reg 3	96 J	110 J [110 J]	97 J	110 J	120 J	100 J	96 J	93 J
7439-92-1	Lead	ug/l	Hardness Dependent*	Pennsylvania	< 4.0 U	< 4.0 U [< 4.0 U]	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U
7439-95-4	Magnesium	ug/l	82000	Reg 3	2000 J	2000 J [2100]	2000 J	2000 J	2000 J	2100	2100	2100
7439-96-5	Manganese	ug/l	120	Reg 3	14 J	19 J [11 J]	18 J	22 J	27 J	17 J	15 J	18 J
7439-97-6	Mercury	ug/l	0.77*	Pennsylvania (Hg2+)	< 0.70 U	< 0.70 U [< 0.70 U]	< 0.70 U	< 0.70 U	< 0.70 U	< 0.70 U	< 0.70 U	< 0.70 U
7440-02-0	Nickel	ug/l	Hardness Dependent*	Pennsylvania	6.0 J	5.5 J [6.2 J]	6.1 J	7.3 J	7.1 J	7.2 J	7.1 J	7.0 J
7440-09-7	Potassium	ug/l	53000	Reg 3	2300 JB	2300 JB [2400 JB]	2200 JB	2400 JB	2400 JB	2400 JB	2500 JB	2400 JB
7782-49-2	Selenium	ug/l	4.6*	Pennsylvania	< 40 U	< 40 U [< 40 U]	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U
7440-22-4	Silver	ug/l	3.2	Reg 3	< 20 U	< 20 U [< 20 U]	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
7440-23-5	Sodium	ug/l	680000	Reg 3	2900 J	2800 J [2900 J]	2800 J	3000 J	2900 J	3100 J	3100 J	3100 J
7440-28-0	Thallium	ug/l	13	Pennsylvania	< 10 U	< 10 U [< 10 U]	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
7440-62-2	Vanadium	ug/l	100	Pennsylvania	4.0 J	3.8 J [3.6 J]	3.5 J	3.1 J	2.7 J	2.7 J	3.1 J	3.4 J
7440-66-6	Zinc	ug/l	Hardness Dependent*	Pennsylvania	21 J	23 J [13 J]	14 J	24 J	14 J	18 J	12 J	23 J
Total Fraction												
7429-90-5	Aluminum	ug/l	87	Reg 3	140 J	160 J [160 J]	150 J	200	190	190	170 J	180
7440-36-0	Antimony	ug/l	220	Pennsylvania	7.6 JB	5.9 JB [8.5 JB]	3.8 JB	11 J	4.3 J	7.6 J	7.9 J	8.2 J
7440-38-2	Arsenic	ug/l	150	Pennsylvania (As3+)	12	17 [14]	12	8.6	9.9	12	10	7.6
7440-39-3	Barium	ug/l	4100	Pennsylvania	4.4 J	5.1 J [4.9 J]	4.4 J	5.3 J	6.6 J	4.8 J	6.1 J	21 J
7440-41-7	Beryllium	ug/l	0.66	Reg 3	0.25 J	0.26 J [0.27 J]	0.26 J	0.037 J	0.048 J	< 4.0 U	< 4.0 U	< 4.0 U
7440-43-9	Cadmium	ug/l	Hardness Dependent	Pennsylvania	1.4 J	1.3 J [1.3 J]	1.4 J	0.69 JB	0.97 JB	0.60 JB	< 3.5 U	0.50 JB
7440-70-2	Calcium	ug/l	116000	Reg 3	7200	7800 [7900]	7400	7600	7600	7400	7400	7300
7440-47-3	Chromium	ug/l	85	Reg 3	0.84 J	2.5 J [1.3 J]	0.96 J	2.7 JB	5.1 JB	4.6 JB	2.0 JB	1.1 JB
7440-48-4	Cobalt	ug/l	19	Pennsylvania	< 20 U	< 20 U [< 20 U]	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
7440-50-8	Copper	ug/l	Hardness Dependent	Pennsylvania	1.6 J	2.7 J [2.0 J]	1.5 J	5.0 J	5.4 J	5.3 J	4.8 J	3.7 J
7439-89-6	Iron	ug/l	300	Reg 3	500	510 [530]	470	690	630	610	610	610
7439-92-1	Lead	ug/l	Hardness Dependent	Pennsylvania	< 4.0 U	< 4.0 U [< 4.0 U]	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U
7439-95-4	Magnesium	ug/l	82000	Reg 3	2000 J	2200 [2100]	1900 J	2100	2000	2100	2100	2100
7439-96-5	Manganese	ug/l	120	Reg 3	54	55 [57]	54	60	57	53	55	55
7439-97-6	Mercury	ug/l	0.905882353	Pennsylvania (Hg2+)	< 0.70 U	< 0.70 U [< 0.70 U]	< 0.70 U	< 0.70 U	< 0.70 U	< 0.70 U	< 0.70 U	< 0.70 U
7440-02-0	Nickel	ug/l	Hardness Dependent	Pennsylvania	7.1 J	8.6 J [7.6 J]	6.6 J	9.1 J	8.9 J	10 J	8.8 J	7.7 J
7440-09-7	Potassium	ug/l	53000	Reg 3	2300 JB	2400 JB [2400 JB]	2100 JB	2500 JB	2600 JB	2400 JB	2500 JB	2500 JB
7782-49-2	Selenium	ug/l	4.989154013	Pennsylvania	< 40 U	< 40 U [< 40 U]	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U
7440-22-4	Silver	ug/l	3.2	Reg 3	< 20 U	< 20 U [< 20 U]	< 20 U	< 20 U	0.46 J	< 20 U	< 20 U	< 20 U
7440-23-5	Sodium	ug/l	680000	Reg 3	2600 J	2800 J [2800 J]	2500 J	3000 J	2900 J	2900 J	2900 J	2900 J
7440-28-0	Thallium	ug/l	13	Pennsylvania	< 10 U	< 10 U [< 10 U]	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
7440-62-2	Vanadium	ug/l	100	Pennsylvania	3.5 J	4.2 J [4.4 J]	3.6 J	3.3 J	3.6 J	3.1 J	3.8 J	3.5 J
7440-66-6	Zinc	ug/l	Hardness Dependent	Pennsylvania	16 J	15 J [19 J]	26 J	30 J	46 J	31 J	28 J	26 J
ARC-Hard	Total Hardness	mg CaCO3/L	NA		18	28 [29]	19	28	27	27	27	27

Sources:

Pennsylvania = Pennsylvania Code § 93.8c. Human health and aquatic life criteria for toxic substances (Criteria Continuous Concentrations); available at http://www.pacode.com/secure/data/025/chapter93/s93.8c.html

Reg 3 = EPA Region 3 BTAG (8/2006); available at: http://www.epa.gov/reg3hwmd/risk/eco/btag/sbv/fw/screenbench.htm#download

Notes:

* = dissolved metal criterion; others are total recoverable metals

B = low level blank contamination

J = estimated result

FD = field duplicate

N = primary sample

NA = not available/not applicable

U = result reported as not detected at the limit shown

Hardness dependent criteria are calculated in Table B-1b.

Shaded values indicate detected concentrations exceeding the associated criteria.

Table B-1b. Calculation of Hardness Dependent Surface Water Criteria
Solvay
Morrisville, Pennsylvania Facility

				ID	SW-1_20130619	SW-2_20130619	SW-3_20130619	SW-4_20130619	SW-5_20130619	SW-6_20130619	SW-7_20130619	SW-8_20130619
				Location	SW-01	SW-02	SW-03	SW-04	SW-05	SW-06	SW-07	SW-08
				Date	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013
				Type	N	N [FD]	N	N	N	N	N	N
CAS	**Chemical**	**Units**	**Surface Water Criteria**	**Value**								
Dissolved Fraction												
7440-43-9	Cadmium	ug/l	1.101672-(ln[H]x0.041838)*	Criterion	0.980744626	0.961518713	0.978482562	0.962259228	0.963780777	0.963780777	0.963780777	0.963780777
				Result	1.2 J	1.3 J [1.1 J]	1.4 J	0.55 JB	0.51 JB	0.56 JB	0.80 JB	< 3.5 U
7440-50-8	Copper	ug/l	0.960 x Exp(0.8545xln[H]-1.702)*	Criterion	2.068866086	3.063846179	2.166690988	3.017856344	2.925515216	2.925515216	2.925515216	2.925515216
				Result	< 50 U	< 50 U [2.1 J]	1.8 J	3.7 J	2.7 J	2.5 J	2.6 J	2.8 J
7439-92-1	Lead	ug/l	1.46203-(ln[H]x0.145712)*	Criterion	1.04086815	0.973908776	1.032989907	0.976487816	0.981787019	0.981787019	0.981787019	0.981787019
				Result	< 4.0 U	< 4.0 U [< 4.0 U]	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U
7440-02-0	Nickel	ug/l	0.997 x Exp(0.846xln[H]+0.0584)*	Criterion	12.19041513	17.98277488	12.76096456	17.71550964	17.17875558	17.17875558	17.17875558	17.17875558
				Result	6.0 J	5.5 J [6.2 J]	6.1 J	7.3 J	7.1 J	7.2 J	7.1 J	7.0 J
7440-66-6	Zinc	ug/l	0.986 x Exp(0.8473xln[H]+0.884)*	Criterion	27.63030192	40.78338666	28.9255192	40.17632762	38.95720174	38.95720174	38.95720174	38.95720174
				Result	21 J	23 J [13 J]	14 J	24 J	14 J	18 J	12 J	23 J
Total Fraction												
7440-43-9	Cadmium	ug/l	1.101672-(ln[H]x0.041838)	Criterion	0.980744626	0.961518713	0.978482562	0.962259228	0.963780777	0.963780777	0.963780777	0.963780777
				Result	1.4 J	1.3 J [1.3 J]	1.4 J	0.69 JB	0.97 JB	0.60 JB	< 3.5 U	0.50 JB
7440-50-8	Copper	ug/l	Exp(0.8545xln[H]-1.702)	Criterion	2.155068839	3.191506437	2.256969779	3.143600358	3.047411684	3.047411684	3.047411684	3.047411684
				Result	1.6 J	2.7 J [2.0 J]	1.5 J	5.0 J	5.4 J	5.3 J	4.8 J	3.7 J
7439-92-1	Lead	ug/l	1.46203-(ln[H]x0.145712)	Criterion	1.04086815	0.973908776	1.032989907	0.976487816	0.981787019	0.981787019	0.981787019	0.981787019
				Result	< 4.0 U	< 4.0 U [< 4.0 U]	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U
7440-02-0	Nickel	ug/l	Exp(0.846xln[H]+0.0584)	Criterion	12.22709642	18.03688554	12.79936265	17.76881609	17.23044692	17.23044692	17.23044692	17.23044692
				Result	7.1 J	8.6 J [7.6 J]	6.6 J	9.1 J	8.9 J	10 J	8.8 J	7.7 J
7440-66-6	Zinc	ug/l	Exp(0.8473xln[H]+0.884)	Criterion	28.02261858	41.36246112	29.33622637	40.74678258	39.51034659	39.51034659	39.51034659	39.51034659
				Result	16 J	15 J [19 J]	26 J	30 J	46 J	31 J	28 J	26 J
ARC-Hard	Total Hardness	mg CaCO3/L			18	28.5	19	28	27	27	27	27

Notes:

* = dissolved metal criterion; others are total recoverable metals

B = low level blank contamination

J = estimated result

ln [H] = natural logarithm of the hardness of stream as mg/L CaCO3

FD = field duplicate

N = primary sample

NA = not available/not applicable

U = result reported as not detected at the limit shown

Shaded values indicate detected concentrations exceeding the associated criteria.

Table B-2a. Pore Water Analytical Data
Solvay
Morrisville, Pennsylvania Facility

				ID	PW-1_20130619	PW-2_20130619	PW-3_20130619	PW-4_20130619	PW-5_20130619	PW-6_20130619	PW-7_20130619	PW-8_20130619
				Location	PW-01	PW-02	PW-03	PW-04	PW-05	PW-06	PW-07	PW-08
				Date	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013
				Type	N	N	N [FD]	N	N	N	N	N
CAS	Chemical	Units	Surface Water Criteria	Source								
7429-90-5	Aluminum	ug/l	87	Reg 3	77 J	100 J	< 180 U [< 180 U]	< 180 U	< 180 U	< 180 U	51 J	< 180 U
7440-36-0	Antimony	ug/l	220	Pennsylvania	4.3 JB	5.0 JB	6.8 JB [< 12 U]	< 12 U	4.0 JB	4.1 JB	< 12 U	< 12 U
7440-38-2	Arsenic	ug/l	150	Pennsylvania (As3+)	14	13	6.6 J [8.3]	10	10	6.9 J	11	5.6 J
7440-39-3	Barium	ug/l	4100	Pennsylvania	1.1 J	15 J	< 50 U [13 J]	< 50 U	8.7 J	< 50 U	5.1 J	4.8 J
7440-41-7	Beryllium	ug/l	0.66	Reg 3	< 4.0 U	< 4.0 U	< 4.0 U [< 4.0 U]	< 4.0 U	< 4.0 U	< 4.0 U	0.21 J	0.20 J
7440-43-9	Cadmium	ug/l	Hardness Dependent*	Pennsylvania	< 3.5 U	< 3.5 U	< 3.5 U [< 3.5 U]	< 3.5 U	< 3.5 U	< 3.5 U	1.2 J	1.0 J
7440-70-2	Calcium	ug/l	116000	Reg 3	51000	72000	43000 [52000]	39000	42000	50000	45000	36000
7440-47-3	Chromium	ug/l	85	Reg 3	0.72 J	3.2 J	< 50 U [< 50 U]	< 50 U	< 50 U	< 50 U	1.1 J	< 50 U
7440-48-4	Cobalt	ug/l	19	Pennsylvania	< 20 U	< 20 U	< 20 U [< 20 U]	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
7440-50-8	Copper	ug/l	Hardness Dependent*	Pennsylvania	< 50 U	< 50 U	< 50 U [< 50 U]	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
7439-89-6	Iron	ug/l	300	Reg 3	790	560	580 [670]	2100	1900	740	1100	1800
7439-92-1	Lead	ug/l	Hardness Dependent*	Pennsylvania	< 4.0 U	< 4.0 U	< 4.0 U [< 4.0 U]	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U
7439-95-4	Magnesium	ug/l	82000	Reg 3	4200	10000	3700 [6100]	3800	5900	8600	25000	3700
7439-96-5	Manganese	ug/l	120	Reg 3	100	46	78 [52]	190	98	110	79	160
7439-97-6	Mercury	ug/l	0.77*	Pennsylvania (Hg2+)	< 0.70 U	< 0.70 U	< 0.70 U [< 0.70 U]	< 0.70 U	< 0.70 U	< 0.70 U	< 0.70 U	< 0.70 U
7440-02-0	Nickel	ug/l	Hardness Dependent*	Pennsylvania	2.0 J	7.4 J	0.57 J [1.4 J]	0.97 J	< 50 U	1.1 J	0.81 J	0.72 J
7440-09-7	Potassium	ug/l	53000	Reg 3	3300 JB	3800 JB	3700 JB [3400 JB]	3300 JB	4400 JB	3600 JB	3000 JB	4000 JB
7782-49-2	Selenium	ug/l	4.6*	Pennsylvania	< 40 U	< 40 U	< 40 U [< 40 U]	< 40 U	< 40 U	< 40 U	< 40 U	< 40 U
7440-22-4	Silver	ug/l	3.2	Reg 3	0.62 J	< 20 U	0.56 J [0.69 J]	< 20 U	< 20 U	< 20 U	< 20 U	< 20 U
7440-23-5	Sodium	ug/l	680000	Reg 3	4200 J	6400	4600 J [5600]	4400 J	4000 J	9600	11000	4100 J
7440-28-0	Thallium	ug/l	13	Pennsylvania	< 10 U	< 10 U	< 10 U [< 10 U]	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U
7440-62-2	Vanadium	ug/l	100	Pennsylvania	0.98 J	3.0 J	0.92 J [1.3 J]	< 50 U	1.3 J	1.8 J	6.1 J	0.77 J
7440-66-6	Zinc	ug/l	Hardness Dependent*	Pennsylvania	10 J	16 J	< 50 U [5.5 J]	< 50 U	< 50 U	< 50 U	5.1 J	< 50 U

Sources:

Pennsylvania = Pennsylvania Code § 93.8c. Human health and aquatic life criteria for toxic substances (Criteria Continuous Concentrations); available at http://www.pacode.com/secure/data/025/chapter93/s93.8c.html

Reg 3 = EPA Region 3 BTAG (8/2006); available at: http://www.epa.gov/reg3hwmd/risk/eco/btag/sbv/fw/screenbench.htm#download

Notes:

* = dissolved metal criterion; others are total recoverable metals

B = low level blank contamination

J = estimated result

FD = field duplicate

N = primary sample

NA = not available/not applicable

U = result reported as not detected at the limit shown

Hardness dependent criteria are calculated in Table B-2b.

Shaded values indicate detected concentrations exceeding the associated criteria.

Table B-2b. Calculation of Hardness Dependent Pore Water Criteria
Solvay
Morrisville, Pennsylvania Facility

				ID	PW-1_20130619	PW-2_20130619	PW-3_20130619	PW-4_20130619	PW-5_20130619	PW-6_20130619	PW-7_20130619	PW-8_20130619
				Location	PW-01	PW-02	PW-03	PW-04	PW-05	PW-06	PW-07	PW-08
				Date	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013	6/19/2013
				Type	N	N	N [FD]	N	N	N	N	N
CAS	Chemical	Units	Surface Water Criteria	Value								
7440-43-9	Cadmium	ug/l	1.101672-(ln[H]x0.041838)*	Criterion	0.980744626	0.961518713	0.978482562	0.962259228	0.963780777	0.963780777	0.963780777	0.963780777
				Result	< 3.5 U	< 3.5 U	< 3.5 U [< 3.5 U]	< 3.5 U	< 3.5 U	< 3.5 U	1.2 J	1.0 J
7440-50-8	Copper	ug/l	0.960 x Exp(0.8545xln[H]-1.702)*	Criterion	2.068866086	3.063846179	2.166690988	3.017856344	2.925515216	2.925515216	2.925515216	2.925515216
				Result	< 50 U	< 50 U	< 50 U [< 50 U]	< 50 U	< 50 U	< 50 U	< 50 U	< 50 U
7439-92-1	Lead	ug/l	1.46203-(ln[H]x0.145712)*	Criterion	1.04086815	0.973908776	1.032989907	0.976487816	0.981787019	0.981787019	0.981787019	0.981787019
				Result	< 4.0 U	< 4.0 U	< 4.0 U [< 4.0 U]	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U	< 4.0 U
7440-02-0	Nickel	ug/l	0.997 x Exp(0.846xln[H]+0.0584)*	Criterion	12.19041513	17.98277488	12.76096456	17.71550964	17.17875558	17.17875558	17.17875558	17.17875558
				Result	2.0 J	7.4 J	0.57 J [1.4 J]	0.97 J	< 50 U	1.1 J	0.81 J	0.72 J
7440-66-6	Zinc	ug/l	0.986 x Exp(0.8473xln[H]+0.884)*	Criterion	27.63030192	40.78338666	28.9255192	40.17632762	38.95720174	38.95720174	38.95720174	38.95720174
				Result	10 J	16 J	< 50 U [5.5 J]	< 50 U	< 50 U	< 50 U	5.1 J	< 50 U
ARC-Hard	Total Hardness	mg CaCO3/L			18	28.5	19	28	27	27	27	27

Notes:
* = dissolved metal criterion; others are total recoverable metals
J = estimated result
ln [H] = natural logarithm of the hardness of stream as mg/L CaCO3
FD = field duplicate
N = primary sample
NA = not available/not applicable
U = result reported as not detected at the limit shown
Shaded values indicate detected concentrations exceeding the associated criteria.

Table B-3. Sediment Analytical
Data Solvay
Morrisville, Pennsylvania Facility

					ID	A10-1 (0.0-0.5)	A10-2 (0.0-0.5)	A10-3 (0.0-0.5)	A10-4 (0.0-0.5)	A10-5 (0.0-0.5)	A10-6 (0.0-0.5)	SED-1 (0.0-0.5)
					Location	A10-01	A10-02	A10-03	A10-04	A10-05	A10-06	SED-01
					Date	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	6/19/2013
					Type	N	N	N	N	N	N	N
CAS	**Chemical**	**Units**	**Sediment Criteria**	**Source**								
AVS/SEM												
ARC-AVS	Acid Volatile Sulfide	umol/g	NA			--	--	--	--	--	--	< 0.42 U
7440-43-9	Cadmium	umol/g	NA			--	--	--	--	--	--	0.125
7440-50-8	Copper	umol/g	NA			--	--	--	--	--	--	7.57
7439-92-1	Lead	umol/g	NA			--	--	--	--	--	--	1.47
7439-97-6	Mercury	umol/g	NA			--	--	--	--	--	--	< 0.00017 U
7440-02-0	Nickel	umol/g	NA			--	--	--	--	--	--	18.2
7440-66-6	Zinc	umol/g	NA			--	--	--	--	--	--	32.9
Metals												
7429-90-5	Aluminum	mg/kg	NA			15000	12000	13000	16000	12000	7600	18900
7440-36-0	Antimony	mg/kg	2			96	36	55	120	21	54	207
7440-38-2	Arsenic	mg/kg	9.8			230	740	81	120	47	81	289
7440-39-3	Barium	mg/kg	NA			420	320	270	340	230	230	446
7440-41-7	Beryllium	mg/kg	NA			0.66 J	0.51 J	0.42 J	0.54 J	0.42 J	0.19 J	1.7
7440-43-9	Cadmium	mg/kg	0.99			10	11	7.3	11	1.8	4.5	20.7
7440-70-2	Calcium	mg/kg	NA			55000 B	43000 B	55000 B	58000 B	22000 B	43000 B	96100
7440-47-3	Chromium	mg/kg	43.4			350	160	210	290	150	180	414
18540-29-9	Chromium VI	mg/kg	NA			< 4.0 U	< 3.0 U	< 4.0 U	< 4.8 U	< 2.5 U	< 3.3 U	--
7440-48-4	Cobalt	mg/kg	50			13	11	7.3 J	8.7 J	11	5.3 J	24.8
7440-50-8	Copper	mg/kg	31.6			530	960	300	430	240	220	1020
7439-89-6	Iron	mg/kg	20000			43000	30000	32000	38000	27000	23000	59400
7439-92-1	Lead	mg/kg	35.8			380	340	260	280	57	150	478
7439-95-4	Magnesium	mg/kg	NA			2400	3400	1900 J	1700 J	3300	2200	2390
7439-96-5	Manganese	mg/kg	460			690	540	580	690	440	370	868
7439-97-6	Mercury	mg/kg	0.18			11	11	4.9	6.2	5.3	4.7	8.2
7440-02-0	Nickel	mg/kg	22.7			3100	1400	1000	1200	1500	1500	2250
7440-09-7	Potassium	mg/kg	NA			780 JB	930 JB	690 JB	790 JB	1200 JB	410 JB	< 3400 U
7782-49-2	Selenium	mg/kg	2			< 7.2 U	< 5.5 U	< 7.2 U	< 8.6 U	< 4.5 U	< 6.0 U	< 6.9 U
7440-22-4	Silver	mg/kg	1			10	17	7.6	6.6 J	3.5 J	3.9 J	9.9
7440-23-5	Sodium	mg/kg	NA			1600	1300	1500	1700	620 J	1100	< 3400 U
7440-28-0	Thallium	mg/kg	NA			< 4.8 U	< 3.6 U	< 4.8 U	< 5.7 U	< 3.0 U	< 4.0 U	< 3.4 U
7440-62-2	Vanadium	mg/kg	NA			31 J	28 J	26 J	27 J	17 J	17 J	20.7
7440-66-6	Zinc	mg/kg	121			1600	1100	1100	1400	520	820	2800
Arsenic Speciation												
ARC-AS3	Arsenate (+5)	mg/kg	NA			--	--	--	--	--	--	< 7.35 U
7440-38-2	Inorganic Arsenic	mg/kg	9.8			--	--	--	--	--	--	15.7
ARC-AS5	Arsenite (+3)	mg/kg	9.8			--	--	--	--	--	--	14.7 B
DMA	DMA	mg/kg	NA			--	--	--	--	--	--	< 0.3 U
MMA	MMA	mg/kg	NA			--	--	--	--	--	--	< 0.3 U
Miscellaneous												
ARC-ORP	Oxidation Reduction Potential	mV	NA			-3.2	-56	5.9	5.1	-1.2	-22	--
ARC-PSOL	Percent Solids	%	NA			25	33	25	21	40	30	31.1
ARC-pH	pH	SU	NA			6.8	7	6.7	6.9	7	6.7	--
ARC-TOC	Total Organic Carbon	mg/kg	NA			53000	28000	47000	41000	19000	36000	33800
SVOCs												
92-52-4	1,1-Biphenyl	mg/kg	1.22			< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	0.037
526-73-8	1,2,3-Trimethylbenzene	mg/kg	NA			--	--	--	--	--	--	0.0117 J
95-63-6	1,2,4-Trimethylbenzene	mg/kg	NA			--	--	--	--	--	--	< 0.02 U
108-67-8	1,3,5-Trimethylbenzene	mg/kg	NA			--	--	--	--	--	--	< 0.02 U
243-17-4	11H-Benzo[b]fluorene	mg/kg	NA			--	--	--	--	--	--	0.0716
90-12-0	1-Methylnaphthalene	mg/kg	NA			--	--	--	--	--	--	0.04
2381-21-7	1-Methyl-Pyrene	mg/kg	NA			--	--	--	--	--	--	0.0324
3891-98-3	2,6,10 Trimethyldodecane (1380)	mg/kg	NA			--	--	--	--	--	--	0.249
3891-99-4	2,6,10 Trimethyltridecane (1470)	mg/kg	NA			--	--	--	--	--	--	0.445

Table B-3. Sediment Analytical
Data Solvay
Morrisville, Pennsylvania Facility

				ID	A10-1 (0.0-0.5)	A10-2 (0.0-0.5)	A10-3 (0.0-0.5)	A10-4 (0.0-0.5)	A10-5 (0.0-0.5)	A10-6 (0.0-0.5)	SED-1 (0.0-0.5)
				Location	A10-01	A10-02	A10-03	A10-04	A10-05	A10-06	SED-01
				Date	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	6/19/2013
				Type	N	N	N	N	N	N	N
CAS	Chemical	Units	Sediment Criteria	Source							
1921-70-6	2,6,10,14-Tetramethylpentadecane	mg/kg	NA		--	--	--	--	--	--	1.38
91-57-6	2-Methylnaphthalene	mg/kg	0.0202		0.19 J	0.049 J	0.12 J	0.072 J	0.045 J	0.11 J	0.0544
3442-78-2	2-Methylpyrene	mg/kg	NA		--	--	--	--	--	--	0.0547
135-98-8	2-Phenylbutane	mg/kg	NA		--	--	--	--	--	--	< 0.02 U
3353-12-6	4-Methylpyrene	mg/kg	NA		--	--	--	--	--	--	0.0437
205-12-9	7H-Benzo[c]fluorene	mg/kg	NA		--	--	--	--	--	--	0.0271
83-32-9	Acenaphthene	mg/kg	0.0067		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	0.0212
208-96-8	Acenaphthylene	mg/kg	0.0059		0.089 J	0.061 J	< 0.67 U	0.048 J	0.052 J	0.084 J	0.15
120-12-7	Anthracene	mg/kg	0.0572		0.18 J	0.12 J	0.22 J	0.13 J	0.069 J	0.12 J	0.205
71-43-2	Benzene	mg/kg	0.142	Reg 5 ESL	--	--	--	--	--	--	0.103
56-55-3	Benzo(a)Anthracene	mg/kg	0.108		0.63 J	0.41	0.67	0.56	0.32	0.6	0.448
50-32-8	Benzo(a)Pyrene	mg/kg	0.15		0.59 J	0.37	0.78	0.5	0.24 J	0.46	0.571
205-99-2	Benzo(b)fluoranthene	mg/kg	10.4	Reg 5 ESL	1.6	0.77	1.9	1.3	0.64	1.1	0.885
192-97-2	Benzo(e)Pyrene	mg/kg	NA		--	--	--	--	--	--	0.641
191-24-2	Benzo(g,h,i)Perylene	mg/kg	0.17		0.8	0.44	0.98	0.65	0.29	0.54	0.6
207-08-9	Benzo(k)Fluoranthene	mg/kg	0.24		0.43 J	0.22 J	0.52 J	0.39 J	0.18 J	0.33 J	0.702
239-35-0	Benzo[b]naphtho[2,1-d]thiophene	mg/kg	NA		--	--	--	--	--	--	0.146
11095-43-5	Benzothiophene	mg/kg	NA		--	--	--	--	--	--	< 0.02 U
ARC-C17	C-17	mg/kg	NA		--	--	--	--	--	--	0.884
ARC-C18	C-18	mg/kg	NA		--	--	--	--	--	--	0.59
ARC-C1BENZ	C1-Benzene	mg/kg	NA		--	--	--	--	--	--	0.11
ARC-PAH-BT1	C1-Benzo(b)thiophenes	mg/kg	NA		--	--	--	--	--	--	0.0115 J
ARC-C1CHR-BNAAN	C1-Chrysenes/Benzo(a)anthracenes	mg/kg	NA		--	--	--	--	--	--	0.234
ARC-PAH-D1	C1-Decalins	mg/kg	NA		--	--	--	--	--	--	0.187
ARC-C1-DBTHIOP	C1-Dibenzothiophenes	mg/kg	NA		--	--	--	--	--	--	0.136
ARC-C1-FLUO-PYR	C1-Fluoranthenes/Pyrenes	mg/kg	NA		--	--	--	--	--	--	0.521
ARC-C1-FLUOR	C1-Fluorenes	mg/kg	NA		--	--	--	--	--	--	0.0827
ARC-PAH-N1	C1-Naphthalenes	mg/kg	NA		--	--	--	--	--	--	0.0558
ARC-PAH-NBT1	C1-Naphthobenzothiophenes	mg/kg	NA		--	--	--	--	--	--	0.135
ARC-C1-PHN-ATH	C1-Phenanthrenes/Anthracenes	mg/kg	NA		--	--	--	--	--	--	0.413
ARC-C2BENZ	C2-Benzenes	mg/kg	NA		--	--	--	--	--	--	0.129
ARC-PAH-BT2	C2-Benzo(b)thiophenes	mg/kg	NA		--	--	--	--	--	--	< 0.02 U
ARC-C2CHR-BNAAN	C2-Chrysenes/Benzo(a)anthracenes	mg/kg	NA		--	--	--	--	--	--	0.14
ARC-PAH-D2	C2-Decalins	mg/kg	NA		--	--	--	--	--	--	0.244
ARC-C2-DBTHIOP	C2-Dibenzothiophenes	mg/kg	NA		--	--	--	--	--	--	0.655
ARC-C2-FLUO-PYR	C2-Fluoranthenes/Pyrenes	mg/kg	NA		--	--	--	--	--	--	0.286
ARC-PAH-F2	C2-Fluorenes	mg/kg	NA		--	--	--	--	--	--	0.218
ARC-PAH-N2	C2-Naphthalenes	mg/kg	NA		--	--	--	--	--	--	0.356
ARC-PAH-NBT2	C2-Naphthobenzothiophenes	mg/kg	NA		--	--	--	--	--	--	0.18
ARC-PAH-PA2	C2-Phenanthrenes/Anthracenes	mg/kg	NA		--	--	--	--	--	--	0.48
ARC-C3BENZ	C3-Benzenes	mg/kg	NA		--	--	--	--	--	--	< 0.02 U
ARC-PAH-BT3	C3-Benzo(b)thiophenes	mg/kg	NA		--	--	--	--	--	--	< 0.02 U
ARC-C3CHR-BNAAN	C3-Chrysenes/Benzo(a)anthracenes	mg/kg	NA		--	--	--	--	--	--	< 0.02 U
ARC-PAH-D3	C3-Decalins	mg/kg	NA		--	--	--	--	--	--	0.183
ARC-PAH-DBT3	C3-Dibenzothiophenes	mg/kg	NA		--	--	--	--	--	--	0.273
ARC-C3-FLUO-PYR	C3-Fluoranthenes/Pyrenes	mg/kg	NA		--	--	--	--	--	--	0.151
ARC-C3-FLUOR	C3-Fluorenes	mg/kg	NA		--	--	--	--	--	--	0.223
ARC-PAH-N3	C3-Naphthalenes	mg/kg	NA		--	--	--	--	--	--	0.567
ARC-PAH-NBT3	C3-Naphthobenzothiophenes	mg/kg	NA		--	--	--	--	--	--	0.188
ARC-PAH-PA3	C3-Phenanthrenes/Anthracenes	mg/kg	NA		--	--	--	--	--	--	0.307
ARC-C4BENZ	C4-Benzenes	mg/kg	NA		--	--	--	--	--	--	< 0.02 U
ARC-PAH-BT4	C4-Benzo(b)thiophenes	mg/kg	NA		--	--	--	--	--	--	< 0.02 U
ARC-C4CHR-BNAAN	C4-Chrysenes/Benzo(a)anthracenes	mg/kg	NA		--	--	--	--	--	--	< 0.02 U
ARC-PAH-D4	C4-Decalins	mg/kg	NA		--	--	--	--	--	--	0.207

Table B-3. Sediment Analytical
Data Solvay
Morrisville, Pennsylvania Facility

				ID	A10-1 (0.0-0.5)	A10-2 (0.0-0.5)	A10-3 (0.0-0.5)	A10-4 (0.0-0.5)	A10-5 (0.0-0.5)	A10-6 (0.0-0.5)	SED-1 (0.0-0.5)
				Location	A10-01	A10-02	A10-03	A10-04	A10-05	A10-06	SED-01
				Date	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	6/19/2013
				Type	N	N	N	N	N	N	N
CAS	**Chemical**	**Units**	**Sediment Criteria**	**Source**							
ARC-C4-DBTHIOP	C4-Dibenzothiophenes	mg/kg	NA		--	--	--	--	--	--	0.177
ARC-C4-NAPH	C4-Naphthalenes	mg/kg	NA		--	--	--	--	--	--	0.403
ARC-PAH-NBT4	C4-Naphthobenzothiophenes	mg/kg	NA		--	--	--	--	--	--	0.137
ARC-C4-PHN-ATH	C4-Phenanthrenes/Anthracenes	mg/kg	NA		--	--	--	--	--	--	0.179
ARC-C5BENZ	C5-Benzenes	mg/kg	NA		--	--	--	--	--	--	< 0.02 U
218-01-9	Chrysene	mg/kg	0.166		1.4	0.81	1.6	1.1	0.67	0.98	1.01
191-07-1	Coronene	mg/kg	NA		--	--	--	--	--	--	0.192
99-87-6	Cymene	mg/kg	NA		--	--	--	--	--	--	< 0.02 U
53-70-3	Dibenzo(a,h)Anthracene	mg/kg	0.033		0.20 J	< 0.30 U	0.22 J	0.16 J	< 0.25 U	0.18 J	0.138
132-64-9	Dibenzofuran	mg/kg	0.415		< 0.17 U	0.050 J	0.11 J	0.054 J	0.047 J	0.048 J	0.0588
132-65-0	Dibenzothiophene	mg/kg	NA		--	--	--	--	--	--	0.0735
100-41-4	Ethylbenzene	mg/kg	1.1		--	--	--	--	--	--	0.0129 J
206-44-0	Fluoranthene	mg/kg	0.423		2.1	1.2	3	1.7	0.95	1.7	2.03
86-73-7	Fluorene	mg/kg	0.0774		0.096 J	0.10 J	< 0.67 U	< 0.48 U	0.049 J	0.067 J	0.0545
118-74-1	Hexachlorobenzene	mg/kg	0.02		< 0.67 U	0.69	0.78	1.1	0.33	0.77	--
77-47-4	Hexachlorocyclopentadiene	mg/kg	901	Reg 5 ESL	< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
67-72-1	Hexachloroethane	mg/kg	1.027		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
638-36-8	Hexadecane, 2,6,10,14-tetramethyl-	mg/kg	NA		--	--	--	--	--	--	1.06
193-39-5	Indeno(1,2,3-cd)Pyrene	mg/kg	0.017		0.64 J	0.29 J	0.79	0.61	0.22 J	0.49	0.631
98-82-8	Isopropylbenzene	mg/kg	0.086		--	--	--	--	--	--	< 0.02 U
ARC-mpXyl	m,p-Xylene	mg/kg	0.0252		--	--	--	--	--	--	0.218
108-87-2	Methylcyclohexane	mg/kg	NA		--	--	--	--	--	--	< 0.02 U
91-20-3	Naphthalene	mg/kg	0.176		< 0.17 U	0.038 J	< 0.17 U	< 0.12 U	< 0.062 U	< 0.083 U	0.0306
493-01-6	Naphthalene, decahydro-, cis-	mg/kg	NA		--	--	--	--	--	--	0.0127 J
104-51-8	N-Butylbenzene	mg/kg	NA		--	--	--	--	--	--	0.0140 J
98-95-3	Nitrobenzene	mg/kg	0.145	Reg 5 ESL	< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
621-64-7	N-Nitrosodi-N-Propylamine	mg/kg	NA		< 0.17 U	< 0.076 U	< 0.17 U	< 0.12 U	< 0.062 U	< 0.083 U	--
86-30-6	N-nitrosodiphenylamine	mg/kg	2.68		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
3892-00-0	Norpristane (1650)	mg/kg	NA		--	--	--	--	--	--	0.457
103-65-1	N-Propylbenzene	mg/kg	NA		--	--	--	--	--	--	< 0.02 U
95-47-6	o-Xylene	mg/kg	NA		--	--	--	--	--	--	0.0118 J
106-47-8	p-Chloroaniline	mg/kg	0.146	Reg 5 ESL	< 0.32 U	< 0.14 U	< 0.32 U	< 0.23 U	< 0.12 U	< 0.16 U	--
87-86-5	Pentachlorophenol	mg/kg	0.504		< 3.3 U	< 1.5 U	< 3.3 U	< 2.4 U	< 1.2 U	< 1.7 U	--
198-55-0	Perylene	mg/kg	NA		--	--	--	--	--	--	0.145
85-01-8	Phenanthrene	mg/kg	0.204		1.1	0.79	1.2	0.75	0.45	0.82	0.632
108-95-2	Phenol	mg/kg	0.42		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
129-00-0	Pyrene	mg/kg	0.195		1.7	1.3	2.2	1.4	0.6	1.2	1.37
483-65-8	Retene	mg/kg	NA		--	--	--	--	--	--	0.133
100-42-5	Styrene (Monomer)	mg/kg	0.559		--	--	--	--	--	--	0.29
98-06-6	Tert-Butylbenzene	mg/kg	NA		--	--	--	--	--	--	< 0.02 U
108-88-3	Toluene	mg/kg	1.22	Reg 5 ESL	--	--	--	--	--	--	0.168
493-02-7	trans-Decahydronaphthalene	mg/kg	NA		--	--	--	--	--	--	0.0421
Other Organics											
95-94-3	1,2,4,5-Tetrachlorobenzene	mg/kg	1.09		1.8	0.35	< 0.67 U	0.16 J	0.19 J	0.75	--
108-60-1	2,2-Oxybis(1-Chloropropane)	mg/kg	NA		< 0.17 U	< 0.076 U	< 0.17 U	< 0.12 U	< 0.062 U	< 0.083 U	--
58-90-2	2,3,4,6-Tetrachlorophenol	mg/kg	0.284		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
95-95-4	2,4,5-Trichlorophenol	mg/kg	NA		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
88-06-2	2,4,6-Trichlorophenol	mg/kg	0.213		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
120-83-2	2,4-Dichlorophenol	mg/kg	0.117		< 0.17 U	< 0.076 U	< 0.17 U	< 0.12 U	< 0.062 U	< 0.083 U	--
105-67-9	2,4-Dimethylphenol	mg/kg	0.029		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
51-28-5	2,4-Dinitrophenol	mg/kg	0.00621	Reg 5 ESL	< 3.3 U	< 1.5 U	< 3.3 U	< 2.4 U	< 1.2 U	< 1.7 U	--
121-14-2	2,4-Dinitrotoluene	mg/kg	0.0416		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
606-20-2	2,6-Dinitrotoluene	mg/kg	0.0398	Reg 5 ESL	< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
91-58-7	2-Chloronaphthalene	mg/kg	0.417	Reg 5 ESL	< 0.67 U	0.064 J	0.24 J	0.094 J	0.096 J	< 0.33 U	--

Table B-3. Sediment Analytical
Data Solvay
Morrisville, Pennsylvania Facility

				ID	A10-1 (0.0-0.5)	A10-2 (0.0-0.5)	A10-3 (0.0-0.5)	A10-4 (0.0-0.5)	A10-5 (0.0-0.5)	A10-6 (0.0-0.5)	SED-1 (0-0.5)
				Location	A10-01	A10-02	A10-03	A10-04	A10-05	A10-06	SED-01
				Date	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	4/10/2012	6/19/2013
				Type	N	N	N	N	N	N	N
CAS	Chemical	Units	Sediment Criteria	Source							
95-57-8	2-Chlorophenol	mg/kg	0.0312		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
534-52-1	2-Methyl-4,6-Dinitrophenol	mg/kg	0.104	Reg 5 ESL	< 3.3 U	< 1.5 U	< 3.3 U	< 2.4 U	< 1.2 U	< 1.7 U	--
95-48-7	2-Methylphenol	mg/kg	0.0554	Reg 5 ESL	< 0.17 U	< 0.076 U	< 0.17 U	< 0.12 U	< 0.062 U	< 0.083 U	--
88-74-4	2-Nitroaniline	mg/kg	NA		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
88-75-5	2-Nitrophenol	mg/kg	NA		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
91-94-1	3,3-Dichlorobenzidine	mg/kg	0.127		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
78-59-1	3,5,5-Trimethyl-2-Cyclohexene-1-One	mg/kg	0.432	Reg 5 ESL	< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
99-09-2	3-Nitroaniline	mg/kg	NA		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
101-55-3	4-Bromophenyl Phenyl Ether	mg/kg	1.23		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
59-50-7	4-Chloro-3-Methylphenol	mg/kg	0.388	Reg 5 ESL	< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
7005-72-3	4-Chlorophenyl Phenyl Ether	mg/kg	NA		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
106-44-5	4-Methylphenol	mg/kg	NA		< 0.17 U	< 0.076 U	< 0.17 U	< 0.12 U	< 0.062 U	< 0.083 U	--
100-01-6	4-Nitroaniline	mg/kg	NA		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
100-02-7	4-Nitrophenol	mg/kg	0.0133	Reg 5 ESL	< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
98-86-2	Acetophenone	mg/kg	NA		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
1912-24-9	Atrazine	mg/kg	0.00662		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
100-52-7	Benzaldehyde	mg/kg	NA		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
85-68-7	Benzyl Butyl Phthalate	mg/kg	10.9		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
111-91-1	Bis(2-Chloroethoxy)methane	mg/kg	NA		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
111-44-4	Bis(2-Chloroethyl)ether	mg/kg	3.52	Reg 5 ESL	< 0.17 U	< 0.076 U	< 0.17 U	< 0.12 U	< 0.062 U	< 0.083 U	--
117-81-7	Bis(2-Ethylhexyl)phthalate	mg/kg	0.18		25	11	37	21	14	17	--
105-60-2	Caprolactam	mg/kg	NA		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
86-74-8	Carbazole	mg/kg	NA		0.13 J	< 0.30 U	< 0.67 U	< 0.48 U	0.045 J	0.099 J	--
84-66-2	Diethyl Phthalate	mg/kg	0.603		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
131-11-3	Dimethyl Phthalate	mg/kg	NA		< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--
84-74-2	Di-N-Butyl Phthalate	mg/kg	6.47		< 0.34 U	< 0.15 U	< 0.34 U	< 0.24 U	< 0.13 U	< 0.17 U	--
117-84-0	Di-n-Octyl Phthalate	mg/kg	40.6	Reg 5 ESL	< 0.67 U	< 0.30 U	0.40 J	0.49	< 0.25 U	0.39	--
87-68-3	Hexachloro-1,3-Butadiene	mg/kg	0.0265	Reg 5 ESL	< 0.67 U	< 0.30 U	< 0.67 U	< 0.48 U	< 0.25 U	< 0.33 U	--

Sources:
Freshwater sediment screening benchmarks from EPA Region III BTAG (8/2006); available at: http://www.epa.gov/reg3hwmd/risk/eco/btag/sbv/fwsed/screenbench.htm#download, except as noted
Reg 5 ESL = USEPA RCRA Region 5 Ecological Screening Levels for freshwater sediment

Notes:
* = dissolved metal criterion; others are total recoverable metals
B = low level blank contamination
J = estimated result
FD = field duplicate
N = primary sample
NA = not available/not applicable
U = result reported as not detected at the limit shown
Shaded values indicate detected concentrations exceeding the associated criteria.

Table B-3. Sediment Analytical
Data Solvay
Morrisville, Pennsylvania Facility

CAS	Chemical	Units	Sediment Criteria	SED-2 (0-0.5) SED-02 6/19/2013 N [FD]	SED-3 (0-0.5) SED-03 6/19/2013 N	SED-4 (0-0.5) SED-04 6/19/2013 N	SED-5 (0-0.5) SED-05 6/19/2013 N	SED-6 (0-0.5) SED-06 6/19/2013 N	SED-7 (0-0.5) SED-07 6/19/2013 N	SED-8 (0-0.5) SED-08 6/19/2013 N
AVS/SEM										
ARC-AVS	Acid Volatile Sulfide	umol/g	NA	< 0.35 U [< 0.33 U]	< 0.35 U	< 0.49 U	< 0.19 U	< 0.25 U	< 0.29 U	< 0.26 U
7440-43-9	Cadmium	umol/g	NA	0.102 [0.12]	0.133	0.15	0.0498	0.0703	0.101	0.0801
7440-50-8	Copper	umol/g	NA	7.88 [7.59]	10.4	8.29	5.56	8.42	8.73	9.95
7439-92-1	Lead	umol/g	NA	1.28 [1.25]	1.76	2.06	1.65	1.46	2.1	2.57
7439-97-6	Mercury	umol/g	NA	< 0.00014 U [< 0.00013 U]	< 0.00014 U	< 0.00019 U	0.000165	< 0.00010 U	< 0.00011 U	0.00011
7440-02-0	Nickel	umol/g	NA	9.76 [22]	19.9	10.2	17.5	19.9	58.1	45.5
7440-66-6	Zinc	umol/g	NA	20.8 [26.6]	28.3	42.8	17.7	18.5	27.8	23.1
Metals										
7429-90-5	Aluminum	mg/kg	NA	20900 [21200]	13300	38900	7560	9670	13200	12600
7440-36-0	Antimony	mg/kg	2	104 [112]	74.8	70.4	18.7	40.5	77.1	130
7440-38-2	Arsenic	mg/kg	9.8	78.7 [89]	58.4	84.8	195	118	220	115
7440-39-3	Barium	mg/kg	NA	352 [401]	277	430	160	181	401	720
7440-41-7	Beryllium	mg/kg	NA	< 1.1 U [1.2]	< 0.90 U	2	< 0.48 U	0.48	0.89	0.78
7440-43-9	Cadmium	mg/kg	0.99	9.0 [9.5]	6.7	15.3	3.2	4.3	7.8	6.4
7440-70-2	Calcium	mg/kg	NA	86500 [97100]	73200	44200	30800	33000	93300	116000
7440-47-3	Chromium	mg/kg	43.4	345 [350]	259	276	101	145	358	758
18540-29-9	Chromium VI	mg/kg	NA	--	--	--	--	--	--	--
7440-48-4	Cobalt	mg/kg	50	< 27 U [< 28 U]	< 22 U	< 30 U	< 12 U	< 11 U	< 21 U	< 20 U
7440-50-8	Copper	mg/kg	31.6	319 [384]	246	438	278	292	469	321
7439-89-6	Iron	mg/kg	20000	36800 [44900]	30400	53300	16800	17900	38100	91200
7439-92-1	Lead	mg/kg	35.8	203 [221]	143	403	184	183	435	368
7439-95-4	Magnesium	mg/kg	NA	< 2700 U [< 2800 U]	< 2200 U	3400	1610	1300	3620	< 2000 U
7439-96-5	Manganese	mg/kg	460	630 [870]	610	1120	412	326	750	1010
7439-97-6	Mercury	mg/kg	0.18	4.2 [4.6]	4.8	5.6	6.1	6.2	14.8	12.4
7440-02-0	Nickel	mg/kg	22.7	493 [899]	842	490	743	742	2200	3180
7440-09-7	Potassium	mg/kg	NA	< 5400 U [< 5500 U]	< 4500 U	< 6000 U	< 2400 U	< 2300 U	< 4200 U	< 3900 U
7782-49-2	Selenium	mg/kg	2	< 11 U [< 11 U]	< 9.0 U	< 12 U	< 4.8 U	< 4.6 U	< 8.5 U	< 7.8 U
7440-22-4	Silver	mg/kg	1	< 2.7 U [< 2.8 U]	2.5	< 3.0 U	6.9	6.3	13	8
7440-23-5	Sodium	mg/kg	NA	< 5400 U [< 5500 U]	< 4500 U	< 6000 U	< 2400 U	< 2300 U	< 4200 U	< 3900 U
7440-28-0	Thallium	mg/kg	NA	< 5.4 U [< 5.5 U]	< 4.5 U	< 6.0 U	< 2.4 U	< 2.3 U	< 4.2 U	< 3.9 U
7440-62-2	Vanadium	mg/kg	NA	< 27 U [< 28 U]	< 22 U	72.5	17.2	15.3	25.3	20.4
7440-66-6	Zinc	mg/kg	121	1100 [1380]	845	2630	577	640	1400	1310
Arsenic Speciation										
ARC-AS3	Arsenate (+5)	mg/kg	NA	< 8.16 U [< 9.45 U]	< 7.31 U	< 8.41 U	< 37.2 U	14.7 J	18.0 J	< 5.50 U
7440-38-2	Inorganic Arsenic	mg/kg	9.8	20.7 [19.6]	18	27.3	348	72.4	60.9	16.4
ARC-AS5	Arsenite (+3)	mg/kg	9.8	19.2 B [18.1 B]	17.0 B	25.9 B	327 B	57.7 B	42.9 B	12.0 B
DMA	DMA	mg/kg	NA	< 0.3 U [< 0.3 U]	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
MMA	MMA	mg/kg	NA	< 0.3 U [< 0.3 U]	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U	< 0.3 U
Miscellaneous										
ARC-ORP	Oxidation Reduction Potential	mV	NA	--	--	--	--	--	--	--
ARC-PSOL	Percent Solids	%	NA	29.5 [29.7]	33.5	23.7	29.3	33.8	36.7	39.8
ARC-pH	pH	SU	NA	--	--	--	--	--	--	--
ARC-TOC	Total Organic Carbon	mg/kg	NA	43600 [--]	36700	74000	19100	21000	39500	33500
SVOCs										
92-52-4	1,1-Biphenyl	mg/kg	1.22	0.0515 [0.0893]	0.0409	0.0401	0.0167	0.0189	0.044	0.0335
526-73-8	1,2,3-Trimethylbenzene	mg/kg	NA	0.0139 J [0.0221]	0.0103 J	0.0334	0.0083 J	0.0080 J	0.0146 J	0.0089 J
95-63-6	1,2,4-Trimethylbenzene	mg/kg	NA	0.0117 J [0.0288]	0.0102 J	0.0160 J	0.0077 J	0.0077 J	0.0163	< 0.014 U
108-67-8	1,3,5-Trimethylbenzene	mg/kg	NA	< 0.02 U [0.0105 J]	< 0.016 U	< 0.028 U	< 0.0092 U	0.0050 J	0.0088 J	< 0.014 U
243-17-4	11H-Benzo[b]fluorene	mg/kg	NA	0.139 [0.253]	0.0793	0.0517	0.0188	0.0218	0.0506	0.032
90-12-0	1-Methylnaphthalene	mg/kg	NA	0.052 [0.096]	0.0524	0.028	0.0197	0.0295	0.0661	0.0369
2381-21-7	1-Methyl-Pyrene	mg/kg	NA	0.0635 [0.0889]	0.0387	0.0231 J	0.0778	0.0535	0.0977	0.0154
3891-98-3	2,6,10 Trimethyldodecane (1380)	mg/kg	NA	0.804 [0.965]	0.345	0.0784	0.0678	0.0808	0.172	0.162
3891-99-4	2,6,10 Trimethyltridecane (1470)	mg/kg	NA	1.65 [1.74]	0.614	0.251	0.151	0.168	0.321	0.294

Table B-3. Sediment Analytical
Data Solvay
Morrisville, Pennsylvania Facility

CAS	Chemical	Units	Sediment Criteria	SED-2 (0-0.5) SED-02 6/19/2013 N [FD]	SED-3 (0-0.5) SED-03 6/19/2013 N	SED-4 (0-0.5) SED-04 6/19/2013 N	SED-5 (0-0.5) SED-05 6/19/2013 N	SED-6 (0-0.5) SED-06 6/19/2013 N	SED-7 (0-0.5) SED-07 6/19/2013 N	SED-8 (0-0.5) SED-08 6/19/2013 N
1921-70-6	2,6,10,14-Tetramethylpentadecane	mg/kg	NA	4.31 [3.66]	1.92	0.576	0.547	0.546	1.2	1.01
91-57-6	2-Methylnaphthalene	mg/kg	0.0202	0.0785 [0.157]	0.0809	0.0463	0.0328	0.0455	0.109	0.0544
3442-78-2	2-Methylpyrene	mg/kg	NA	0.112 [0.162]	0.063	0.0431	0.106	0.0768	0.139	0.0235
135-98-8	2-Phenylbutane	mg/kg	NA	< 0.02 U [< 0.02 U]	< 0.016 U	< 0.028 U	< 0.0092 U	< 0.0085 U	< 0.016 U	< 0.014 U
3353-12-6	4-Methylpyrene	mg/kg	NA	0.0913 [0.131]	0.0522	0.0378	0.137	0.0908	0.172	0.0208
205-12-9	7H-Benzo[c]fluorene	mg/kg	NA	0.0469 [0.091]	0.0336	0.0199 J	0.0096	0.0105	0.0232	0.016
83-32-9	Acenaphthene	mg/kg	0.0067	0.0393 [0.0624]	0.0296	0.0202 J	0.0089 J	0.0133	0.0291	0.0198
208-96-8	Acenaphthylene	mg/kg	0.0059	0.219 [0.293]	0.193	0.235	0.0702	0.0837	0.177	0.104
120-12-7	Anthracene	mg/kg	0.0572	0.309 [0.56]	0.231	0.194	0.0622	0.0894	0.198	0.146
71-43-2	Benzene	mg/kg	0.142	0.105 [0.224]	0.0739	0.327	0.114	0.0486	0.104	0.133
56-55-3	Benzo(a)Anthracene	mg/kg	0.108	0.838 [1.36]	0.522	0.381	0.0917	0.135	0.343	0.222
50-32-8	Benzo(a)Pyrene	mg/kg	0.15	1.01 [1.55]	0.664	0.589	0.117	0.173	0.469	0.287
205-99-2	Benzo(b)fluoranthene	mg/kg	10.4	1.44 [2.21]	0.987	0.842	0.162	0.275	0.688	0.446
192-97-2	Benzo(e)Pyrene	mg/kg	NA	1.11 [1.67]	0.729	0.685	0.144	0.214	0.557	0.327
191-24-2	Benzo(g,h,i)Perylene	mg/kg	0.17	1.01 [1.5]	0.681	0.693	0.118	0.183	0.507	0.306
207-08-9	Benzo(k)Fluoranthene	mg/kg	0.24	1.14 [1.97]	0.791	0.687	0.131	0.215	0.581	0.348
239-35-0	Benzo[b]naphtho[2,1-d]thiophene	mg/kg	NA	0.247 [0.379]	0.157	0.113	0.0274	0.0419	0.111	0.066
11095-43-5	Benzothiophene	mg/kg	NA	< 0.02 U [0.0148 J]	< 0.016 U	< 0.028 U	< 0.0092 U	< 0.0085 U	0.0107 J	< 0.014 U
ARC-C17	C-17	mg/kg	NA	2.5 [6.05]	0.915	0.227	0.168	0.306	0.421	0.317
ARC-C18	C-18	mg/kg	NA	1.34 [3.28]	0.454	0.117	0.054	0.111	0.162	0.237
ARC-C1BENZ	C1-Benzene	mg/kg	NA	0.176 [0.268]	0.108	0.433	0.145	0.0993	0.191	0.0723
ARC-PAH-BT1	C1-Benzo(b)thiophenes	mg/kg	NA	0.0185 J [0.0248]	0.0104 J	< 0.028 U	0.0058 J	0.0054 J	0.0099 J	0.0093 J
ARC-C1CHR-BNAAN	C1-Chrysenes/Benzo(a)anthracenes	mg/kg	NA	0.477 [0.628]	0.297	0.289	0.158	0.161	0.303	0.145
ARC-PAH-D1	C1-Decalins	mg/kg	NA	0.237 [0.291]	0.132	0.0491	0.0398	0.0467	0.0988	0.0678
ARC-C1-DBTHIOP	C1-Dibenzothiophenes	mg/kg	NA	0.246 [0.411]	0.14	0.0607	0.0565	0.0466	0.0975	0.061
ARC-C1-FLUO-PYR	C1-Fluoranthenes/Pyrenes	mg/kg	NA	0.941 [1.57]	0.568	0.398	0.477	0.383	0.769	0.264
ARC-C1-FLUOR	C1-Fluorenes	mg/kg	NA	0.164 [0.285]	0.0905	0.036	0.0692	0.0485	0.073	0.0424
ARC-PAH-N1	C1-Naphthalenes	mg/kg	NA	0.0798 [0.156]	0.0835	0.0453	0.0315	0.0468	0.108	0.0566
ARC-PAH-NBT1	C1-Naphthobenzothiophenes	mg/kg	NA	0.208 [0.28]	0.142	0.0989	0.0459	0.0468	0.106	0.0849
ARC-C1-PHN-ATH	C1-Phenanthrenes/Anthracenes	mg/kg	NA	0.866 [1.59]	0.466	0.173	0.385	0.263	0.456	0.249
ARC-C2BENZ	C2-Benzenes	mg/kg	NA	0.221 [0.462]	0.14	0.393	0.113	0.169	0.19	0.0943
ARC-PAH-BT2	C2-Benzo(b)thiophenes	mg/kg	NA	< 0.02 U [< 0.02 U]	< 0.016 U	< 0.028 U	< 0.0092 U	< 0.0085 U	< 0.016 U	< 0.014 U
ARC-C2CHR-BNAAN	C2-Chrysenes/Benzo(a)anthracenes	mg/kg	NA	0.307 [0.401]	0.182	0.124	0.195	0.152	0.303	0.102
ARC-PAH-D2	C2-Decalins	mg/kg	NA	0.421 [0.493]	0.216	0.125	0.0809	0.0673	0.162	0.103
ARC-C2-DBTHIOP	C2-Dibenzothiophenes	mg/kg	NA	0.943 [1.01]	0.656	0.285	0.166	0.181	0.523	0.484
ARC-C2-FLUO-PYR	C2-Fluoranthenes/Pyrenes	mg/kg	NA	0.555 [0.769]	0.345	0.292	0.533	0.377	0.746	0.176
ARC-PAH-F2	C2-Fluorenes	mg/kg	NA	0.473 [0.747]	0.22	< 0.028 U	0.182	0.146	0.234	0.0751
ARC-PAH-N2	C2-Naphthalenes	mg/kg	NA	0.512 [0.97]	0.337	0.202	0.209	0.175	0.289	0.2
ARC-PAH-NBT2	C2-Naphthobenzothiophenes	mg/kg	NA	0.291 [0.402]	0.198	0.121	0.0791	0.099	0.19	0.147
ARC-PAH-PA2	C2-Phenanthrenes/Anthracenes	mg/kg	NA	1.1 [1.54]	0.537	0.181	0.729	0.459	0.774	0.209
ARC-C3BENZ	C3-Benzenes	mg/kg	NA	< 0.02 U [0.0762]	< 0.016 U	< 0.028 U	< 0.0092 U	< 0.0085 U	< 0.016 U	< 0.014 U
ARC-PAH-BT3	C3-Benzo(b)thiophenes	mg/kg	NA	< 0.02 U [< 0.02 U]	< 0.016 U	< 0.028 U	< 0.0092 U	< 0.0085 U	< 0.016 U	< 0.014 U
ARC-C3CHR-BNAAN	C3-Chrysenes/Benzo(a)anthracenes	mg/kg	NA	< 0.02 U [< 0.02 U]	< 0.016 U	< 0.028 U	0.228	0.208	0.498	< 0.014 U
ARC-PAH-D3	C3-Decalins	mg/kg	NA	0.348 [0.403]	0.166	0.0883	0.0737	0.0674	0.144	0.0926
ARC-PAH-DBT3	C3-Dibenzothiophenes	mg/kg	NA	0.555 [0.625]	0.321	0.0732	0.0891	0.089	0.2	0.119
ARC-C3-FLUO-PYR	C3-Fluoranthenes/Pyrenes	mg/kg	NA	0.424 [0.4]	0.237	0.151	0.451	0.304	0.625	0.106
ARC-C3-FLUOR	C3-Fluorenes	mg/kg	NA	0.555 [0.791]	0.24	< 0.028 U	0.302	0.174	0.301	0.104
ARC-PAH-N3	C3-Naphthalenes	mg/kg	NA	1.19 [1.89]	0.508	0.0956	0.485	0.297	0.394	0.215
ARC-PAH-NBT3	C3-Naphthobenzothiophenes	mg/kg	NA	0.28 [0.392]	0.205	0.137	0.0808	0.0989	0.182	0.125
ARC-PAH-PA3	C3-Phenanthrenes/Anthracenes	mg/kg	NA	0.721 [0.933]	0.375	0.132	0.588	0.475	0.776	0.199
ARC-C4BENZ	C4-Benzenes	mg/kg	NA	< 0.02 U [< 0.02 U]	< 0.016 U	< 0.028 U	< 0.0092 U	< 0.0085 U	< 0.016 U	< 0.014 U
ARC-PAH-BT4	C4-Benzo(b)thiophenes	mg/kg	NA	< 0.02 U [< 0.02 U]	< 0.016 U	< 0.028 U	< 0.0092 U	< 0.0085 U	< 0.016 U	< 0.014 U
ARC-C4CHR-BNAAN	C4-Chrysenes/Benzo(a)anthracenes	mg/kg	NA	< 0.02 U [< 0.02 U]	< 0.016 U	< 0.028 U	0.135	0.104	0.314	< 0.014 U
ARC-PAH-D4	C4-Decalins	mg/kg	NA	0.568 [0.688]	0.23	< 0.028 U	< 0.0092 U	< 0.0085 U	< 0.016 U	0.148

Table B-3. Sediment Analytical
Data Solvay
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CAS	Chemical	Units	Sediment Criteria	SED-2 (0-0.5) SED-02 6/19/2013 N [FD]	SED-3 (0-0.5) SED-03 6/19/2013 N	SED-4 (0-0.5) SED-04 6/19/2013 N	SED-5 (0-0.5) SED-05 6/19/2013 N	SED-6 (0-0.5) SED-06 6/19/2013 N	SED-7 (0-0.5) SED-07 6/19/2013 N	SED-8 (0-0.5) SED-08 6/19/2013 N
ARC-C4-DBTHIOP	C4-Dibenzothiophenes	mg/kg	NA	0.341 [0.436]	0.201	0.0912	0.0772	0.0716	0.158	0.108
ARC-C4-NAPH	C4-Naphthalenes	mg/kg	NA	1.04 [1.44]	0.401	< 0.028 U	0.583	0.32	0.503	0.134
ARC-PAH-NBT4	C4-Naphthobenzothiophenes	mg/kg	NA	0.19 [0.204]	0.105	0.0868	0.0425	0.0516	0.0945	0.0786
ARC-C4-PHN-ATH	C4-Phenanthrenes/Anthracenes	mg/kg	NA	0.395 [0.5]	0.212	0.0801	0.375	0.287	0.441	0.0944
ARC-C5BENZ	C5-Benzenes	mg/kg	NA	< 0.02 U [< 0.02 U]	< 0.016 U	< 0.028 U	< 0.0092 U	< 0.0085 U	< 0.016 U	< 0.014 U
218-01-9	Chrysene	mg/kg	0.166	1.7 [2.75]	1.09	0.831	0.201	0.322	0.774	0.522
191-07-1	Coronene	mg/kg	NA	0.328 [0.501]	0.212	0.219	0.0338	0.0542	0.15	0.0918
99-87-6	Cymene	mg/kg	NA	0.0142 J [0.0264]	0.0103 J	< 0.028 U	0.0048 J	0.0081 J	0.0121 J	0.0085 J
53-70-3	Dibenzo(a,h)Anthracene	mg/kg	0.033	0.236 [0.361]	0.15	0.146	0.0259	0.0416	0.102	0.0698
132-64-9	Dibenzofuran	mg/kg	0.415	0.073 [0.127]	0.079	0.0405	0.0221	0.0265	0.0749	0.0587
132-65-0	Dibenzothiophene	mg/kg	NA	0.106 [0.193]	0.0815	0.0491	0.019	0.0223	0.0597	0.0502
100-41-4	Ethylbenzene	mg/kg	1.1	0.0203 [0.0416]	0.0153 J	0.0505	0.0169	0.0097	0.0226	0.0157
206-44-0	Fluoranthene	mg/kg	0.423	3.2 [6.65]	2.13	1.43	0.353	0.572	1.42	0.984
86-73-7	Fluorene	mg/kg	0.0774	0.0845 [0.18]	0.0726	0.0472	0.0245	0.0272	0.0602	0.0436
118-74-1	Hexachlorobenzene	mg/kg	0.02	--	--	--	--	--	--	--
77-47-4	Hexachlorocyclopentadiene	mg/kg	901	--	--	--	--	--	--	--
67-72-1	Hexachloroethane	mg/kg	1.027	--	--	--	--	--	--	--
638-36-8	Hexadecane, 2,6,10,14-tetramethyl-	mg/kg	NA	2.68 [2.6]	1.33	0.817	0.336	0.4	0.814	0.8
193-39-5	Indeno(1,2,3-cd)Pyrene	mg/kg	0.017	1.04 [1.61]	0.712	0.708	0.115	0.184	0.503	0.322
98-82-8	Isopropylbenzene	mg/kg	0.086	< 0.02 U [< 0.02 U]	< 0.016 U	< 0.028 U	< 0.0092 U	< 0.0085 U	< 0.016 U	< 0.014 U
ARC-mpXyl	m,p-Xylene	mg/kg	0.0252	0.385 [0.835]	0.218	0.674	0.192	0.306	0.329	0.14
108-87-2	Methylcyclohexane	mg/kg	NA	< 0.02 U [< 0.02 U]	< 0.016 U	< 0.028 U	< 0.0092 U	< 0.0085 U	< 0.016 U	< 0.014 U
91-20-3	Naphthalene	mg/kg	0.176	0.0647 [0.106]	0.0499	0.042	0.0159	0.0246	0.0664	0.0283
493-01-6	Naphthalene, decahydro-, cis-	mg/kg	NA	0.0147 J [0.0216]	0.0085 J	< 0.028 U	< 0.0092 U	< 0.0085 U	< 0.016 U	< 0.014 U
104-51-8	N-Butylbenzene	mg/kg	NA	0.0196 J [0.0443]	0.0110 J	0.0818	0.0236	0.0081 J	0.0178	0.0249
98-95-3	Nitrobenzene	mg/kg	0.145	--	--	--	--	--	--	--
621-64-7	N-Nitrosodi-N-Propylamine	mg/kg	NA	--	--	--	--	--	--	--
86-30-6	N-nitrosodiphenylamine	mg/kg	2.68	--	--	--	--	--	--	--
3892-00-0	Norpristane (1650)	mg/kg	NA	1.56 [1.38]	0.636	0.151	0.174	0.176	0.358	0.318
103-65-1	N-Propylbenzene	mg/kg	NA	0.0117 J [0.0225]	< 0.016 U	0.0499	0.0163	0.0056 J	0.0120 J	0.0146
95-47-6	o-Xylene	mg/kg	NA	0.0189 J [0.0347]	0.0162	0.0435	0.0132	0.0091	0.02	0.0093 J
106-47-8	p-Chloroaniline	mg/kg	0.146	--	--	--	--	--	--	--
87-86-5	Pentachlorophenol	mg/kg	0.504	--	--	--	--	--	--	--
198-55-0	Perylene	mg/kg	NA	0.229 [0.437]	0.163	0.159	0.0263	0.0431	0.115	0.0728
85-01-8	Phenanthrene	mg/kg	0.204	1.04 [2.08]	0.784	0.375	0.185	0.257	0.606	0.479
108-95-2	Phenol	mg/kg	0.42	--	--	--	--	--	--	--
129-00-0	Pyrene	mg/kg	0.195	2.38 [4.58]	1.5	1.07	0.389	0.464	1.13	0.619
483-65-8	Retene	mg/kg	NA	0.181 [0.332]	0.139	0.0768	0.13	0.0877	0.16	0.0744
100-42-5	Styrene (Monomer)	mg/kg	0.559	0.305 [0.278]	0.234	0.41	0.115	0.113	0.208	0.18
98-06-6	Tert-Butylbenzene	mg/kg	NA	< 0.02 U [< 0.02 U]	< 0.016 U	< 0.028 U	< 0.0092 U	< 0.0085 U	< 0.016 U	< 0.014 U
108-88-3	Toluene	mg/kg	1.22	0.267 [0.406]	0.163	0.64	0.22	0.148	0.282	0.112
493-02-7	trans-Decahydronaphthalene	mg/kg	NA	0.0471 [0.0677]	0.0318	< 0.028 U	0.0096	0.0103	0.0255	0.0187
Other Organics										
95-94-3	1,2,4,5-Tetrachlorobenzene	mg/kg	1.09	--	--	--	--	--	--	--
108-60-1	2,2-Oxybis(1-Chloropropane)	mg/kg	NA	--	--	--	--	--	--	--
58-90-2	2,3,4,6-Tetrachlorophenol	mg/kg	0.284	--	--	--	--	--	--	--
95-95-4	2,4,5-Trichlorophenol	mg/kg	NA	--	--	--	--	--	--	--
88-06-2	2,4,6-Trichlorophenol	mg/kg	0.213	--	--	--	--	--	--	--
120-83-2	2,4-Dichlorophenol	mg/kg	0.117	--	--	--	--	--	--	--
105-67-9	2,4-Dimethylphenol	mg/kg	0.029	--	--	--	--	--	--	--
51-28-5	2,4-Dinitrophenol	mg/kg	0.00621	--	--	--	--	--	--	--
121-14-2	2,4-Dinitrotoluene	mg/kg	0.0416	--	--	--	--	--	--	--
606-20-2	2,6-Dinitrotoluene	mg/kg	0.0398	--	--	--	--	--	--	--
91-58-7	2-Chloronaphthalene	mg/kg	0.417	--	--	--	--	--	--	--

Table B-3. Sediment Analytical
Data Solvay
Morrisville, Pennsylvania Facility

CAS	Chemical	Units	Sediment Criteria	SED-2 (0-0.5) SED-02 6/19/2013 N [FD]	SED-3 (0-0.5) SED-03 6/19/2013 N	SED-4 (0-0.5) SED-04 6/19/2013 N	SED-5 (0-0.5) SED-05 6/19/2013 N	SED-6 (0-0.5) SED-06 6/19/2013 N	SED-7 (0-0.5) SED-07 6/19/2013 N	SED-8 (0-0.5) SED-08 6/19/2013 N
95-57-8	2-Chlorophenol	mg/kg	0.0312	--	--	--	--	--	--	--
534-52-1	2-Methyl-4,6-Dinitrophenol	mg/kg	0.104	--	--	--	--	--	--	--
95-48-7	2-Methylphenol	mg/kg	0.0554	--	--	--	--	--	--	--
88-74-4	2-Nitroaniline	mg/kg	NA	--	--	--	--	--	--	--
88-75-5	2-Nitrophenol	mg/kg	NA	--	--	--	--	--	--	--
91-94-1	3,3-Dichlorobenzidine	mg/kg	0.127	--	--	--	--	--	--	--
78-59-1	3,5,5-Trimethyl-2-Cyclohexene-1-One	mg/kg	0.432	--	--	--	--	--	--	--
99-09-2	3-Nitroaniline	mg/kg	NA	--	--	--	--	--	--	--
101-55-3	4-Bromophenyl Phenyl Ether	mg/kg	1.23	--	--	--	--	--	--	--
59-50-7	4-Chloro-3-Methylphenol	mg/kg	0.388	--	--	--	--	--	--	--
7005-72-3	4-Chlorophenyl Phenyl Ether	mg/kg	NA	--	--	--	--	--	--	--
106-44-5	4-Methylphenol	mg/kg	NA	--	--	--	--	--	--	--
100-01-6	4-Nitroaniline	mg/kg	NA	--	--	--	--	--	--	--
100-02-7	4-Nitrophenol	mg/kg	0.0133	--	--	--	--	--	--	--
98-86-2	Acetophenone	mg/kg	NA	--	--	--	--	--	--	--
1912-24-9	Atrazine	mg/kg	0.00662	--	--	--	--	--	--	--
100-52-7	Benzaldehyde	mg/kg	NA	--	--	--	--	--	--	--
85-68-7	Benzyl Butyl Phthalate	mg/kg	10.9	--	--	--	--	--	--	--
111-91-1	Bis(2-Chloroethoxy)methane	mg/kg	NA	--	--	--	--	--	--	--
111-44-4	Bis(2-Chloroethyl)ether	mg/kg	3.52	--	--	--	--	--	--	--
117-81-7	Bis(2-Ethylhexyl)phthalate	mg/kg	0.18	--	--	--	--	--	--	--
105-60-2	Caprolactam	mg/kg	NA	--	--	--	--	--	--	--
86-74-8	Carbazole	mg/kg	NA	--	--	--	--	--	--	--
84-66-2	Diethyl Phthalate	mg/kg	0.603	--	--	--	--	--	--	--
131-11-3	Dimethyl Phthalate	mg/kg	NA	--	--	--	--	--	--	--
84-74-2	Di-N-Butyl Phthalate	mg/kg	6.47	--	--	--	--	--	--	--
117-84-0	Di-n-Octyl Phthalate	mg/kg	40.6	--	--	--	--	--	--	--
87-68-3	Hexachloro-1,3-Butadiene	mg/kg	0.0265	--	--	--	--	--	--	--

Sources:
Freshwater sediment screening benchmarks from EPA Region III BTAG (8/2006); available at: http://www.epa.gov
Reg 5 ESL = USEPA RCRA Region 5 Ecological Screening Levels for freshwater sediment

Notes:
* = dissolved metal criterion; others are total recoverable metals
B = low level blank contamination
J = estimated result
FD = field duplicate
N = primary sample
NA = not available/not applicable
U = result reported as not detected at the limit shown
Shaded values indicate detected concentrations exceeding the associated criteria.

Appendix E

Laboratory Analytical Data Packages

(Located on CD)

ANALYTICAL REPORT

Lab Number:	L1410744
Client:	Solvay USA, Inc. 8 Cedar Brook Drive Cranbury, NJ 08512-7500
ATTN:	Mike Shatynski
Phone:	(877) 463-7645
Project Name:	SOLVAY
Project Number:	NP000448.0003
Report Date:	07/07/14

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), USDA (Permit #P-330-11-00240), NC (666), TX (T104704476), DOD (L2217), US Army Corps of Engineers.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410744
Report Date: 07/07/14

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1410744-01	AR-44A_1.5-2.0	MORRISVILLE	05/19/14 09:35
L1410744-02	BD-01-051914	MORRISVILLE	05/19/14 00:00
L1410744-03	AR-45A_1.5-2.0	MORRISVILLE	05/19/14 09:50
L1410744-04	AR-46_1.5-2.0	MORRISVILLE	05/19/14 10:05
L1410744-05	AR-47_1.5-2.0	MORRISVILLE	05/19/14 11:00
L1410744-06	AR-48_1.5-2.0	MORRISVILLE	05/19/14 10:45
L1410744-07	AR-49_1.5-2.0	MORRISVILLE	05/19/14 10:20
L1410744-08	AR-50_1.5-2.0	MORRISVILLE	05/19/14 11:15
L1410744-09	AR-51_1.5-2.0	MORRISVILLE	05/19/14 12:45
L1410744-10	AR-52_1.5-2.0	MORRISVILLE	05/19/14 13:00
L1410744-11	AR-54_1.5-2.0	MORRISVILLE	05/19/14 13:30
L1410744-12	AR-55_1.5-2.0	MORRISVILLE	05/19/14 13:45
L1410744-13	AR-53_1.5-2.0	MORRISVILLE	05/19/14 13:55
L1410744-14	AR-55A_1.5-2.0	MORRISVILLE	05/19/14 14:15
L1410744-15	AR-56_1.5-2.0	MORRISVILLE	05/19/14 14:05
L1410744-16	AR-54A_1.5-2.0	MORRISVILLE	05/19/14 14:25
L1410744-17	AR-57_1.5-2.0	MORRISVILLE	05/19/14 14:30
L1410744-18	AR-58_1.5-2.0	MORRISVILLE	05/19/14 14:40
L1410744-19	AR-59_1.5-2.0	MORRISVILLE	05/19/14 14:45

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410744
Report Date: 07/07/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	SOLVAY	**Lab Number:**	L1410744
Project Number:	NP000448.0003	**Report Date:**	07/07/14

Case Narrative (continued)

Report Submission

This final report replaces the partial report issued June 23, 2014, and includes the results of all requested analyses.

A previously-issued partial report replaced the partial report issued June 12, 2014. At the client's request, the analysis of Arsenic was performed on L1410744-10 and -12.

A previously-issued partial report replaced the partial report issued June 3, 2014. At the client's request, the analysis of Arsenic was performed on L1410744-09 and -11.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 07/07/14

METALS

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-01
Client ID: AR-44A_1.5-2.0
Sample Location: MORRISVILLE
Matrix: Soil
Percent Solids: 80%

Date Collected: 05/19/14 09:35
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	10		mg/kg	0.48	0.10	1	06/02/14 16:04	06/03/14 09:23	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-02
Client ID: BD-01-051914
Sample Location: MORRISVILLE
Matrix: Soil
Percent Solids: 79%

Date Collected: 05/19/14 00:00
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	11		mg/kg	0.50	0.10	1	06/02/14 16:04	06/03/14 10:47	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-05
Client ID: AR-47_1.5-2.0
Sample Location: MORRISVILLE
Matrix: Soil
Percent Solids: 78%

Date Collected: 05/19/14 11:00
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	5.8		mg/kg	0.49	0.10	1	06/02/14 16:04	06/03/14 10:51	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-08
Client ID: AR-50_1.5-2.0
Sample Location: MORRISVILLE
Matrix: Soil
Percent Solids: 74%

Date Collected: 05/19/14 11:15
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	12		mg/kg	0.52	0.10	1	06/02/14 16:04	06/03/14 10:54	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-09
Client ID: AR-51_1.5-2.0
Sample Location: MORRISVILLE
Matrix: Soil
Percent Solids: 75%

Date Collected: 05/19/14 12:45
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	13		mg/kg	0.52	0.10	1	06/10/14 13:49	06/10/14 19:08	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-10
Client ID: AR-52_1.5-2.0
Sample Location: MORRISVILLE
Matrix: Soil
Percent Solids: 71%

Date Collected: 05/19/14 13:00
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	11		mg/kg	0.55	0.11	1	06/18/14 21:28	06/19/14 16:08	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-11
Client ID: AR-54_1.5-2.0
Sample Location: MORRISVILLE
Matrix: Soil
Percent Solids: 77%

Date Collected: 05/19/14 13:30
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	26		mg/kg	0.49	0.10	1	06/10/14 13:49	06/10/14 19:11	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-12
Client ID: AR-55_1.5-2.0
Sample Location: MORRISVILLE
Matrix: Soil
Percent Solids: 75%

Date Collected: 05/19/14 13:45
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	22		mg/kg	0.51	0.10	1	06/18/14 21:28	06/19/14 16:11	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Lab Number: L1410744
Project Number: NP000448.0003
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-13
Client ID: AR-53_1.5-2.0
Sample Location: MORRISVILLE
Matrix: Soil
Percent Solids: 80%

Date Collected: 05/19/14 13:55
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	15		mg/kg	0.50	0.10	1	06/02/14 16:04	06/03/14 12:22	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-16
Client ID: AR-54A_1.5-2.0
Sample Location: MORRISVILLE
Matrix: Soil
Percent Solids: 78%

Date Collected: 05/19/14 14:25
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	3.0		mg/kg	0.48	0.10	1	06/02/14 16:04	06/03/14 11:36	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-17
Client ID: AR-57_1.5-2.0
Sample Location: MORRISVILLE
Matrix: Soil
Percent Solids: 81%

Date Collected: 05/19/14 14:30
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	3.8		mg/kg	0.48	0.10	1	06/02/14 16:04	06/03/14 11:40	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410744
Report Date: 07/07/14

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 01-02,05,08,13,16-17 Batch: WG694340-1										
Arsenic, Total	ND		mg/kg	0.40	0.08	1	06/02/14 16:04	06/03/14 09:15	1,6010C	MG

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 09,11 Batch: WG696619-1										
Arsenic, Total	0.10	J	mg/kg	0.40	0.08	1	06/10/14 13:49	06/10/14 18:03	1,6010C	TT

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 10,12 Batch: WG699016-1										
Arsenic, Total	0.19	J	mg/kg	0.40	0.08	1	06/18/14 21:28	06/19/14 15:18	1,6010C	MG

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410744
Report Date: 07/07/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01-02,05,08,13,16-17 Batch: WG694340-2 SRM Lot Number: 0518-10-02								
Arsenic, Total	100		-		81-119	-		
Total Metals - Westborough Lab Associated sample(s): 09,11 Batch: WG696619-2 SRM Lot Number: 0518-10-02								
Arsenic, Total	100		-		81-119	-		
Total Metals - Westborough Lab Associated sample(s): 10,12 Batch: WG699016-2 SRM Lot Number: 0518-10-02								
Arsenic, Total	100		-		81-119	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410744
Report Date: 07/07/14

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01-02,05,08,13,16-17 QC Batch ID: WG694340-3 WG694340-4 QC Sample: L1410744-01 Client ID: AR-44A_1.5-2.0												
Arsenic, Total	10.	11.7	22	102		22	101		75-125	0		20
Total Metals - Westborough Lab Associated sample(s): 09,11 QC Batch ID: WG696619-4 QC Sample: L1412120-08 Client ID: MS Sample												
Arsenic, Total	4.0	10.4	13	87		-	-		75-125	-		20
Total Metals - Westborough Lab Associated sample(s): 10,12 QC Batch ID: WG699016-4 QC Sample: L1412999-01 Client ID: MS Sample												
Arsenic, Total	9.5	10.4	18	82		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410744
Report Date: 07/07/14

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 10,12 QC Batch ID: WG699016-3 QC Sample: L1412999-01 Client ID: DUP Sample						
Arsenic, Total	9.5	9.3	mg/kg	2		20

INORGANICS
&
MISCELLANEOUS

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-01
Client ID: AR-44A_1.5-2.0
Sample Location: MORRISVILLE
Matrix: Soil

Date Collected: 05/19/14 09:35
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.6		%	0.100	NA	1	-	05/20/14 21:48	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-02
Client ID: BD-01-051914
Sample Location: MORRISVILLE
Matrix: Soil

Date Collected: 05/19/14 00:00
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.4		%	0.100	NA	1	-	05/20/14 21:48	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-05
Client ID: AR-47_1.5-2.0
Sample Location: MORRISVILLE
Matrix: Soil

Date Collected: 05/19/14 11:00
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.7		%	0.100	NA	1	-	05/20/14 21:48	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-08
Client ID: AR-50_1.5-2.0
Sample Location: MORRISVILLE
Matrix: Soil

Date Collected: 05/19/14 11:15
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.1		%	0.100	NA	1	-	05/20/14 21:48	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-09
Client ID: AR-51_1.5-2.0
Sample Location: MORRISVILLE
Matrix: Soil

Date Collected: 05/19/14 12:45
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.0		%	0.100	NA	1	-	06/05/14 21:34	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-10
Client ID: AR-52_1.5-2.0
Sample Location: MORRISVILLE
Matrix: Soil

Date Collected: 05/19/14 13:00
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	71.3		%	0.100	NA	1	-	06/16/14 21:50	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-11
Client ID: AR-54_1.5-2.0
Sample Location: MORRISVILLE
Matrix: Soil

Date Collected: 05/19/14 13:30
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.0		%	0.100	NA	1	-	06/05/14 21:34	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-12
Client ID: AR-55_1.5-2.0
Sample Location: MORRISVILLE
Matrix: Soil

Date Collected: 05/19/14 13:45
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.8		%	0.100	NA	1	-	06/16/14 21:50	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-13
Client ID: AR-53_1.5-2.0
Sample Location: MORRISVILLE
Matrix: Soil

Date Collected: 05/19/14 13:55
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.2		%	0.100	NA	1	-	05/20/14 21:48	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-16
Client ID: AR-54A_1.5-2.0
Sample Location: MORRISVILLE
Matrix: Soil

Date Collected: 05/19/14 14:25
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.9		%	0.100	NA	1	-	05/20/14 21:48	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410744
Report Date: 07/07/14

SAMPLE RESULTS

Lab ID: L1410744-17
Client ID: AR-57_1.5-2.0
Sample Location: MORRISVILLE
Matrix: Soil

Date Collected: 05/19/14 14:30
Date Received: 05/19/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.6		%	0.100	NA	1	-	05/20/14 21:48	30,2540G	RT

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410744
Report Date: 07/07/14

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02,05,08,13,16-17 QC Batch ID: WG691147-1 QC Sample: L1410747-22 Client ID: DUP Sample						
Solids, Total	85.7	87.0	%	2		20
General Chemistry - Westborough Lab Associated sample(s): 09,11 QC Batch ID: WG695547-1 QC Sample: L1410744-09 Client ID: AR-51_1.5-2.0						
Solids, Total	75.0	75.4	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 10,12 QC Batch ID: WG698336-1 QC Sample: L1410744-10 Client ID: AR-52_1.5-2.0						
Solids, Total	71.3	70.5	%	1		20

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410744
Report Date: 07/07/14

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information **Custody Seal**

Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1410744-01A	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	AS-TI(180),TS(7),MS/MSD()
L1410744-01B	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	AS-TI(180),TS(7),MS/MSD()
L1410744-01C	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	AS-TI(180),TS(7),MS/MSD()
L1410744-02A	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	AS-TI(180),TS(7)
L1410744-03A	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	HOLD()
L1410744-04A	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	HOLD()
L1410744-05A	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	AS-TI(180),TS(7)
L1410744-06A	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	HOLD()
L1410744-07A	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	HOLD()
L1410744-08A	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	AS-TI(180),TS(7)
L1410744-09A	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	AS-TI(180),TS(7)
L1410744-10A	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	AS-TI(180),TS(7)
L1410744-11A	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	AS-TI(180),TS(7)
L1410744-12A	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	AS-TI(180),TS(7)
L1410744-13A	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	AS-TI(180),TS(7)
L1410744-14A	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	HOLD()
L1410744-15A	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	HOLD()
L1410744-16A	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	AS-TI(180),TS(7)
L1410744-17A	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	AS-TI(180),TS(7)
L1410744-18A	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	HOLD()
L1410744-19A	Amber 120ml unpreserved	A	N/A	3.9	Y	Absent	HOLD()

*Values in parentheses indicate holding time in days

Project Name:	SOLVAY	**Lab Number:**	L1410744
Project Number:	NP000448.0003	**Report Date:**	07/07/14

GLOSSARY

Acronyms

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NI - Not Ignitable.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

Report Format: DU Report with 'J' Qualifiers

Project Name:	SOLVAY	**Lab Number:**	L1410744
Project Number:	NP000448.0003	**Report Date:**	07/07/14

Data Qualifiers

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	SOLVAY	**Lab Number:**	L1410744
Project Number:	NP000448.0003	**Report Date:**	07/07/14

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

Last revised April 15, 2014

The following analytes are not included in our NELAP Scope of Accreditation:

Westborough Facility
EPA 524.2: Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether.
EPA 8260C: 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene, Iodomethane (methyl iodide), Methyl methacrylate, Azobenzene.
EPA 8330A/B: PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.
EPA 8270D: 1-Methylnaphthalene, Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 625: 4-Chloroaniline, 4-Methylphenol.
SM4500: Soil: Total Phosphorus, TKN, NO2, NO3.
EPA 9071: Total Petroleum Hydrocarbons, Oil & Grease.

Mansfield Facility
EPA 8270D: Biphenyl.
EPA 2540D: TSS
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:

Drinking Water
EPA 200.8: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl; **EPA 200.7**: Ba,Be,Ca,Cd,Cr,Cu,Na; **EPA 245.1:** Mercury;
EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, Enterolert-QT.**

Non-Potable Water
EPA 200.8: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn;
EPA 200.7: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn;
EPA 245.1, SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH3-BH, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF**.

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

NEW JERSEY CHAIN OF CUSTODY

ALPHA ANALYTICAL

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FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 2

Date Rec'd in Lab: 5/20/14

ALPHA Job #: L1410744

Client Information
Client: Arcadis
Address: 10 Friends Lane
Newtown, PA 18940
Phone: 267-685-1800
Fax: 267-685-1801
Email: Deric.Kearns@arcadis-us.com

Project Information
Project Name: Solvay
Project Location: Morrisville
Project # NP000448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date: 6/3/14
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Billing Information
☐ Same as Client Info
PO #

Site Information
Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☐ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Report to MDLs – List SOM 1.2

Please specify Metals or TAL.
Please place contingency samples on HOLD

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: Arsenic ONLY via EPA 6010B	Sample Specific Comments	Total Bottle
L1410744-01	AR-44A_1.5-2.0	5/19/14	09:35	Soil	DL/LK	X		1
-01	AR-44A_1.5-2.0-MS/MSD	5/19/14	09:35			X		2
-02	BD-01-05192014	5/19/14				X		1
-03	AR-45A_1.5-2.0	5/19/14	09:50			X	Contingency	1
-04	AR-46_1.5-2.0	5/19/14	10:05			X	Contingency	1
-05	AR-47_1.5-2.0	5/19/14	11:00			X		1
-06	AR-48_1.5-2.0	5/19/14	10:45			X	Contingency	1
-07	AR-49_1.5-2.0	5/19/14	10:20			X	Contingency	0
-08	AR-50_1.5-2.0	5/19/14	11:15			X		1
-09	AR-51_1.5-2.0	5/19/14	12:45	↓	↓	X	Contingency	1

Container Type: A
Preservative: A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Laura Kratz	5/19/14 1500	[signature] - AAL	5/19/14 15:27
[signature] - AAL	5-19-14 1933	Tom Tobin	5-19-14 1933
Tom Tobin	5/20-14 0055	[signature]	5/20/14 0055

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-14 HC (rev. 30-Sept-2013)

NEW JERSEY CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 2 of 2

Date Rec'd in Lab: 5/20/14

ALPHA Job #: L1410744

Client Information
Client: Arcadis
Address: 10 Friends Lane
Newtown, PA 18940
Phone: 267-685-1500
Fax: 267-685-1501
Email: Deric.Kearns@arcadisus.com

Project Information
Project Name: Solvay
Project Location: Morrisville, PA
Project #: NP000448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date: 6/3/14
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Billing Information
☐ Same as Client Info
PO #

Site Information
Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☐ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Report to MDL - list SOM 1.2
Please specify Metals or TAL.
Please place contingency samples on HOLD

ANALYSIS
Arsenic ONLY via EPA 6010B

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic	Sample Specific Comments	Total Bottle
07	AR-52-1.5-2.0	5/19/14	1300	SOIL	DL/LK	X	Contingency	1
08	AR-54-1.5-2.0	5/19/14	1330			X	Contingency	1
09	AR-55-1.5-2.0	5/19/14	1345			X	Contingency	1
10	AR-53-1.5-2.0	5/19/14	1355			X		1
11	AR-55A-1.5-2.0	5/19/14	1415			X	Contingency	1
12	AR-56-1.5-2.0	5/19/14	1405			X	Contingency	1
13	AR-54A-1.5-2.0	5/19/14	1425			X		1
14	AR-57-1.5-2.0	5/19/14	1430			X		1
15	AR-58-1.5-2.0	5/19/14	1440			X	Contingency	1
16	AR-59-1.5-2.0	5/19/14	1445			X	Contingency	1

Container Type: A
Preservative: A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Deric Kearns	5/19/14 1500	[illegible] ARC	5/19/14 15:37
[illegible] ARC	5-19-14 1933	Tom Tobin	5-19-14 1933
Tom Tobin	5-20-14 0055	Richard Scott	5/20/14 0055

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-14 HC (rev. 30-Sept-2013)

ANALYTICAL REPORT

Lab Number:	L1410865
Client:	Solvay USA, Inc. 8 Cedar Brook Drive Cranbury, NJ 08512-7500
ATTN:	Mike Shatynski
Phone:	(877) 463-7645
Project Name:	SOLVAY
Project Number:	NP000448.0003
Report Date:	06/20/14

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), USDA (Permit #P-330-11-00240), NC (666), TX (T104704476), DOD (L2217), US Army Corps of Engineers.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1410865-01	AR-60_1.5-2.0	MORRISVILLE, NJ	05/20/14 07:45
L1410865-02	AR-61_1.5-2.0	MORRISVILLE, NJ	05/20/14 07:55
L1410865-03	AR-62_1.5-2.0	MORRISVILLE, NJ	05/20/14 08:00
L1410865-04	AR-63_1.5-2.0	MORRISVILLE, NJ	05/20/14 08:10
L1410865-05	BD-02-05202014	MORRISVILLE, NJ	05/20/14 00:00
L1410865-06	AR-64_1.5-2.0	MORRISVILLE, NJ	05/20/14 08:20
L1410865-07	AR-65_1.5-2.0	MORRISVILLE, NJ	05/20/14 08:25
L1410865-08	AR-66_1.5-2.0	MORRISVILLE, NJ	05/20/14 08:35
L1410865-09	AR-67_1.5-2.0	MORRISVILLE, NJ	05/20/14 08:40
L1410865-10	BD-03-05202014	MORRISVILLE, NJ	05/20/14 00:00
L1410865-11	AR-90_1.5-2.0	MORRISVILLE, NJ	05/20/14 12:20
L1410865-12	AR-97_1.5-2.0	MORRISVILLE, NJ	05/20/14 12:30
L1410865-13	AR-99_1.5-2.0	MORRISVILLE, NJ	05/20/14 12:35
L1410865-14	AR-101_1.5-2.0	MORRISVILLE, NJ	05/20/14 12:40
L1410865-15	AR-100_1.5-2.0	MORRISVILLE, NJ	05/20/14 13:00
L1410865-16	AR-98_1.5-2.0	MORRISVILLE, NJ	05/20/14 13:05
L1410865-17	AR-74_1.5-2.0	MORRISVILLE, NJ	05/20/14 13:40
L1410865-18	AR-73_1.5-2.0	MORRISVILLE, NJ	05/20/14 13:50
L1410865-19	AR-77_1.5-2.0	MORRISVILLE, NJ	05/20/14 14:00
L1410865-20	AR-71_1.5-2.0	MORRISVILLE, NJ	05/20/14 08:55
L1410865-21	AR-68_1.5-2.0	MORRISVILLE, NJ	05/20/14 09:05
L1410865-22	AR-69_1.5-2.0	MORRISVILLE, NJ	05/20/14 09:10
L1410865-23	AR-70_1.5-2.0	MORRISVILLE, NJ	05/20/14 09:15
L1410865-24	FIELD BLANK	MORRISVILLE, NJ	05/20/14 09:50
L1410865-25	AR-80_1.5-2.0	MORRISVILLE, NJ	05/20/14 14:05
L1410865-26	AR-79_1.5-2.0	MORRISVILLE, NJ	05/20/14 14:10
L1410865-27	AR-83_1.5-2.0	MORRISVILLE, NJ	05/20/14 14:15
L1410865-28	AR-82_1.5-2.0	MORRISVILLE, NJ	05/20/14 14:20
L1410865-29	AR-86_1.5-2.0	MORRISVILLE, NJ	05/20/14 14:25
L1410865-30	AR-87_1.5-2.0	MORRISVILLE, NJ	05/20/14 11:05
L1410865-31	AR-93_1.5-2.0	MORRISVILLE, NJ	05/20/14 11:15

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1410865-32	AR-84_1.5-2.0	MORRISVILLE, NJ	05/20/14 10:55
L1410865-33	AR-72_1.5-2.0	MORRISVILLE, NJ	05/20/14 10:15
L1410865-34	AR-76_1.5-2.0	MORRISVILLE, NJ	05/20/14 10:40
L1410865-35	AR-75_1.5-2.0	MORRISVILLE, NJ	05/20/14 10:30
L1410865-36	AR-96_1.5-2.0	MORRISVILLE, NJ	05/20/14 11:20
L1410865-37	AR-81_1.5-2.0	MORRISVILLE, NJ	05/20/14 10:50
L1410865-38	AR-78_1.5-2.0	MORRISVILLE, NJ	05/20/14 10:45
L1410865-39	AR-88_1.5-2.0	MORRISVILLE, NJ	05/20/14 14:40
L1410865-40	AR-85_1.5-2.0	MORRISVILLE, NJ	05/20/14 14:35
L1410865-41	AR-89_1.5-2.0	MORRISVILLE, NJ	05/20/14 14:50

Project Name:	SOLVAY	**Lab Number:**	L1410865
Project Number:	NP000448.0003	**Report Date:**	06/20/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	SOLVAY	**Lab Number:**	L1410865
Project Number:	NP000448.0003	**Report Date:**	06/20/14

Case Narrative (continued)

Report Submission

This final report replaces the partial report issued on June 5, 2014, and includes the results of all requested analyses.

A previously-issued partial report replaced the partial report issued May 28, 2014. At the client's request, the analysis of Total Arsenic was performed on L1410865-12.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Lisa Westerlind

Title: Technical Director/Representative Date: 06/20/14

METALS

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-01
Client ID: AR-60_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil
Percent Solids: 81%

Date Collected: 05/20/14 07:45
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	6.6		mg/kg	0.47	0.09	1	05/24/14 12:17	05/27/14 13:32	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1410865
Project Number: NP000448.0003
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-04
Client ID: AR-63_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil
Percent Solids: 80%

Date Collected: 05/20/14 08:10
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	9.0		mg/kg	0.48	0.10	1	05/24/14 12:17	05/27/14 13:18	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-05
Client ID: BD-02-05202014
Sample Location: MORRISVILLE, NJ
Matrix: Soil
Percent Solids: 80%

Date Collected: 05/20/14 00:00
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	8.8		mg/kg	0.49	0.10	1	05/24/14 12:17	05/27/14 13:55	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-08
Client ID: AR-66_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil
Percent Solids: 79%

Date Collected: 05/20/14 08:35
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	11		mg/kg	0.49	0.10	1	05/24/14 12:17	05/27/14 13:58	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-10
Client ID: BD-03-05202014
Sample Location: MORRISVILLE, NJ
Matrix: Soil
Percent Solids: 80%

Date Collected: 05/20/14 00:00
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	7.2		mg/kg	0.47	0.09	1	05/24/14 12:17	05/27/14 14:02	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-11
Client ID: AR-90_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil
Percent Solids: 77%

Date Collected: 05/20/14 12:20
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	19		mg/kg	0.51	0.10	1	05/24/14 12:17	05/27/14 14:06	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-12
Client ID: AR-97_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil
Percent Solids: 81%

Date Collected: 05/20/14 12:30
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	4.9		mg/kg	0.48	0.10	1	06/04/14 11:54	06/04/14 18:08	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1410865
Project Number: NP000448.0003
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-15
Client ID: AR-100_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil
Percent Solids: 85%

Date Collected: 05/20/14 13:00
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	10		mg/kg	0.45	0.09	1	05/24/14 12:17	05/27/14 14:10	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1410865
Project Number: NP000448.0003
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-16
Client ID: AR-98_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil
Percent Solids: 84%

Date Collected: 05/20/14 13:05
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	9.3		mg/kg	0.46	0.09	1	05/24/14 12:17	05/27/14 14:14	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1410865
Project Number: NP000448.0003
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-22
Client ID: AR-69_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil
Percent Solids: 83%

Date Collected: 05/20/14 09:10
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	7.8		mg/kg	0.46	0.09	1	05/24/14 12:17	05/27/14 14:17	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-24
Client ID: FIELD BLANK
Sample Location: MORRISVILLE, NJ
Matrix: Water
Date Collected: 05/20/14 09:50
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	ND		ug/l	0.5000	0.2000	1	05/22/14 18:52	05/23/14 18:39	EPA 3005A	1,6020A	BM

Project Name: SOLVAY
Lab Number: L1410865
Project Number: NP000448.0003
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-30
Client ID: AR-87_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil
Percent Solids: 82%

Date Collected: 05/20/14 11:05
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	8.3		mg/kg	0.48	0.10	1	05/24/14 12:17	05/27/14 14:21	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-31
Client ID: AR-93_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil
Percent Solids: 81%

Date Collected: 05/20/14 11:15
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	19		mg/kg	0.47	0.10	1	05/24/14 12:17	05/27/14 14:25	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-32
Client ID: AR-84_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil
Percent Solids: 76%

Date Collected: 05/20/14 10:55
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	7.9		mg/kg	0.50	0.10	1	05/24/14 12:17	05/27/14 14:58	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-33
Client ID: AR-72_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil
Percent Solids: 78%

Date Collected: 05/20/14 10:15
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	7.2		mg/kg	0.50	0.10	1	05/24/14 12:17	05/27/14 15:16	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-35
Client ID: AR-75_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil
Percent Solids: 80%

Date Collected: 05/20/14 10:30
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	8.7		mg/kg	0.47	0.09	1	05/24/14 12:17	05/27/14 15:20	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-36
Client ID: AR-96_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil
Percent Solids: 82%

Date Collected: 05/20/14 11:20
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	14		mg/kg	0.48	0.10	1	05/24/14 12:17	05/27/14 15:23	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-37
Client ID: AR-81_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil
Percent Solids: 69%

Date Collected: 05/20/14 10:50
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	10		mg/kg	0.56	0.11	1	05/24/14 12:17	05/27/14 15:42	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1410865
Project Number: NP000448.0003
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-38
Client ID: AR-78_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil
Percent Solids: 84%

Date Collected: 05/20/14 10:45
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	8.7		mg/kg	0.45	0.09	1	05/24/14 12:17	05/27/14 15:46	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410865
Report Date: 06/20/14

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 24 Batch: WG691793-1										
Arsenic, Total	ND		ug/l	0.5000	0.2000	1	05/22/14 18:52	05/23/14 14:19	1,6020A	BM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 01,04-05,08,10-11,15-16,22,30-33,35-38 Batch: WG692276-1										
Arsenic, Total	ND		mg/kg	0.40	0.08	1	05/24/14 12:17	05/27/14 13:10	1,6010C	TT

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 12 Batch: WG694934-1										
Arsenic, Total	ND		mg/kg	0.40	0.08	1	06/04/14 11:54	06/04/14 16:59	1,6010C	TT

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 24 Batch: WG691793-2								
Arsenic, Total	102		-		80-120	-		
Total Metals - Westborough Lab Associated sample(s): 01,04-05,08,10-11,15-16,22,30-33,35-38 Batch: WG692276-2 SRM Lot Number: 0518-10-02								
Arsenic, Total	104		-		81-119	-		
Total Metals - Westborough Lab Associated sample(s): 12 Batch: WG694934-2 SRM Lot Number: 0518-10-02								
Arsenic, Total	100		-		81-119	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 24 QC Batch ID: WG691793-4 QC Sample: L1400005-58 Client ID: MS Sample												
Arsenic, Total	ND	120	125.7	105		-	-		75-125	-		20
Total Metals - Westborough Lab Associated sample(s): 01,04-05,08,10-11,15-16,22,30-33,35-38 QC Batch ID: WG692276-3 WG692276-4 QC Sample: L1410865-04 Client ID: AR-63_1.5-2.0												
Arsenic, Total	9.0	11.8	20	93		19	88		75-125	5		20
Total Metals - Westborough Lab Associated sample(s): 01,04-05,08,10-11,15-16,22,30-33,35-38 QC Batch ID: WG692276-7 WG692276-8 QC Sample: L1410865-32 Client ID: AR-84_1.5-2.0												
Arsenic, Total	7.9	12.1	19	92		19	90		75-125	0		20
Total Metals - Westborough Lab Associated sample(s): 12 QC Batch ID: WG694934-4 QC Sample: L1410972-05 Client ID: MS Sample												
Arsenic, Total	18.	11.5	26	**69**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 24 QC Batch ID: WG691793-3 QC Sample: L1400005-58 Client ID: DUP Sample						
Arsenic, Total	ND	ND	ug/l	NC		20
Total Metals - Westborough Lab Associated sample(s): 12 QC Batch ID: WG694934-3 QC Sample: L1410972-05 Client ID: DUP Sample						
Arsenic, Total	18.	18	mg/kg	0		20

INORGANICS
&
MISCELLANEOUS

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-01
Client ID: AR-60_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil

Date Collected: 05/20/14 07:45
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	05/21/14 20:44	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-04
Client ID: AR-63_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil

Date Collected: 05/20/14 08:10
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.7		%	0.100	NA	1	-	05/21/14 20:44	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-05
Client ID: BD-02-05202014
Sample Location: MORRISVILLE, NJ
Matrix: Soil

Date Collected: 05/20/14 00:00
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.0		%	0.100	NA	1	-	05/21/14 20:44	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-08
Client ID: AR-66_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil

Date Collected: 05/20/14 08:35
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.8		%	0.100	NA	1	-	05/21/14 20:44	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-10
Client ID: BD-03-05202014
Sample Location: MORRISVILLE, NJ
Matrix: Soil

Date Collected: 05/20/14 00:00
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.4		%	0.100	NA	1	-	05/21/14 20:44	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-11
Client ID: AR-90_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil

Date Collected: 05/20/14 12:20
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.8		%	0.100	NA	1	-	05/21/14 20:44	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-12
Client ID: AR-97_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil

Date Collected: 05/20/14 12:30
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.6		%	0.100	NA	1	-	05/29/14 23:04	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-15
Client ID: AR-100_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil

Date Collected: 05/20/14 13:00
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.0		%	0.100	NA	1	-	05/21/14 20:44	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-16
Client ID: AR-98_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil

Date Collected: 05/20/14 13:05
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.5		%	0.100	NA	1	-	05/21/14 20:44	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-22
Client ID: AR-69_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil

Date Collected: 05/20/14 09:10
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	05/21/14 20:44	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-30
Client ID: AR-87_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil

Date Collected: 05/20/14 11:05
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.9		%	0.100	NA	1	-	05/21/14 20:44	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-31
Client ID: AR-93_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil

Date Collected: 05/20/14 11:15
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.2		%	0.100	NA	1	-	05/21/14 20:44	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-32
Client ID: AR-84_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil

Date Collected: 05/20/14 10:55
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.4		%	0.100	NA	1	-	05/21/14 20:44	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-33
Client ID: AR-72_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil

Date Collected: 05/20/14 10:15
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.1		%	0.100	NA	1	-	05/21/14 20:44	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-35
Client ID: AR-75_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil

Date Collected: 05/20/14 10:30
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.4		%	0.100	NA	1	-	05/21/14 20:44	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-36
Client ID: AR-96_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil

Date Collected: 05/20/14 11:20
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.5		%	0.100	NA	1	-	05/21/14 20:44	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-37
Client ID: AR-81_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil

Date Collected: 05/20/14 10:50
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	68.8		%	0.100	NA	1	-	05/21/14 20:44	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

SAMPLE RESULTS

Lab ID: L1410865-38
Client ID: AR-78_1.5-2.0
Sample Location: MORRISVILLE, NJ
Matrix: Soil

Date Collected: 05/20/14 10:45
Date Received: 05/20/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.6		%	0.100	NA	1	-	05/21/14 20:44	30,2540G	RT

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,04-05,08,10-11,15-16,22,30-33,35-38 QC Batch ID: WG691489-1 QC Sample: L1410845-01 Client ID: DUP Sample						
Solids, Total	73.0	74.5	%	2		20
General Chemistry - Westborough Lab Associated sample(s): 12 QC Batch ID: WG693541-1 QC Sample: L1410865-12 Client ID: AR-97_1.5-2.0						
Solids, Total	80.6	80.0	%	1		20

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information **Custody Seal**

Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1410865-01A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-02A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()
L1410865-03A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()
L1410865-04A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-04B	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-04C	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-05A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-06A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()
L1410865-07A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()
L1410865-08A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-09A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()
L1410865-10A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-11A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-12A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-13A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()
L1410865-14A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()
L1410865-15A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-16A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-17A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()
L1410865-18A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()
L1410865-19A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()
L1410865-20A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()
L1410865-21A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()
L1410865-22A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-23A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()
L1410865-24A	Plastic 500ml HNO3 preserved	A	N/A	2.5	Y	Absent	AS-6020T-PPB(180)
L1410865-25A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()

*Values in parentheses indicate holding time in days

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410865
Report Date: 06/20/14

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1410865-26A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()
L1410865-27A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()
L1410865-28A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()
L1410865-29A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()
L1410865-30A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-31A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-32A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-32B	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-32C	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-33A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-34A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()
L1410865-35A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-36A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-37A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-38A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	AS-TI(180),TS(7)
L1410865-39A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()
L1410865-40A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()
L1410865-41A	Amber 120ml unpreserved	A	N/A	2.5	Y	Absent	HOLD()

Container Comments

L1410865-10A

L1410865-37A

*Values in parentheses indicate holding time in days

Project Name:	SOLVAY	**Lab Number:**	L1410865
Project Number:	NP000448.0003	**Report Date:**	06/20/14

GLOSSARY

Acronyms

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NI - Not Ignitable.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

Report Format: DU Report with 'J' Qualifiers

Project Name:	SOLVAY	**Lab Number:**	L1410865
Project Number:	NP000448.0003	**Report Date:**	06/20/14

Data Qualifiers

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

Last revised April 15, 2014

The following analytes are not included in our NELAP Scope of Accreditation:

Westborough Facility
EPA 524.2: Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether.
EPA 8260C: 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene, Iodomethane (methyl iodide), Methyl methacrylate, Azobenzene.
EPA 8330A/B: PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.
EPA 8270D: 1-Methylnaphthalene, Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 625: 4-Chloroaniline, 4-Methylphenol.
SM4500: Soil: Total Phosphorus, TKN, NO2, NO3.
EPA 9071: Total Petroleum Hydrocarbons, Oil & Grease.

Mansfield Facility
EPA 8270D: Biphenyl.
EPA 2540D: TSS
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:

Drinking Water
EPA 200.8: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl; **EPA 200.7**: Ba,Be,Ca,Cd,Cr,Cu,Na; **EPA 245.1:** Mercury;
EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, Enterolert-QT.**

Non-Potable Water
EPA 200.8: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn;
EPA 200.7: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn;
EPA 245.1, SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH3-BH, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF**.

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

NEW JERSEY CHAIN OF CUSTODY

ALPHA ANALYTICAL
Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 5

Date Rec'd in Lab: 5/20/14

ALPHA Job #: L1410865

Project Information
Project Name: Solvay
Project Location: Morrisville, NJ
Project # NPUOC 448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date: 5/28/14
Rush (only if pre approved) ☐ # of Days:

Client Information
Client: Arcadis
Address: 10 Friends Lane
Newtown, PA
Phone: 267-685-1800
Fax: 267-685-1801
Email: Deric.Kearns@arcadis-us.com

Deliverables
☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Billing Information
☐ Same as Client Info
PO #

Site Information
Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☐ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Report to MDC - 1st SOM 1.2

Please specify Metals or TAL.
Please place contingency samples on hold.

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic only via EPA 6010B								Sample Specific Comments	Total Bottle
10865-01	AR-60_1.5-2.0	5/20/14	0745	SOIL	DL/LK	X									1
02	AR-61_1.5-2.0	↓	0755	↓	↓	X								Contingency	1
03	AR-62_1.5-2.0	↓	0800	↓	↓	X								Contingency	1
04	AR-63_1.5-2.0	↓	0810	↓	↓	X									1
04	AR-63_1.5-2.0-MS/MSD	↓	0810	↓	↓	X									2
05	BD-02-05202014	↓	~~0820~~	↓	↓	X									1
06	AR-64_1.5-2.0	↓	0820	↓	↓	X								Contingency	1
07	AR-65-1.5-2.0	↓	0825	↓	↓	X								Contingency	1
08	AR-66-1.5-2.0	↓	0835	↓	↓	X									1
09	AR-67-1.5-2.0	↓	0840	↓	↓	X								Contingency	1
					Container Type	A									
					Preservative	A									

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Laura Kratz	5/20/14 1455	[signature] - AAL	5/20/14 17:00
[signature] - AAL	5-20-14 1850	Tom Taher	5-20-14 1850
Tom Taher	5-20-14 2345	Willie McClenor	5/20/14 2345

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-14 HC (rev. 30-Sept-2013)

NEW JERSEY CHAIN OF CUSTODY

ALPHA ANALYTICAL
Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 2 of 5

Date Rec'd in Lab: 5/20/14

ALPHA Job #: L1410865

Project Information
Project Name: Solvay
Project Location: Morrisville, PA
Project # NP000448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Client Information
Client: ARCADIS
Address: 60 Friends Lane
Newtown PA 18940
Phone: 267-685-1800
Fax:
Email: Deric.Kearns@arcadis-us.com

Turn-Around Time
Standard ☒ Due Date: 5/28/14
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Billing Information
☐ Same as Client Info
PO #

Regulatory Requirement
☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Site Information
Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☐ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Report to MDL - list SOM 1.2
Please specify Metals or TAL.
Please place contingency samples on hold

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic ONLY via EPA 6010B								Sample Specific Comments	Total Bottle
10865-10	BD-03-05202014	5/20/14		SOIL	DL/LK	X									1
11 ~~12~~	AR-90_1.5-2.0		1220	↓	↓	X									1
12 ~~13~~	AR-97_1.5-2.0		1230	↓	↓	X								Contingency	1
13 ~~14~~	AR-99_1.5-2.0		1235	↓	↓	X								Contingency	1
14 ~~15~~	AR-101_1.5-2.0		1240	↓	↓	X								Contingency	1
15 ~~16~~	AR-100_1.5-2.0		1300	↓	↓	X									1
16 ~~17~~	AR-98_1.5-2.0		1305	↓	↓	X									1
17 ~~18~~	AR-74_1.5-2.0		1340	↓	↓	X								Contingency	1
18 ~~19~~	AR-73_1.5-2.0		1350	↓	↓	X								Contingency	1
19 ~~20~~	AR-77_1.5-2.0		1400	↓	↓	X								Contingency	1

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type	A							
Preservative	A							

Relinquished By:	Date/Time	Received By:	Date/Time
Laura Kratz	5/20/14 1455	[signature] - AAL	5/20/14 15:00
[signature] - AAL	5-20-14 1850	Tom Toher	5-20-14 1850
Tom Toher	5-20-14 2345	Willie McLeod	5/20/14 2345

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-14 HC (rev. 30-Sept-2013)

NEW JERSEY CHAIN OF CUSTODY

ALPHA ANALYTICAL

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Mansfield, MA 02048
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Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 3 of 5

Date Rec'd in Lab: 5/20/14

ALPHA Job #: L1410865

Client Information

Client: Arcadis
Address: 10 Friends Lane
Newtown, PA
Phone: 267-685-1800
Fax: 267-685-1801
Email: Derick.Kearns@arcadis-us.com

Project Information

Project Name: Solvay
Project Location: Morrisville, PA
Project # NP000448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date: 5/28/14
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Billing Information

☐ Same as Client Info
PO #

Site Information

Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☐ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Report to MDL list - Jam 1.2
Please specify Metals or TAL.
Please place contingency samples on HOLD

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic ONLY via EPA 6010B	Metals Arsenic ONLY							Sample Specific Comments	Total Bottle
10865-20	AR-71-1.5-2.0	5/20/14	0855	SOIL	DL/LK	X								Contingency	1
21	AR-68-1.5-2.0	5/20/14	0905			X								Contingency	1
22	AR-69-1.5-2.0		0910			X									1
23	AR-70-1.5-2.0		0915			X								Contingency	1
24-85	Field Blank		0950	DI		X	X								1
25-86	AR-80-1.5-2.0		1405	SOIL		X								Contingency	1
26-87	AR-79-1.5-2.0		1410			X								Contingency	1
27-88	AR-83-1.5-2.0		1415			X								Contingency	1
28-89	AR-82-1.5-2.0		1420			X								Contingency	1
29-90	AR-86-1.5-2.0		1425			X								Contingency	1

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type	A	P						
Preservative	A	C						

Relinquished By:	Date/Time	Received By:	Date/Time
Lance Krantz	5/20/14 1455	[signature] AAL	5/20/14 15:00
[signature] AAL	5-20-14 1850	Tom Tokey	5-20-14 1850
Tom Tokey	5-20-14 2345	[signature]	5/20/14 2345

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-14 HC (rev. 30-Sept-2013)

NEW JERSEY CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581 — 8 Walkup Dr. — TEL: 508-898-9220 — FAX: 508-898-9193

Mansfield, MA 02048 — 320 Forbes Blvd — TEL: 508-822-9300 — FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 4 of 5

Date Rec'd In Lab: 5/21/14

ALPHA Job #: L1460865

Client Information

Client: ARCADIS
Address: 10 Friends Lane, Newtown, PA 18940
Phone: 267-685-1800
Fax: 267-685-1801
Email: Dert.Vreeland@arcadis-us.com

Project Information

Project Name: Solvay
Project Location: Memphis, NY
Project #: NP000448.0003
(Use Project name as Project #)
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Turn-Around Time

Standard: X — Due Date: 5/28/14
Rush (only if pre approved): ☐ — # of Days:

Deliverables

☐ NJ Full / Reduced
☐ EQuIS (1 File)
X EQuIS (4 File)
☐ Other

Billing Information

☐ Same as Client Info
PO #

Regulatory Requirement

☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Site Information

Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☐ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Report to MDL - list SOM 1.2
Please specify Metals or TAL.
Please place contingency samples on hold

ANALYSIS

Arsenic ONLY via EPA 6010C

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic	Sample Specific Comments	Total Bottle
10 PCS 31	AR-87-1.5-2.0	5/20/14	1105	SOIL	DL/LK	X		1
32	AR-93_1.5-2.0		1115			X		1
32 33	AR-84_1.5-2.0-MS/MSD		1055			X		2
33 34	AR-72_1.5-2.0		1015			X		1
34 35	AR-76_1.5-2.0		1040			X	Contingency	1
37 32	AR-84_1.5-2.0		1055			X		1
35 36	AR-75_1.5-2.0		1030			X		1
36 37	AR-96_1.5-2.0		1120			X		1
37 38	AR-81_1.5-2.0		1050			X		1
38 39	AR-78_1.5-2.0	↓	1045	↓	↓	X		1

Container Type: A
Preservative: A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code:
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Laura Kretz	5/20/14 1455	[signature] AAL	5/20/14 15:00
[signature] AAL	5-20-14 1850	Tom Tabor	5-20-14 1850
Tom Tabor	5-20-14 2345	Walk McCue	5/21/14 2345

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-14 HC (rev. 30-Sept-2013)

NEW JERSEY CHAIN OF CUSTODY

ALPHA ANALYTICAL
Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 5 of 5

Date Rec'd in Lab: 5/20/14

ALPHA Job #: L1410865

Project Information
Project Name: Solvay
Project Location: Morrisville, PA
Project #: NP000448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Client Information
Client: Arcadis
Address: 10 Friends Lane
Newtown PA
Phone: 267-685-1800
Fax: 267-685-1801
Email: Deric.kearns@arcadis-us.com

Turn-Around Time
Standard ☒ Due Date: 5/28/14
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Billing Information
☐ Same as Client Info
PO #

Regulatory Requirement
☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Site Information
Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☐ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Report to MDLs – list SOM 1.2
Please specify Metals or TAL.
Please place contingency samples on HOLD

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic ONLY EPA 6010B								Sample Specific Comments	Total Bottle
10865 35-40	AR-88-1.5-2.0	5/20/14	1440	SOIL	DL/LK	X								Contingency	1
40-41	AR-85-1.5-2.0	↓	1435	↓	↓	X								Contingency	1
41-42	AR-89-1.5-2.0	↓	1450	↓	↓	X								Contingency	1

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type	A							
Preservative	A							

Relinquished By:	Date/Time	Received By:	Date/Time
Laura Kratz	5/20/14 1455	[signature] AAL	5/20/14 15:00
[signature] AAL	5-20-14 1850	Tom Taher	5-20-14 1850
5-20-14 Tom Taher	5/20/14 2345	[signature]	5/20/14 2345

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-14 HC (rev. 30-Sept-2013)

ANALYTICAL REPORT

Lab Number:	L1410896
Client:	Solvay USA, Inc. 8 Cedar Brook Drive Cranbury, NJ 08512-7500
ATTN:	Mike Shatynski
Phone:	(877) 463-7645
Project Name:	SOLVAY
Project Number:	NP000448.0003
Report Date:	07/16/14

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), USDA (Permit #P-330-11-00240), NC (666), TX (T104704476), DOD (L2217), US Army Corps of Engineers.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1410896-01	WP-13_5.5-6.0	SOIL	MORRISVILLE, PA	05/21/14 09:58	05/21/14
L1410896-02	WP-21_3.5-4.0	SOIL	MORRISVILLE, PA	05/21/14 09:17	05/21/14
L1410896-03	WP-18_5.5-6.0	SOIL	MORRISVILLE, PA	05/21/14 10:06	05/21/14
L1410896-04	BD-6_052114	SOIL	MORRISVILLE, PA	05/21/14 00:00	05/21/14
L1410896-05	WP-14_1.5-2.0	SOIL	MORRISVILLE, PA	05/21/14 09:46	05/21/14
L1410896-06	WP-20_7.5-8.0	SOIL	MORRISVILLE, PA	05/21/14 09:36	05/21/14
L1410896-07	WP-13_7.5-8.0	SOIL	MORRISVILLE, PA	05/21/14 10:00	05/21/14
L1410896-09	WP-21_5.5-6.0	SOIL	MORRISVILLE, PA	05/21/14 09:20	05/21/14
L1410896-10	WP-21_7.5-8.0	SOIL	MORRISVILLE, PA	05/21/14 09:23	05/21/14
L1410896-11	WP-12_5.5-6.0	SOIL	MORRISVILLE, PA	05/21/14 10:14	05/21/14
L1410896-12	WP-17_3.5-4.0	SOIL	MORRISVILLE, PA	05/21/14 10:20	05/21/14
L1410896-13	WP-17_1.5-2.0	SOIL	MORRISVILLE, PA	05/21/14 10:18	05/21/14
L1410896-14	WP-19_1.5-2.0	SOIL	MORRISVILLE, PA	05/21/14 09:38	05/21/14
L1410896-15	WP-19_5.5-6.0	SOIL	MORRISVILLE, PA	05/21/14 09:42	05/21/14
L1410896-16	WP-20_1.5-2.0	SOIL	MORRISVILLE, PA	05/21/14 09:30	05/21/14
L1410896-17	WP-12_1.5-2.0	SOIL	MORRISVILLE, PA	05/21/14 10:10	05/21/14
L1410896-18	WP-13_3.5-4.0	SOIL	MORRISVILLE, PA	05/21/14 09:56	05/21/14
L1410896-20	WP-18_7.5-8.0	SOIL	MORRISVILLE, PA	05/21/14 10:08	05/21/14
L1410896-21	WP-18_1.5-2.0	SOIL	MORRISVILLE, PA	05/21/14 10:02	05/21/14
L1410896-22	WP-20_3.5-4.0	SOIL	MORRISVILLE, PA	05/21/14 09:35	05/21/14
L1410896-23	WP-21_1.5-2.0	SOIL	MORRISVILLE, PA	05/21/14 09:15	05/21/14
L1410896-24	WP-19_3.5-4.0	SOIL	MORRISVILLE, PA	05/21/14 09:40	05/21/14
L1410896-25	WP-12_7.5-8.0	SOIL	MORRISVILLE, PA	05/21/14 10:16	05/21/14
L1410896-26	WP-12_3.5-4.0	SOIL	MORRISVILLE, PA	05/21/14 10:12	05/21/14

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1410896-27	WP-19_7.5-8.0	SOIL	MORRISVILLE, PA	05/21/14 09:44	05/21/14
L1410896-28	WP-13_1.5-2.0	SOIL	MORRISVILLE, PA	05/21/14 09:54	05/21/14
L1410896-29	WP-17_5.5-6.0	SOIL	MORRISVILLE, PA	05/21/14 10:22	05/21/14
L1410896-30	WP-17_7.5-8.0	SOIL	MORRISVILLE, PA	05/21/14 10:24	05/21/14
L1410896-31	WP-18_3.5-4.0	SOIL	MORRISVILLE, PA	05/21/14 10:04	05/21/14
L1410896-32	WP-14_3.5-4.0	SOIL	MORRISVILLE, PA	05/21/14 09:48	05/21/14
L1410896-33	WP-14_7.5-8.0	SOIL	MORRISVILLE, PA	05/21/14 09:52	05/21/14
L1410896-34	WP-14_5.5-6.0	SOIL	MORRISVILLE, PA	05/21/14 09:50	05/21/14
L1410896-35	WP-24_1.5-2.0	SOIL	MORRISVILLE, PA	05/21/14 13:24	05/21/14
L1410896-36	WP-24_3.5-4.0	SOIL	MORRISVILLE, PA	05/21/14 13:26	05/21/14
L1410896-37	WP-24_5.5-6.0	SOIL	MORRISVILLE, PA	05/21/14 13:28	05/21/14
L1410896-38	WP-24_7.5-8.0	SOIL	MORRISVILLE, PA	05/21/14 13:30	05/21/14
L1410896-39	WP-15_1.5-2.0	SOIL	MORRISVILLE, PA	05/21/14 12:52	05/21/14
L1410896-40	WP-15_3.5-4.0	SOIL	MORRISVILLE, PA	05/21/14 12:54	05/21/14
L1410896-41	WP-15_5.5-6.0	SOIL	MORRISVILLE, PA	05/21/14 12:56	05/21/14
L1410896-42	WP-15_7.5-8.0	SOIL	MORRISVILLE, PA	05/21/14 12:58	05/21/14
L1410896-43	WP-23_5.5-6.0	SOIL	MORRISVILLE, PA	05/21/14 13:04	05/21/14
L1410896-44	WP-23_1.5-2.0	SOIL	MORRISVILLE, PA	05/21/14 13:00	05/21/14
L1410896-45	WP-23_7.5-8.0	SOIL	MORRISVILLE, PA	05/21/14 13:06	05/21/14
L1410896-46	WP-23_3.5-4.0	SOIL	MORRISVILLE, PA	05/21/14 13:02	05/21/14
L1410896-47	WP-22_7.5-8.0	SOIL	MORRISVILLE, PA	05/21/14 13:22	05/21/14
L1410896-48	WP-16_3.5-4.0	SOIL	MORRISVILLE, PA	05/21/14 13:10	05/21/14
L1410896-49	WP_22_5.5-6.0	SOIL	MORRISVILLE, PA	05/21/14 13:20	05/21/14
L1410896-50	WP_22_3.5-4.0	SOIL	MORRISVILLE, PA	05/21/14 13:18	05/21/14
L1410896-51	WP_22_1.5-2.0	SOIL	MORRISVILLE, PA	05/21/14 13:16	05/21/14
L1410896-52	WP_16_1.5-2.0	SOIL	MORRISVILLE, PA	05/21/14 13:08	05/21/14
L1410896-53	WP_16_7.5-8.0	SOIL	MORRISVILLE, PA	05/21/14 13:14	05/21/14
L1410896-54	WP_16_5.5-6.0	SOIL	MORRISVILLE, PA	05/21/14 13:12	05/21/14

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1410896-55	FIELD BLANK-01	WATER	MORRISVILLE, PA	05/21/14 12:40	05/21/14
L1410896-56	AR-94_1.5-2.0	SOIL	MORRISVILLE, PA	05/21/14 14:20	05/21/14
L1410896-57	AR-92_1.5-2.0	SOIL	MORRISVILLE, PA	05/21/14 14:10	05/21/14
L1410896-58	AR-91_1.5-2.0	SOIL	MORRISVILLE, PA	05/21/14 13:50	05/21/14
L1410896-59	AR-95_1.5-2.0	SOIL	MORRISVILLE, PA	05/21/14 14:15	05/21/14
L1410896-60	FIELD BLANK-02	WATER	MORRISVILLE, PA	05/21/14 14:30	05/21/14
L1410896-61	WP-21-5.5-6.0	SOIL	MORRISVILLE, PA	05/21/14 09:20	05/21/14

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	SOLVAY	**Lab Number:**	L1410896
Project Number:	NP000448.0003	**Report Date:**	07/16/14

Case Narrative (continued)

Report Submission

This final report replaces the partial report issued on July 8, 2014, and includes the results of all requested analyses.

A previously-issued partial report replaced the partial report issued July 1, 2014. At the client's request, the analysis of Total Arsenic was performed on L1410896-49.

A previously-issued partial report replaced the partial report issued June 23, 2014. At the client's request, the analysis of Total Arsenic was performed on L1410896-45.

A previously-issued partial report replaced the partial report issued June 17, 2014. At the client's request, the analysis of Total Arsenic was performed on L1410896-42 and -50.

A previously-issued partial report replaced the report issued June 5, 2014. At the client's request, the analysis of Total Arsenic was performed on L1410896-13, -21, -41, -44, -51, and -54.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

The samples were received at the laboratory below the required temperature range. The samples were transported to the laboratory in a cooler with ice but were not frozen upon receipt.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 07/16/14

METALS

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-01
Client ID: WP-13_5.5-6.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 76%

Date Collected: 05/21/14 09:58
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	10		mg/kg	0.52	0.10	1	05/27/14 16:48	05/28/14 12:54	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Lab Number: L1410896
Project Number: NP000448.0003
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-04
Client ID: BD-6_052114
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 80%

Date Collected: 05/21/14 00:00
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	5.6		mg/kg	0.49	0.10	1	05/27/14 16:48	05/28/14 12:58	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-05
Client ID: WP-14_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 82%

Date Collected: 05/21/14 09:46
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	3.4		mg/kg	0.47	0.09	1	05/27/14 16:48	05/28/14 11:59	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-13
Client ID: WP-17_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 84%

Date Collected: 05/21/14 10:18
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	10		mg/kg	0.46	0.09	1	06/13/14 12:06	06/13/14 16:59	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-17
Client ID: WP-12_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 82%

Date Collected: 05/21/14 10:10
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	13		mg/kg	0.48	0.10	1	05/27/14 16:48	05/28/14 13:02	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-18
Client ID: WP-13_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 77%

Date Collected: 05/21/14 09:56
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	15		mg/kg	0.52	0.10	1	05/27/14 16:48	05/28/14 13:26	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Lab Number: L1410896
Project Number: NP000448.0003
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-21
Client ID: WP-18_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 80%

Date Collected: 05/21/14 10:02
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	8.2		mg/kg	0.48	0.10	1	06/13/14 12:06	06/13/14 17:03	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-26
Client ID: WP-12_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 80%

Date Collected: 05/21/14 10:12
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	8.6		mg/kg	0.49	0.10	1	05/27/14 16:48	05/28/14 13:30	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-28
Client ID: WP-13_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 77%

Date Collected: 05/21/14 09:54
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	28		mg/kg	0.51	0.10	1	05/27/14 16:48	05/28/14 13:33	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-32
Client ID: WP-14_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 82%

Date Collected: 05/21/14 09:48
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	4.6		mg/kg	0.46	0.09	1	05/27/14 16:48	05/28/14 13:37	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-39
Client ID: WP-15_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 81%

Date Collected: 05/21/14 12:52
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	16		mg/kg	0.47	0.09	1	05/27/14 16:48	05/28/14 13:41	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-40
Client ID: WP-15_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 78%

Date Collected: 05/21/14 12:54
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	22		mg/kg	0.50	0.10	1	05/27/14 16:48	05/28/14 13:45	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-41
Client ID: WP-15_5.5-6.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 78%

Date Collected: 05/21/14 12:56
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	14		mg/kg	0.49	0.10	1	06/13/14 12:06	06/13/14 17:07	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-42
Client ID: WP-15_7.5-8.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 75%

Date Collected: 05/21/14 12:58
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	6.9		mg/kg	0.53	0.11	1	06/19/14 17:44	06/20/14 18:43	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1410896
Project Number: NP000448.0003
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-44
Client ID: WP-23_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 83%

Date Collected: 05/21/14 13:00
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	10		mg/kg	0.46	0.09	1	06/13/14 12:06	06/13/14 17:10	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Lab Number: L1410896
Project Number: NP000448.0003
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-45
Client ID: WP-23_7.5-8.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 79%

Date Collected: 05/21/14 13:06
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	5.3		mg/kg	0.50	0.10	1	06/25/14 21:17	06/26/14 19:40	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-48
Client ID: WP-16_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 78%

Date Collected: 05/21/14 13:10
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	12		mg/kg	0.50	0.10	1	05/27/14 16:48	05/28/14 13:49	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-49
Client ID: WP_22_5.5-6.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 80%

Date Collected: 05/21/14 13:20
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	10		mg/kg	0.48	0.10	1	07/03/14 15:40	07/07/14 14:40	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Lab Number: L1410896
Project Number: NP000448.0003
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-50
Client ID: WP_22_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 80%

Date Collected: 05/21/14 13:18
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	16		mg/kg	0.49	0.10	1	06/19/14 17:44	06/20/14 18:46	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1410896
Project Number: NP000448.0003
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-51
Client ID: WP_22_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 81%

Date Collected: 05/21/14 13:16
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	17		mg/kg	0.48	0.10	1	06/13/14 12:06	06/13/14 17:14	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-52
Client ID: WP_16_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 83%

Date Collected: 05/21/14 13:08
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	5.8		mg/kg	0.47	0.09	1	05/27/14 16:48	05/28/14 14:13	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-54
Client ID: WP_16_5.5-6.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 81%

Date Collected: 05/21/14 13:12
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	6.9		mg/kg	0.50	0.10	1	06/13/14 12:06	06/13/14 17:18	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-55
Client ID: FIELD BLANK-01
Sample Location: MORRISVILLE, PA
Matrix: Water
Date Collected: 05/21/14 12:40
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	ND		ug/l	0.5000	0.2000	1	05/22/14 18:52	05/23/14 18:52	EPA 3005A	1,6020A	BM

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-56
Client ID: AR-94_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 81%

Date Collected: 05/21/14 14:20
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	7.8		mg/kg	0.48	0.10	1	06/03/14 15:47	06/03/14 19:50	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-58
Client ID: AR-91_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 78%

Date Collected: 05/21/14 13:50
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	4.0		mg/kg	0.48	0.10	1	06/03/14 15:47	06/03/14 19:53	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-60
Client ID: FIELD BLANK-02
Sample Location: MORRISVILLE, PA
Matrix: Water
Date Collected: 05/21/14 14:30
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	ND		ug/l	0.5000	0.2000	1	05/22/14 18:52	05/23/14 18:58	EPA 3005A	1,6020A	BM

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 55,60 Batch: WG691793-1										
Arsenic, Total	ND		ug/l	0.5000	0.2000	1	05/22/14 18:52	05/23/14 14:19	1,6020A	BM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 01,04-05,17-18,26,28,32,39-40,48,52 Batch: WG692746-1										
Arsenic, Total	ND		mg/kg	0.40	0.08	1	05/27/14 16:48	05/28/14 11:52	1,6010C	JH

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 56,58 Batch: WG694660-1										
Arsenic, Total	ND		mg/kg	0.40	0.08	1	06/03/14 15:47	06/03/14 18:47	1,6010C	MG

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 13,21,41,44,51,54 Batch: WG697691-1										
Arsenic, Total	ND		mg/kg	0.40	0.08	1	06/13/14 12:06	06/13/14 16:02	1,6010C	MG

Prep Information

Digestion Method: EPA 3050B

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1410896
Report Date: 07/16/14

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 42,50 Batch: WG699360-1										
Arsenic, Total	ND		mg/kg	0.40	0.08	1	06/19/14 17:44	06/20/14 17:45	1,6010C	TT

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 45 Batch: WG700909-1										
Arsenic, Total	ND		mg/kg	0.40	0.08	1	06/25/14 21:17	06/26/14 19:33	1,6010C	TT

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 49 Batch: WG703221-1										
Arsenic, Total	ND		mg/kg	0.40	0.08	1	07/03/14 15:40	07/07/14 11:58	1,6010C	MG

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis

Batch Quality Control

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 55,60 Batch: WG691793-2								
Arsenic, Total	102		-		80-120	-		
Total Metals - Westborough Lab Associated sample(s): 01,04-05,17-18,26,28,32,39-40,48,52 Batch: WG692746-2 SRM Lot Number: 0518-10-02								
Arsenic, Total	109		-		81-119	-		
Total Metals - Westborough Lab Associated sample(s): 56,58 Batch: WG694660-2 SRM Lot Number: 0518-10-02								
Arsenic, Total	100		-		81-119	-		
Total Metals - Westborough Lab Associated sample(s): 13,21,41,44,51,54 Batch: WG697691-2 SRM Lot Number: 0518-10-02								
Arsenic, Total	104		-		81-119	-		
Total Metals - Westborough Lab Associated sample(s): 42,50 Batch: WG699360-2 SRM Lot Number: 0518-10-02								
Arsenic, Total	114		-		81-119	-		
Total Metals - Westborough Lab Associated sample(s): 45 Batch: WG700909-2 SRM Lot Number: 0518-10-02								
Arsenic, Total	100		-		81-119	-		
Total Metals - Westborough Lab Associated sample(s): 49 Batch: WG703221-2 SRM Lot Number: 0518-10-02								
Arsenic, Total	104		-		81-119	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 55,60 QC Batch ID: WG691793-4 QC Sample: L1400005-58 Client ID: MS Sample												
Arsenic, Total	ND	120	125.7	105		-	-		75-125	-		20
Total Metals - Westborough Lab Associated sample(s): 01,04-05,17-18,26,28,32,39-40,48,52 QC Batch ID: WG692746-3 WG692746-4 QC Sample: L1410896-05 Client ID: WP-14_1.5-2.0												
Arsenic, Total	3.4	11	14	96		15	105		75-125	7		20
Total Metals - Westborough Lab Associated sample(s): 56,58 QC Batch ID: WG694660-4 QC Sample: L1411475-04 Client ID: MS Sample												
Arsenic, Total	3.3	10.3	14	104		-	-		75-125	-		20
Total Metals - Westborough Lab Associated sample(s): 13,21,41,44,51,54 QC Batch ID: WG697691-4 QC Sample: L1412496-12 Client ID: MS Sample												
Arsenic, Total	0.28J	9.86	9.5	96		-	-		75-125	-		20
Total Metals - Westborough Lab Associated sample(s): 42,50 QC Batch ID: WG699360-4 QC Sample: L1411167-02 Client ID: MS Sample												
Arsenic, Total	18.	12.2	26	**65**	Q	-	-		75-125	-		20
Total Metals - Westborough Lab Associated sample(s): 45 QC Batch ID: WG700909-4 QC Sample: L1410896-45 Client ID: WP-23_7.5-8.0												
Arsenic, Total	5.3	9.4	13	94		-	-		75-125	-		20
Total Metals - Westborough Lab Associated sample(s): 49 QC Batch ID: WG703221-3 WG703221-4 QC Sample: L1414447-26 Client ID: MS Sample												
Arsenic, Total	3.0	10.1	12	89		12	89		75-125	0		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 55,60 QC Batch ID: WG691793-3 QC Sample: L1400005-58 Client ID: DUP Sample						
Arsenic, Total	ND	ND	ug/l	NC		20
Total Metals - Westborough Lab Associated sample(s): 56,58 QC Batch ID: WG694660-3 QC Sample: L1411475-04 Client ID: DUP Sample						
Arsenic, Total	3.3	4.3	mg/kg	**26**	Q	20
Total Metals - Westborough Lab Associated sample(s): 13,21,41,44,51,54 QC Batch ID: WG697691-3 QC Sample: L1412496-12 Client ID: DUP Sample						
Arsenic, Total	0.28J	0.39J	mg/kg	NC		20
Total Metals - Westborough Lab Associated sample(s): 42,50 QC Batch ID: WG699360-3 QC Sample: L1411167-02 Client ID: DUP Sample						
Arsenic, Total	18.	16	mg/kg	12		20
Total Metals - Westborough Lab Associated sample(s): 45 QC Batch ID: WG700909-3 QC Sample: L1400006-81 Client ID: DUP Sample						
Arsenic, Total	4.2	4.0	mg/kg	5		20

INORGANICS
&
MISCELLANEOUS

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-01
Client ID: WP-13_5.5-6.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 09:58
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.9		%	0.100	NA	1	-	05/22/14 20:53	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-04
Client ID: BD-6_052114
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 00:00
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.6		%	0.100	NA	1	-	05/22/14 20:53	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-05
Client ID: WP-14_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 09:46
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	05/22/14 20:53	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-13
Client ID: WP-17_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 10:18
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	06/10/14 20:42	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-17
Client ID: WP-12_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 10:10
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.0		%	0.100	NA	1	-	05/22/14 20:53	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-18
Client ID: WP-13_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 09:56
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.7		%	0.100	NA	1	-	05/22/14 20:53	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-21
Client ID: WP-18_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 10:02
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.0		%	0.100	NA	1	-	06/10/14 20:42	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-26
Client ID: WP-12_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 10:12
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	05/22/14 20:53	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-28
Client ID: WP-13_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 09:54
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.2		%	0.100	NA	1	-	05/22/14 20:53	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-32
Client ID: WP-14_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 09:48
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.0		%	0.100	NA	1	-	05/22/14 20:53	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-39
Client ID: WP-15_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 12:52
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	05/22/14 20:53	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-40
Client ID: WP-15_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 12:54
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.7		%	0.100	NA	1	-	05/22/14 20:53	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-41
Client ID: WP-15_5.5-6.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 12:56
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.6		%	0.100	NA	1	-	06/10/14 20:42	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-42
Client ID: WP-15_7.5-8.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 12:58
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.2		%	0.100	NA	1	-	06/18/14 19:09	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-44
Client ID: WP-23_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 13:00
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.3		%	0.100	NA	1	-	06/10/14 20:42	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-45
Client ID: WP-23_7.5-8.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 13:06
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.4		%	0.100	NA	1	-	06/27/14 22:16	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-48
Client ID: WP-16_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 13:10
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.1		%	0.100	NA	1	-	05/22/14 20:53	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-49
Client ID: WP_22_5.5-6.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 13:20
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.4		%	0.100	NA	1	-	07/02/14 19:09	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-50
Client ID: WP_22_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 13:18
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.4		%	0.100	NA	1	-	06/18/14 19:09	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-51
Client ID: WP_22_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 13:16
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.8		%	0.100	NA	1	-	06/10/14 20:42	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-52
Client ID: WP_16_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 13:08
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	05/22/14 20:53	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-54
Client ID: WP_16_5.5-6.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 13:12
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.5		%	0.100	NA	1	-	06/10/14 20:42	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-56
Client ID: AR-94_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 14:20
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.6		%	0.100	NA	1	-	05/30/14 01:58	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

SAMPLE RESULTS

Lab ID: L1410896-58
Client ID: AR-91_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/21/14 13:50
Date Received: 05/21/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.1		%	0.100	NA	1	-	05/30/14 01:58	30,2540G	RT

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,04-05,17-18,26,28,32,39-40,48,52 QC Batch ID: WG691828-1 QC Sample: L1410734-23 Client ID: DUP Sample						
Solids, Total	77.1	79.4	%	3		20
General Chemistry - Westborough Lab Associated sample(s): 56,58 QC Batch ID: WG693563-1 QC Sample: L1410732-02 Client ID: DUP Sample						
Solids, Total	83.8	79.5	%	5		20
General Chemistry - Westborough Lab Associated sample(s): 13,21,41,44,51,54 QC Batch ID: WG696764-1 QC Sample: L1410896-13 Client ID: WP-17_1.5-2.0						
Solids, Total	84.2	83.8	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 42,50 QC Batch ID: WG698993-1 QC Sample: L1410896-42 Client ID: WP-15_7.5-8.0						
Solids, Total	75.2	76.6	%	2		20
General Chemistry - Westborough Lab Associated sample(s): 45 QC Batch ID: WG701626-1 QC Sample: L1410896-45 Client ID: WP-23_7.5-8.0						
Solids, Total	79.4	78.2	%	2		20
General Chemistry - Westborough Lab Associated sample(s): 49 QC Batch ID: WG702928-1 QC Sample: L1410896-49 Client ID: WP_22_5.5-6.0						
Solids, Total	80.4	77.5	%	4		20

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information **Custody Seal**

Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1410896-01A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-02A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-03A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-04A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-05A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-05B	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-05C	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-06A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-07A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-09A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-10A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-11A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-12A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-13A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-14A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-15A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-16A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-17A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-18A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-20A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-21A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-22A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-23A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-24A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-25A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-26A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-27A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()

*Values in parentheses indicate holding time in days

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1410896
Report Date: 07/16/14

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1410896-28A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-29A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-30A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-31A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-32A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-33A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-34A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-35A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-36A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-37A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-38A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-39A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-40A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-41A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-42A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-43A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-44A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-45A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-46A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-47A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-48A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-49A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-50A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-51A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-52A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-53A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-54A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-55A	Plastic 500ml HNO3 preserved	A	<2	<2	Y	Absent	AS-6020T-PPB(180)
L1410896-56A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-57A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-58A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	AS-TI(180),TS(7)
L1410896-59A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()
L1410896-60A	Plastic 500ml HNO3 preserved	A	<2	<2	Y	Absent	AS-6020T-PPB(180)
L1410896-61A	Amber 120ml unpreserved	A	N/A	<2	Y	Absent	HOLD()

*Values in parentheses indicate holding time in days

Project Name:	SOLVAY	**Lab Number:**	L1410896
Project Number:	NP000448.0003	**Report Date:**	07/16/14

GLOSSARY

Acronyms

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NI - Not Ignitable.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

Report Format: DU Report with 'J' Qualifiers

Project Name:	SOLVAY	**Lab Number:**	L1410896
Project Number:	NP000448.0003	**Report Date:**	07/16/14

Data Qualifiers

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	SOLVAY	**Lab Number:**	L1410896
Project Number:	NP000448.0003	**Report Date:**	07/16/14

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

Last revised April 15, 2014

The following analytes are not included in our NELAP Scope of Accreditation:

Westborough Facility
EPA 524.2: Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether.
EPA 8260C: 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene, Iodomethane (methyl iodide), Methyl methacrylate, Azobenzene.
EPA 8330A/B: PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.
EPA 8270D: 1-Methylnaphthalene, Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 625: 4-Chloroaniline, 4-Methylphenol.
SM4500: Soil: Total Phosphorus, TKN, NO2, NO3.
EPA 9071: Total Petroleum Hydrocarbons, Oil & Grease.

Mansfield Facility
EPA 8270D: Biphenyl.
EPA 2540D: TSS
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:

Drinking Water
EPA 200.8: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl; **EPA 200.7**: Ba,Be,Ca,Cd,Cr,Cu,Na; **EPA 245.1:** Mercury;
EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, Enterolert-QT.**

Non-Potable Water
EPA 200.8: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn;
EPA 200.7: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn;
EPA 245.1, SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH3-BH, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF**.

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

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Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 7

Date Rec'd in Lab: 5/21/14

ALPHA Job #: L1410886

Client Information

Client: Arcadis
Address: 10 Friends Lane
Newtown, PA
Phone: 267-685-1800
Fax: 267-685-1801
Email: Deric.Kearns@arcadis-us.com

Project Information

Project Name: Solvay
Project Location: Morrisville, PA
Project # NP000448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date: 5/29/14
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Billing Information

☐ Same as Client Info
PO #

Site Information

Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☐ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Report to MDL - list SOM 1,2
Please specify Metals or TAL.
Please place contingency samples on HOLD

ANALYSIS

Arsenic only via EPA 6010B

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic	Total Bottle	Sample Specific Comments
10896-01	WP-13_5.5-6.0	5/21/14	0958	SOIL	AL/LM	X	1	
	~~WP-14_7.5-8.0 NO SAMPLE~~		~~0952~~			X	1	NO SAMPLE Contingency DL
-02	WP-21_3.5-4.0		0917			X	1	Contingency
-03	WP-18_5.5-6.0		1006			X	1	Contingency
-04	BD-6-052114		—			X	1	
-05	WP-14-1.5-2.0-MS/MSD		0946			X	2	
-06	WP-20_7.5-8.0		0936			X	1	Contingency
-07	WP-13-7.5-8.0		1000			X	1	Contingency
-08	WP-14_1.5-2.0		0946			X	1	
-09	WP-21_5.5-6.0		0930			X	1	Contingency

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type	A
Preservative	A

Relinquished By:	Date/Time	Received By:	Date/Time
Laura Kratz	5/21/14 1433	[illegible]	5/21/14 1433
[illegible]	5-21-14	[illegible]	5-21-14
[illegible]	5-21-14 23:15	[illegible]	5/21/14 23:15

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-14 HC (rev. 30-Sept-2013)

NEW JERSEY CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
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FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 7

Date Rec'd in Lab: 5/21/14

ALPHA Job #: L1410896

Project Information
Project Name: Solvay
Project Location: Morrisville, PA
Project # NP000448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date: 5/29/14
Rush (only if pre approved) ☐ # of Days:

Client Information
Client: Arcadis
Address: 10 Friends Lane
Newtown, PA
Phone: 267-685-1800
Fax: 267-685-1801
Email: Deric.Kearns@arcadis-us.com

Deliverables
☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Billing Information
☐ Same as Client Info
PO #

Site Information
Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☐ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Report to MDL - list SOM 1.2
Please specify Metals or TAL.
Please place contingency samples on HOLD

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic ONLY via EPA 6010B								Sample Specific Comments	Total Bottle
10896-01	WP-13_5.5-6.0	5/21/14	0958	SOIL	DL/LK	X									1
	~~WP-14_7.5-8.0 NO SAMPLE~~		~~0952~~			X	~~NO SAMPLE~~							~~Contingency~~ DL	1
-02	WP-21_3.5-4.0		0917			X								Contingency	1
-03	WP-18_5.5-6.0		1006			X								Contingency	1
-04	BD-6-052114		—			X									1
-05	WP-14-1.5-2.0-MS/MSD		0946			X									2
-06	WP-20_7.5-8.0		0936			X								Contingency	1
-07	WP-13-7.5-8.0		1000			X								Contingency	1
-08	WP-14_1.5-2.0		0946			X									1
-09	WP-21_5.5-6.0		0930			X								Contingency	1

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type	A							
Preservative	A							

Relinquished By:	Date/Time	Received By:	Date/Time
Laura Kratz	5/21/14 1433	[signature]	5/21/14 1433
[signature]	5-21-14	[signature]	5-21-14
[signature]	5-21-14 23:15	[signature]	5/21/14 23:15

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

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Page 2 of 7

Date Rec'd in Lab: 5/21/14

ALPHA Job #: L1410896

Client Information

Client: Arcadis
Address: 10 Friends Lane, Suite 200
Newtown PA
Phone: 267-685-1800
Fax: 267-685-1801
Email: Denis.Kleams@arcadis-us.com

Project Information

Project Name: Solvay
Project Location: Morrisville, PA
Project #: NP000448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date: 5/29/14
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Billing Information

☐ Same as Client Info
PO #

Regulatory Requirement

☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Site Information

Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

☐ These samples have been previously analyzed by Alpha

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☐ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Report to MDL - list SOM 1.2

Please specify Metals or TAL.
Please place contingency samples on hold

ANALYSIS

Arsenic ONLY via EPA 6010B

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic	Sample Specific Comments	Total Bottle
10896-10	WP-21-7.5-8.0	5/21/14	0923	SOIL	DL/LK	X	Contingency	1
-11	WP-12-5.5-6.0		1014			X	Contingency	1
-12	WP-17-3.5-4.0		1020			X	Contingency	1
-13	WP-17-1.5-2.0		1018			X	Contingency	1
-14	WP-19-1.5-2.0		0938			X	Contingency	1
-15	WP-19-5.5-6.0		0942			X	Contingency	1
-16	WP-20-1.5-2.0		0930			X	Contingency	1
-17	WP-12-1.5-2.0		1010			X		1
-18	WP-13-3.5-4.0		0956			X		1
-19	WP-20-5.5-6.0		0934			X	Contingency	1

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type	A
Preservative	A

Relinquished By:	Date/Time	Received By:	Date/Time
Laura Kratz	5/21/14 1433	Stacy AAL	5/21/14 1453
Stacy	5-21-14	Tom Tobin	5-21-14
Tom Tobin	5-21-14 23:15		5/21/14 23:15

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Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 2 of 7

Date Rec'd in Lab: 5/21/14

ALPHA Job #: L1410896

Project Information
Project Name: Solvay
Project Location: Morrisville, PA
Project # NP000448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date: 5/29/14
Rush (only if pre approved) ☐ # of Days:

Client Information
Client: Arcadis
Address: 10 Friends Lane, Suite 200
Newtown PA
Phone: 267-685-1800
Fax: 267-685-1801
Email: Deric.Kearns@arcadis-us.com

Deliverables
☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Billing Information
☐ Same as Client Info
PO #

Site Information
Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED: ☐ Category 1 ☐ Category 2

For VOC, selection is REQUIRED: ☐ 1,4-Dioxane ☐ 8011

Other project specific requirements/comments:
Report to MDL - list SOM 1.2
Please specify Metals or TAL.
Please place contingency samples on hold

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic ONLY via EPA 6010B							Sample Specific Comments	Total Bottle
10896-10	WP-21-7.5-8.0	5/21/14	0923	SOIL	DL/LK	X							Contingency	1
-11	WP-12-5.5-6.0	↓	1014	↓	↓	X							Contingency	1
-12	WP-17-3.5-4.0	↓	1020	↓	↓	X							Contingency	1
-13	WP-17-1.5-2.0	↓	1018	↓	↓	X							Contingency	1
-14	WP-19-1.5-2.0	↓	0938	↓	↓	X							Contingency	1
-15	WP-19-5.5-6.0	↓	0942	↓	↓	X							Contingency	1
-16	WP-20-1.5-2.0	↓	0930	↓	↓	X							Contingency	1
-17	WP-12-1.5-2.0	↓	1010	↓	↓	X								1
-18	WP-13-3.5-4.0	↓	0956	↓	↓	X								1
-19	WP-20-5.5-6.0	↓	0934	↓	↓	X							Contingency	1
					Container Type	A								
					Preservative	A								

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
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Container Code
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B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Laura Krotz	5/21/14 1433	[signature] AAL	5/21/14 1433
[signature]	5-21-14	[signature]	5-21-14
[signature]	5-21-14 23:15	[signature]	5/21/14 23:15

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Page 3 of 7

Date Rec'd in Lab: 5/21/14

ALPHA Job #: L1410896

Client Information
Client: Arcadis
Address: 10 Friends Lane, Suite 200
Newtown, PA
Phone: 267-685-1800
Fax: 267-685-1801
Email: Dena.Heerys@arcadis-us.com

Project Information
Project Name: Solvay
Project Location: Morrisville, PA
Project #: NP000448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date: 5/29/14
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Billing Information
☐ Same as Client Info
PO #

Site Information
Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☐ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Report to MDL - list SOM 1.2
Please specify Metals or TAL.
Please place contingency samples on hold

ANALYSIS
Arsenic ONLY via EPA 6010C

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic	Total Bottle	Sample Specific Comments
1089 6 -20	WP-18_7.5-8.0	5/21/14	1008	SOIL	DL/LK	X	1	Contingency
-21	WP-18_1.5-2.0		1002			X	1	Contingency
-22	WP-20_3.5-4.0		0935			X	1	Contingency
-23	WP-21_1.5-2.0		0915			X	1	Contingency
-24	WP-19_3.5-4.0		0940			X	1	Contingency
-25	WP-12_7.5-8.0		1016			X	1	Contingency
-26	WP-12_3.5-4.0		1012			X	1	
-27	WP-19_7.5-8.0		0944			X	1	Contingency
-28	WP-13_1.5-2.0		0954			X	1	
-29	WP-17_5.5-6.0		1022			X	1	Contingency

Container Type: A
Preservative: A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Laura Kratz	5/21/14 1433	[signature] AAL	5/21/14, 1453
[signature]	5-21-14	Tom Tobin [signature]	5-21-14
Tom Tobin	5-21-14 23:15	[signature]	5/21/14 23:15

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-14 HC (rev. 30-Sept-2013)

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

NEW JERSEY CHAIN OF CUSTODY

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 4 of 7

Date Rec'd in Lab: 5/21/14

ALPHA Job #: L1410896

Client Information

Client: ARCADIS
Address: 10 Friends Lane, Suite 200
Newtown, PA 18940
Phone: 267-685-1800
Fax: 267-685-1801
Email: Deric.Kearns@arcadis-us.com

Project Information

Project Name: Solvay
Project Location: Monmouth, NJ
Project # NP000448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Turn-Around Time

Standard ☐ Due Date: 5/29/14
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Billing Information

☐ Same as Client Info
PO #

Regulatory Requirement

☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Site Information

Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☐ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Report to MDL - list SOM 1.2

Please specify Metals or TAL.
Please place contingency samples on hold.

ANALYSIS

Arsenic only via EPA 6010D

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

Total Bottle

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic only via EPA 6010D	Sample Specific Comments	Total Bottle
1089610-30	WP-17_7.5-8.0	5/21/2014	1024	SOIL	AL	X	Contingency	1
-31	WP-18_3.5-4.0		1004			X	Contingency	1
-32	WP-14-3.5-4.0		0948			X		1
-33	WP-14_7.5-8.0		0958			X	Contingency	1
-34	WP-14_ 5.5-6.0		0950			X	Contingency	1
-35	WP-24_1.5-2.0		1324			X	contingency	1
-36	WP-24_3.5-4.0		1326			X	contingency	1
-37	WP-24_5.5-6.0		1328			X	contingency	1
-38	WP-24_7.5-8.0		1330			X	contingency	1
-39	WP-15_1.5-2.0		1252			X		1

Container Type	A
Preservative	A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Laura Kratz	5/21/14 1433	[signature] AAL	5/21/14 1433
[signature]	5-21-14	[signature]	5-21-14
[signature]	5-21-14 23:15	[signature]	5/21/14 23:15

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-14 HC (rev. 30-Sept-2013)

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

NEW JERSEY CHAIN OF CUSTODY

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 5 of 7

Date Rec'd in Lab: 5/21/14

ALPHA Job #: L1410896

Client Information
Client: Arcadis
Address: 10 Friends Lane
Newtown PA
Phone: 267-685-1800
Fax: 267-685-1801
Email: Derick.Kearns@arcadis-us.com

Project Information
Project Name: Solvay
Project Location: Morrisville, PA
Project #: ND000448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date: 5/29/14
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Billing Information
☐ Same as Client Info
PO #

Site Information
Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☐ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Report to MDL - list SOM 1.2
Please specify Metals or TAL.
Please place contingency samples on HOLD

ANALYSIS
Arsenic only via EPA 6010B

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic	Sample Specific Comments	Total Bottle
L10896-40	WP-15_3.5-4.0	5/21/14	1254	SOIL	DL/LK	X		1
-41	WP-15_5.5-6.0		1256			X	Contingency	1
-42	WP-15_7.5-8.0		1258			X	Contingency	1
-43	WP-23_5.5-6.0		1304			X	Contingency	1
-44	WP-23_1.5-2.0		1300			X	Contingency	1
-45	WP-23_7.5-8.0		1306			X	Contingency	1
-46	WP-23_3.5-4.0		1302			X	Contingency	1
-47	WP-22_7.5-8.0		1322			X	Contingency	1
-48	WP-16_3.5-4.0		1310			X		1
-49	WP-22_5.5-6.0		1320			X	Contingency	1

Container Type: A
Preservative: A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Laura Kratz ~~1433~~	5/21/14 1433	[illegible] AAC	5/20/14 1433
[illegible]	5-21-14	[illegible]	5-21-14
Tom Tobin	5-21-14 23:15	[illegible]	5/21/14 23:15

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Form No: 01-14 HC (rev. 30-Sept-2013)

NEW JERSEY CHAIN OF CUSTODY

ALPHA ANALYTICAL
Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 6 of 7

Date Rec'd in Lab: 5/21/14

ALPHA Job #: L1410896

Project Information
Project Name: Solvay
Project Location: Morrisville, PA
Project # NP000448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date: 5/29/14
Rush (only if pre approved) ☐ # of Days:

Client Information
Client: Arcadis
Address: 10 Friends Lane
Newtown, PA
Phone: 267-685-1800
Fax: 267-685-1801
Email: Deric.kearns@arcadis-us.com

Deliverables
☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Billing Information
☐ Same as Client Info
PO #

Site Information
Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☐ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Report to MDL - list SOM 1.2

Please specify Metals or TAL.
Please place contingency samples on hold

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic ONLY USEPA 6010B	Arsenic ONLY USEPA 6010B						Sample Specific Comments	Total Bottle
10896-50	WP-22_3.5-4.0	5/21/14	1318	SOIL	DL/LK	X							Contingency	1
-51	WP-22_1.5-2.0	↓	1316	↓	↓	X							Contingency	1
-52	WP-16_1.5-2.0	↓	1308	↓	↓	X								1
-53	WP-16_7.5-8.0	↓	1314	↓	↓	X							Contingency	1
-54	WP-16_5.5-6.0	↓	1312	↓	↓	X							Contingency	1
-55	Field blank-01	↓	1240	DI	↓		X							1
-56	AR-94_1.5-2.0	↓	1420	SOIL	↓	X							~~Contingency~~	1
-57	AR-92_1.5-2.0	↓	1410	↓	↓	X							Contingency	1
-58	AR-91_1.5-2.0	↓	1350	↓	↓	X							~~Contingency~~	1
-59	AR-95_1.5-2.0	↓	1415	↓	↓	X							Contingency	1
					Container Type	A	P							
					Preservative	A	C							

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Laura Kratz	5/21/14 1433	[signature] AAL	5/21/14 1433
[signature]	5-21-14	[signature]	5-21-14
[signature]	5-21-14 23:15	[signature]	5/21/14 23:15

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Form No: 01-14 HC (rev. 30-Sept-2013)

NEW JERSEY CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 6 of 7

Date Rec'd in Lab: 5/21/14

ALPHA Job #: L1410896

Client Information
Client: Arcadis
Address: 10 Friends Lane
Newtown, PA
Phone: 267-685-1800
Fax: 267-685-1801
Email: Deric.Kearns@arcadis-us.com

Project Information
Project Name: Solvay
Project Location: Morrisville, PA
Project # NP000448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date: 5/29/14
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Billing Information
☐ Same as Client Info
PO #

Site Information
Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☐ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Report to MDL - list 5on 1,2

Please specify Metals or TAL.
Please place contingency samples on hold

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic ONLY USEPA 6010B	Arsenic ONLY USEPA 6010B	Sample Specific Comments	Total Bottle
1089610-50	WP-22_3.5-4.0	5/21/14	1318	SOIL	DL/LK	X		Contingency	1
-51	WP-22_1.5-2.0		1316			X		Contingency	1
-52	WP-16_1.5-2.0		1308			X			1
-53	WP-16_7.5-8.0		1314			X		Contingency	1
-54	WP-16_5.5-6.0		1312			X		Contingency	1
-55	Field blank-01		1240	DI			X		1
-56	AR-94_1.5-2.0		1420	SOIL		X		Contingency	1
-57	AR-92_1.5-2.0		1410			X		Contingency	1
-58	AR-91_1.5-2.0		1350			X		Contingency	1
-59	AR-95_1.5-2.0		1415			X		Contingency	1

Container Type	A	P			
Preservative	A	C			

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Laura Kratz	5/21/14 1433	[illegible] AAL	5/21/14 1435
[illegible]	5-21-14	[illegible]	5-21-14
[illegible]	5-21-14 23:15	[illegible]	5/21/14 23:15

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-14 HC (rev. 30-Sept-2013)

NEW JERSEY CHAIN OF CUSTODY

ALPHA ANALYTICAL
Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 7 of 7

Date Rec'd in Lab: 5/21/14

ALPHA Job #: L1410896

Client Information
Client: ARCADIS
Address: 10 Friends Lane, Suite 200
Newtown, PA 18940
Phone: 267-685-1800
Fax: 267-685-1801
Email: Deric.Kearns@arcadis-us.com

Project Information
Project Name: Solvay
Project Location: Morrisville, PA
Project # NP000448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date: 5/29/14
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Billing Information
☐ Same as Client Info
PO #

Site Information
Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED: ☐ Category 1 ☐ Category 2

For VOC, selection is REQUIRED: ☐ 1,4-Dioxane ☐ 8011

Other project specific requirements/comments:
Report to MDL - list SOM 1.2
Please specify Metals or TAL.
Please place contingency samples on hold

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic ONLY via EPA 6010B	Arsenic ONLY via EPA 6010B							Sample Specific Comments	Total Bottle
10896-60	FieldBlank-02	5/21/14	1430	DI	DL/LK		X								1

No Analysis

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type	A	P						
Preservative	A	C						

Relinquished By:	Date/Time	Received By:	Date/Time
Laura Kratz	5/21/14 1433	[signature] AAL	5/21/14 1433
[signature]	5-21-14	Tom Tyler	5-21-14
Tom Tyler	5-21-14 23:15	[signature]	5/21/14 23:15

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-14 HC (rev. 30-Sept-2013)

Revision on 5/22/14

NEW JERSEY CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 7

Date Rec'd in Lab

ALPHA Job #

Client Information
Client: Arcadis
Address: 10 Friends Lane
Newtown, PA
Phone: 267-685-1800
Fax: 267-685-1801
Email: Deric.Kearns@arcadis-us.com

Project Information
Project Name: Solvay
Project Location: Morrisville, PA
Project # NP000448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Billing Information
☐ Same as Client Info
PO #

Regulatory Requirement
☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Site Information
Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☐ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Report to MDL – list SOM 1,2
Please specify Metals or TAL.
Please place contingency samples on HOLD

ANALYSIS
Arsenic ONLY via EPA 6010B

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic								Sample Specific Comments	Total Bottle
	WP-13_5.5-6.0	5/21/14	0958	SOIL	LL	X									1
	~~WP-14_7.5-8.0 NO SAMPLE~~		~~0952~~			X	NO	SAMPLE						~~Contingency~~ DL	1
	WP-21_3.5-4.0		0917			X								Contingency	1
	WP-18_5.5-6.0		1006			X								Contingency	1
	FD-6-052114		—			X									1
	WP-14-1.5-2.0-MS/MSD		0946			X									2
	WP-20_7.5-8.0		0936			X								Contingency	1
	WP-13-7.5-8.0		1000			X								Contingency	1
	WP-14_1.5-2.0		0946			X									1
	WP-21_5.5-6.0		~~0930~~ 0920 DL			X								Contingency	1

Container Type: A
Preservative: A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
LaToya Kratz	5/21/14 1433	[signature] AMC	5/21/14 1453
[signature]			

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-14 HC (rev. 30-Sept-2013)

ANALYTICAL REPORT

Lab Number:	L1411167
Client:	Solvay USA, Inc. 8 Cedar Brook Drive Cranbury, NJ 08512-7500
ATTN:	Mike Shatynski
Phone:	(877) 463-7645
Project Name:	SOLVAY
Project Number:	NP000448.0003
Report Date:	07/10/14

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), USDA (Permit #P-330-11-00240), NC (666), TX (T104704476), DOD (L2217), US Army Corps of Engineers.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1411167-01	AR-102_1.5-2.0	SOIL	MORRISVILLE, PA	05/22/14 08:42	05/22/14
L1411167-02	AR-102_2.5-3.0	SOIL	MORRISVILLE, PA	05/22/14 08:44	05/22/14
L1411167-03	AR-102_3.5-4.0	SOIL	MORRISVILLE, PA	05/22/14 08:46	05/22/14
L1411167-04	AR-103_1.5-2.0	SOIL	MORRISVILLE, PA	05/22/14 08:52	05/22/14
L1411167-05	BD-04-05222014	SOIL	MORRISVILLE, PA	05/22/14 00:00	05/22/14
L1411167-06	AR-104-1.5-2.0	SOIL	MORRISVILLE, PA	05/22/14 09:40	05/22/14
L1411167-07	AR-104-2.5-3.0	SOIL	MORRISVILLE, PA	05/22/14 09:42	05/22/14
L1411167-08	AR-104-3.5-4.0	SOIL	MORRISVILLE, PA	05/22/14 09:44	05/22/14
L1411167-09	AR-105_1.5-2.0	SOIL	MORRISVILLE, PA	05/22/14 10:18	05/22/14
L1411167-10	AR-105_2.5-3.0	SOIL	MORRISVILLE, PA	05/22/14 10:20	05/22/14
L1411167-11	AR-105_3.5-4.0	SOIL	MORRISVILLE, PA	05/22/14 10:22	05/22/14
L1411167-12	AR-106_1.5-2.0	SOIL	MORRISVILLE, PA	05/22/14 09:52	05/22/14
L1411167-13	AR-106_2.5-3.0	SOIL	MORRISVILLE, PA	05/22/14 09:54	05/22/14
L1411167-14	AR-106_3.5-4.0	SOIL	MORRISVILLE, PA	05/22/14 09:56	05/22/14
L1411167-15	AR-107_1.5-2.0	SOIL	MORRISVILLE, PA	05/22/14 10:07	05/22/14
L1411167-16	AR-107_2.5-3.0	SOIL	MORRISVILLE, PA	05/22/14 10:09	05/22/14
L1411167-17	AR-107_3.5-4.0	SOIL	MORRISVILLE, PA	05/22/14 10:11	05/22/14
L1411167-18	AR-108_1.5-2.0	SOIL	MORRISVILLE, PA	05/22/14 10:50	05/22/14
L1411167-19	AR-108_2.5-3.0	SOIL	MORRISVILLE, PA	05/22/14 10:52	05/22/14
L1411167-20	AR-108_3.5-4.0	SOIL	MORRISVILLE, PA	05/22/14 10:54	05/22/14
L1411167-21	AR-109_1.5-2.0	SOIL	MORRISVILLE, PA	05/22/14 10:32	05/22/14
L1411167-22	AR-109_2.5-3.0	SOIL	MORRISVILLE, PA	05/22/14 10:34	05/22/14
L1411167-23	AR-109_3.5-4.0	SOIL	MORRISVILLE, PA	05/22/14 10:36	05/22/14
L1411167-24	BD-05-05222014	SOIL	MORRISVILLE, PA	05/22/14 00:00	05/22/14

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1411167-25	AR-110_1.5-2.0	SOIL	MORRISVILLE, PA	05/22/14 10:42	05/22/14
L1411167-26	AR-110_2.5-3.0	SOIL	MORRISVILLE, PA	05/22/14 10:44	05/22/14
L1411167-27	AR-110_3.5-4.0	SOIL	MORRISVILLE, PA	05/22/14 10:46	05/22/14
L1411167-28	FIELD BLANK-03	WATER	MORRISVILLE, PA	05/22/14 09:36	05/22/14
L1411167-29	AR-103_2.5-3.0	SOIL	MORRISVILLE, PA	05/22/14 08:54	05/22/14
L1411167-30	AR-103_3.5-4.0	SOIL	MORRISVILLE, PA	05/22/14 08:56	05/22/14
L1411167-31	WP-20_5.5-6.0	SOIL	MORRISVILLE, PA	05/22/14 11:15	05/22/14

Project Name:	SOLVAY	**Lab Number:**	L1411167
Project Number:	NP000448.0003	**Report Date:**	07/10/14

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	SOLVAY	**Lab Number:**	L1411167
Project Number:	NP000448.0003	**Report Date:**	07/10/14

Case Narrative (continued)

Report Submission

This final report replaces the partial report issued July 1, 2014, and includes the results of all requested analyses.

A previously-issued report replaced the partial report issued June 23, 2014. At the client's request, the analysis of Arsenic was performed on L1411167-03, -08, -17, and -27.

A previously-issued partial report replaced the partial report issued June 12, 2014. At the client's request, the analysis of Arsenic was performed on L1411167-02, -07, -16, and -26.

A previously-issued partial report replaced the partial report issued May 30, 2014. At the client's request, the analysis of Arsenic was performed on L1411167-01, -06, -09, -14, -15, -18, -23, -25, and -30.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Metals

The WG693618-3/-4 MS/MSD recoveries, performed on L1411167-21, are outside the acceptance criteria for arsenic (163%/137%). A post digestion spike was performed and yielded an unacceptable recovery of 73%. This has been attributed to sample matrix.

The WG699360-4 MS recovery, performed on L1411167-02, is outside the acceptance criteria for arsenic (65%). A post digestion spike was performed and yielded unacceptable recovery of 65%. This has been attributed to sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 07/10/14

METALS

Project Name: SOLVAY
Lab Number: L1411167
Project Number: NP000448.0003
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-01
Client ID: AR-102_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 73%

Date Collected: 05/22/14 08:42
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	18		mg/kg	0.54	0.11	1	06/10/14 16:05	06/11/14 16:06	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Lab Number: L1411167
Project Number: NP000448.0003
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-02
Client ID: AR-102_2.5-3.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 75%

Date Collected: 05/22/14 08:44
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	18		mg/kg	0.52	0.10	1	06/19/14 17:44	06/20/14 17:18	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1411167
Project Number: NP000448.0003
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-03
Client ID: AR-102_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 73%

Date Collected: 05/22/14 08:46
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	8.4		mg/kg	0.53	0.11	1	06/25/14 21:17	06/26/14 21:22	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-04
Client ID: AR-103_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 75%

Date Collected: 05/22/14 08:52
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	23		mg/kg	0.52	0.10	1	05/29/14 13:23	05/29/14 17:37	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Lab Number: L1411167
Project Number: NP000448.0003
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-05
Client ID: BD-04-05222014
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 77%

Date Collected: 05/22/14 00:00
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	26		mg/kg	0.52	0.10	1	05/29/14 13:23	05/29/14 20:41	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Lab Number: L1411167
Project Number: NP000448.0003
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-06
Client ID: AR-104-1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 79%

Date Collected: 05/22/14 09:40
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	16		mg/kg	0.50	0.10	1	06/10/14 16:05	06/11/14 16:10	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-07
Client ID: AR-104-2.5-3.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 80%

Date Collected: 05/22/14 09:42
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	18		mg/kg	0.49	0.10	1	06/19/14 17:44	06/20/14 18:50	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1411167
Project Number: NP000448.0003
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-08
Client ID: AR-104-3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 79%

Date Collected: 05/22/14 09:44
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	17		mg/kg	0.48	0.10	1	06/25/14 21:17	06/26/14 21:26	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1411167
Project Number: NP000448.0003
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-09
Client ID: AR-105_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 80%

Date Collected: 05/22/14 10:18
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	10		mg/kg	0.49	0.10	1	06/10/14 16:05	06/11/14 16:49	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Lab Number: L1411167
Project Number: NP000448.0003
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-12
Client ID: AR-106_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 72%

Date Collected: 05/22/14 09:52
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	34		mg/kg	0.53	0.10	1	05/29/14 13:23	05/29/14 20:45	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-13
Client ID: AR-106_2.5-3.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 77%

Date Collected: 05/22/14 09:54
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	24		mg/kg	0.49	0.10	1	05/29/14 13:23	05/29/14 20:48	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Lab Number: L1411167
Project Number: NP000448.0003
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-14
Client ID: AR-106_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 76%

Date Collected: 05/22/14 09:56
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	25		mg/kg	0.51	0.10	1	06/10/14 16:05	06/11/14 16:52	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Lab Number: L1411167
Project Number: NP000448.0003
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-15
Client ID: AR-107_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 77%

Date Collected: 05/22/14 10:07
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	25		mg/kg	0.51	0.10	1	06/10/14 16:05	06/11/14 16:56	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Lab Number: L1411167
Project Number: NP000448.0003
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-16
Client ID: AR-107_2.5-3.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 74%

Date Collected: 05/22/14 10:09
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	20		mg/kg	0.53	0.10	1	06/19/14 17:44	06/20/14 18:54	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1411167
Project Number: NP000448.0003
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-17
Client ID: AR-107_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 80%

Date Collected: 05/22/14 10:11
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	20		mg/kg	0.48	0.10	1	06/25/14 21:17	06/26/14 21:30	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1411167
Project Number: NP000448.0003
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-18
Client ID: AR-108_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 80%

Date Collected: 05/22/14 10:50
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	2.9		mg/kg	0.48	0.10	1	06/10/14 16:05	06/11/14 17:19	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-21
Client ID: AR-109_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 73%

Date Collected: 05/22/14 10:32
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	17		mg/kg	0.52	0.10	1	05/29/14 13:23	05/29/14 18:39	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Lab Number: L1411167
Project Number: NP000448.0003
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-22
Client ID: AR-109_2.5-3.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 77%

Date Collected: 05/22/14 10:34
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	27		mg/kg	0.49	0.10	1	05/29/14 13:23	05/29/14 20:52	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Lab Number: L1411167
Project Number: NP000448.0003
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-23
Client ID: AR-109_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 76%

Date Collected: 05/22/14 10:36
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	30		mg/kg	0.50	0.10	1	06/11/14 09:57	06/11/14 16:33	EPA 3050B	1,6010C	BC

Project Name: SOLVAY
Lab Number: L1411167
Project Number: NP000448.0003
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-24
Client ID: BD-05-05222014
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 75%

Date Collected: 05/22/14 00:00
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	16		mg/kg	0.52	0.10	1	05/29/14 13:23	05/29/14 20:56	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Lab Number: L1411167
Project Number: NP000448.0003
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-25
Client ID: AR-110_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 72%

Date Collected: 05/22/14 10:42
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	16		mg/kg	0.54	0.11	1	06/10/14 16:05	06/11/14 17:23	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Lab Number: L1411167
Project Number: NP000448.0003
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-26
Client ID: AR-110_2.5-3.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 82%

Date Collected: 05/22/14 10:44
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	14		mg/kg	0.47	0.09	1	06/19/14 17:44	06/20/14 18:58	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1411167
Project Number: NP000448.0003
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-27
Client ID: AR-110_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 73%

Date Collected: 05/22/14 10:46
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	22		mg/kg	0.54	0.11	1	06/25/14 21:17	06/26/14 21:49	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-28
Client ID: FIELD BLANK-03
Sample Location: MORRISVILLE, PA
Matrix: Water
Date Collected: 05/22/14 09:36
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	ND		mg/l	0.0050	0.0020	1	05/27/14 08:37	05/27/14 18:52	EPA 3005A	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1411167
Project Number: NP000448.0003
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-29
Client ID: AR-103_2.5-3.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 75%

Date Collected: 05/22/14 08:54
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	14		mg/kg	0.51	0.10	1	05/29/14 13:23	05/29/14 21:00	EPA 3050B	1,6010C	MG

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-30
Client ID: AR-103_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 81%

Date Collected: 05/22/14 08:56
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	8.7		mg/kg	0.48	0.10	1	06/10/14 16:05	06/11/14 17:27	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1411167
Report Date: 07/10/14

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 28 Batch: WG692535-1										
Arsenic, Total	ND		mg/l	0.0050	0.0020	1	05/27/14 08:37	05/27/14 17:24	1,6010C	TT

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 04-05,12-13,22,24,29 Batch: WG693380-1										
Arsenic, Total	ND		mg/kg	0.40	0.08	1	05/29/14 13:23	05/29/14 17:29	1,6010C	MG

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 21 Batch: WG693618-1										
Arsenic, Total	ND		mg/kg	0.40	0.08	1	05/29/14 13:23	05/29/14 17:29	1,6010C	MG

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 01,06,09,14-15,18,25,30 Batch: WG696690-1										
Arsenic, Total	ND		mg/kg	0.40	0.08	1	06/10/14 16:05	06/11/14 12:44	1,6010C	JH

Prep Information

Digestion Method: EPA 3050B

Project Name: SOLVAY
Project Number: NP000448.0003
Lab Number: L1411167
Report Date: 07/10/14

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 23 Batch: WG696907-1										
Arsenic, Total	ND		mg/kg	0.40	0.08	1	06/11/14 09:57	06/11/14 11:58	1,6010C	BC

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 02,07,16,26 Batch: WG699360-1										
Arsenic, Total	ND		mg/kg	0.40	0.08	1	06/19/14 17:44	06/20/14 17:45	1,6010C	TT

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 03,08,17,27 Batch: WG700909-1										
Arsenic, Total	ND		mg/kg	0.40	0.08	1	06/25/14 21:17	06/26/14 19:33	1,6010C	TT

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 28 Batch: WG692535-2								
Arsenic, Total	108		-		80-120	-		
Total Metals - Westborough Lab Associated sample(s): 04-05,12-13,22,24,29 Batch: WG693380-2 SRM Lot Number: 0518-10-02								
Arsenic, Total	104		-		81-119	-		
Total Metals - Westborough Lab Associated sample(s): 21 Batch: WG693618-2 SRM Lot Number: 0518-10-02								
Arsenic, Total	104		-		81-119	-		
Total Metals - Westborough Lab Associated sample(s): 01,06,09,14-15,18,25,30 Batch: WG696690-2 SRM Lot Number: 0518-10-02								
Arsenic, Total	109		-		81-119	-		
Total Metals - Westborough Lab Associated sample(s): 23 Batch: WG696907-2 SRM Lot Number: 0518-10-02								
Arsenic, Total	109		-		81-119	-		
Total Metals - Westborough Lab Associated sample(s): 02,07,16,26 Batch: WG699360-2 SRM Lot Number: 0518-10-02								
Arsenic, Total	114		-		81-119	-		
Total Metals - Westborough Lab Associated sample(s): 03,08,17,27 Batch: WG700909-2 SRM Lot Number: 0518-10-02								
Arsenic, Total	100		-		81-119	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 28 QC Batch ID: WG692535-4 QC Sample: L1410986-12 Client ID: MS Sample												
Arsenic, Total	0.0021J	0.12	0.127	106		-	-		75-125	-		20
Total Metals - Westborough Lab Associated sample(s): 04-05,12-13,22,24,29 QC Batch ID: WG693380-3 WG693380-4 QC Sample: L1411167-04 Client ID: AR-103_1.5-2.0												
Arsenic, Total	23.	12.2	35	99		38	122		75-125	8		20
Total Metals - Westborough Lab Associated sample(s): 21 QC Batch ID: WG693618-3 WG693618-4 QC Sample: L1411167-21 Client ID: AR-109_1.5-2.0												
Arsenic, Total	17.	12.9	38	**163**	Q	34	**137**	Q	75-125	11		20
Total Metals - Westborough Lab Associated sample(s): 01,06,09,14-15,18,25,30 QC Batch ID: WG696690-3 WG696690-4 QC Sample: L1412246-03 Client ID: MS Sample												
Arsenic, Total	0.71J	9.79	11	112		11	114		75-125	0		20
Total Metals - Westborough Lab Associated sample(s): 23 QC Batch ID: WG696907-3 WG696907-4 QC Sample: L1412260-01 Client ID: MS Sample												
Arsenic, Total	1.6	11	13	103		12	100		75-125	8		20
Total Metals - Westborough Lab Associated sample(s): 02,07,16,26 QC Batch ID: WG699360-4 QC Sample: L1411167-02 Client ID: AR-102_2.5-3.0												
Arsenic, Total	18.	12.2	26	**65**	Q	-	-		75-125	-		20
Total Metals - Westborough Lab Associated sample(s): 03,08,17,27 QC Batch ID: WG700909-4 QC Sample: L1410896-45 Client ID: MS Sample												
Arsenic, Total	5.3	9.4	13	94		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 28 QC Batch ID: WG692535-3 QC Sample: L1410986-12 Client ID: DUP Sample						
Arsenic, Total	0.0021J	ND	mg/l	NC		20
Total Metals - Westborough Lab Associated sample(s): 02,07,16,26 QC Batch ID: WG699360-3 QC Sample: L1411167-02 Client ID: AR-102_2.5-3.0						
Arsenic, Total	18.	16	mg/kg	12		20
Total Metals - Westborough Lab Associated sample(s): 03,08,17,27 QC Batch ID: WG700909-3 QC Sample: L1400006-81 Client ID: DUP Sample						
Arsenic, Total	4.2	4.0	mg/kg	5		20

INORGANICS
&
MISCELLANEOUS

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-01
Client ID: AR-102_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 08:42
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	73.0		%	0.100	NA	1	-	06/05/14 21:34	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-02
Client ID: AR-102_2.5-3.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 08:44
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.3		%	0.100	NA	1	-	06/16/14 21:50	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-03
Client ID: AR-102_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 08:46
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.8		%	0.100	NA	1	-	06/24/14 22:47	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-04
Client ID: AR-103_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 08:52
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.2		%	0.100	NA	1	-	05/23/14 23:03	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-05
Client ID: BD-04-05222014
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 00:00
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.6		%	0.100	NA	1	-	05/23/14 23:03	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-06
Client ID: AR-104-1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 09:40
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.8		%	0.100	NA	1	-	06/05/14 21:34	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-07
Client ID: AR-104-2.5-3.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 09:42
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.2		%	0.100	NA	1	-	06/16/14 21:50	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-08
Client ID: AR-104-3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 09:44
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.5		%	0.100	NA	1	-	06/24/14 22:47	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-09
Client ID: AR-105_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 10:18
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.9		%	0.100	NA	1	-	06/05/14 21:34	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-12
Client ID: AR-106_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 09:52
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.4		%	0.100	NA	1	-	05/23/14 23:03	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-13
Client ID: AR-106_2.5-3.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 09:54
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.0		%	0.100	NA	1	-	05/23/14 23:03	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-14
Client ID: AR-106_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 09:56
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.7		%	0.100	NA	1	-	06/05/14 21:34	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-15
Client ID: AR-107_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 10:07
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.6		%	0.100	NA	1	-	06/05/14 21:34	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-16
Client ID: AR-107_2.5-3.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 10:09
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	73.7		%	0.100	NA	1	-	06/16/14 21:50	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-17
Client ID: AR-107_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 10:11
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.4		%	0.100	NA	1	-	06/24/14 22:47	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-18
Client ID: AR-108_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 10:50
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	06/05/14 21:34	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-21
Client ID: AR-109_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 10:32
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.9		%	0.100	NA	1	-	05/23/14 23:03	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-22
Client ID: AR-109_2.5-3.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 10:34
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.7		%	0.100	NA	1	-	05/23/14 23:03	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-23
Client ID: AR-109_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 10:36
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.5		%	0.100	NA	1	-	06/05/14 21:34	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-24
Client ID: BD-05-05222014
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 00:00
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.7		%	0.100	NA	1	-	05/23/14 23:03	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-25
Client ID: AR-110_1.5-2.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 10:42
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	71.9		%	0.100	NA	1	-	06/05/14 21:34	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-26
Client ID: AR-110_2.5-3.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 10:44
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	06/16/14 21:50	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-27
Client ID: AR-110_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 10:46
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.7		%	0.100	NA	1	-	06/24/14 22:47	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-29
Client ID: AR-103_2.5-3.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 08:54
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.2		%	0.100	NA	1	-	05/23/14 23:03	30,2540G	RT

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

SAMPLE RESULTS

Lab ID: L1411167-30
Client ID: AR-103_3.5-4.0
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 05/22/14 08:56
Date Received: 05/22/14
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	06/05/14 21:34	30,2540G	RT

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 04-05,12-13,21-22,24,29 QC Batch ID: WG692179-1 QC Sample: L1410726-03 Client ID: DUP Sample						
Solids, Total	83.9	82.6	%	2		20
General Chemistry - Westborough Lab Associated sample(s): 01,06,09,14-15,18,23,25,30 QC Batch ID: WG695547-1 QC Sample: L1410744-09 Client ID: DUP Sample						
Solids, Total	75.0	75.4	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 02,07,16,26 QC Batch ID: WG698336-1 QC Sample: L1410744-10 Client ID: DUP Sample						
Solids, Total	71.3	70.5	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 03,08,17,27 QC Batch ID: WG700568-1 QC Sample: L1411167-03 Client ID: AR-102_3.5-4.0						
Solids, Total	72.8	74.2	%	2		20

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1411167-01A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	HOLD-CONTINGENCY(14),AS-TI(180),TS(7)
L1411167-02A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-03A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-04A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-04B	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-04C	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-05A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-06A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-07A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-08A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-09A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-10A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	HOLD-CONTINGENCY(14)
L1411167-11A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	HOLD-CONTINGENCY(14)
L1411167-12A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-13A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-14A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-15A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-16A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-17A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-18A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-19A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	HOLD-CONTINGENCY(14)
L1411167-20A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	HOLD-CONTINGENCY(14)
L1411167-21A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-21B	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-21C	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-22A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)

*Values in parentheses indicate holding time in days

Project Name: SOLVAY
Project Number: NP000448.0003

Lab Number: L1411167
Report Date: 07/10/14

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1411167-23A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-24A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-25A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-26A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-27A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-28A	Plastic 500ml HNO3 preserved	A	<2	4.6	Y	Absent	AS-TI(180)
L1411167-29A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-30A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	AS-TI(180),TS(7)
L1411167-31A	Amber 120ml unpreserved	A	N/A	4.6	Y	Absent	HOLD-CONTINGENCY(14)

*Values in parentheses indicate holding time in days

Project Name:	SOLVAY	**Lab Number:**	L1411167
Project Number:	NP000448.0003	**Report Date:**	07/10/14

GLOSSARY

Acronyms

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NI - Not Ignitable.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

Report Format: DU Report with 'J' Qualifiers

Project Name:	SOLVAY	**Lab Number:**	L1411167
Project Number:	NP000448.0003	**Report Date:**	07/10/14

Data Qualifiers

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	SOLVAY	**Lab Number:**	L1411167
Project Number:	NP000448.0003	**Report Date:**	07/10/14

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

Last revised April 15, 2014

The following analytes are not included in our NELAP Scope of Accreditation:

Westborough Facility
EPA 524.2: Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether.
EPA 8260C: 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene, Iodomethane (methyl iodide), Methyl methacrylate, Azobenzene.
EPA 8330A/B: PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT.
EPA 8270D: 1-Methylnaphthalene, Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 625: 4-Chloroaniline, 4-Methylphenol.
SM4500: Soil: Total Phosphorus, TKN, NO2, NO3.
EPA 9071: Total Petroleum Hydrocarbons, Oil & Grease.

Mansfield Facility
EPA 8270D: Biphenyl.
EPA 2540D: TSS
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:

Drinking Water
EPA 200.8: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl; **EPA 200.7**: Ba,Be,Ca,Cd,Cr,Cu,Na; **EPA 245.1:** Mercury;
EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, Enterolert-QT.**

Non-Potable Water
EPA 200.8: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn;
EPA 200.7: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn;
EPA 245.1, SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH3-BH, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF**.

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

X

NEW JERSEY CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 4

Date Rec'd in Lab: 5/22/14

ALPHA Job #: L1411167

Project Information
Project Name: Solvay
Project Location: Morrisville, PA
Project # NP000448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Client Information
Client: Arcadis
Address: 10 Friends Lane
Newtown, PA
Phone: 267-685-1800
Fax: 267-685-1801
Email: Deric.Kearns@arcadis-us.com

Deliverables
☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Billing Information
☐ Same as Client Info
PO #

Regulatory Requirement
☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Site Information
Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☐ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Report to MDL - list SOM 1.2
Please specify Metals or TAL.
Please place contingency samples on HOLD

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic ONLY via 6010B								Sample Specific Comments	Total Bottle
11167. 01	AR-102-1.5-2.0	5/22/14	0842	SOIL	OK/LK	X								Contingency	1
02	AR-102-2.5-3.0	↓	0844	↓	↓	X								contingency	1
03	AR-102-3.5-4.0	↓	0846	↓	↓	X								contingency	1
04	AR-103-1.5-2.0	↓	0852	↓	↓	X									1
05	AR-103-1.5-2.0-MS/MSD	↓	0852	↓	↓	X									2
05	BD-04-05222014	↓		↓	↓	X									1
06	AR-104-1.5-2.0	↓	0940	↓	↓	X								contingency	1
07	AR-104-2.5-3.0	↓	0942	↓	↓	X								contingency	1
08	AR-104-3.5-4.0	↓	0944	↓	↓	X								contingency	1
09	AR-105-1.5-2.0	↓	1018	↓	↓	X								contingency	1

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type	A							
Preservative	A							

Relinquished By:	Date/Time	Received By:	Date/Time
Laura Kratz	5/22/14 1400	[signature] AAL	5/22/14 15:12
[signature] AAL	5-22-14 1915	Tom Toher	5-22-14 1915
Tom Toher	5-22-14 2340	[signature]	5/22/14 2340

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-14 HC (rev. 30-Sept-2013)

X

ALPHA ANALYTICAL

NEW JERSEY CHAIN OF CUSTODY

Westborough, MA 01581 — 8 Walkup Dr. — TEL: 508-898-9220 — FAX: 508-898-9193
Mansfield, MA 02048 — 320 Forbes Blvd — TEL: 508-822-9300 — FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 2 of 4

Date Rec'd in Lab: 5/22/14

ALPHA Job #: L1411167

Client Information
Client: Arcadis
Address: 10 Friends Lane
Newtown, PA
Phone: 267-685-1800
Fax: 267-685-1801
Email: Derick.Kearns@arcadis-us.com

Project Information
Project Name: Soway
Project Location: Morrisville, PA
Project # NP000448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Billing Information
☐ Same as Client Info
PO #

Site Information
Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☐ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Report to MDL-list SOM 1.2
Please specify Metals or TAL.
Please place contingency samples on HOLD

ANALYSIS
Arsenic ONLY via EPA 6010B

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic	Sample Specific Comments	Total Bottle
11167.12	AR-105-2.5-3.0	5/22/14	1020	SOIL	DL/LK	X	Contingency	1
.11	AR-105-3.5-4.0	"	1022	"	"	X	Contingency	1
.10	AR-106-1.5-2.0		0952			X		1
.13	AR-106-2.5-3.0		0954			X		1
.14	AR-106-3.5-4.0		0956			X	Contingency	1
.15	AR-107-1.5-2.0		1007			X	Contingency	1
.16	AR-107-2.5-3.0		1009			X	Contingency	1
.17	AR-107-3.5-4.0		1011			X	Contingency	1
.18	AR-108-1.5-2.0		1050			X	Contingency	1
.19	AR-108-2.5-3.0	↓	1052	↓	↓	X	Contingency	1

Container Type: A
Preservative: A

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; K/E = Zn Ac/NaOH; O = Other

Container Code: P = Plastic; A = Amber Glass; V = Vial; G = Glass; B = Bacteria Cup; C = Cube; O = Other; E = Encore; D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Laura Kratz	5/22/14 1400	AAL-ALPHA	5/22/14 15:02
AAL-ALPHA	5-22-14 1915	Tom Tobin	5-22-14 1915
Tom Tobin	5-22-14 2340		5/22/14 2340

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-14 HC (rev. 30-Sept-2013)

NEW JERSEY CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 3 of 4

Date Rec'd in Lab: 5/22/14

ALPHA Job #: L1411467

Client Information

Client: Arcadis
Address: 10 Friends Lane
Newtown, PA
Phone: 267-685-1800
Fax: 267-685-1801
Email: Derk.Reams@arcadis-us.com

Project Information

Project Name: Solvay
Project Location: Morrisville, PA
Project # NP000448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Billing Information

☐ Same as Client Info
PO #

Regulatory Requirement

☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Site Information

Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☐ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Report to MDL - list SOM 1.2
Please specify Metals or TAL.
Please place contingency samples on HOLD

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic ONLY via EPA 6010B	Arsenic ONLY via EPA 6010B	Sample Specific Comments	Total Bottle
1167-20	AR-108-3.5-4.0	5/22/14	1054	SOIL	DL/LK	X		Contingency	1
-21	AR-109-1.5-2.0		1032			X			1
-22	AR-109-1.5-2.0-MS/MSD		1032			X			2
-23	AR-109-2.5-3.0		1034			X			1
-24	AR-109-3.5-4.0		1036			X		Contingency	1
-25	BD-05-05222014					X			1
-26	AR-110-1.5-2.0		1042			X		Contingency	1
-27	AR-110-2.5-3.0		1044			X		Contingency	1
-28	AR-110-3.5-4.0		1046			X		Contingency	1
	Field Blank-03		0936	DW			X		1

Container Type: A P
Preservative: A C

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Lauren Kratz	5/22/14 1400		
Carl Cyra-AAL	5-22-14 1915	Tom Tobin	5-22-14 1915
Tom Tobin	5-22-14 2340		5/23/14 2340

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-14 HC (rev. 30-Sept-2013)

NEW JERSEY CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page ___ of ___

Date Rec'd in Lab: 5/22/14

ALPHA Job #: L1411167

Client Information
Client: Arcadis
Address: 10 Friends Lane, Suite 200
Newtown PA 18940
Phone: 267-685-1800
Fax: 267-685-1801
Email: Deric.Kearns@arcadis-us.com

Project Information
Project Name: Solvay
Project Location: Morrisville PA
Project # NP000448.0003
(Use Project name as Project #) ☐
Project Manager: Ryan Fitzpatrick
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ NJ Full / Reduced
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☐ Other

Billing Information
☐ Same as Client Info
PO #

Site Information
Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☐ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Report to MDL - list SOM 1.2

Please specify Metals or TAL.
Please put contingency samples on hold.

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic only via EPA 6010B								Sample Specific Comments	Total Bottle
11167. 29	AR-103_2.5-3.0	5/22/14	0854	Soil	DL/LK	X									
30.	AR-103-3.5_4.0	↓	0856	↓	↓	X								Contingency	
31.	WP-20_5.5-6.0	↓	1115	↓	↓	X								Contingency	

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type	A							
Preservative	A							

Relinquished By:	Date/Time	Received By:	Date/Time
Dustin Lipik	5/22/14 1400	[signature] - AAL -	5/22/14 1512
[signature] - AAL -	5-22-14 1915	Tom Cohen	5-22-14 1915
Tom Cohen	5-22-14 2340	[signature]	5/22/14 2340

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

No: 01-14 HC (rev. 30-Sept-2013)

JOB: L1508485 REPORT STYLE: Data Usability Report
0010: Cover Page - OK
0015: Sample Cross Reference Summary - OK
0060: Narrative Page(s) - OK
1000: Metals Sample Results - OK
1010: Metals Blank Report - OK
1020: Metals LCS Report - OK
1040: Metals Matrix Spike Report - OK
1180: Cover Page - OK
1200: Wet Chemistry Sample Results - OK
1250: Wet Chemistry Duplicate Report - OK
5100: Container Report - OK
5200: Glossary - OK
5400: Reference Report - OK

ANALYTICAL REPORT

Lab Number:	L1508485
Client:	Solvay USA, Inc. 8 Cedar Brook Drive Cranbury, NJ 08512-7500
ATTN:	Mike Shatynski
Phone:	(877) 463-7645
Project Name:	SOLVAY
Project Number:	NP448.4.3
Report Date:	05/12/15

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), VA (460195), MD (348), IL (200077), NC (666), TX (T104704476), DOD (L2217), USDA (Permit #P-330-11-00240).

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1508485-01	AR-120 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 09:55	04/23/15
L1508485-02	AR-123 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 10:05	04/23/15
L1508485-03	AR-122 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 10:15	04/23/15
L1508485-04	AR-121 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 10:25	04/23/15
L1508485-05	AR-125 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 10:32	04/23/15
L1508485-06	AR-124 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 10:40	04/23/15
L1508485-07	AR-131 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 10:50	04/23/15
L1508485-08	AR-130 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 10:55	04/23/15
L1508485-09	AR-129 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 11:00	04/23/15
L1508485-10	AR-128 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 11:05	04/23/15
L1508485-11	AR-127 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 11:13	04/23/15
L1508485-12	AR-126 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 11:19	04/23/15
L1508485-13	AR-115 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 13:00	04/23/15
L1508485-14	AR-114 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 13:07	04/23/15
L1508485-15	AR-113 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 13:16	04/23/15
L1508485-16	AR-118 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 13:26	04/23/15
L1508485-17	AR-117 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 13:35	04/23/15
L1508485-18	AR-116 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 13:45	04/23/15
L1508485-19	AR-119 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 14:10	04/23/15
L1508485-20	AR-112 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 14:35	04/23/15
L1508485-21	AR-111 (1.5-2.0)-042215	SOIL	MORRISVILLE, PA	04/22/15 14:45	04/23/15
L1508485-22	FIELD BLANK	WATER	MORRISVILLE, PA	04/22/15 15:05	04/23/15
L1508485-23	DUP-01-042215	SOIL	MORRISVILLE, PA	04/22/15 00:00	04/23/15
L1508485-24	DUP-02-042215	SOIL	MORRISVILLE, PA	04/22/15 00:00	04/23/15

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	SOLVAY	**Lab Number:**	L1508485
Project Number:	NP448.4.3	**Report Date:**	05/12/15

Case Narrative (continued)

Report Submission

This partial report replaces the partial report issued May 2, 2015. At the client's request, the analysis of Total Arsenic was performed on L1508485-05 through -12, -14 through -17, -19, -20, and -21.

A final report will be issued as soon as the results of all requested analyses become available.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Total Arsenic

The WG783302-3/-4 MS/MSD recoveries (54%/44%), performed on L1508485-15, are outside the acceptance criteria. A post digestion spike was performed and yielded an unacceptable recovery on 61%. This has been attributed to sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 05/12/15

METALS

Project Name: SOLVAY
Lab Number: L1508485
Project Number: NP448.4.3
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-01
Client ID: AR-120 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 77%

Date Collected: 04/22/15 09:55
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	25		mg/kg	0.51	0.10	1	04/30/15 12:08	04/30/15 18:36	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Lab Number: L1508485
Project Number: NP448.4.3
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-02
Client ID: AR-123 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 76%

Date Collected: 04/22/15 10:05
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	31		mg/kg	0.50	0.10	1	04/30/15 12:08	04/30/15 18:40	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Lab Number: L1508485
Project Number: NP448.4.3
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-03
Client ID: AR-122 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 78%

Date Collected: 04/22/15 10:15
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	17		mg/kg	0.50	0.10	1	04/30/15 12:08	04/30/15 17:08	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Lab Number: L1508485
Project Number: NP448.4.3
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-04
Client ID: AR-121 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 75%

Date Collected: 04/22/15 10:25
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	41		mg/kg	0.53	0.10	1	04/30/15 12:08	04/30/15 18:44	EPA 3050B	1,6010C	JH

Project Name: SOLVAY
Lab Number: L1508485
Project Number: NP448.4.3
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-05
Client ID: AR-125 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 77%

Date Collected: 04/22/15 10:32
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	36		mg/kg	0.50	0.10	1	05/08/15 14:46	05/11/15 19:47	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1508485
Project Number: NP448.4.3
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-06
Client ID: AR-124 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 71%

Date Collected: 04/22/15 10:40
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	48		mg/kg	0.54	0.11	1	05/08/15 14:46	05/11/15 19:51	EPA 3050B	1,6010C	TT

Project Name:	SOLVAY	**Lab Number:**	L1508485
Project Number:	NP448.4.3	**Report Date:**	05/12/15

SAMPLE RESULTS

Lab ID:	L1508485-07	Date Collected:	04/22/15 10:50
Client ID:	AR-131 (1.5-2.0)-042215	Date Received:	04/23/15
Sample Location:	MORRISVILLE, PA	Field Prep:	Not Specified
Matrix:	Soil		
Percent Solids:	76%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	25		mg/kg	0.52	0.10	1	05/08/15 14:46	05/11/15 20:06	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1508485
Project Number: NP448.4.3
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-08
Client ID: AR-130 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 78%

Date Collected: 04/22/15 10:55
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	22		mg/kg	0.50	0.10	1	05/08/15 14:46	05/11/15 20:09	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1508485
Project Number: NP448.4.3
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-09
Client ID: AR-129 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 80%

Date Collected: 04/22/15 11:00
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	18		mg/kg	0.50	0.10	1	05/08/15 14:46	05/11/15 20:13	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1508485
Project Number: NP448.4.3
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-10
Client ID: AR-128 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 78%

Date Collected: 04/22/15 11:05
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	24		mg/kg	0.50	0.10	1	05/08/15 14:46	05/11/15 20:16	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1508485
Project Number: NP448.4.3
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-11
Client ID: AR-127 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 48%

Date Collected: 04/22/15 11:13
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	56		mg/kg	0.80	0.16	1	05/08/15 14:46	05/11/15 20:20	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1508485
Project Number: NP448.4.3
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-12
Client ID: AR-126 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 77%

Date Collected: 04/22/15 11:19
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	40		mg/kg	0.50	0.10	1	05/08/15 14:46	05/11/15 20:24	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1508485
Project Number: NP448.4.3
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-14
Client ID: AR-114 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 78%

Date Collected: 04/22/15 13:07
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	12		mg/kg	0.49	0.10	1	05/08/15 14:46	05/11/15 20:27	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1508485
Project Number: NP448.4.3
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-15
Client ID: AR-113 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 83%

Date Collected: 04/22/15 13:16
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	43		mg/kg	0.48	0.10	1	05/08/15 14:46	05/11/15 21:03	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1508485
Project Number: NP448.4.3
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-16
Client ID: AR-118 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 81%

Date Collected: 04/22/15 13:26
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	28		mg/kg	0.48	0.10	1	05/08/15 14:46	05/11/15 20:31	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1508485
Project Number: NP448.4.3
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-17
Client ID: AR-117 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 82%

Date Collected: 04/22/15 13:35
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	13		mg/kg	0.47	0.10	1	05/08/15 14:46	05/11/15 20:39	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1508485
Project Number: NP448.4.3
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-19
Client ID: AR-119 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 88%

Date Collected: 04/22/15 14:10
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	9.5		mg/kg	0.45	0.09	1	05/08/15 14:46	05/11/15 20:50	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1508485
Project Number: NP448.4.3
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-20
Client ID: AR-112 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 79%

Date Collected: 04/22/15 14:35
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	260		mg/kg	0.50	0.10	1	05/08/15 14:46	05/11/15 20:53	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Lab Number: L1508485
Project Number: NP448.4.3
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-21
Client ID: AR-111 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil
Percent Solids: 82%

Date Collected: 04/22/15 14:45
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	150		mg/kg	0.48	0.10	1	05/08/15 14:46	05/11/15 20:57	EPA 3050B	1,6010C	TT

Project Name: SOLVAY
Project Number: NP448.4.3
Lab Number: L1508485
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-22
Client ID: FIELD BLANK
Sample Location: MORRISVILLE, PA
Matrix: Water
Date Collected: 04/22/15 15:05
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Arsenic, Total	ND		mg/l	0.005	0.002	1	04/27/15 11:42	04/27/15 19:12	EPA 3005A	1,6010C	JH

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 22 Batch: WG779461-1										
Arsenic, Total	ND		mg/l	0.005	0.002	1	04/27/15 11:42	04/27/15 19:00	1,6010C	JH

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 01-04 Batch: WG780683-1										
Arsenic, Total	ND		mg/kg	0.40	0.08	1	04/30/15 12:08	04/30/15 17:00	1,6010C	JH

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 05-12,14-17,19-21 Batch: WG783302-1										
Arsenic, Total	0.08	J	mg/kg	0.40	0.08	1	05/08/15 14:46	05/11/15 20:14	1,6010C	TT

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 22 Batch: WG779461-2								
Arsenic, Total	106		-		80-120	-		
Total Metals - Westborough Lab Associated sample(s): 01-04 Batch: WG780683-2 SRM Lot Number: D083-540								
Arsenic, Total	90		-		78-122	-		
Total Metals - Westborough Lab Associated sample(s): 05-12,14-17,19-21 Batch: WG783302-2 SRM Lot Number: D083-540								
Arsenic, Total	98		-		78-122	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 22 QC Batch ID: WG779461-4 QC Sample: L1508338-01 Client ID: MS Sample												
Arsenic, Total	0.004J	0.12	0.142	118		-	-		75-125	-		20
Total Metals - Westborough Lab Associated sample(s): 01-04 QC Batch ID: WG780683-3 WG780683-4 QC Sample: L1508485-03 Client ID: AR-122 (1.5-2.0)-042215												
Arsenic, Total	17.	11.5	30	113		31	119		75-125	3		20
Total Metals - Westborough Lab Associated sample(s): 05-12,14-17,19-21 QC Batch ID: WG783302-3 WG783302-4 QC Sample: L1508485-15 Client ID: AR-113 (1.5-2.0)-042215												
Arsenic, Total	43.	11.1	49	**54**	Q	48	**44**	Q	75-125	2		20

INORGANICS
&
MISCELLANEOUS

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-01
Client ID: AR-120 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 04/22/15 09:55
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.7		%	0.100	NA	1	-	04/24/15 23:56	30,2540G	RT

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-02
Client ID: AR-123 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 04/22/15 10:05
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.5		%	0.100	NA	1	-	04/24/15 23:56	30,2540G	RT

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-03
Client ID: AR-122 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 04/22/15 10:15
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.3		%	0.100	NA	1	-	04/24/15 23:56	30,2540G	RT

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-04
Client ID: AR-121 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 04/22/15 10:25
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.7		%	0.100	NA	1	-	04/24/15 23:56	30,2540G	RT

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-05
Client ID: AR-125 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 04/22/15 10:32
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.0		%	0.100	NA	1	-	05/05/15 23:39	30,2540G	RT

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-06
Client ID: AR-124 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 04/22/15 10:40
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	70.6		%	0.100	NA	1	-	05/05/15 23:39	30,2540G	RT

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-07
Client ID: AR-131 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 04/22/15 10:50
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.7		%	0.100	NA	1	-	05/05/15 23:39	30,2540G	RT

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-08
Client ID: AR-130 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 04/22/15 10:55
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.0		%	0.100	NA	1	-	05/05/15 23:39	30,2540G	RT

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-09
Client ID: AR-129 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 04/22/15 11:00
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.9		%	0.100	NA	1	-	05/05/15 23:39	30,2540G	RT

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-10
Client ID: AR-128 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 04/22/15 11:05
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.4		%	0.100	NA	1	-	05/05/15 23:39	30,2540G	RT

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-11
Client ID: AR-127 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 04/22/15 11:13
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	48.1		%	0.100	NA	1	-	05/05/15 23:39	30,2540G	RT

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-12
Client ID: AR-126 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 04/22/15 11:19
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.9		%	0.100	NA	1	-	05/05/15 23:39	30,2540G	RT

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-14
Client ID: AR-114 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 04/22/15 13:07
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.4		%	0.100	NA	1	-	05/05/15 23:39	30,2540G	RT

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-15
Client ID: AR-113 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 04/22/15 13:16
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.3		%	0.100	NA	1	-	05/05/15 23:39	30,2540G	RT

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-16
Client ID: AR-118 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 04/22/15 13:26
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	05/05/15 23:39	30,2540G	RT

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-17
Client ID: AR-117 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 04/22/15 13:35
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.3		%	0.100	NA	1	-	05/05/15 23:39	30,2540G	RT

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-19
Client ID: AR-119 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 04/22/15 14:10
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.5		%	0.100	NA	1	-	05/05/15 23:39	30,2540G	RT

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-20
Client ID: AR-112 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 04/22/15 14:35
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.6		%	0.100	NA	1	-	05/05/15 23:39	30,2540G	RT

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

SAMPLE RESULTS

Lab ID: L1508485-21
Client ID: AR-111 (1.5-2.0)-042215
Sample Location: MORRISVILLE, PA
Matrix: Soil

Date Collected: 04/22/15 14:45
Date Received: 04/23/15
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.1		%	0.100	NA	1	-	05/05/15 23:39	30,2540G	RT

Lab Duplicate Analysis
Batch Quality Control

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-04 QC Batch ID: WG779109-1 QC Sample: L1508483-21 Client ID: DUP Sample						
Solids, Total	88.4	89.2	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 05-12,14-17,19-21 QC Batch ID: WG782248-1 QC Sample: L1509463-01 Client ID: DUP Sample						
Solids, Total	88.1	88.0	%	0		20

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1508485-01A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	AS-TI(180),TS(7)
L1508485-02A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	AS-TI(180),TS(7)
L1508485-03A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	AS-TI(180),TS(7)
L1508485-03A1	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	AS-TI(180),TS(7)
L1508485-03A2	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	AS-TI(180),TS(7)
L1508485-04A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	AS-TI(180),TS(7)
L1508485-05A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	-
L1508485-06A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	-
L1508485-07A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	-
L1508485-08A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	-
L1508485-09A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	-
L1508485-10A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	-
L1508485-11A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	-
L1508485-12A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	-
L1508485-13A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	HOLD-CONTINGENCY(14),HOLD-WETCHEM(),HOLD-METAL(180)
L1508485-14A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	-
L1508485-15A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	AS-TI(180),TS(7),MS/MSD()
L1508485-15A1	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	-
L1508485-15A2	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	-
L1508485-16A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	-
L1508485-17A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	-
L1508485-18A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	HOLD-CONTINGENCY(14),HOLD-WETCHEM(),HOLD-METAL(180)
L1508485-19A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	-
L1508485-20A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	-
L1508485-21A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	-

*Values in parentheses indicate holding time in days

Project Name: SOLVAY
Project Number: NP448.4.3

Lab Number: L1508485
Report Date: 05/12/15

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1508485-22A	Plastic 250ml HNO3 preserved	A	<2	3.6	Y	Absent	AS-TI(180)
L1508485-23A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	HOLD-CONTINGENCY(14),HOLD-WETCHEM(),HOLD-METAL(180)
L1508485-24A	Glass 100ml unpreserved	A	N/A	3.6	Y	Absent	HOLD-CONTINGENCY(14),HOLD-WETCHEM(),HOLD-METAL(180)

*Values in parentheses indicate holding time in days

Project Name:	SOLVAY	**Lab Number:**	L1508485
Project Number:	NP448.4.3	**Report Date:**	05/12/15

GLOSSARY

Acronyms

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

Report Format: DU Report with 'J' Qualifiers

Project Name:	SOLVAY	**Lab Number:**	L1508485
Project Number:	NP448.4.3	**Report Date:**	05/12/15

Data Qualifiers

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	SOLVAY	**Lab Number:**	L1508485
Project Number:	NP448.4.3	**Report Date:**	05/12/15

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

Last revised December 16, 2014

The following analytes are not included in our NELAP Scope of Accreditation:

Westborough Facility
EPA 524.2: Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether.
EPA 8260C: 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene, Iodomethane (methyl iodide), Methyl methacrylate, Azobenzene.
EPA 8270D: 1-Methylnaphthalene, Dimethylnaphthalene,1,4-Diphenylhydrazine.
EPA 625: 4-Chloroaniline, 4-Methylphenol.
SM4500: Soil: Total Phosphorus, TKN, NO2, NO3.
EPA 9071: Total Petroleum Hydrocarbons, Oil & Grease.

Mansfield Facility
EPA 8270D: Biphenyl.
EPA 2540D: TSS
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

The following analytes are included in our Massachusetts DEP Scope of Accreditation, Westborough Facility:

Drinking Water
EPA 200.8: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl; **EPA 200.7**: Ba,Be,Ca,Cd,Cr,Cu,Na; **EPA 245.1:** Mercury;
EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, Enterolert-QT.**

Non-Potable Water
EPA 200.8: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn;
EPA 200.7: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn;
EPA 245.1, SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2340B, SM2320B, SM4500CL-E, SM4500F-BC, SM426C, SM4500NH3-BH, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, SM4500P-B, E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.**
EPA 624: Volatile Halocarbons & Aromatics,
EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9222D-MF**.

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 4/23/15

ALPHA Job #: L1508485

Client Information

Client: ARCADIS
Address: 10 Friends Ln., Suite 200, Newtown, PA 18940
Phone: 267-685-1900
Fax: 267-685-1801
Email: Deric.Kearns@arcadis-us.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Solvay
Project Location: Morrisville, PA
Project #: NP448.4.3
Project Manager: Ryan Fitzpatrick
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 5/4/15 Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Report to MDLs - list 50M 1.2
Place contingency samples on hold

Extra Volume for AR-122(1.5-2.0)-042215 is for MS/MSD

BP

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic EPA 6010C	Contingency - Hold	SAMPLE HANDLING	TOTAL # BOTTLES
08485 -01	AR-120(1.5-2.0)-042215	4/23/15 BP	0955	S	BP/AL	X			1
-02	AR-123(1.5-2.0)-042215		1005			X			1
-03	AR-122(1.5-2.0)-042215		1015			X		Extra Volume for MS/MSD	3
-04	AR-121(1.5-2.0)-042215		1025			X	BP		1
-05	AR-125(1.5-2.0)-042215		1032			X	X	Contingency - Hold	1
-06	AR-124(1.5-2.0)-042215		1040			X	X	Contingency - Hold	1
-07	AR-131(1.5-2.0)-042215		1050			X	X	Contingency - Hold	1
-08	AR-130(1.5-2.0)-042215		1055			X	X	Contingency - Hold	1
-09	AR-129(1.5-2.0)-042215		1100			X	X	Contingency - Hold	1
-10	AR-128(1.5-2.0)-042215		1105			X	X	Contingency - Hold	1

SAMPLE HANDLING: Filtration ☐ Done ☐ Not needed ☐ Lab to do; Preservation ☐ Lab to do (Please specify below)

Sample Specific Comments

Container Type	A									
Preservative	A									

Relinquished By:	Date/Time	Received By:	Date/Time
	4/22/15 1600		4/23/15 1400
	4/23/15 1500		4/23/15 1500
	4/23/15 1930		4/23-15 1930
	4-23-15 2330		4/23/15 2330

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

CHAIN OF CUSTODY

PAGE 2 OF 3

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 4/23/15

ALPHA Job #: L1508485

Client Information

Client: ARCADIS
Address: 10 Friends Ln., Suite 200, Newtown, PA 18940
Phone: 267-685-1800
Fax: 267-685-1801
Email: Deric.Keasns@arcadis-us.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Solvay
Project Location: Morrisville, PA
Project #: NP448.4.3
Project Manager: Ryan Fitzpatrick
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 5/4/15 Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Report to MDLs - list SOM 1.2
Place contingency samples on hold

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Analysis: Arsenic EPA 6010C	Sample Specific Comments	TOTAL # BOTTLES
08485 -11	AR-127 ~~(1.0-1.5)~~ (1.5-2.0)-042215	4/22/15	1113	S	AR/B AL	X	Contingency - Hold	4
-12	AR-126 (1.5-2.0)-042215	4/22/15	1119			X	Contingency - Hold	1
-13	AR-115 (1.5-2.0)-042215		1300			X	Contingency - Hold	1
-14	AR-114 (1.5-2.0)-042215		1307			X	Contingency - Hold	1
-15	AR-113 (1.5-2.0)-042215		1316			X	Contingency - Hold Extra volume for MS/MSD	3
-16	AR-118 (1.5-2.0)-042215		1326			X	Contingency - Hold	1
-17	AR-117 (1.5-2.0)-042215		1335			X	Contingency - Hold	1
-18	AR-116 (1.5-2.0)-042215		1345			X	Contingency - Hold	1
-19	AR-119 (1.5-2.0)-042215		1410			X	Contingency - Hold	1
-20	AR-112 (1.5-2.0)-042215		1435			X	Contingency - Hold	1
	Container Type					A		
	Preservative					A		

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	4/22/15 1600	ARL John Wright	4/23/15 11:00
John Wright	4/23/15 1500	[illegible]	4/23/15 1500
[illegible]	4/23/15 1930	[illegible]	4/23/15 1930
[illegible]	4/23/15 2300	[illegible]	4/24/15 2300

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Serial No:05121515:43

CHAIN OF CUSTODY

PAGE 3 OF 3

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

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Project Manager: Ryan Fitzpatrick
ALPHA Quote #:

Turn-Around Time

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Date Due: 5/4/15 Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Report to MDLs - list SOM 1.2
Place contingency samples on hold

ANALYSIS: Arsenic EPA 6010C

SAMPLE HANDLING
Filtration
☐ Done ☐ Not needed ☐ Lab to do
Preservation
☐ Lab to do (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Arsenic EPA 6010C	Sample Specific Comments	TOTAL # BOTTLES
C8485-21	AR-111 (1.5-2.0)-042215	4/22/15	1445	SO/S	BP/AL	X	Contingency - Hold	1
-22	Field Blank	4/22/15	1505	L	BP/AL	X		1
-23	Dup-01-042215	4/22/15		S	BP/AL	X	Contingency - Hold	1
-24	Dup-02-042215	4/22/15		S	BP/AL	X	Contingency - Hold	1

BP

Container Type	A
Preservative	A

Relinquished By:	Date/Time	Received By:	Date/Time
BP	4/22/15 1600	AAL John Wright	4/23/15 14:00
John Wright	4/23/15 1930	Tom Tobin	4/23/15 1930
Tom Tobin	4-23-15 2350	Paul Chuang	4/24/15 2350

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

HC·V
HAMPTONCLARKE·VERITECH

175 ROUTE 46 WEST, UNIT D · FAIRFIELD, NJ 07004
2 MADISON ROAD, FAIRFIELD, NJ 07004
800-426-9992 · 973-244-9770
FAX: 973-244-9787

WWW.HCVLAB.COM

Project: Rhodia/Morrisville

Client PO: 4501945837

Report To: ARCADIS
10 Friends ln
Suite 200
Newton, PA 18940

Attn: Deric Kearns

Received Date: 6/20/2013

Report Date: 8/22/2013

Deliverables: PADEP-R

Lab ID: AC73102

Lab Project No: 3062105

REVISED

This report is a true report of results obtained from our tests of this material. The report relates only to those samples received and analyzed by the laboratory. All results meet the requirements of the NELAC Institute standards. Laboratory reports may not be reproduced, except in full, without the written approval of the laboratory.

In lieu of a formal contract document, the total aggregate liability of Veritech to all parties shall not exceed Veritech's total fee for analytical services rendered.

Robin Cousineau - Quality Assurance Director OR **Stanley Gilewicz - Laboratory Director**

NJ (07071) NY (ELAP11408) CT (PH-0671)
PA (68-00463) KY (90124)

NELAP ACCREDITED TNI LABORATORY

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Sample Summary

Client: ARCADIS
Project: Rhodia/Morrisville

HCV Project #: 3062105

Lab#	SampleID	Matrix	Collection Date	Receipt Date
AC73102-001	AR-15 (1.5-2.0)	Soil	6/18/2013	6/20/2013
AC73102-002	AR-15 (4.5-5.0)	Soil	6/18/2013	6/20/2013
AC73102-003	AR-8 (1.5-2.0)	Soil	6/18/2013	6/20/2013
AC73102-004	AR-8 (5.0-5.5)	Soil	6/18/2013	6/20/2013
AC73102-005	AR-16 (1.5-2.0)	Soil	6/18/2013	6/20/2013
AC73102-006	AR-16(5.0-5.5)	Soil	6/18/2013	6/20/2013
AC73102-007	AR-9 (1.5-2.0)	Soil	6/18/2013	6/20/2013
AC73102-008	AR-9 (5.0-5.5)	Soil	6/18/2013	6/20/2013
AC73102-009	AR-6 (1.5-2.0)	Soil	6/18/2013	6/20/2013
AC73102-010	AR-14 (1.5-2.0)	Soil	6/18/2013	6/20/2013
AC73102-011	AR-14 (5.0-5.5)	Soil	6/18/2013	6/20/2013
AC73102-012	AR-7 (1.5-2.0)	Soil	6/18/2013	6/20/2013
AC73102-013	AR-7 (5.0-5.5)	Soil	6/18/2013	6/20/2013
AC73102-014	AR-13 (11.0-11.5)	Soil	6/18/2013	6/20/2013
AC73102-015	AR-12 (7.0-7.5)	Soil	6/18/2013	6/20/2013
AC73102-016	EB061813	Aqueous	6/18/2013	6/20/2013
AC73102-017	AR-11 (1.5-2.0)	Soil	6/19/2013	6/20/2013
AC73102-018	AR-11 (1.5-2.0) MS	Soil	6/19/2013	6/20/2013
AC73102-019	AR-11 (1.5-2.0) MSD	Soil	6/19/2013	6/20/2013
AC73102-020	DUP-2	Soil	6/19/2013	6/20/2013
AC73102-021	AR-11 (7.5-8.0)	Soil	6/19/2013	6/20/2013
AC73102-022	AR-10 (1.5-2.0)	Soil	6/19/2013	6/20/2013
AC73102-023	AR-10 (3.5-4.0)	Soil	6/19/2013	6/20/2013
AC73102-024	AR-5 (11.0-11.5)	Soil	6/19/2013	6/20/2013
AC73102-025	AR-4 (7.0-7.5)	Soil	6/19/2013	6/20/2013
AC73102-026	AR-3 (1.5-2.0)	Soil	6/19/2013	6/20/2013
AC73102-027	AR-3 (7.5-8.0)	Soil	6/19/2013	6/20/2013
AC73102-028	AR-19 (1.5-2.0)	Soil	6/19/2013	6/20/2013
AC73102-029	AR-19 (1.5-2.0) MS	Soil	6/19/2013	6/20/2013
AC73102-030	AR-19 (1.5-2.0) MSD	Soil	6/19/2013	6/20/2013
AC73102-031	DUP-1	Soil	6/19/2013	6/20/2013
AC73102-032	AR-19 (7.5-8.0)	Soil	6/19/2013	6/20/2013
AC73102-033	AR-18 (8.0-8.5)	Soil	6/19/2013	6/20/2013

Client: ARCADIS

HCV Project #: 3062105

Project: Rhodia/Morrisville

Lab#	SampleID	Matrix	Collection Date	Receipt Date
AC73102-034	AR-1 (8.0-8.5)	Soil	6/19/2013	6/20/2013
AC73102-035	AR-2 (1.5-2.0)	Soil	6/19/2013	6/20/2013
AC73102-036	AR-2 (7.5-8.0)	Soil	6/19/2013	6/20/2013
AC73102-037	EB 061913	Aqueous	6/19/2013	6/20/2013
AC73102-038	OU-1	Soil	6/19/2013	6/20/2013
AC73102-039	OU-2	Soil	6/19/2013	6/20/2013
AC73102-040	OU-3	Soil	6/19/2013	6/20/2013
AC73102-041	OU-4	Soil	6/19/2013	6/20/2013

HCV Case Narrative

Client: Arcadis
Project: Rhodia/Morrisville

HCV Project: 3062105

This case narrative is in the form of an exception report. Method specific and/or QA/QC anomalies related to this report only are detailed below.

Metals Analysis:

The Matrix Spike and/or Matrix Spike Duplicate for batch 24302 had recoveries outside QC limits. However, since the associated Method Blank and Laboratory Control Sample were within control, no corrective action was necessary. In addition the MS/MSD RPD is outside QC limits. The RPD criteria were met between the LCS/LCS Method Replicate.

Reported to MDL per client request. When reporting to the MDL, detections are typically found in the blanks. Acceptance criteria for blanks are based on the RL.

Robin Cousineau
Quality Assurance Director

Or

Stanley Gilewicz
Laboratory Director

8/22/2013
Date

HCV Executive Summary

Client: ARCADIS **HCV Project #:** 3062105

Project: Rhodia/Morrisville

Lab#: AC73102-001 **Sample ID: AR-15 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.49	31	EPA 6010B

Lab#: AC73102-002 **Sample ID: AR-15 (4.5-5.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.50	17	EPA 6010B

Lab#: AC73102-003 **Sample ID: AR-8 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.53	48	EPA 6010B

Lab#: AC73102-004 **Sample ID: AR-8 (5.0-5.5)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.50	30	EPA 6010B

Lab#: AC73102-005 **Sample ID: AR-16 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.51	110	EPA 6010B

Lab#: AC73102-006 **Sample ID: AR-16(5.0-5.5)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.49	9.2	EPA 6010B

Lab#: AC73102-007 **Sample ID: AR-9 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.49	36	EPA 6010B

Lab#: AC73102-008 **Sample ID: AR-9 (5.0-5.5)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.49	39	EPA 6010B

Lab#: AC73102-009 **Sample ID: AR-6 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.53	18	EPA 6010B

HCV Executive Summary

Client: ARCADIS
Project: Rhodia/Morrisville

HCV Project #: 3062105

Lab#: AC73102-010 **Sample ID: AR-14 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.51	4.1	EPA 6010B

Lab#: AC73102-012 **Sample ID: AR-7 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.53	51	EPA 6010B

Lab#: AC73102-013 **Sample ID: AR-7 (5.0-5.5)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.53	27	EPA 6010B

Lab#: AC73102-014 **Sample ID: AR-13 (11.0-11.5)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.51	3.9	EPA 6010B

Lab#: AC73102-022 **Sample ID: AR-10 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.45	26	EPA 6010B

Lab#: AC73102-023 **Sample ID: AR-10 (3.5-4.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.47	25	EPA 6010B

Lab#: AC73102-024 **Sample ID: AR-5 (11.0-11.5)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.49	920	EPA 6010B

Lab#: AC73102-025 **Sample ID: AR-4 (7.0-7.5)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.48	5.3	EPA 6010B

Lab#: AC73102-026 **Sample ID: AR-3 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.46	6.9	EPA 6010B

HCV Executive Summary

Client: ARCADIS **HCV Project #:** 3062105

Project: Rhodia/Morrisville

Lab#: AC73102-027 **Sample ID: AR-3 (7.5-8.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.46	2.9	EPA 6010B

Lab#: AC73102-028 **Sample ID: AR-19 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.48	67	EPA 6010B

Lab#: AC73102-029 **Sample ID: AR-19 (1.5-2.0) MS**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.49	210	EPA 6010B

Lab#: AC73102-030 **Sample ID: AR-19 (1.5-2.0) MSD**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.45	1300	EPA 6010B

Lab#: AC73102-031 **Sample ID: DUP-1**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.46	80	EPA 6010B

Lab#: AC73102-032 **Sample ID: AR-19 (7.5-8.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.51	7.2	EPA 6010B

Lab#: AC73102-033 **Sample ID: AR-18 (8.0-8.5)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.46	66	EPA 6010B

Lab#: AC73102-034 **Sample ID: AR-1 (8.0-8.5)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.45	6.0	EPA 6010B

Lab#: AC73102-035 **Sample ID: AR-2 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.45	4.6	EPA 6010B

HCV Executive Summary

Client: ARCADIS **HCV Project #:** 3062105

Project: Rhodia/Morrisville

Lab#: AC73102-038 **Sample ID: OU-1**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.60	110	EPA 6010B

Lab#: AC73102-039 **Sample ID: OU-2**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.63	31	EPA 6010B

Lab#: AC73102-040 **Sample ID: OU-3**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.53	40	EPA 6010B

Lab#: AC73102-041 **Sample ID: OU-4**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.49	10	EPA 6010B

HCV Report Of Analysis

Client: ARCADIS
Project: Rhodia/Morrisville

HCV Project #: 3062105

Sample ID: AR-15 (1.5-2.0)
Lab#: AC73102-001
Matrix: Soil

Collection Date: 6/18/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		78

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.49	31

Sample ID: AR-15 (4.5-5.0)
Lab#: AC73102-002
Matrix: Soil

Collection Date: 6/18/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		76

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.50	17

Sample ID: AR-8 (1.5-2.0)
Lab#: AC73102-003
Matrix: Soil

Collection Date: 6/18/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		72

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.53	48

Sample ID: AR-8 (5.0-5.5)
Lab#: AC73102-004
Matrix: Soil

Collection Date: 6/18/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		76

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.50	30

Sample ID: AR-16 (1.5-2.0)
Lab#: AC73102-005
Matrix: Soil

Collection Date: 6/18/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		74

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.51	110

Sample ID: AR-16(5.0-5.5)
Lab#: AC73102-006
Matrix: Soil

Collection Date: 6/18/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		77

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.49	9.2

Sample ID: AR-9 (1.5-2.0)
Lab#: AC73102-007
Matrix: Soil

Collection Date: 6/18/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		77

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.49	36

Sample ID: AR-9 (5.0-5.5)
Lab#: AC73102-008
Matrix: Soil

Collection Date: 6/18/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		78

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.49	39

Sample ID: AR-6 (1.5-2.0)
Lab#: AC73102-009
Matrix: Soil

Collection Date: 6/18/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		72

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.53	18

Sample ID: AR-14 (1.5-2.0)
Lab#: AC73102-010
Matrix: Soil

Collection Date: 6/18/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		75

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.51	4.1

Sample ID: AR-7 (1.5-2.0)
Lab#: AC73102-012
Matrix: Soil

Collection Date: 6/18/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		71

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.53	51

Sample ID: AR-7 (5.0-5.5)
Lab#: AC73102-013
Matrix: Soil

Collection Date: 6/18/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		71

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.53	27

Sample ID: AR-13 (11.0-11.5)
Lab#: AC73102-014
Matrix: Soil

Collection Date: 6/18/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		75

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.51	3.9

Sample ID: EB061813
Lab#: AC73102-016
Matrix: Aqueous

Collection Date: 6/18/2013
Receipt Date: 6/20/2013

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	ug/l	3.8	ND

Sample ID: AR-10 (1.5-2.0)
Lab#: AC73102-022
Matrix: Soil

Collection Date: 6/19/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		84

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.45	26

Sample ID: AR-10 (3.5-4.0)
Lab#: AC73102-023
Matrix: Soil

Collection Date: 6/19/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		80

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.47	25

Sample ID: AR-5 (11.0-11.5)
Lab#: AC73102-024
Matrix: Soil

Collection Date: 6/19/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		78

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.49	920

Sample ID: AR-4 (7.0-7.5)
Lab#: AC73102-025
Matrix: Soil

Collection Date: 6/19/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		79

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.48	5.3

Sample ID: AR-3 (1.5-2.0)
Lab#: AC73102-026
Matrix: Soil

Collection Date: 6/19/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		82

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.46	6.9

Sample ID: AR-3 (7.5-8.0)
Lab#: AC73102-027
Matrix: Soil

Collection Date: 6/19/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		82

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.46	2.9

Sample ID: AR-19 (1.5-2.0)
Lab#: AC73102-028
Matrix: Soil

Collection Date: 6/19/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		79

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.48	67

Sample ID: AR-19 (1.5-2.0) MS
Lab#: AC73102-029
Matrix: Soil

Collection Date: 6/19/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		77

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.49	210

Sample ID: AR-19 (1.5-2.0) MSD
Lab#: AC73102-030
Matrix: Soil

Collection Date: 6/19/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		84

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.45	1300

Sample ID: DUP-1
Lab#: AC73102-031
Matrix: Soil

Collection Date: 6/19/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		83

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.46	80

Sample ID: AR-19 (7.5-8.0)
Lab#: AC73102-032
Matrix: Soil

Collection Date: 6/19/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		75

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.51	7.2

Sample ID: AR-18 (8.0-8.5)
Lab#: AC73102-033
Matrix: Soil

Collection Date: 6/19/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		83

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.46	66

Sample ID: AR-1 (8.0-8.5)
Lab#: AC73102-034
Matrix: Soil

Collection Date: 6/19/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		85

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.45	6.0

Sample ID: AR-2 (1.5-2.0)
Lab#: AC73102-035
Matrix: Soil

Collection Date: 6/19/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		84

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.45	4.6

Sample ID: EB 061913
Lab#: AC73102-037
Matrix: Aqueous

Collection Date: 6/19/2013
Receipt Date: 6/20/2013

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	ug/l	3.8	ND

Sample ID: OU-1
Lab#: AC73102-038
Matrix: Soil

Collection Date: 6/19/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		63

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.60	110

Sample ID: OU-2
Lab#: AC73102-039
Matrix: Soil

Collection Date: 6/19/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		60

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.63	31

Sample ID: OU-3
Lab#: AC73102-040
Matrix: Soil

Collection Date: 6/19/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		71

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.53	40

Sample ID: OU-4
Lab#: AC73102-041
Matrix: Soil

Collection Date: 6/19/2013
Receipt Date: 6/20/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		77

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	0.49	10

HCV Reporting Limit Definitions/Data Qualifiers

REPORTING DEFINITIONS

DF = Dilution Factor

MDL = Method Detection Limit

RL* = Reporting Limit

ND = Not Detected

RT = Retention Time

NA = Not Applicable

**Samples with elevated Reporting Limits (RLs) as a result of a dilution may not achieve client reporting limits in some cases. The elevated RLs are unavoidable consequences of sample dilution required to quantitate target analytes that exceed the calibration range of the instrument.*

DATA QUALIFIERS

B- Indicates analyte was present in the Method Blank and sample.

d- For Pesticide and PCB analysis, the concentration between primary and secondary columns is greater than 40%. The lower concentration is generally reported.

E- Indicates the concentration exceeded the upper calibration range of the instrument.

J- Indicates the value is estimated because it is either a Tentatively Identified Compound (TIC) or the reported concentration is greater than the MDL but less than the RL. For samples results between the MDL and RL there is a possibility of false positives or misidentification at the quantitation levels. Additionally, the acceptance criteria for QC samples may not be met.

Laboratory Chronicle

Client: ARCADIS **HCV Project #:** 3062105

Project: Rhodia/Morrisville

Lab#: AC73102-001 **Sample ID: AR-15 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	8/2/13 00:00	beena
Metals (single) 6010	3005&10/3050	08/12/13	AADEWUSI	EPA 6010B	8/13/13 13:17	OA

Lab#: AC73102-002 **Sample ID: AR-15 (4.5-5.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	8/2/13 00:00	beena
Metals (single) 6010	3005&10/3050	08/12/13	AADEWUSI	EPA 6010B	8/13/13 13:20	OA

Lab#: AC73102-003 **Sample ID: AR-8 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	06/25/13	aadewusi	EPA 6010B	6/27/13 12:18	SRB

Lab#: AC73102-004 **Sample ID: AR-8 (5.0-5.5)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	06/25/13	aadewusi	EPA 6010B	6/27/13 12:22	SRB

Lab#: AC73102-005 **Sample ID: AR-16 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	8/2/13 00:00	beena
Metals (single) 6010	3005&10/3050	08/12/13	AADEWUSI	EPA 6010B	8/13/13 13:24	OA

Laboratory Chronicle

Client: ARCADIS
Project: Rhodia/Morrisville

HCV Project #: 3062105

Lab#: AC73102-006 **Sample ID: AR-16(5.0-5.5)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	8/2/13 00:00	beena
Metals (single) 6010	3005&10/3050	08/12/13	AADEWUSI	EPA 6010B	8/13/13 13:27	OA

Lab#: AC73102-007 **Sample ID: AR-9 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	06/25/13	aadewusi	EPA 6010B	6/27/13 12:25	SRB

Lab#: AC73102-008 **Sample ID: AR-9 (5.0-5.5)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	06/25/13	aadewusi	EPA 6010B	6/27/13 12:29	SRB

Lab#: AC73102-009 **Sample ID: AR-6 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	06/25/13	aadewusi	EPA 6010B	6/27/13 12:32	SRB

Lab#: AC73102-010 **Sample ID: AR-14 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	8/2/13 00:00	beena
Metals (single) 6010	3005&10/3050	08/12/13	AADEWUSI	EPA 6010B	8/13/13 13:46	OA

Laboratory Chronicle

Client: ARCADIS **HCV Project #:** 3062105

Project: Rhodia/Morrisville

Lab#: AC73102-012 **Sample ID: AR-7 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	06/25/13	aadewusi	EPA 6010B	6/27/13 12:36	SRB

Lab#: AC73102-013 **Sample ID: AR-7 (5.0-5.5)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	06/25/13	aadewusi	EPA 6010B	6/27/13 12:55	SRB

Lab#: AC73102-014 **Sample ID: AR-13 (11.0-11.5)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	8/2/13 00:00	beena
Metals (single) 6010	3005&10/3050	08/12/13	AADEWUSI	EPA 6010B	8/13/13 13:50	OA

Lab#: AC73102-016 **Sample ID: EB061813**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
Metals (single) 6010	3005&10/3050	06/25/13	aadewusi	EPA 6010B	6/27/13 12:59	SRB

Lab#: AC73102-022 **Sample ID: AR-10 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	06/25/13	aadewusi	EPA 6010B	6/27/13 13:02	SRB

Laboratory Chronicle

Client: ARCADIS
Project: Rhodia/Morrisville

HCV Project #: 3062105

Lab#: AC73102-023 **Sample ID: AR-10 (3.5-4.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	06/25/13	aadewusi	EPA 6010B	6/27/13 13:06	SRB

Lab#: AC73102-024 **Sample ID: AR-5 (11.0-11.5)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	06/25/13	aadewusi	EPA 6010B	6/27/13 13:09	SRB

Lab#: AC73102-025 **Sample ID: AR-4 (7.0-7.5)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	06/25/13	aadewusi	EPA 6010B	6/27/13 13:13	SRB

Lab#: AC73102-026 **Sample ID: AR-3 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	06/25/13	aadewusi	EPA 6010B	6/27/13 13:16	SRB

Lab#: AC73102-027 **Sample ID: AR-3 (7.5-8.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	06/25/13	aadewusi	EPA 6010B	6/27/13 13:27	SRB

Laboratory Chronicle

Client: ARCADIS
Project: Rhodia/Morrisville

HCV Project #: 3062105

Lab#: AC73102-028 **Sample ID: AR-19 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	06/25/13	aadewusi	EPA 6010B	6/27/13 11:49	SRB

Lab#: AC73102-029 **Sample ID: AR-19 (1.5-2.0) MS**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	06/25/13	aadewusi	EPA 6010B	6/27/13 11:56	SRB

Lab#: AC73102-030 **Sample ID: AR-19 (1.5-2.0) MSD**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	06/25/13	aadewusi	EPA 6010B	6/27/13 12:00	SRB

Lab#: AC73102-031 **Sample ID: DUP-1**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	06/25/13	aadewusi	EPA 6010B	6/27/13 13:30	SRB

Lab#: AC73102-032 **Sample ID: AR-19 (7.5-8.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	06/25/13	aadewusi	EPA 6010B	6/27/13 13:34	SRB

Laboratory Chronicle

Client: ARCADIS **HCV Project #:** 3062105

Project: Rhodia/Morrisville

Lab#: AC73102-033 **Sample ID: AR-18 (8.0-8.5)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	06/25/13	aadewusi	EPA 6010B	6/27/13 13:37	SRB

Lab#: AC73102-034 **Sample ID: AR-1 (8.0-8.5)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	8/2/13 00:00	beena
Metals (single) 6010	3005&10/3050	08/12/13	AADEWUSI	EPA 6010B	8/13/13 13:53	OA

Lab#: AC73102-035 **Sample ID: AR-2 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	8/2/13 00:00	beena
Metals (single) 6010	3005&10/3050	08/12/13	AADEWUSI	EPA 6010B	8/13/13 13:58	OA

Lab#: AC73102-037 **Sample ID: EB 061913**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
Metals (single) 6010	3005&10/3050	07/01/13	Julijana	EPA 6010B	7/1/13 21:50	OA

Lab#: AC73102-038 **Sample ID: OU-1**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	07/01/13	Julijana	EPA 6010B	7/1/13 21:54	OA

Laboratory Chronicle

Client: ARCADIS **HCV Project #:** 3062105

Project: Rhodia/Morrisville

Lab#: AC73102-039 **Sample ID: OU-2**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	07/01/13	Julijana	EPA 6010B	7/1/13 21:57	OA

Lab#: AC73102-040 **Sample ID: OU-3**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	07/01/13	Julijana	EPA 6010B	7/1/13 22:01	OA

Lab#: AC73102-041 **Sample ID: OU-4**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	6/24/13 00:00	hossain
Metals (single) 6010	3005&10/3050	07/01/13	Julijana	EPA 6010B	7/1/13 22:04	OA

Chain of Custody

3062105 0039

Veritech/Division of Hampton-Clarke
175 Route 46 West and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787 | 973-439-1458
Service Center: 137-D Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056

HC-V HAMPTON·CLARKE·VERITECH

CHAIN OF CUSTODY RECORD

3062105 | Page 1 of 7

NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | WV #353 | KY #90124

Customer Information

a) Customer: ARCADIS
Address: 10 Friends Lane
Newtown, PA
1b) Email/Cell/Fax/Ph: Deric.Kearns@arcadis-us.com
1c) Send Invoice to: Deric Kearns
1d) Send Report to: Deric Kearns

Project Information

2a) Project: Former Rhodia Facility - Morrisville
2b) Project Mgr:
2c) Project Location (City/State): Morrisville, PA
2d) Quote/PO # (If Applicable): NP000448.0003

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Deliv.
24 Hours (100%)	Data Summary	Hazsite/CSV
48 Hours (75%)	Waste	EQuIS 4-File / EZ / NYS
72 Hours (50%)	Red - NJ / NY / PA	EQuIS EPA Region 2 or 5
4 Days (35%; TPH)	CLP	Excel - NJ Regulatory
1 Week (25%; EPH)	Full / Category B	Excel - NY Regulatory
10 Days (10%)	Category A	Excel - PA Regulatory
2 Weeks	Other:	PDF
Other:		Other:

Expedited TAT Not Always Available. Please Check with Lab.

FOR LAB USE ONLY

Batch # AC73102

Check If Contingent ===>

Matrix Codes
DW - Drinking Water | S - Soil | A - Air
GW - Ground Water | SL - Sludge
WW - Waste Water | OL - Oil
OT - Other (please specify under item 9, Comments)

7) Analysis Request

<=== Check If Contingent

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	Arsenic only via USEPA 6010B	Hold	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
-001	AR-15 (1.5-2.0)	S	6/18/13	0940		X		X	1								
-002	AR-15 (~~5.0-5.5~~ 4.5-5.0)	S		0954		X		X	1								
-003	AR-8 (1.5-2.0)	S		1008		X	X		1								
-004	AR-8 (5.0-5.5)	S		1010		X	X		1								
-005	AR-16 (1.5-2.0)	S		1055		X		X	1								
-006	AR-16 (5.0-5.5)	S		1057		X		X	1								
-007	AR-9 (1.5-2.0)	S		1107		X	X		1								
-008	AR-9 (~~5.0-5.5~~ 4.5-5.0)	S		1109		X	X		1								
-009	AR-~~8~~ (1.5-2.0)	S		1150		X	X		1								
-010	AR-14 (1.5-2.0)	S		1153		X		X	1								

10) Relinquished by:	Accepted by:	Date	Time
		6/18/13	0938
		6/20/13	16:45
		6/20/13	19:07

Additional Notes

Comments, Notes, Special Requirements, HAZARDS

Note: Check if low-level groundwater methods required to meet current standards in NJ or PA:
- [ ] BN or BNA (8270C SIM)
- [ ] VOC (8260B SIM or 8011)
- [ ] Metals (ICP-MS 200.8 or 6020)
- [ ] Metals-Soil (ICP-MS 6020 for Be & Ag)

Provide Equis-4 ParaEDDs
Report to MDLs - List 50M1.2

Note: Check if applicable:
- [ ] Project-Specific Reporting Limits
- [ ] High Contaminant Concentrations
- [ ] NJ LSRP Project

Cooler Temperature: 2.0

11) Sampler (print name): Bernhard Preusser Date: 6/18/13

Please circle required parameter list (refer to HC-V summary): i) NJ 2008 SRS; ii) Current TCL; iii) HC-V 2010 Merged; iv) PA; v) NY; vi) Project-Specific

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

Vertech/Division of HamptonClarke
175 Route 46 West and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787 | 973-439-1458
Service Center: 137-D Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056
NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | WV #353 | KY #90124

HC-V HamptonClarke·Veritech

CHAIN OF CUSTODY RECORD

3062105 0040

3062105

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Deliv.
24 Hours (100%)	Data Summary	Hazsite/CSV
48 Hours (75%)	Waste	EQuIS 4-File / EZ / NYS
72 Hours (50%)	Red - NJ / NY / PA	EQuIS EPA Region 2 or 5
4 Days (35%; TPH)	CLP	Excel - NJ Regulatory
1 Week (25%; EPH)	Full / Category B	Excel - NY Regulatory
10 Days (10%)	Category A	Excel - PA Regulatory
2 Weeks	Other:	PDF
Other:		Other:

Expedited TAT Not Always Available. Please Check with Lab.

Customer Information

1a) Customer: ARCADIS
Address: 10 Friends Lane Newtown, PA
1b) Email/Cell/Fax/Ph: Deric.Kearns@arcadis-us.com
1c) Send Invoice to: Deric Kearns
1d) Send Report to: Deric Kearns

Project Information

2a) Project: Former Rhodia Facility - Morrisville
2b) Project Mgr:
2c) Project Location (City/State): Morrisville, PA
2d) Quote/PO # (If Applicable): NP000448.0003

FOR LAB USE ONLY ↓

Batch # AC73102

Check If Contingent ===>

Matrix Codes

DW - Drinking Water S - Soil A - Air
GW - Ground Water SL - Sludge
WW - Waste Water OL - Oil
OT - Other (please specify under item 9, Comments)

7) Analysis Request

<=== Check If Contingent

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type Composite (C)	Sample Type Grab (G)	Arsenic only via EPA 6010B	Hold	8) # of Bottles None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
-011	AR-14(5.0-5.5)	S	6/18/13	1155		X		X	1								
-012	AR-7 (1.5-2.0)	S		1158		X	X		1								
-013	AR-7 (5.0-5.5)	S		1157		X	X		1								
-014	AR-13 (11.0-11.5)	S		1325		X		X	1								
-015	AR-12(7.0-7.5)	S		1345		X		X	1								
-016	EB061813	W		1547		X	X								1		
-017	AR-11(1.5-2.0)	S	6/19/13	0835		X		X	3								MS/MSD 018/019
020 ~~018~~ 6/21	Dup-2	S		0830		X		X	1								
021 ~~019~~	AR-11(7.5-8.0)	S		0840		X		X	1								
022 ~~020~~	AR-10(1.5-2.0)	S		0906		X	X		1								

10) Relinquished by:	Accepted by:	Date	Time
Ben P		6/20/13	0938
	John Brunell	6/20/13	1645
John Brunell		6/20/13	19:07

Additional Notes

Comments, Notes, Special Requirements, HAZARDS

Note: Check if low-level groundwater methods required to meet current standards in NJ or PA:

- ☐ BN or BNA (8270C SIM)
- ☐ VOC (8260B SIM or 8011)
- ☐ Metals (ICP-MS 200.8 or 6020)
- ☐ Metals-Soil (ICP-MS 6020 for Be & Ag)

Provide Equis 4 part EDDs
Report to MDLs - List SOM 1.2

Note: Check if applicable:

- ☐ Project-Specific Reporting Limits
- ☐ High Contaminant Concentrations
- ☐ NJ LSRP Project

Cooler Temperature: 2.0

11) Sampler (print name): Date:

Please circle required parameter list (refer to HC-V summary): i) NJ 2008 SRS; ii) Current TCL; iii) HC-V 2010 Merged; iv) PA; v) NY; vi) Project-Specific

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

Vertech/Division of Hampton-Clarke
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Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787 | 973-439-1458
Service Center: 137-D Gaither Drive, Mount Laurel, New Jersey 08054
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NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | WV #353 | KY #90124

HC-V HamptonClarke·Veritech

CHAIN OF CUSTODY RECORD

3062105 0041-3062105

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3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Deliv.
24 Hours (100%)	Data Summary	Hazsite/CSV
48 Hours (75%)	Waste	EQuIS 4-File / EZ / NYS
72 Hours (50%)	Red - NJ / NY / PA	EQuIS EPA Region 2 or 5
4 Days (35%; TPH)	CLP	Excel - NJ Regulatory
1 Week (25%; EPH)	Full / Category B	Excel - NY Regulatory
10 Days (10%)	Category A	Excel - PA Regulatory
2 Weeks	Other:	PDF
Other:		Other:

Expedited TAT Not Always Available. Please Check with Lab.

Customer Information

a) Customer: ARCADIS
Address: 10 Friends Lane
Newtown, PA
1b) Email/Cell/Fax/Ph: Deric.Kearns@arcadis-us.com
1c) Send Invoice to: Deric Kearns
1d) Send Report to: Deric Kearns

Project Information

2a) Project: Former Rhodia Facility - Morrisville
2b) Project Mgr:
2c) Project Location (City/State): Morrisville, PA
2d) Quote/PO # (If Applicable): NP000448.0003

FOR LAB USE ONLY ↓

Batch # AC73102

Check If Contingent ===>

Matrix Codes
DW - Drinking Water; S - Soil; A - Air; GW - Ground Water; SL - Sludge; WW - Waste Water; OL - Oil; OT - Other (please specify under item 9, Comments)

7) Analysis Request

<=== Check If Contingent

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	Arsenic only via USEPA 6010B	Hold	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
-023	AR-10 (3.5-4.0)	S	6/19/13	0907		X	X		1								
-024	AR-5 (11.0-11.5)	S		0925		X	X		1								
-025	AR-4 (7.0-7.5)	S		0941		X	X		1								
-026	AR-3 (1.5-2.0)	S		0956		X	X		1								
-027	AR-3 (7.5-8.0)	S		1005		X	X		1								
-028	AR-19 (1.5-2.0)	S		1010		X	X		3								MS/MSD 029/030
-031	Dup-1	S		1012		X	X		1								
-032	AR-19 (7.5-8.0)	S		1015		X	X		1								
-033	AR-18 (8.0-8.5)	S		1059		X	X		1								
-034	AR-1 (8.0-8.5)	S		1116		X		X	1								

10) Relinquished by: / **Accepted by:**

Relinquished by:	Accepted by:	Date	Time
		6/24/13	1938
	John Brunell	6/20/13	16:45
John Brunell		6/20/13	19:07

Additional Notes

Comments, Notes, Special Requirements, HAZARDS

Note: Check if low-level groundwater methods required to meet current standards in NJ or PA:
- ☐ BN or BNA (8270C SIM)
- ☐ VOC (8260B SIM or 8011)
- ☐ Metals (ICP-MS 200.8 or 6020)
- ☐ Metals-Soil (ICP-MS 6020 for Be & Ag)

Provide Equis 4 part EDDs
Report to MDLs - List 501.2

Note: Check if applicable:
- ☐ Project-Specific Reporting Limits
- ☐ High Contaminant Concentrations
- ☐ NJ LSRP Project

Cooler Temperature: 2.0c

11) Sampler (print name): Date:

Please circle required parameter list (refer to HC-V summary): i) NJ 2008 SRS; ii) Current TCL; iii) HC-V 2010 Merged; iv) PA; v) NY; vi) Project-Specific

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

3062105 0042

Veritech/Division of Hampton-Clarke
175 Route 46 West and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787 | 973-439-1458
Service Center: 137-D Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056

HC-V HamptonClarke-Veritech

CHAIN OF CUSTODY RECORD

Project # (Lab Use Only): 3062105

NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | WV #353 | KY #90124

Customer Information

1a) Customer: ARCADIS
Address: 10 Friends Lane
Newtown, PA
1b) Email/Cell/Fax/Ph: Deric.Kearns@arcadis-us.com
1c) Send Invoice to: Deric Kearns
1d) Send Report to: Deric Kearns

Project Information

2a) Project: Former Rhodra Facility - Morrisville, PA
2b) Project Mgr:
2c) Project Location (City/State): Morrisville, PA
2d) Quote/PO # (If Applicable): NP000448.0003

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Deliv.
24 Hours (100%)	Data Summary	Hazsite/CSV
48 Hours (75%)	Waste	EQuIS 4-File / EZ / NYS
72 Hours (50%)	Red - NJ / NY / PA	EQuIS EPA Region 2 or 5
4 Days (35%; TPH)	CLP	Excel - NJ Regulatory
1 Week (25%; EPH)	Full / Category B	Excel - NY Regulatory
10 Days (10%)	Category A	Excel - PA Regulatory
2 Weeks	Other:	PDF
Other:		Other:

Expedited TAT Not Always Available. Please Check with Lab.

FOR LAB USE ONLY ↓

Batch # AC73102

Check If Contingent ===>

Matrix Codes
DW - Drinking Water S - Soil A - Air
GW - Ground Water SL - Sludge
WW - Waste Water OL - Oil
OT - Other (please specify under item 9, Comments)

7) Analysis Request

<===Check If Contingent

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Composite (C)	Grab (G)	Arsenic only by USEPA 6010B	Hold	None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
-035	AR-2(1.5-2.0)	S	6/19/13	1128		X		X	1								
-036	AR-2(7.5-8.0)	S		1130		X		X	1								
-037	ED 061913	W		1148		X	X								1		
-038	OU-1	S		1239		X	X		1								
-039	OU-2	S		1245		X	X		1								
-040	OU-3	S		1257		X	X		1								
-041	OU-4	S		1340		X	X		1								

8) # of Bottles

10) Relinquished by:	Accepted by:	Date	Time
[signature]	[signature]	6/20/13	0938
[signature]	John Gunnell	6/20/13	16:45
John Gunnell	[signature]	6/20/13	190.7

Additional Notes

Comments, Notes, Special Requirements, HAZARDS

Note: Check if low-level groundwater methods required to meet current standards in NJ or PA:
- BN or BNA (8270C SIM)
- VOC (8260B SIM or 8011)
- Metals (ICP-MS 200.8 or 6020)
- Metals-Soil (ICP-MS 6020 for Be & Ag)

Provid Equis 4 part EDDs
Report to MDL or List SOM 1.2

Note: Check if applicable:
- Project-Specific Reporting Limits
- High Contaminant Concentrations
- NJ LSRP Project

Cooler Temperature: 2.0

11) Sampler (print name): Date:

Please circle required parameter list (refer to HC-V summary): i) NJ 2008 SRS; ii) Current TCL; iii) HC-V 2010 Merged; iv) PA; v) NY; vi) Project-Specific

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

PROJECT MODIFICATIONS

Client: ARCADIS-PA **HCV Project #:** 3062105

Project: Rhodia/Morrisville

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sherree192.168.1.52
7/30/2013 3:31:45 PM

Per Deric Kearns, analyze the following samples for As:
AC73102
-034 AR-1 (8.0-8.5)
-035 AR-2 (1.5-2.0)
-014 AR-13 (11.0-11.5)
-010 AR-14 (1.5-2.0)
-001 & -002 AR-15 (1.5-2.0) and (4.5-5.0)
-005 & -006 AR-16 1.5-2.0) and (5.0-5.5)
SB 7/30/13

CONDITION UPON RECEIPT

Batch Number AC73102 Entered By: Frantz

Date Entered 6/21/2013 8:46:00 AM

1	Yes	Is there a corresponding COC included with the samples?
2	Yes	Are the samples in a container such as a cooler or Ice chest?
3	Yes	Are the COC seals intact?
4	Yes	Please specify the Temperature inside the container (in degC) 2.0
5	Yes	Are the samples refrigerated (where required)/have they arrived on ice?
6	Yes	Are the samples within the holding times for the parameters listed on the COC? IF no, list parameters and samples:
7	Yes	Are all of the sample bottles intact? If no, specify sample numbers broken/leaking
8	Yes	Are all of the sample labels or numbers legible? If no specify:
9	Yes	Do the contents match the COC? If no, specify
10	Yes	Is there enough sample sent for the analyses listed on the COC? If no, specify:
11	Yes	Are samples preserved correctly?
12	Yes	Was temperature blank present (Place comment below if not)? If not was temperature of samples verified?
13	NA	Other comments ...Specify
14	NA	Corrective actions (Specify item number and corrective action taken).

PRESERVATION DOCUMENT

Batch Number AC73102

Entered By: Frantz

Date Entered 6/21/2013 8:47:00 AM

Lab#:	Container Siz	Container Typ	Parameter	Preservative	PH
AC73102-001	NA	NA	NA	NA	NA
AC73102-002	NA	NA	NA	NA	NA
AC73102-003	NA	NA	NA	NA	NA
AC73102-004	NA	NA	NA	NA	NA
AC73102-005	NA	NA	NA	NA	NA
AC73102-006	NA	NA	NA	NA	NA
AC73102-007	NA	NA	NA	NA	NA
AC73102-008	NA	NA	NA	NA	NA
AC73102-009	NA	NA	NA	NA	NA
AC73102-010	NA	NA	NA	NA	NA
AC73102-011	NA	NA	NA	NA	NA
AC73102-012	NA	NA	NA	NA	NA
AC73102-013	NA	NA	NA	NA	NA
AC73102-014	NA	NA	NA	NA	NA
AC73102-015	NA	NA	NA	NA	NA
AC73102-016	1L	P	METALS	HNO3	1
AC73102-017	NA	NA	NA	NA	NA
AC73102-018	NA	NA	NA	NA	NA
AC73102-019	NA	NA	NA	NA	NA
AC73102-020	NA	NA	NA	NA	NA
AC73102-021	NA	NA	NA	NA	NA
AC73102-022	NA	NA	NA	NA	NA
AC73102-023	NA	NA	NA	NA	NA
AC73102-024	NA	NA	NA	NA	NA
AC73102-025	NA	NA	NA	NA	NA
AC73102-026	NA	NA	NA	NA	NA
AC73102-027	NA	NA	NA	NA	NA
AC73102-028	NA	NA	NA	NA	NA
AC73102-029	NA	NA	NA	NA	NA
AC73102-030	NA	NA	NA	NA	NA
AC73102-031	NA	NA	NA	NA	NA
AC73102-032	NA	NA	NA	NA	NA
AC73102-033	NA	NA	NA	NA	NA
AC73102-034	NA	NA	NA	NA	NA
AC73102-035	NA	NA	NA	NA	NA
AC73102-036	NA	NA	NA	NA	NA
AC73102-037	1L	P	METALS	HNO3	1
AC73102-038	NA	NA	NA	NA	NA
AC73102-039	NA	NA	NA	NA	NA
AC73102-040	NA	NA	NA	NA	NA
AC73102-041	NA	NA	NA	NA	NA

Internal Chain of Custody

3062105 0045

Lab#:	DateTime:	Loc or User	Bot Nu	A/M	Analysis
AC73102-001	06/20/13 19:07	FRAN	0	M	Received
AC73102-001	06/21/13 08:46	FRAN	0	M	Login
AC73102-001	06/21/13 09:53	R12	1	A	NONE
AC73102-001	08/02/13 16:03	BCT	1	A	%SOLIDS
AC73102-001	08/02/13 16:03	R12	1	A	NONE
AC73102-001	08/12/13 11:50	R12	1	A	NONE
AC73102-001	08/12/13 11:52	AM	1	A	r12
AC73102-001	08/12/13 11:52	AM	1	A	tdsi/hg
AC73102-002	06/20/13 19:07	FRAN	0	M	Received
AC73102-002	06/21/13 08:46	FRAN	0	M	Login
AC73102-002	06/21/13 09:53	R12	1	A	NONE
AC73102-002	08/02/13 16:03	BCT	1	A	%SOLIDS
AC73102-002	08/02/13 16:03	R12	1	A	NONE
AC73102-002	08/12/13 11:50	R12	1	A	NONE
AC73102-002	08/12/13 11:52	AM	1	A	tdsi/hg
AC73102-002	08/12/13 11:52	AM	1	A	r12
AC73102-003	06/20/13 19:07	FRAN	0	M	Received
AC73102-003	06/21/13 08:46	FRAN	0	M	Login
AC73102-003	06/21/13 09:53	R12	1	A	NONE
AC73102-003	06/21/13 21:34	PA	1	A	mixing
AC73102-003	06/21/13 21:36	R12	1	A	NONE
AC73102-003	06/24/13 06:03	HS	1	A	%solids
AC73102-003	06/24/13 10:50	R12	1	A	NONE
AC73102-003	06/25/13 08:41	AM	1	A	tdsi
AC73102-003	06/25/13 08:43	AM	1	A	r12
AC73102-004	06/20/13 19:07	FRAN	0	M	Received
AC73102-004	06/21/13 08:46	FRAN	0	M	Login
AC73102-004	06/21/13 09:53	R12	1	A	NONE
AC73102-004	06/21/13 21:34	PA	1	A	mixing
AC73102-004	06/21/13 21:36	R12	1	A	NONE
AC73102-004	06/24/13 06:03	HS	1	A	%solids
AC73102-004	06/24/13 10:50	R12	1	A	NONE
AC73102-004	06/25/13 08:41	AM	1	A	tdsi
AC73102-004	06/25/13 08:43	AM	1	A	r12
AC73102-005	06/20/13 19:07	FRAN	0	M	Received
AC73102-005	06/21/13 08:46	FRAN	0	M	Login
AC73102-005	06/21/13 09:53	R12	1	A	NONE
AC73102-005	08/02/13 16:03	R12	1	A	NONE
AC73102-005	08/02/13 16:03	BCT	1	A	%SOLIDS
AC73102-005	08/12/13 11:50	R12	1	A	NONE
AC73102-005	08/12/13 11:52	AM	1	A	r12
AC73102-005	08/12/13 11:52	AM	1	A	tdsi/hg
AC73102-006	06/20/13 19:07	FRAN	0	M	Received
AC73102-006	06/21/13 08:46	FRAN	0	M	Login
AC73102-006	06/21/13 09:53	R12	1	A	NONE
AC73102-006	08/02/13 16:03	BCT	1	A	%SOLIDS
AC73102-006	08/02/13 16:03	R12	1	A	NONE
AC73102-006	08/12/13 11:50	R12	1	A	NONE
AC73102-006	08/12/13 11:52	AM	1	A	r12
AC73102-006	08/12/13 11:52	AM	1	A	tdsi/hg
AC73102-007	06/20/13 19:07	FRAN	0	M	Received
AC73102-007	06/21/13 08:46	FRAN	0	M	Login
AC73102-007	06/21/13 09:53	R12	1	A	NONE
AC73102-007	06/21/13 21:34	PA	1	A	mixing
AC73102-007	06/21/13 21:36	R12	1	A	NONE
AC73102-007	06/24/13 06:03	HS	1	A	%solids
AC73102-007	06/24/13 10:50	R12	1	A	NONE
AC73102-007	06/25/13 08:41	AM	1	A	tdsi
AC73102-007	06/25/13 08:43	AM	1	A	r12
AC73102-008	06/20/13 19:07	FRAN	0	M	Received
AC73102-008	06/21/13 08:46	FRAN	0	M	Login
AC73102-008	06/21/13 09:53	R12	1	A	NONE
AC73102-008	06/21/13 21:34	PA	1	A	mixing
AC73102-008	06/21/13 21:36	R12	1	A	NONE
AC73102-008	06/24/13 06:03	HS	1	A	%solids
AC73102-008	06/24/13 10:50	R12	1	A	NONE
AC73102-008	06/25/13 08:41	AM	1	A	tdsi
AC73102-008	06/25/13 08:43	AM	1	A	r12
AC73102-009	06/20/13 19:07	FRAN	0	M	Received
AC73102-009	06/21/13 08:46	FRAN	0	M	Login
AC73102-009	06/21/13 09:53	R12	1	A	NONE
AC73102-009	06/21/13 21:34	PA	1	A	mixing
AC73102-009	06/21/13 21:36	R12	1	A	NONE
AC73102-009	06/24/13 06:03	HS	1	A	%solids
AC73102-009	06/24/13 10:50	R12	1	A	NONE
AC73102-009	06/25/13 08:41	AM	1	A	tdsi
AC73102-009	06/25/13 08:43	AM	1	A	r12
AC73102-010	06/20/13 19:07	FRAN	0	M	Received
AC73102-010	06/21/13 08:46	FRAN	0	M	Login
AC73102-010	06/21/13 09:53	R12	1	A	NONE
AC73102-010	08/02/13 16:03	BCT	1	A	%SOLIDS
AC73102-010	08/02/13 16:03	R12	1	A	NONE
AC73102-010	08/12/13 11:50	R12	1	A	NONE
AC73102-010	08/12/13 11:52	AM	1	A	tdsi/hg
AC73102-010	08/12/13 11:52	AM	1	A	r12
AC73102-011	06/20/13 19:07	FRAN	0	M	Received
AC73102-011	06/21/13 08:46	FRAN	0	M	Login
AC73102-011	06/21/13 09:53	R12	1	A	NONE
AC73102-012	06/20/13 19:07	FRAN	0	M	Received
AC73102-012	06/21/13 08:46	FRAN	0	M	Login
AC73102-012	06/21/13 09:53	R12	1	A	NONE
AC73102-012	06/21/13 21:34	PA	1	A	mixing
AC73102-012	06/21/13 21:36	R12	1	A	NONE
AC73102-012	06/24/13 06:03	HS	1	A	%solids
AC73102-012	06/24/13 10:50	R12	1	A	NONE
AC73102-012	06/25/13 08:41	AM	1	A	tdsi
AC73102-012	06/25/13 08:43	AM	1	A	r12
AC73102-013	06/20/13 19:07	FRAN	0	M	Received
AC73102-013	06/21/13 08:46	FRAN	0	M	Login
AC73102-013	06/21/13 09:53	R12	1	A	NONE
AC73102-013	06/21/13 21:34	PA	1	A	mixing
AC73102-013	06/21/13 21:36	R12	1	A	NONE
AC73102-013	06/24/13 06:03	HS	1	A	%solids
AC73102-013	06/24/13 10:50	R12	1	A	NONE
AC73102-013	06/25/13 08:41	AM	1	A	tdsi
AC73102-013	06/25/13 08:43	AM	1	A	r12
AC73102-014	06/20/13 19:07	FRAN	0	M	Received
AC73102-014	06/21/13 08:46	FRAN	0	M	Login
AC73102-014	06/21/13 09:53	R12	1	A	NONE
AC73102-014	08/02/13 16:03	R12	1	A	NONE
AC73102-014	08/02/13 16:03	BCT	1	A	%SOLIDS
AC73102-014	08/12/13 11:50	R12	1	A	NONE
AC73102-014	08/12/13 11:52	AM	1	A	tdsi/hg
AC73102-014	08/12/13 11:52	AM	1	A	r12
AC73102-015	06/20/13 19:07	FRAN	0	M	Received
AC73102-015	06/21/13 08:46	FRAN	0	M	Login
AC73102-015	06/21/13 09:53	R12	1	A	NONE
AC73102-016	06/20/13 19:07	FRAN	0	M	Received
AC73102-016	06/21/13 08:46	FRAN	0	M	Login
AC73102-016	06/21/13 09:53	R12	1	A	NONE
AC73102-016	06/25/13 08:41	AM	1	A	tdsi
AC73102-016	06/25/13 08:43	AM	1	A	r12
AC73102-017	06/20/13 19:07	FRAN	0	M	Received
AC73102-017	06/21/13 08:46	FRAN	0	M	Login
AC73102-017	06/21/13 09:53	R12	1	A	NONE
AC73102-018	06/20/13 19:07	FRAN	0	M	Received
AC73102-018	06/21/13 08:46	FRAN	0	M	Login
AC73102-018	06/21/13 09:53	R12	1	A	NONE
AC73102-019	06/20/13 19:07	FRAN	0	M	Received
AC73102-019	06/21/13 08:46	FRAN	0	M	Login
AC73102-019	06/21/13 09:53	R12	1	A	NONE
AC73102-020	06/20/13 19:07	FRAN	0	M	Received
AC73102-020	06/21/13 08:46	FRAN	0	M	Login
AC73102-020	06/21/13 09:53	R12	1	A	NONE
AC73102-021	06/20/13 19:07	FRAN	0	M	Received
AC73102-021	06/21/13 08:46	FRAN	0	M	Login
AC73102-021	06/21/13 09:53	R12	1	A	NONE
AC73102-022	06/20/13 19:07	FRAN	0	M	Received
AC73102-022	06/21/13 08:46	FRAN	0	M	Login
AC73102-022	06/21/13 09:53	R12	1	A	NONE
AC73102-022	06/21/13 21:34	PA	1	A	mixing
AC73102-022	06/21/13 21:36	R12	1	A	NONE
AC73102-022	06/24/13 06:03	HS	1	A	%solids
AC73102-022	06/24/13 10:50	R12	1	A	NONE
AC73102-022	06/25/13 08:41	AM	1	A	tdsi
AC73102-022	06/25/13 08:43	AM	1	A	r12
AC73102-023	06/20/13 19:07	FRAN	0	M	Received
AC73102-023	06/21/13 08:46	FRAN	0	M	Login
AC73102-023	06/21/13 09:53	R12	1	A	NONE
AC73102-023	06/21/13 21:34	PA	1	A	mixing

Samples marked as received are stored in coolers or refrigerator R12, or R24 at 4 deg C until Login

Internal Chain of Custody

3062105 0046

Lab#:	DateTime:	Loc or User	Bot Nu	A/M	Analysis
AC73102-023	06/21/13 21:36	R12	1	A	NONE
AC73102-023	06/24/13 06:03	HS	1	A	%solids
AC73102-023	06/24/13 10:50	R12	1	A	NONE
AC73102-023	06/25/13 08:41	AM	1	A	tdsi
AC73102-023	06/25/13 08:43	AM	1	A	r12
AC73102-024	06/20/13 19:07	FRAN	0	M	Received
AC73102-024	06/21/13 08:46	FRAN	0	M	Login
AC73102-024	06/21/13 09:53	R12	1	A	NONE
AC73102-024	06/21/13 21:34	PA	1	A	mixing
AC73102-024	06/21/13 21:36	R12	1	A	NONE
AC73102-024	06/24/13 06:03	HS	1	A	%solids
AC73102-024	06/24/13 10:50	R12	1	A	NONE
AC73102-024	06/25/13 08:41	AM	1	A	tdsi
AC73102-024	06/25/13 08:43	AM	1	A	r12
AC73102-025	06/20/13 19:07	FRAN	0	M	Received
AC73102-025	06/21/13 08:46	FRAN	0	M	Login
AC73102-025	06/21/13 21:34	PA	1	A	mixing
AC73102-025	06/21/13 21:36	R12	1	A	NONE
AC73102-025	06/24/13 06:03	HS	1	A	%solids
AC73102-025	06/24/13 10:50	R12	1	A	NONE
AC73102-025	06/25/13 08:41	AM	1	A	tdsi
AC73102-025	06/25/13 08:43	AM	1	A	r12
AC73102-026	06/20/13 19:07	FRAN	0	M	Received
AC73102-026	06/21/13 08:46	FRAN	0	M	Login
AC73102-026	06/21/13 09:53	R12	1	A	NONE
AC73102-026	06/21/13 21:34	PA	1	A	mixing
AC73102-026	06/21/13 21:36	R12	1	A	NONE
AC73102-026	06/24/13 06:03	HS	1	A	%solids
AC73102-026	06/24/13 10:50	R12	1	A	NONE
AC73102-026	06/25/13 08:41	AM	1	A	tdsi
AC73102-026	06/25/13 08:43	AM	1	A	r12
AC73102-027	06/20/13 19:07	FRAN	0	M	Received
AC73102-027	06/21/13 08:46	FRAN	0	M	Login
AC73102-027	06/21/13 09:53	R12	1	A	NONE
AC73102-027	06/21/13 21:34	PA	1	A	mixing
AC73102-027	06/21/13 21:36	R12	1	A	NONE
AC73102-027	06/24/13 06:03	HS	1	A	%solids
AC73102-027	06/24/13 10:50	R12	1	A	NONE
AC73102-027	06/25/13 08:41	AM	1	A	tdsi
AC73102-027	06/25/13 08:43	AM	1	A	r12
AC73102-028	06/20/13 19:07	FRAN	0	M	Received
AC73102-028	06/21/13 08:46	FRAN	0	M	Login
AC73102-028	06/21/13 09:53	R12	1	A	NONE
AC73102-028	06/24/13 06:03	HS	1	A	%solids
AC73102-028	06/24/13 10:50	R12	1	A	NONE
AC73102-028	06/25/13 08:41	AM	1	A	tdsi
AC73102-028	06/25/13 08:43	AM	1	A	r12
AC73102-029	06/20/13 19:07	FRAN	0	M	Received
AC73102-029	06/21/13 08:46	FRAN	0	M	Login
AC73102-029	06/21/13 09:53	R12	1	A	NONE
AC73102-029	06/21/13 21:34	PA	1	A	mixing
AC73102-029	06/21/13 21:36	R12	1	A	NONE
AC73102-029	06/24/13 06:03	HS	1	A	%solids
AC73102-029	06/24/13 10:50	R12	1	A	NONE
AC73102-029	06/25/13 08:41	AM	1	A	tdsi
AC73102-029	06/25/13 08:43	AM	1	A	r12
AC73102-030	06/20/13 19:07	FRAN	0	M	Received
AC73102-030	06/21/13 08:46	FRAN	0	M	Login
AC73102-030	06/21/13 09:53	R12	1	A	NONE
AC73102-030	06/21/13 21:34	PA	1	A	mixing
AC73102-030	06/21/13 21:36	R12	1	A	NONE
AC73102-030	06/24/13 06:03	HS	1	A	%solids
AC73102-030	06/24/13 10:50	R12	1	A	NONE
AC73102-030	06/25/13 08:41	AM	1	A	tdsi
AC73102-030	06/25/13 08:43	AM	1	A	r12
AC73102-031	06/20/13 19:07	FRAN	0	M	Received
AC73102-031	06/21/13 08:46	FRAN	0	M	Login
AC73102-031	06/21/13 09:53	R12	1	A	NONE
AC73102-031	06/21/13 21:34	PA	1	A	mixing
AC73102-031	06/21/13 21:36	R12	1	A	NONE
AC73102-031	06/24/13 06:03	HS	1	A	%solids
AC73102-031	06/24/13 10:50	R12	1	A	NONE
AC73102-031	06/25/13 08:41	AM	1	A	tdsi
AC73102-031	06/25/13 08:43	AM	1	A	r12
AC73102-032	06/20/13 19:07	FRAN	0	M	Received
AC73102-032	06/21/13 08:46	FRAN	0	M	Login
AC73102-032	06/21/13 09:53	R12	1	A	NONE
AC73102-032	06/21/13 21:34	PA	1	A	mixing
AC73102-032	06/21/13 21:36	R12	1	A	NONE
AC73102-032	06/24/13 06:03	HS	1	A	%solids
AC73102-032	06/24/13 10:50	R12	1	A	NONE
AC73102-032	06/25/13 08:41	AM	1	A	tdsi
AC73102-032	06/25/13 08:43	AM	1	A	r12
AC73102-033	06/20/13 19:07	FRAN	0	M	Received
AC73102-033	06/21/13 08:46	FRAN	0	M	Login
AC73102-033	06/21/13 09:53	R12	1	A	NONE
AC73102-033	06/21/13 21:34	PA	1	A	mixing
AC73102-033	06/21/13 21:36	R12	1	A	NONE
AC73102-033	06/24/13 06:03	HS	1	A	%solids
AC73102-033	06/24/13 10:50	R12	1	A	NONE
AC73102-033	06/25/13 08:41	AM	1	A	tdsi
AC73102-033	06/25/13 08:43	AM	1	A	r12
AC73102-034	06/20/13 19:07	FRAN	0	M	Received
AC73102-034	06/21/13 08:46	FRAN	0	M	Login
AC73102-034	06/21/13 09:53	R12	1	A	NONE
AC73102-034	08/02/13 16:03	BCT	1	A	%SOLIDS
AC73102-034	08/02/13 16:03	R12	1	A	NONE
AC73102-034	08/12/13 11:50	R12	1	A	NONE
AC73102-034	08/12/13 11:52	AM	1	A	r12
AC73102-034	08/12/13 11:52	AM	1	A	tdsi/hg
AC73102-035	06/20/13 19:07	FRAN	0	M	Received
AC73102-035	06/21/13 08:46	FRAN	0	M	Login
AC73102-035	06/21/13 09:53	R12	1	A	NONE
AC73102-035	08/02/13 16:03	BCT	1	A	%SOLIDS
AC73102-035	08/02/13 16:03	R12	1	A	NONE
AC73102-035	08/12/13 11:50	R12	1	A	NONE
AC73102-035	08/12/13 11:52	AM	1	A	r12
AC73102-035	08/12/13 11:52	AM	1	A	tdsi/hg
AC73102-036	06/20/13 19:07	FRAN	0	M	Received
AC73102-036	06/21/13 08:46	FRAN	0	M	Login
AC73102-036	06/21/13 09:53	R12	1	A	NONE
AC73102-037	06/20/13 19:07	FRAN	0	M	Received
AC73102-037	06/21/13 08:46	FRAN	0	M	Login
AC73102-037	06/21/13 09:53	R12	1	A	NONE
AC73102-037	07/01/13 11:02	JU	1	A	tdsi-hg
AC73102-037	07/01/13 12:45	R12	1	A	NONE
AC73102-038	06/20/13 19:07	FRAN	0	M	Received
AC73102-038	06/21/13 08:46	FRAN	0	M	Login
AC73102-038	06/21/13 09:53	R12	1	A	NONE
AC73102-038	06/21/13 21:34	PA	1	A	mixing
AC73102-038	06/21/13 21:36	R12	1	A	NONE
AC73102-038	06/24/13 06:03	HS	1	A	%solids
AC73102-038	06/24/13 10:50	R12	1	A	NONE
AC73102-038	07/01/13 11:02	JU	1	A	tdsi-hg
AC73102-038	07/01/13 12:45	R12	1	A	NONE
AC73102-039	06/20/13 19:07	FRAN	0	M	Received
AC73102-039	06/21/13 08:46	FRAN	0	M	Login
AC73102-039	06/21/13 09:53	R12	1	A	NONE
AC73102-039	06/21/13 21:34	PA	1	A	mixing
AC73102-039	06/21/13 21:36	R12	1	A	NONE
AC73102-039	06/24/13 06:03	HS	1	A	%solids
AC73102-039	06/24/13 10:50	R12	1	A	NONE
AC73102-039	07/01/13 11:02	JU	1	A	tdsi-hg
AC73102-039	07/01/13 12:45	R12	1	A	NONE
AC73102-040	06/20/13 19:07	FRAN	0	M	Received
AC73102-040	06/21/13 08:46	FRAN	0	M	Login
AC73102-040	06/21/13 09:53	R12	1	A	NONE
AC73102-040	06/21/13 21:34	PA	1	A	mixing
AC73102-040	06/21/13 21:36	R12	1	A	NONE
AC73102-040	06/24/13 06:03	HS	1	A	%solids
AC73102-040	06/24/13 10:50	R12	1	A	NONE
AC73102-040	07/01/13 11:02	JU	1	A	tdsi-hg
AC73102-040	07/01/13 12:45	R12	1	A	NONE
AC73102-041	06/20/13 19:07	FRAN	0	M	Received
AC73102-041	06/21/13 08:46	FRAN	0	M	Login
AC73102-041	06/21/13 09:53	R12	1	A	NONE
AC73102-041	06/21/13 21:34	PA	1	A	mixing
AC73102-041	06/21/13 21:36	R12	1	A	NONE
AC73102-041	06/24/13 06:03	HS	1	A	%solids
AC73102-041	06/24/13 10:50	R12	1	A	NONE

Samples marked as received are stored in coolers or refrigerator R12, or R24 at 4 deg C until Login

Internal Chain of Custody

3062105 0046A

Lab#:	DateTime:	Loc or User	Bot Nu	A/M	Analysis
AC73102-041	07/01/13 11:02	JU	1	A	tdsi-hg
AC73102-041	07/01/13 12:45	R12	1	A	NONE

Lab#:	DateTime:	Loc or User	Bot Nu	A/M	Analysis

Samples marked as received are stored in coolers or refrigerator R12, or R24 at 4 deg C until Login

Metal Data

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-001	% Solid:	78	Lab Name:	Veritech	Nras No:	
Client Id:	AR-15 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.49	2.6	31	1	0.5	50	08/13/13	26581	S15333A3	22	P	PEICP3A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-002	% Solid:	76	Lab Name:	Veritech	Nras No:	
Client Id:	AR-15 (4.5-5.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.50	2.6	17	1	0.5	50	08/13/13	26581	S15333A3	23	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-003	% Solid:	72	Lab Name:	Veritech	Nras No:	
Client Id:	AR-8 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.53	2.8	48	1	0.5	50	06/27/13	24302	S15230A3	22	P	PEICP3A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-004	% Solid:	76	Lab Name:	Veritech	Nras No:	
Client Id:	AR-8 (5.0-5.5)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.50	2.6	30	1	0.5	50	06/27/13	24302	S15230A3	23	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-005	% Solid:	74	Lab Name:	Veritech	Nras No:	
Client Id:	AR-16 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.51	2.7	110	1	0.5	50	08/13/13	26581	S15333A3	24	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-006	% Solid:	77	Lab Name:	Veritech	Nras No:	
Client Id:	AR-16(5.0-5.5)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.49	2.6	9.2	1	0.5	50	08/13/13	26581	S15333A3	25	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-007	% Solid:	77	Lab Name:	Veritech	Nras No:	
Client Id:	AR-9 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.49	2.6	36	1	0.5	50	06/27/13	24302	S15230A3	24	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-008	% Solid:	78	Lab Name:	Veritech	Nras No:	
Client Id:	AR-9 (5.0-5.5)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.49	2.6	39	1	0.5	50	06/27/13	24302	S15230A3	25	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-009	% Solid:	72	Lab Name:	Veritech	Nras No:	
Client Id:	AR-6 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.53	2.8	18	1	0.5	50	06/27/13	24302	S15230A3	26	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-010	% Solid:	75	Lab Name:	Veritech	Nras No:	
Client Id:	AR-14 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.51	2.7	4.1	1	0.5	50	08/13/13	26581	S15333A3	30	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-012	% Solid:	71	Lab Name:	Veritech	Nras No:	
Client Id:	AR-7 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.53	2.8	51	1	0.5	50	06/27/13	24302	S15230A3	27	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-013	% Solid:	71	Lab Name:	Veritech	Nras No:	
Client Id:	AR-7 (5.0-5.5)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.53	2.8	27	1	0.5	50	06/27/13	24302	S15230A3	32	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-014	% Solid:	75	Lab Name:	Veritech	Nras No:	
Client Id:	AR-13 (11.0-11.5)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.51	2.7	3.9	1	0.5	50	08/13/13	26581	S15333A3	31	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-016	% Solid:	0	Lab Name:	Veritech	Nras No:	
Client Id:	EB061813	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	3.8	20	ND	1	50	50	06/27/13	24302	S15230A3	33	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-022	% Solid:	84	Lab Name:	Veritech	Nras No:	
Client Id:	AR-10 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.45	2.4	26	1	0.5	50	06/27/13	24302	S15230A3	34	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-023	% Solid:	80	Lab Name:	Veritech	Nras No:	
Client Id:	AR-10 (3.5-4.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.47	2.5	25	1	0.5	50	06/27/13	24302	S15230A3	35	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-024	% Solid:	78	Lab Name:	Veritech	Nras No:	
Client Id:	AR-5 (11.0-11.5)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.49	2.6	920	1	0.5	50	06/27/13	24302	S15230A3	36	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-025	% Solid:	79	Lab Name:	Veritech	Nras No:	
Client Id:	AR-4 (7.0-7.5)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.48	2.5	5.3	1	0.5	50	06/27/13	24302	S15230A3	37	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-026	% Solid:	82	Lab Name:	Veritech	Nras No:	
Client Id:	AR-3 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.46	2.4	6.9	1	0.5	50	06/27/13	24302	S15230A3	38	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-027	% Solid:	82	Lab Name:	Veritech	Nras No:	
Client Id:	AR-3 (7.5-8.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.46	2.4	2.9	1	0.5	50	06/27/13	24302	S15230A3	41	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-028	% Solid:	79	Lab Name:	Veritech	Nras No:	
Client Id:	AR-19 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.48	2.5	67	1	0.5	50	06/27/13	24302	S15230A3	14	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-029	% Solid:	77	Lab Name:	Veritech	Nras No:	
Client Id:	AR-19 (1.5-2.0) MS	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.49	2.6	210	1	0.5	50	06/27/13	24302	S15230A3	16	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-030	% Solid:	84	Lab Name:	Veritech	Nras No:	
Client Id:	AR-19 (1.5-2.0) MSD	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.45	2.4	1300	1	0.5	50	06/27/13	24302	S15230A3	17	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-031	% Solid:	83	Lab Name:	Veritech	Nras No:	
Client Id:	DUP-1	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.46	2.4	80	1	0.5	50	06/27/13	24302	S15230A3	42	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-032	% Solid:	75	Lab Name:	Veritech	Nras No:	
Client Id:	AR-19 (7.5-8.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.51	2.7	7.2	1	0.5	50	06/27/13	24302	S15230A3	43	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-033	% Solid:	83	Lab Name:	Veritech	Nras No:	
Client Id:	AR-18 (8.0-8.5)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.46	2.4	66	1	0.5	50	06/27/13	24302	S15230A3	44	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-034	% Solid:	85	Lab Name:	Veritech	Nras No:	
Client Id:	AR-1 (8.0-8.5)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.45	2.4	6.0	1	0.5	50	08/13/13	26581	S15333A3	32	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-035	% Solid:	84	Lab Name:	Veritech	Nras No:	
Client Id:	AR-2 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.45	2.4	4.6	1	0.5	50	08/13/13	26581	S15333A3	33	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-037	% Solid:	0	Lab Name:	Veritech	Nras No:	
Client Id:	EB 061913	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	3.8	20	ND	1	50	50	07/01/13	24303	S15231A3	22	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-038	% Solid:	63	Lab Name:	Veritech	Nras No:	
Client Id:	OU-1	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.60	3.2	110	1	0.5	50	07/01/13	24303	S15231A3	23	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-039	% Solid:	60	Lab Name:	Veritech	Nras No:	
Client Id:	OU-2	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.63	3.3	31	1	0.5	50	07/01/13	24303	S15231A3	24	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-040	% Solid:	71	Lab Name:	Veritech	Nras No:	
Client Id:	OU-3	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.53	2.8	40	1	0.5	50	07/01/13	24303	S15231A3	25	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC73102-041	% Solid:	77	Lab Name:	Veritech	Nras No:	
Client Id:	OU-4	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	6/21/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.49	2.6	10	1	0.5	50	07/01/13	24303	S15231A3	26	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID: MB 24303 (100) % Solid: 0 Lab Name: Veritech
Client Id: MB 24303 (100) Units: MG/KG Lab Code:
Matrix: SOIL
Level: LOW

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7429-90-5	Aluminum	15	200	ND	1	0.5	50	07/01/13	24303	S15231B3	10	P	PEICPRAD3A
7440-36-0	Antimony	0.51	2.0	ND	1	0.5	50	07/01/13	24303	S15231A3	11	P	PEICP3A
7440-38-2	Arsenic	0.38	2.0	ND	1	0.5	50	07/01/13	24303	S15231A3	11	P	PEICP3A
7440-39-3	Barium	0.074	10	ND	1	0.5	50	07/01/13	24303	S15231A3	11	P	PEICP3A
7440-41-7	Beryllium	0.014	0.60	0.082J	1	0.5	50	07/01/13	24303	S15231A3	11	P	PEICP3A
7440-43-9	Cadmium	0.078	0.60	0.11J	1	0.5	50	07/01/13	24303	S15231A3	11	P	PEICP3A
7440-70-2	Calcium	4.0	1000	25J	1	0.5	50	07/01/13	24303	S15231B3	10	P	PEICPRAD3A
7440-47-3	Chromium	0.26	5.0	ND	1	0.5	50	07/01/13	24303	S15231A3	11	P	PEICP3A
7440-48-4	Cobalt	0.13	2.5	ND	1	0.5	50	07/01/13	24303	S15231A3	11	P	PEICP3A
7440-50-8	Copper	0.19	5.0	ND	1	0.5	50	07/01/13	24303	S15231A3	11	P	PEICP3A
7439-89-6	Iron	5.4	200	ND	1	0.5	50	07/01/13	24303	S15231B3	10	P	PEICPRAD3A
7439-92-1	Lead	0.56	5.0	ND	1	0.5	50	07/01/13	24303	S15231A3	11	P	PEICP3A
7439-95-4	Magnesium	4.5	500	ND	1	0.5	50	07/01/13	24303	S15231B3	10	P	PEICPRAD3A
7439-96-5	Manganese	0.15	10	ND	1	0.5	50	07/01/13	24303	S15231A3	11	P	PEICP3A
7439-98-7	lolybdenum	0.20	2.5	ND	1	0.5	50	07/01/13	24303	S15231A3	11	P	PEICP3A
7440-02-0	Nickel	0.21	5.0	ND	1	0.5	50	07/01/13	24303	S15231A3	11	P	PEICP3A
7440-09-7	Potassium	6.9	500	30J	1	0.5	50	07/01/13	24303	S15231B3	10	P	PEICPRAD3A
7782-49-2	Selenium	0.94	1.8	ND	1	0.5	50	07/01/13	24303	S15231A3	11	P	PEICP3A
7440-22-4	Silver	0.20	1.5	0.22J	1	0.5	50	07/02/13	24303	S15231C3	11	P	PEICP3A
7440-23-5	Sodium	17	250	21J	1	0.5	50	07/01/13	24303	S15231B3	10	P	PEICPRAD3A
7440-28-0	Thallium	0.29	1.2	ND	1	0.5	50	07/01/13	24303	S15231A3	11	P	PEICP3A
7440-31-5	Tin	0.59	5.7	1.5J	1	0.5	50	07/01/13	24303	S15231A3	11	P	PEICP3A
7440-32-6	Titanium	0.022	35	0.17J	1	0.5	50	07/01/13	24303	S15231A3	11	P	PEICP3A
7440-62-2	Vanadium	0.097	10	ND	1	0.5	50	07/01/13	24303	S15231A3	11	P	PEICP3A
7440-66-6	Zinc	0.28	10	ND	1	0.5	50	07/01/13	24303	S15231A3	11	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID: MB 26581 (100) % Solid: 0 Lab Name: Veritech
Client Id: MB 26581 (100) Units: MG/KG Lab Code:
Matrix: SOIL
Level: LOW

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7429-90-5	Aluminum	15	200	ND	1	0.5	50	08/16/13	26581	S15333B3	10	P	PEICPRAD3A
7440-36-0	Antimony	0.51	2.0	ND	1	0.5	50	08/13/13	26581	S15333A3	11	P	PEICP3A
7440-38-2	Arsenic	0.38	2.0	ND	1	0.5	50	08/13/13	26581	S15333A3	11	P	PEICP3A
7440-39-3	Barium	0.074	10	ND	1	0.5	50	08/13/13	26581	S15333A3	11	P	PEICP3A
7440-41-7	Beryllium	0.014	0.60	ND	1	0.5	50	08/13/13	26581	S15333A3	11	P	PEICP3A
7440-43-9	Cadmium	0.078	0.60	0.11J	1	0.5	50	08/13/13	26581	S15333A3	11	P	PEICP3A
7440-70-2	Calcium	4.0	1000	27J	1	0.5	50	08/16/13	26581	S15333B3	10	P	PEICPRAD3A
7440-47-3	Chromium	0.26	5.0	ND	1	0.5	50	08/13/13	26581	S15333A3	11	P	PEICP3A
7440-48-4	Cobalt	0.13	2.5	ND	1	0.5	50	08/13/13	26581	S15333A3	11	P	PEICP3A
7440-50-8	Copper	0.19	5.0	0.47J	1	0.5	50	08/13/13	26581	S15333A3	11	P	PEICP3A
7439-89-6	Iron	5.4	200	ND	1	0.5	50	08/16/13	26581	S15333B3	10	P	PEICPRAD3A
7439-92-1	Lead	0.56	5.0	ND	1	0.5	50	08/13/13	26581	S15333A3	11	P	PEICP3A
7439-95-4	Magnesium	4.5	500	ND	1	0.5	50	08/16/13	26581	S15333B3	10	P	PEICPRAD3A
7439-96-5	Manganese	0.10	10	ND	1	0.5	50	08/16/13	26581	S15333B3	10	P	PEICPRAD3A
7439-98-7	lolybdenum	0.20	2.5	ND	1	0.5	50	08/13/13	26581	S15333A3	11	P	PEICP3A
7440-02-0	Nickel	0.21	5.0	ND	1	0.5	50	08/13/13	26581	S15333A3	11	P	PEICP3A
7440-09-7	Potassium	6.9	500	ND	1	0.5	50	08/16/13	26581	S15333B3	10	P	PEICPRAD3A
7782-49-2	Selenium	0.94	1.8	ND	1	0.5	50	08/13/13	26581	S15333A3	11	P	PEICP3A
7440-22-4	Silver	0.20	1.5	ND	1	0.5	50	08/13/13	26581	S15333A3	11	P	PEICP3A
7440-23-5	Sodium	17	250	ND	1	0.5	50	08/16/13	26581	S15333B3	10	P	PEICPRAD3A
7440-28-0	Thallium	0.29	1.2	ND	1	0.5	50	08/13/13	26581	S15333A3	11	P	PEICP3A
7440-31-5	Tin	0.59	5.7	ND	1	0.5	50	08/13/13	26581	S15333A3	11	P	PEICP3A
7440-32-6	Titanium	0.022	35	ND	1	0.5	50	08/13/13	26581	S15333A3	11	P	PEICP3A
7440-62-2	Vanadium	0.097	10	ND	1	0.5	50	08/13/13	26581	S15333A3	11	P	PEICP3A
7440-66-6	Zinc	0.28	10	0.45J	1	0.5	50	08/13/13	26581	S15333A3	11	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID: MB 24302 (100) % Solid: 0 Lab Name: Veritech
Client Id: MB 24302 (100) Units: MG/KG Lab Code:
Matrix: SOIL
Level: LOW

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7429-90-5	Aluminum	4.4	200	ND	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7440-36-0	Antimony	0.51	2.0	ND	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7440-38-2	Arsenic	0.38	2.0	ND	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7440-39-3	Barium	0.074	10	ND	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7440-41-7	Beryllium	0.014	0.60	ND	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7440-43-9	Cadmium	0.078	0.60	ND	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7440-70-2	Calcium	38	1000	51J	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7440-47-3	Chromium	0.26	5.0	ND	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7440-48-4	Cobalt	0.13	2.5	ND	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7440-50-8	Copper	0.19	5.0	ND	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7439-89-6	Iron	6.5	200	ND	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7439-92-1	Lead	0.56	5.0	ND	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7439-95-4	Magnesium	8.5	500	ND	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7439-96-5	Manganese	0.15	10	ND	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7439-98-7	lolybdenum	0.20	2.5	ND	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7440-02-0	Nickel	0.21	5.0	ND	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7782-49-2	Selenium	0.94	1.8	ND	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7440-22-4	Silver	0.20	1.5	ND	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7440-28-0	Thallium	0.29	1.2	ND	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7440-31-5	Tin	0.59	5.7	1.0J	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7440-32-6	Titanium	0.022	35	ND	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7440-62-2	Vanadium	0.097	10	ND	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A
7440-66-6	Zinc	0.28	10	0.29J	1	0.5	50	06/27/13	24302	S15230A3	11	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

FORM 2
(ICV/CCV Summary)

Date Analyzed: 06/27/13
Data File: S15230A3
Prep Batch: 24302
Analytical Method: 6010B(ICP)/7470A,7471A(Hg),6020
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3062105

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICV/CCV SOURCE: VHG LABS

Analyte	ICV/CCV Amt	ICV (2) V-165585-7	Rec	CCV V-166878-19	Rec	CCV V-166878-30	Rec	CCV V-166878-39	Rec	CCV V-166878-49	Rec		Rec		Rec		Rec
Arsenic	1/.5	1.00580	101	0.49602	99	0.49854	100	0.49975	100	0.50636	101						

Notes:
a-indicates analyte failed the ICV limits for 6010B, 6020
b-indicates analyte failed the ICV limits for 200.7 or 200.8
c-indicates analyte failed the CCV limits for 200.7/200.8/245.1/6010B (Except Hg 7470A,7471A),6020
d-indicates analyte failed the CCV limits Hg 7470A/7471A

Qc Limits:
ICV - 200.7 : 95-105
CCV- 200.7/200.8/6010B/245.1 : 90-110 (Except Hg 7470A/ 7471A=80-120)
ICV -6010B/6020/200.8 : 90-11

CLP ICP ICV/CCV: 90-110
CLP Hg ICV/CCV: 80-120

FORM 2
(ICV/CCV Summary)

Date Analyzed: 08/13/13
Data File: S15333A3
Prep Batch: 26581
Analytical Method: 6010B(ICP)/7470A,7471A(Hg),6020
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3062105

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICV/CCV SOURCE: VHG LABS

Analyte	ICV/CCV Amt	ICV (2) V-168169-7	Rec	CCV V-168988-19	Rec	CCV V-168988-28	Rec	CCV V-168988-36	Rec	Rec	Rec	Rec	Rec	Rec
Antimony	1/.5	1.00440	100	0.49380	99	0.49652	99	0.49525	99					
Arsenic	1/.5	1.00429	100	0.49347	99	0.49066	98	0.49630	99					
Barium	1/.5	1.01865	102	0.50880	102	0.50766	102	0.50737	101					
Beryllium	1/.5	1.00341	100	0.49552	99	0.49383	99	0.49855	100					
Cadmium	1/.5	1.01182	101	0.48736	97	0.48501	97	0.48998	98					
Chromium	1/.5	1.00708	101	0.50057	100	0.50177	100	0.50173	100					
Cobalt	1/.5	1.01826	102	0.50465	101	0.50412	101	0.50593	101					
Copper	1/.5	1.00357	100	0.48743	97	0.48666	97	0.48346	97					
Lead	1/.5	1.00741	101	0.50331	101	0.50543	101	0.50624	101					
Nickel	1/.5	0.99492	99	0.49880	100	0.49963	100	0.50032	100					
Selenium	1/.5	1.00737	101	0.49679	99	0.49155	98	0.49874	100					
Silver	0.2/0.1	0.20175	101	0.09836	98	0.09925	99	0.09856	99					
Thallium	1/.5	1.03554	104	0.51508	103	0.51794	104	0.49968	100					
Vanadium	1/.5	0.99923	100	0.50030	100	0.49993	100	0.50201	100					
Zinc	1/.5	1.00061	100	0.49832	100	0.50236	100	0.50065	100					

Notes: a-indicates analyte failed the ICV limits for 6010B, 6020
b-indicates analyte failed the ICV limits for 200.7 or 200.8
c-indicates analyte failed the CCV limits for 200.7/200.8/245.1/6010B (Except Hg 7470A,7471A),6020
d-indicates analyte failed the CCV limits Hg 7470A/7471A

Qc Limits: ICV - 200.7 : 95-105
CCV- 200.7/200.8/6010B/245.1 : 90-110 (Except Hg 7470A/ 7471A=80-120)
ICV -6010B/6020/200.8 : 90-11

CLP ICP ICV/CCV: 90-110
CLP Hg ICV/CCV: 80-120

FORM 2
(ICV/CCV Summary)

Date Analyzed: 07/01/13
Data File: S15231A3
Prep Batch: 24303
Analytical Method: 6010B(ICP)/7470A,7471A(Hg),6020
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3062105

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICV/CCV SOURCE: VHG LABS

Analyte	ICV/CCV Amt	ICV (2) V-165585-7	Rec	CCV V-166878-19	Rec	CCV V-166878-29	Rec	CCV V-166878-38	Rec		Rec		Rec		Rec		Rec
Antimony	1/.5	1.00702	101	0.50075	100	0.49481	99	0.49858	100								
Arsenic	1/.5	1.01612	102	0.49987	100	0.49779	100	0.49821	100								
Barium	1/.5	1.01848	102	0.51504	103	0.51439	103	0.51604	103								
Beryllium	1/.5	1.01745	102	0.50400	101	0.50252	101	0.50578	101								
Cadmium	1/.5	1.01248	101	0.50512	101	0.50586	101	0.50745	101								
Chromium	1/.5	1.01182	101	0.51144	102	0.50971	102	0.51041	102								
Cobalt	1/.5	1.01348	101	0.51659	103	0.51522	103	0.51622	103								
Copper	1/.5	1.00694	101	0.50697	101	0.50520	101	0.50806	102								
Lead	1/.5	1.00366	100	0.51267	103	0.50629	101	0.51229	102								
Manganese	1/.5	1.01386	101	0.50150	100	0.50063	100	0.50327	101								
Nickel	1/.5	0.99897	100	0.50760	102	0.50699	101	0.50861	102								
Selenium	1/.5	1.01392	101	0.49790	100	0.49510	99	0.50285	101								
Thallium	1/.5	1.03442	103	0.52304	105	0.51795	104	0.52594	105								
Vanadium	1/.5	0.99889	100	0.50711	101	0.50667	101	0.50880	102								
Zinc	1/.5	1.01436	101	0.50646	101	0.50428	101	0.50509	101								

Notes: a-indicates analyte failed the ICV limits for 6010B, 6020
b-indicates analyte failed the ICV limits for 200.7 or 200.8
c-indicates analyte failed the CCV limits for 200.7/200.8/245.1/6010B (Except Hg 7470A,7471A),6020
d-indicates analyte failed the CCV limits Hg 7470A/7471A

Qc Limits: ICV - 200.7 : 95-105
CCV- 200.7/200.8/6010B/245.1 : 90-110 (Except Hg 7470A/ 7471A=80-120)
ICV -6010B/6020/200.8 : 90-11

CLP ICP ICV/CCV: 90-110
CLP Hg ICV/CCV: 80-120

FORM 3
(ICB/CCB/MB Summary)

Date Analyzed: 06/27/13
Data File: S15230A3
Prep Batch: 24302
Reporting Limits Used: SOIL,6010B(ICP)/7470A,7471A(Hg),6020
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3062105

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:

Analyte	ICB V-166272-8	CCB V-166272-20	CCB V-166272-31	CCB V-166272-40	CCB V-166272-50	MB 24302 (100)-11	MB FB (1)-45	
Arsenic	.00379 U	.00379 U	.00379 U	.00379 U	.00379 U	.38 U	.0038 U	

Notes: a-indicates absolute value of result found above the reporting limits in CCB/ICB or result found above reporting limit in the MB
u-indicates result below reporting limit

FORM 3
(ICB/CCB/MB Summary)

Date Analyzed: 08/13/13
Data File: S15333A3
Prep Batch: 26581
Reporting Limits Used: SOIL,6010B(ICP)/7470A,7471A(Hg),6020
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3062105

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:

Analyte	ICB V-166272-8	CCB V-166272-20	CCB V-166272-29	CCB V-166272-37	MB 26581 (100)-11			
Antimony	.00505 U	-.00768 a	.00505 U	.00505 U	.51 U			
Arsenic	.00379 U	.00512 a	.00379 U	.00379 U	.38 U			
Barium	-.00122 a	-.00135 a	-.00143 a	-.00115 a	.074 U			
Beryllium	-.000692 a	-.000801 a	-.00079 a	-.000789 a	.014 U			
Cadmium	.000785 U	.00105 a	.00115 a	.000927 a	.11 a			
Chromium	.00257 U	-.00286 a	-.00303 a	-.0027 a	.26 U			
Cobalt	-.00332 a	-.00283 a	-.00287 a	-.00236 a	.13 U			
Copper	.00403 a	.00187 U	.0026 a	.00388 a	.47 a			
Lead	.00565 U	.00565 U	.00565 U	.00565 U	.56 U			
Nickel	-.00359 a	-.00339 a	-.00282 a	-.00308 a	.21 U			
Selenium	.0094 U	.0094 U	.0094 U	.0094 U	.94 U			
Silver	.00195 U	.00195 U	.00195 U	.00195 U	.2 U			
Thallium	.00289 U	-.00328 a	.00289 U	.00289 U	.29 U			
Vanadium	-.00209 a	-.00199 a	-.00272 a	-.00107 a	.098 U			
Zinc	.00282 U	.00282 U	.00282 U	.00282 U	.45 a			

Notes: a-indicates absolute value of result found above the reporting limits in CCB/ICB or result found above reporting limit in the MB
u-indicates result below reporting limit

FORM 3
(ICB/CCB/MB Summary)

Date Analyzed: 07/01/13
Data File: S15231A3
Prep Batch: 24303
Reporting Limits Used: SOIL,6010B(ICP)/7470A,7471A(Hg),6020
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3062105

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:

Analyte	ICB V-166272-8	CCB V-166272-20	CCB V-166272-30	CCB V-166272-39	MB 24303 (100)-11	MB FB (1)-34		
Antimony	.00528 a	.00505 U	.00505 U	.0059 a	.51 U	.0061 a		
Arsenic	.00479 a	.00379 U	.00379 U	.00379 U	.38 U	.0038 U		
Barium	.000738 U	.000738 U	.000738 U	.000738 U	.074 U	.00074 U		
Beryllium	.000791 a	.00083 a	.000814 a	.000825 a	.082 a	.00074 a		
Cadmium	.00102 a	.0013 a	.000981 a	.00116 a	.11 a	.001 a		
Chromium	.00257 U	.00257 U	.00257 U	.00257 U	.26 U	.0026 U		
Cobalt	.00131 U	.00131 U	.00131 U	.00131 U	.13 U	.0013 U		
Copper	.00187 U	.00187 U	-.0025 a	.00187 U	.19 U	.0019 U		
Lead	.00565 U	.00565 U	.00565 U	.00565 U	.56 U	.0056 U		
Manganese	.00146 U	.00146 U	.00146 U	.00146 U	.15 U	.0015 U		
Nickel	.00215 U	.00215 U	.00215 U	.00215 U	.21 U	.0021 U		
Selenium	.0094 U	.0094 U	.0094 U	.0094 U	.94 U	.0094 U		
Thallium	.00396 a	.00289 U	.00319 a	.00289 U	.29 U	.0029 U		
Vanadium	.000975 U	.000975 U	.000975 U	-.00106 a	.098 U	.00098 U		
Zinc	.00282 U	.00282 U	.00282 U	.00282 U	.28 U	.0028 U		

Notes: a-indicates absolute value of result found above the reporting limits in CCB/ICB or result found above reporting limit in the MB
u-indicates result below reporting limit

FORM 4
(ICSA/ICSAB Summary)

Date Analyzed: 06/27/13
Data File: S15230A3
Prep Batch: 24302
Reporting Limits Used: SOIL,6010B(ICP)/7470A,7471A(Hg),6020
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3062105

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICSA/ICSAB: SOURCE: VHG LABS

Analyte	Spk Amt	ICSA V-166695-9	Rec	ICSAB V-166696-10	Rec	ICSA V-166695-28	Rec	ICSAB V-166696-29	Rec	ICSA V-166695-47	Rec	ICSAB V-166696-48	Rec		Rec		Rec
Aluminum	500	500.013	100	510.70300	102	502.49	100	501.69500	100	501.041	100	502.99600	101				
Arsenic	1	-.0045155b		1.03768	104	-.0053313b		1.02896	103	U		1.04474	104				
Calcium	500	468.557	94	478.54400	96	475.057	95	473.00800	95	473.764	95	474.62700	95				
Iron	200	191.638	96	196.24500	98	194.003	97	193.77900	97	193.627	97	194.57300	97				
Magnesium	500	511.901	102	524.30500	105	520.712	104	520.09600	104	521.325	104	523.32300	105				

Notes: a-indicates absolute value of the concentration > 2 * Reporting Limits In the ICSA
b-indicates absolute value of the concentration above Reporting Limits but < 2 * Reporting Limits in the ICSA
c-indicates the recovery failed the Qc Criteria in the ICSAB
u-indicates the absolute value of the concentration was below the reporting limit

FORM 4
(ICSA/ICSAB Summary)

Date Analyzed: 08/13/13
Data File: S15333A3
Prep Batch: 26581
Reporting Limits Used: SOIL,6010B(ICP)/7470A,7471A(Hg),6020
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3062105

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICSA/ICSAB: SOURCE: VHG LABS

Analyte	Spk Amt	ICSA V-169160-9	Rec	ICSAB V-169161-10	Rec	ICSA V-169160-26	Rec	ICSAB V-169161-27	Rec	ICSA V-169160-34	Rec	ICSAB V-169161-35	Rec		Rec		Rec
Aluminum	500	499.267	100	489.74800	98	496.807	99	491.99700	98	500.22	100	490.47300	98				
Antimony	1	-.005492b		1.02884	103	U		1.03663	104	U		1.04324	104				
Arsenic	1	U		1.01933	102	U		1.02284	102	U		1.02886	103				
Barium	.5	.0066149a		0.52680	105	.0062476a		0.52789	106	.0064805a		0.52447	105				
Beryllium	.5	-.0012447a		0.50939	102	-.0013632a		0.51113	102	-.0014672a		0.51213	102				
Cadmium	1	.0030493a		1.03997	104	.0020102a		1.04125	104	.0015864a		1.03768	104				
Calcium	500	484.278	97	475.84100	95	481.489	96	479.25300	96	483.612	97	478.13900	96				
Chromium	.5	-.0089603a		0.49946	100	-.0097096a		0.50191	100	-.0096758a		0.49737	99				
Cobalt	.5	.0037106a		0.49945	100	.0037014a		0.50095	100	.0037263a		0.49967	100				
Copper	.5	.0042091a		0.54860	110	.004678a		0.54698	109	.005027a		0.54199	108				
Iron	200	190.7	95	187.21600	94	190.256	95	188.65100	94	192.378	96	189.12000	95				
Lead	1	.0076774b		0.98869	99	.0073968b		0.99412	99	U		0.98916	99				
Magnesium	500	512.364	102	503.62100	101	517.415	103	510.45800	102	527.635	106	518.44000	104				
Nickel	1	-.0059793a		0.95882	96	-.0052818a		0.96210	96	-.0051579a		0.96197	96				
Selenium	1	U		1.01749	102	U		1.02464	102	U		1.01526	102				
Silver	1	-.0024856b		1.09855	110	-.0031667b		1.09635	110	-.0044048a		1.08858	109				
Thallium	1	U		0.98820	99	U		0.97151	97	-.0058613a		0.95292	95				
Vanadium	.5	.0148461a		0.50784	102	.0139078a		0.51097	102	.0146527a		0.50694	101				
Zinc	1	.003488b		0.95434	95	.0038075b		0.95793	96	.0037977b		0.95551	96				

Notes: a-indicates absolute value of the concentration > 2 * Reporting Limits In the ICSA
b-indicates absolute value of the concentration above Reporting Limits but < 2 * Reporting Limits in the ICSA
c-indicates the recovery failed the Qc Criteria in the ICSAB
u-indicates the absolute value of the concentration was below the reporting limit

FORM 4
(ICSA/ICSAB Summary)

Date Analyzed: 07/01/13
Data File: S15231A3
Prep Batch: 24303
Reporting Limits Used: SOIL,6010B(ICP)/7470A,7471A(Hg),6020
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3062105

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICSA/ICSAB: SOURCE: VHG LABS

Analyte	Spk Amt	ICSA V-166695-9	Rec	ICSAB V-166696-10	Rec	ICSA V-166695-27	Rec	ICSAB V-166696-28	Rec	ICSA V-166695-36	Rec	ICSAB V-166696-37	Rec		Rec		Rec
Aluminum	500	501.803	100	503.35600	101	498.862	100	513.84200	103	514.25	103	522.88700	105				
Antimony	1	U		1.03492	103	.008338b		1.03363	103	.0070498b		1.05328	105				
Arsenic	1	U		1.03394	103	U		1.03608	104	U		1.05906	106				
Barium	.5	.006932a		0.52350	105	.0067721a		0.53262	107	.0069163a		0.53705	107				
Beryllium	.5	.000883a		0.50439	101	.0009223a		0.50955	102	.0009121a		0.52629	105				
Cadmium	1	.0025853a		0.97859	98	.002765a		0.99112	99	.0028483a		1.06721	107				
Calcium	500	468.151	94	469.86100	94	464.762	93	478.29100	96	478.27	96	486.91700	97				
Chromium	.5	.0036731b		0.49508	99	.0031617b		0.49950	100	.0029326b		0.50867	102				
Cobalt	.5	.0071101a		0.48369	97	.0075435a		0.48881	98	.0081926a		0.49775	100				
Copper	.5	.0081647a		0.53171	106	.0071914a		0.54101	108	.0058064a		0.54671	109				
Iron	200	186.801	93	185.79900	93	185.396	93	188.21400	94	189.606	95	194.18300	97				
Lead	1	U		0.95409	95	U		0.95780	96	U		0.97254	97				
Magnesium	500	509.773	102	505.52000	101	505.922	101	511.55000	102	515.428	103	527.70600	106				
Manganese	.5	-.0135139a		0.48216	96	-.0134357a		0.48422	97	-.0137023a		0.48753	98				
Nickel	1	-.0026424b		0.92762	93	-.0029482b		0.94361	94	-.0021879b		0.95326	95				
Selenium	1	U		0.99570	100	U		1.00239	100	U		1.01821	102				
Thallium	1	U		0.95773	96	-.0035517b		0.96585	97	U		0.98220	98				
Vanadium	.5	-.0108444a		0.47512	95	-.0112622a		0.48150	96	-.009462a		0.48631	97				
Zinc	1	U		0.95078	95	.0030583b		0.96719	97	.0029354b		0.97274	97				

Notes: a-indicates absolute value of the concentration > 2 * Reporting Limits In the ICSA
b-indicates absolute value of the concentration above Reporting Limits but < 2 * Reporting Limits in the ICSA
c-indicates the recovery failed the Qc Criteria in the ICSAB
u-indicates the absolute value of the concentration was below the reporting limit

FORM5/FORM7

SPIKE RECOVERY DATA

PREP BATCH: 24302

Instrument Type: ICP/HG

Analytical Method(s):6010/200.7/7470A/7471A/245.1

ICP units in ppm, ICPMS and Hg in ppb

TxtQcType: LCS Matrix: AQUEOUS SampleID: LCSW 24302

Analyte	BatchId	DF	Data Fil	Seq#:	Spk Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	24302	1	S15230A3	46	0.5168	0.500	103		80	120

TxtQcType: LCSMR Matrix: SOIL SampleID: LCS MR 24302

Analyte	BatchId	DF	Data Fil	Seq#:	Spk Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	24302	1	S15230A3	13	1.8014	1.82	99		83	118

TxtQcType: LCS Matrix: SOIL SampleID: LCS 24302

Analyte	BatchId	DF	Data Fil	Seq#:	Spk Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	24302	1	S15230A3	12	1.7664	1.82	97		83	118

TxtQcType: MSD Matrix: SOIL SampleID: AC73102-030

Analyte	BatchId	DF	Data Fil	Seq#:	NS Data Fil	Seq#	Spk Conc:	NS Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	24302	1	S15230A3	17	S15230A3	14	11.1475	0.5299	0.5	2120	a	75	125

TxtQcType: MS Matrix: SOIL SampleID: AC73102-029

Analyte	BatchId	DF	Data Fil	Seq#:	NS Data Fil	Seq#	Spk Conc:	NS Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	24302	1	S15230A3	16	S15230A3	14	1.6240	0.5299	0.5	219	a	75	125

a-Indicates Recovery Failed the criteria b-Indicates Recovery Failed the criteria but non spike concentration >4*spike amount

FORM5/FORM7

3062105 0081A

SPIKE RECOVERY DATA

PREP BATCH: 26581

Instrument Type: ICP/HG

Analytical Method(s):6010/200.7/7470A/7471A/245.1

ICP units in ppm, ICPMS and Hg in ppb

TxtQcType: LCSMR Matrix: SOIL SampleID: LCS MR 26581

Analyte	BatchId	DF	Data Fil	Seq#:	Spk Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	26581	1	S15333A3	13	1.7874	1.82	98		83	118

TxtQcType: LCS Matrix: SOIL SampleID: LCS 26581

Analyte	BatchId	DF	Data Fil	Seq#:	Spk Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	26581	1	S15333A3	12	1.7170	1.82	94		83	118

TxtQcType: MSD Matrix: SOIL SampleID: AC73911-006

Analyte	BatchId	DF	Data Fil	Seq#:	NS Data Fil	Seq#	Spk Conc:	NS Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	26581	1	S15333A3	17	S15333A3	14	0.5056	0.0273	0.5	96		75	125

TxtQcType: MS Matrix: SOIL SampleID: AC73911-006

Analyte	BatchId	DF	Data Fil	Seq#:	NS Data Fil	Seq#	Spk Conc:	NS Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	26581	1	S15333A3	16	S15333A3	14	0.4983	0.0273	0.5	94		75	125

a-Indicates Recovery Failed the criteria b-Indicates Recovery Failed the criteria but non spike concentration >4*spike amount

FORM5/FORM7

SPIKE RECOVERY DATA

PREP BATCH: 24302

Instrument Type: ICP/HG

Analytical Method(s):6010/200.7/7470A/7471A/245.1

ICP units in ppm, ICPMS and Hg in ppb

TxtQcType: PS | Matrix: SOIL | SampleID: AC73102-028

Analyte	DF	Data Fil	Seq#:	NS Data Fil	Seq#	Spk Conc:	NS Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	1	S15230A3	18	S15230A3	14	1.0250	0.5299	0.50	99		80	120

a-Indicates Recovery Failed the criteria b-Indicates Recovery Failed the criteria but non spike concentration >4*spike amount

FORM5/FORM7

3062105 0083

SPIKE RECOVERY DATA

PREP BATCH: 24303

Instrument Type: ICP/HG

Analytical Method(s):6010/200.7/7470A/7471A/245.1

ICP units in ppm, ICPMS and Hg in ppb

TxtQcType: LCS Matrix: AQUEOUS SampleID: LCSW

Analyte	BatchId	DF	Data Fil	Seq#:	Spk Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	24303	1	S15231A3	35	0.4563	0.500	91		80	120

TxtQcType: LCSMR Matrix: SOIL SampleID: LCS MR 24303

Analyte	BatchId	DF	Data Fil	Seq#:	Spk Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	24303	1	S15231A3	13	1.7657	1.82	97		83	118

TxtQcType: LCS Matrix: SOIL SampleID: LCS 24303

Analyte	BatchId	DF	Data Fil	Seq#:	Spk Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	24303	1	S15231A3	12	1.7407	1.82	96		83	118

TxtQcType: MSD Matrix: SOIL SampleID: AC73123-004

Analyte	BatchId	DF	Data Fil	Seq#:	NS Data Fil	Seq#	Spk Conc:	NS Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	24303	1	S15231A3	17	S15231A3	14	0.7604	0.2984	0.5	92		75	125

TxtQcType: MS Matrix: SOIL SampleID: AC73123-004

Analyte	BatchId	DF	Data Fil	Seq#:	NS Data Fil	Seq#	Spk Conc:	NS Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	24303	1	S15231A3	16	S15231A3	14	0.8372	0.2984	0.5	108		75	125

a-Indicates Recovery Failed the criteria b-Indicates Recovery Failed the criteria but non spike concentration >4*spike amount

FORM5/FORM7

SPIKE RECOVERY DATA

PREP BATCH: 24303

Instrument Type: ICP/HG

Analytical Method(s):6010/200.7/7470A/7471A/245.1 ICP units in ppm, ICPMS and Hg in ppb

TxtQcType: PS Matrix: SOIL SampleID: AC73123-004

Analyte	DF	Data Fil	Seq#:	NS Data Fil	Seq#	Spk Conc:	NS Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	1	S15231A3	18	S15231A3	14	0.7592	0.2984	0.50	92		80	120

a-Indicates Recovery Failed the criteria b-Indicates Recovery Failed the criteria but non spike concentration >4*spike amount

FORM6/FORM9

RPD/%Difference Data

PREP BATCH: 24302

Instrument Type: ICP/HG

Analytical Method(s):6010/200.7/7470A/7471A/245.1

ICP units in ppm, ICPMS and Hg in ppb

TxtQcType: LCSMR Matrix: SOIL SampleID: LCS MR 24302

Analyte	BatchId	Data Fil	Seq#:	NS File	Seq#	Result 1	Result 2	RPD		Limit
Arsenic	24302	S15230A3	13	S15230A3	12	1.8014	1.7664	2		20

TxtQcType: MR Matrix: SOIL SampleID: AC73102-028

Analyte	BatchId	Data Fil	Seq#:	NS File	Seq#	Result 1	Result 2	RPD		Limit
Arsenic	24302	S15230A3	15	S15230A3	14	0.5592	0.5299	5.4		20

TxtQcType: MSD Matrix: SOIL SampleID: AC73102-030

Analyte	BatchId	Data Fil	Seq#:	MS File	Seq#	Result 1	Result 2	RPD		Limit
Arsenic	24302	S15230A3	17	S15230A3	16	11.1475	1.6240	149	a	20

TxtQcType: SD Matrix: SOIL SampleID: AC73102-028

Analyte	BatchId	Data Fil	Seq#:	NS File	Seq#	DF	Result 1	Result 2	%Diff	Limit
Arsenic	24302	S15230A3	21	S15230A3	14	5	0.1025	0.5299	3.3	10

a-Indicates Rpd Failed the criteria

b-Method Rep Out but concentrations < 5*RL

c-Serial dilution Out but conc < 10 * IDL

FORM6/FORM9

3062105 0085A

RPD/%Difference Data

PREP BATCH: 26581

Instrument Type: ICP/HG

Analytical Method(s):6010/200.7/7470A/7471A/245.1

ICP units in ppm, ICPMS and Hg in ppb

TxtQcType: LCSMR Matrix: SOIL SampleID: LCS MR 26581

Analyte	BatchId	Data Fil	Seq#:	NS File	Seq#	Result 1	Result 2	RPD		Limit
Arsenic	26581	S15333A3	13	S15333A3	12	1.7874	1.7170	4		20

TxtQcType: MR Matrix: SOIL SampleID: AC73911-006

Analyte	BatchId	Data Fil	Seq#:	NS File	Seq#	Result 1	Result 2	RPD		Limit
Arsenic	26581	S15333A3	15	S15333A3	14	0.0136	0.0273	67	b	20

TxtQcType: MSD Matrix: SOIL SampleID: AC73911-006

Analyte	BatchId	Data Fil	Seq#:	MS File	Seq#	Result 1	Result 2	RPD		Limit
Arsenic	26581	S15333A3	17	S15333A3	16	0.5056	0.4983	1.4		20

TxtQcType: SD Matrix: SOIL SampleID: AC73911-006

Analyte	BatchId	Data Fil	Seq#:	NS File	Seq#	DF	Result 1	Result 2	%Diff		Limit
Arsenic	26581	S15333A3	21	S15333A3	14	5	0.0069	0.0273	26	c	10

a-Indicates Rpd Failed the criteria

b-Method Rep Out but concentrations < 5*RL

c-Serial dilution Out but conc < 10 * IDL

FORM6/FORM9

RPD/%Difference Data

PREP BATCH: 24303

Instrument Type: ICP/HG

Analytical Method(s):6010/200.7/7470A/7471A/245.1

ICP units in ppm, ICPMS and Hg in ppb

TxtQcType: LCSMR Matrix: SOIL SampleID: LCS MR 24303

Analyte	BatchId	Data Fil	Seq#:	NS File	Seq#	Result 1	Result 2	RPD	Limit
Arsenic	24303	S15231A3	13	S15231A3	12	1.7657	1.7407	1.4	20

TxtQcType: MR Matrix: SOIL SampleID: AC73123-004

Analyte	BatchId	Data Fil	Seq#:	NS File	Seq#	Result 1	Result 2	RPD	Limit
Arsenic	24303	S15231A3	15	S15231A3	14	0.3136	0.2984	5	20

TxtQcType: MSD Matrix: SOIL SampleID: AC73123-004

Analyte	BatchId	Data Fil	Seq#:	MS File	Seq#	Result 1	Result 2	RPD	Limit
Arsenic	24303	S15231A3	17	S15231A3	16	0.7604	0.8372	9.6	20

TxtQcType: SD Matrix: SOIL SampleID: AC73123-004

Analyte	BatchId	Data Fil	Seq#:	NS File	Seq#	DF	Result 1	Result 2	%Diff	Limit
Arsenic	24303	S15231A3	21	S15231A3	14	5	0.0594	0.2984	0.46	10

a-Indicates Rpd Failed the criteria

b-Method Rep Out but concentrations < 5*RL

c-Serial dilution Out but conc < 10 * IDL

Run Log

Data File: W:\METALS.FRM\ICPDATA\New\PEICP3A\S15230A3.txt

Analysis Date: 06/27/13 **Instrument:** PEICP3A

Sample Id	DF	Qc Type	Time	Run #	Test Group	Rept Limit Matrix	Qc Matrix	Anal Method	Prep Batch	Comments:	Stds:
Calib Blank 1 V-166272	1	CAL	10:59	1							V-166272(ICB/CCB)
Calib 1 V-163472	1	CAL	11:02	2							V-163472(ICS1 Lowest std)
Calib 2 V-166087	1	CAL	11:06	3							V-166087(ICS2- Low Std)
Calib 3 V-166708	1	CAL	11:09	4							V-166708(ICS3 - Middle Std)
Calib 4 V-166271	1	CAL	11:12	5							V-166271(ICS4 - High std)
ICS3 V-166708	1	ICS	11:17	6							V-166708(ICS3 - Middle Std)
ICV (2) V-165585	1	ICV	11:20	7							V-165585(ICV)
ICB V-166272	1	ICB	11:25	8							V-166272(ICB/CCB)
ICSA V-166695	1	ICSA	11:28	9							V-166695(ICSA)
ICSAB V-166696	1	ICSAB	11:33	10							V-166696(ICSAB)
MB 24302 (100)	1	MB	11:37	11		SOIL	SOIL	SW846	24302		0
LCS 24302	1	LCS	11:41	12		SOIL	SOIL	SW846	24302		0
LCS MR 24302	1	LCS	11:45	13		SOIL	SOIL	SW846	24302		0
AC73102-028	1	SMP	11:49	14	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
AC73102-028	1	MR	11:53	15	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
AC73102-029	1	MS	11:56	16	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
AC73102-030	1	MSD	12:00	17	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
AC73102-028	1	PS	12:05	18	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
CCV V-166878	1	CCV	12:08	19							V-166878(CCV)
CCB V-166272	1	CCB	12:12	20							V-166272(ICB/CCB)
AC73102-028	5	SD	12:15	21	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
AC73102-003	1	SMP	12:18	22	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
AC73102-004	1	SMP	12:22	23	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
AC73102-007	1	SMP	12:25	24	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
AC73102-008	1	SMP	12:29	25	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
AC73102-009	1	SMP	12:32	26	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
AC73102-012	1	SMP	12:36	27	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
ICSA V-166695	1	ICSA	12:39	28							V-166695(ICSA)
ICSAB V-166696	1	ICSAB	12:44	29							V-166696(ICSAB)
CCV V-166878	1	CCV	12:48	30							V-166878(CCV)
CCB V-166272	1	CCB	12:52	31							V-166272(ICB/CCB)
AC73102-013	1	SMP	12:55	32	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
AC73102-016	1	SMP	12:59	33	MET-1-SOIL	SOIL	AQUEO	SW846	24302		0
AC73102-022	1	SMP	13:02	34	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
AC73102-023	1	SMP	13:06	35	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
AC73102-024	1	SMP	13:09	36	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
AC73102-025	1	SMP	13:13	37	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
AC73102-026	1	SMP	13:16	38	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
CCV V-166878	1	CCV	13:20	39							V-166878(CCV)
CCB V-166272	1	CCB	13:23	40							V-166272(ICB/CCB)
AC73102-027	1	SMP	13:27	41	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
AC73102-031	1	SMP	13:30	42	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
AC73102-032	1	SMP	13:34	43	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
AC73102-033	1	SMP	13:37	44	MET-1-SOIL	SOIL	SOIL	SW846	24302		0
MB FB (1)	1	MB	13:41	45		SOIL	AQUEO	SW846	24302		0
LCSW 24302	1	LCS	13:44	46		SOIL	AQUEO	SW846	24302		0
ICSA V-166695	1	ICSA	13:48	47							V-166695(ICSA)
ICSAB V-166696	1	ICSAB	13:52	48							V-166696(ICSAB)
CCV V-166878	1	CCV	13:57	49							V-166878(CCV)
CCB V-166272	1	CCB	14:00	50							V-166272(ICB/CCB)

Comments/Reviewedby:

sean
192.168.1.78 6/27/2013 3:14:01 PM

OK

6/28/13

Standard/Batch/SnCl2 Lot #:

Run Log

Data File: W:\METALS.FRM\ICPDATA\New\PEICP3A\S15333A3.txt

Analysis Date: 08/13/13 **Instrument:** PEICP3A

Sample Id	DF	Qc Type	Time	Run #	Test Group	Rept Limit Matrix	Qc Matrix	Anal Method	Prep Batch	Comments:	Stds:
Calib Blank 1 V-166272	1	CAL	11:59	1							V-166272(ICB/CCB)
Calib 1 V-167308	1	CAL	12:02	2							V-167308(ICS1 Lowest std)
Calib 2 V-168853	1	CAL	12:06	3							V-168853(ICS2- Low Std)
Calib 3 V-168467	1	CAL	12:09	4							V-168467(ICS3 - Middle Std)
Calib 4 V-168987	1	CAL	12:12	5							V-168987(ICS4 - High std)
ICS3 V-168467	1	ICS	12:17	6							V-168467(ICS3 - Middle Std)
ICV (2) V-168169	1	ICV	12:20	7							V-168169(ICV)
ICB V-166272	1	ICB	12:25	8							V-166272(ICB/CCB)
ICSA V-169160	1	ICSA	12:28	9							V-169160(ICSA)
ICSAB V-169161	1	ICSAB	12:32	10							V-169161(ICSAB)
MB 26581 (100)	1	MB	12:37	11		SOIL	SOIL	SW846	26581		0
LCS 26581	1	LCS	12:40	12		SOIL	SOIL	SW846	26581		0
LCS MR 26581	1	LCS	12:45	13		SOIL	SOIL	SW846	26581		0
AC73911-006	1	SMP	12:49	14	METALS-TAL-S	SOIL	SOIL	SW846	26581		0
AC73911-006	1	MR	12:53	15	METALS-TAL-S	SOIL	SOIL	SW846	26581		0
AC73911-006	1	MS	12:56	16	METALS-TAL-S	SOIL	SOIL	SW846	26581		0
AC73911-006	1	MSD	13:00	17	METALS-TAL-S	SOIL	SOIL	SW846	26581		0
AC73911-006	1	PS	13:03	18	METALS-TAL-S	SOIL	SOIL	SW846	26581		0
CCV V-168988	1	CCV	13:07	19							V-168988(CCV)
CCB V-166272	1	CCB	13:10	20							V-166272(ICB/CCB)
AC73911-006	5	SD	13:13	21	METALS-TAL-S	SOIL	SOIL	SW846	26581		0
AC73102-001	1	SMP	13:17	22	MET-1-SOIL	SOIL	SOIL	SW846	26581		0
AC73102-002	1	SMP	13:20	23	MET-1-SOIL	SOIL	SOIL	SW846	26581		0
AC73102-005	1	SMP	13:24	24	MET-1-SOIL	SOIL	SOIL	SW846	26581		0
AC73102-006	1	SMP	13:27	25	MET-1-SOIL	SOIL	SOIL	SW846	26581		0
ICSA V-169160	1	ICSA	13:31	26							V-169160(ICSA)
ICSAB V-169161	1	ICSAB	13:35	27							V-169161(ICSAB)
CCV V-168988	1	CCV	13:40	28							V-168988(CCV)
CCB V-166272	1	CCB	13:43	29							V-166272(ICB/CCB)
AC73102-010	1	SMP	13:46	30	MET-1-SOIL	SOIL	SOIL	SW846	26581		0
AC73102-014	1	SMP	13:50	31	MET-1-SOIL	SOIL	SOIL	SW846	26581		0
AC73102-034	1	SMP	13:53	32	MET-1-SOIL	SOIL	SOIL	SW846	26581		0
AC73102-035	1	SMP	13:58	33	MET-1-SOIL	SOIL	SOIL	SW846	26581		0
ICSA V-169160	1	ICSA	14:01	34							V-169160(ICSA)
ICSAB V-169161	1	ICSAB	14:06	35							V-169161(ICSAB)
CCV V-168988	1	CCV	14:10	36							V-168988(CCV)
CCB V-166272	1	CCB	14:14	37							V-166272(ICB/CCB)

Comments/Reviewedby: **Standard/Batch/SnCl2 Lot #:**

olufemi
192.168.1.89 8/13/2013 2:29:06 PM

RUN IS OK
All elements reported except Mn and the earth elements

8/19/13

Run Log

Data File: W:\METALS.FRM\ICPDATA\New\PEICP3A\S15231A3.txt

Analysis Date: 07/01/13

Instrument: PEICP3A

Sample Id	DF	Qc Type	Time	Run #	Test Group	Rept Limit Matrix	Qc Matrix	Anal Method	Prep Batch	Comments:	Stds:
Calib Blank 1 V-166272	1	CAL	20:25	1							V-166272(ICB/CCB)
Calib 1 V-163472	1	CAL	20:28	2							V-163472(ICS1 Lowest std)
Calib 2 V-166087	1	CAL	20:32	3							V-166087(ICS2- Low Std)
Calib 3 V-166708	1	CAL	20:35	4							V-166708(ICS3 - Middle Std)
Calib 4 V-166271	1	CAL	20:39	5							V-166271(ICS4 - High std)
ICS3 V-166708	1	ICS	20:43	6							V-166708(ICS3 - Middle Std)
ICV (2) V-165585	1	ICV	20:47	7							V-165585(ICV)
ICB V-166272	1	ICB	20:51	8							V-166272(ICB/CCB)
ICSA V-166695	1	ICSA	20:55	9							V-166695(ICSA)
ICSAB V-166696	1	ICSAB	20:59	10							V-166696(ICSAB)
MB 24303 (100)	1	MB	21:04	11		SOIL	SOIL	SW846	24303		0
LCS 24303	1	LCS	21:08	12		SOIL	SOIL	SW846	24303		0
LCS MR 24303	1	LCS	21:12	13		SOIL	SOIL	SW846	24303		0
AC73123-004	1	SMP	21:16	14	METALS-TAL-S	SOIL	SOIL	SW846	24303		0
AC73123-004	1	MR	21:21	15	METALS-TAL-S	SOIL	SOIL	SW846	24303		0
AC73123-004	1	MS	21:26	16	METALS-TAL-S	SOIL	SOIL	SW846	24303		0
AC73123-004	1	MSD	21:30	17	METALS-TAL-S	SOIL	SOIL	SW846	24303		0
AC73123-004	1	PS	21:35	18	METALS-TAL-S	SOIL	SOIL	SW846	24303		0
CCV V-166878	1	CCV	21:40	19							V-166878(CCV)
CCB V-166272	1	CCB	21:43	20							V-166272(ICB/CCB)
AC73123-004	5	SD	21:47	21	METALS-TAL-S	SOIL	SOIL	SW846	24303		0
AC73102-037	1	SMP	21:50	22	MET-1-SOIL	SOIL	AQUEO	SW846	24303		0
AC73102-038	1	SMP	21:54	23	MET-1-SOIL	SOIL	SOIL	SW846	24303		0
AC73102-039	1	SMP	21:57	24	MET-1-SOIL	SOIL	SOIL	SW846	24303		0
AC73102-040	1	SMP	22:01	25	MET-1-SOIL	SOIL	SOIL	SW846	24303		0
AC73102-041	1	SMP	22:04	26	MET-1-SOIL	SOIL	SOIL	SW846	24303		0
ICSA V-166695	1	ICSA	22:08	27							V-166695(ICSA)
ICSAB V-166696	1	ICSAB	22:13	28							V-166696(ICSAB)
CCV V-166878	1	CCV	22:17	29							V-166878(CCV)
CCB V-166272	1	CCB	22:21	30							V-166272(ICB/CCB)
AC73204-004	1	SMP	22:24	31	PB-SOIL	SOIL	SOIL	SW846	24303		0
AC73204-005	1	SMP	22:28	32	PB-SOIL	SOIL	SOIL	SW846	24303		0
AC73204-006	1	SMP	22:31	33	PB-SOIL	SOIL	SOIL	SW846	24303		0
MB FB (1)	1	MB	22:35	34		SOIL	AQUEO	SW846	24303		0
LCSW	1	LCS	22:38	35		SOIL	AQUEO	SW846	24303		0
ICSA V-166695	1	ICSA	22:42	36							V-166695(ICSA)
ICSAB V-166696	1	ICSAB	22:47	37							V-166696(ICSAB)
CCV V-166878	1	CCV	22:51	38							V-166878(CCV)
CCB V-166272	1	CCB	22:55	39							V-166272(ICB/CCB)

Comments/Reviewedby:

olufemi
192.168.1.85 7/2/2013 11:12:59 AM

RUN IS OK
All elements reported except Ag and the earth elements

7/2/13

Standard/Batch/SnCl2 Lot #:

Hampton-Clarke/Veritech

ICP SAMPLE PREPARATION LOG

ANALYTICAL METHOD: 3010A 3005A 3050B (6020) 200.7/200.8 OTHER_____

Batch No.: 15230 Analyst: km

QC Number: 24302 Prep Date: 6/25/13

Matrix: Soil Reviewed By: SB

LAB ID#	ICP		ICP-MS (Secondary dil)		TCLP		COMMENTS
	Initial	Final	Aliquot	Final	Eff	TCLP	
Method blank	50ml	50ml				--	
LCS	0.5g					--	
LCSD						--	
1 LCS 73102-028							wet Sample
MR 73102-028							wet Sample
MS 73102-029							wet Sample
MSD 73102-030							dry Sample
2. 73102-003							
3. 73102-004							
4. 73102-007							
5. 73102-008							
6. 73102-009							
7. 73102-012							
8. 73102-013	↓						
9. 73102-016	50ml	50ml					(F3)
10. 73102-022	0.5g						
11. 73102-023							
12. 73102-024							
13. 73102-025							
14. 73102-026							
15. 73102-027							
16. 73102-031							
17. 73102-032							
18. 73102-033	↓						
19. FBMB	50ml						
20. LCSW	↓	↓					

Hot Plate Temperature: 93.1 C (90-95° C)

	Volume mL	Lot #
LCS, LCSD	0.5g	V- 7835
LLLCS, LLLCSD		V-
MS, MSD	0.5ml	V- 7685, 7686
LLMS, LLMSD		V-

Acid	Vol mL	Lot#
HNO_3	2.5ml	V- 7838
HCl	5ml	V- 7840
H_2O_2	1.5ml	V- 7423

Acid	Vol mL	Lot#
1:1 HNO_3	5ml	V- 167734
1:1 HCl		V-

Relinquished By km Date 6/25/13

Received By [signature] Date 6/25/13

0118

Hampton-Clarke/Veritech

ICP SAMPLE PREPARATION LOG

ANALYTICAL METHOD: 3010A 3005A 3050B (6020) 200.7/200.8 OTHER_____

Batch No.: 15333 Analyst: lm

QC Number: 26581 Prep Date: 8/12/13

Matrix: Soil Reviewed By: QA

LAB ID#	ICP		ICP-MS (Secondary dil)		TCLP		COMMENTS
	Initial	Final	Aliquot	Final	Eff	TCLP	
Method blank	50ml	50ml				--	
LCS	0.5g					--	
LCSD						--	
1. LC73911-006							
MR 73911-006							
MS 73911-006							
MSD 73911-006							
2. 73102-001							
3. 73102-002							
4. 73102-005							
5. 73102-006							
6. 73102-010							
7. 73102-014							
8. 73102-034							
9. 73102-035							
10. 73911-D Am							
11.							
12.							
13.							
14.							
15.							
16.							
17.							
18.							
19.							
20.							

Hot Plate Temperature: 92.1 C (90-95° C)

	Volume mL	Lot #
LCS, LCSD	0.5g	V- 7835
LLLCS, LLLCSD		V-
MS, MSD	0.5ml	V- 7685, 7686
LLMS, LLMSD		V-

Acid	Vol mL	Lot#
HNO_3	2.5ml	V- 7839
HCl	5ml	V- 7841
H_2O_2	1.5ml	V- 7423

Acid	Vol mL	Lot#
1:1 HNO_3	5ml	V- 168703
1:1 HCl		V-

Relinquished By lm Date 8/12/13

Received By QA Date 08/16/2013

0095

Hampton-Clarke/Veritech

ICP SAMPLE PREPARATION LOG

ANALYTICAL METHOD: 3010A 3005A (3050B) (6020) 200.7/200.8 OTHER_____

Batch No.: 15231 Analyst: TM

QC Number: 24303 Prep Date: 7/1/13.

Matrix: SOIL Reviewed By: [signature].

LAB ID#	ICP		ICP-MS (Secondary dil)		TCLP		COMMENTS
	Initial	Final	Aliquot	Final	Eff	TCLP	
Method blank	50ml	50ml				--	
LCS	0.5g					--	
LCSD	↓	↓				--	
1. AC 73123-004	↓	↓					
MR 73123-004	↓	↓					
MS 73123-004	↓	↓					
MSD 73123-004	↓	↓					
2. 73102-037	50ml	↓					FR
3. 73102-038	0.5g	↓					
4. 73102-039	↓	↓					
5. 73102-040	↓	↓					
6. 73102-041	↓	↓					
7. 73204-004	↓	↓					
8. 73204-005	↓	↓					
9. 73204-006	↓	↓					
10. LCSW	50ml	↓					
11. MB FD	↓	↓					
12.							
13.							
14.							
15.							
16.							
17.							
18.							
19.							
20.							

Hot Plate Temperature: 93-10 C (90-95° C)

	Volume mL	Lot #
LCS, LCSD	0.5g	V- 7835
LLLCS, LLLCSD		V-
MS, MSD	0.5ml	V-7685, 7686
LLMS, LLMSD		V-

Acid	Vol mL	Lot#
HNO_3	2.5	V-7838
HCl	5	V-7840
H_2O_2	1.5	V-7423

Acid	Vol mL	Lot#
1:1 HNO_3	5	V-167424
1:1 HCl		V-

Relinquished By TM Date 7/1/13.

Received By [signature]. Date 07/02/2013

0145

Wet Chemistry Data

VERITECH Wet Chem Form1 Analysis Summary
% Solids

TestGroupName: % Solids SM2540G **Project #: 3062105**

TestGroup: %SOLIDS

Lab#	Client SampleID	Matrix	Dilution:	Result	Units:	RL	Prep Date	Analysis Date	Received Date	Collect Date
AC73102-003	AR-8 (1.5-2.0)	Soil	1	72	Percent			06/24/13	06/20/13	06/18/13
AC73102-004	AR-8 (5.0-5.5)	Soil	1	76	Percent			06/24/13	06/20/13	06/18/13
AC73102-007	AR-9 (1.5-2.0)	Soil	1	77	Percent			06/24/13	06/20/13	06/18/13
AC73102-008	AR-9 (5.0-5.5)	Soil	1	78	Percent			06/24/13	06/20/13	06/18/13
AC73102-009	AR-6 (1.5-2.0)	Soil	1	72	Percent			06/24/13	06/20/13	06/18/13
AC73102-012	AR-7 (1.5-2.0)	Soil	1	71	Percent			06/24/13	06/20/13	06/18/13
AC73102-013	AR-7 (5.0-5.5)	Soil	1	71	Percent			06/24/13	06/20/13	06/18/13
AC73102-022	AR-10 (1.5-2.0)	Soil	1	84	Percent			06/24/13	06/20/13	06/19/13
AC73102-023	AR-10 (3.5-4.0)	Soil	1	80	Percent			06/24/13	06/20/13	06/19/13
AC73102-024	AR-5 (11.0-11.5)	Soil	1	78	Percent			06/24/13	06/20/13	06/19/13
AC73102-025	AR-4 (7.0-7.5)	Soil	1	79	Percent			06/24/13	06/20/13	06/19/13
AC73102-026	AR-3 (1.5-2.0)	Soil	1	82	Percent			06/24/13	06/20/13	06/19/13
AC73102-027	AR-3 (7.5-8.0)	Soil	1	82	Percent			06/24/13	06/20/13	06/19/13
AC73102-028	AR-19 (1.5-2.0)	Soil	1	79	Percent			06/24/13	06/20/13	06/19/13
AC73102-029	AR-19 (1.5-2.0) M	Soil	1	77	Percent			06/24/13	06/20/13	06/19/13
AC73102-030	AR-19 (1.5-2.0) M	Soil	1	84	Percent			06/24/13	06/20/13	06/19/13
AC73102-031	DUP-1	Soil	1	83	Percent			06/24/13	06/20/13	06/19/13
AC73102-032	AR-19 (7.5-8.0)	Soil	1	75	Percent			06/24/13	06/20/13	06/19/13
AC73102-033	AR-18 (8.0-8.5)	Soil	1	83	Percent			06/24/13	06/20/13	06/19/13
AC73102-038	OU-1	Soil	1	63	Percent			06/24/13	06/20/13	06/19/13
AC73102-039	OU-2	Soil	1	60	Percent			06/24/13	06/20/13	06/19/13
AC73102-040	OU-3	Soil	1	71	Percent			06/24/13	06/20/13	06/19/13
AC73102-041	OU-4	Soil	1	77	Percent			06/24/13	06/20/13	06/19/13

% Solids Report

Analysis Type: SOLIDS-SS
BatchID: SOLIDS-SS-1985

QcType	SampleID:	Rounded Result	Raw Result	Units	Tare Weight	Wet Weight	Dry Weight	Analysis Date	Analyzed By	QC RPD	Rpd Limit
DUP	AC73121-002	87	86.52551	Percent	1.10	11.49	10.09	06/24/13	hossain	0.67	5
Sample	AC73102-003	72	72.24409	Percent	1.12	11.28	8.46	06/24/13	hossain		
Sample	AC73102-004	76	75.86873	Percent	1.11	11.47	8.97	06/24/13	hossain		
Sample	AC73102-007	77	76.99711	Percent	1.10	11.49	9.11	06/24/13	hossain		
Sample	AC73102-008	78	77.56233	Percent	1.11	11.94	9.51	06/24/13	hossain		
Sample	AC73102-009	72	71.65282	Percent	1.11	11.94	8.88	06/24/13	hossain		
Sample	AC73102-012	71	71.36194	Percent	1.10	11.82	8.75	06/24/13	hossain		
Sample	AC73102-013	71	70.72206	Percent	1.10	11.21	8.24	06/24/13	hossain		
Sample	AC73102-022	84	84.22562	Percent	1.10	11.56	9.93	06/24/13	hossain		
Sample	AC73102-023	80	80.27027	Percent	1.11	12.21	10.03	06/24/13	hossain		
Sample	AC73102-024	78	77.58285	Percent	1.11	11.37	9.06	06/24/13	hossain		
Sample	AC73102-025	79	79.06542	Percent	1.11	11.81	9.56	06/24/13	hossain		
Sample	AC73102-026	82	82.16749	Percent	1.11	11.26	9.45	06/24/13	hossain		
Sample	AC73102-027	82	81.87078	Percent	1.13	11.50	9.61	06/24/13	hossain		
Sample	AC73102-028	79	79.06977	Percent	1.13	11.88	9.63	06/24/13	hossain		
Sample	AC73102-029	77	76.83284	Percent	1.10	11.33	8.97	06/24/13	hossain		
Sample	AC73102-030	84	83.97738	Percent	1.10	11.71	10.03	06/24/13	hossain		
Sample	AC73102-031	83	83.13690	Percent	1.10	12.13	10.28	06/24/13	hossain		
Sample	AC73102-032	75	75.29412	Percent	1.10	12.15	9.42	06/24/13	hossain		
Sample	AC73121-001	84	84.02971	Percent	1.10	11.87	10.16	06/24/13	hossain		
Sample	AC73121-002	87	87.10298	Percent	1.10	11.49	10.16	06/24/13	hossain		

* - Indicates Failed Rpd Criteria

% Solids Report

Analysis Type: SOLIDS-SS
BatchID: SOLIDS-SS-1986

QcType	SampleID:	Rounded Result	Raw Result	Units	Tare Weight	Wet Weight	Dry Weight	Analysis Date	Analyzed By	QC RPD	Rpd Limit
DUP	AC73106-001	98	98.05915	Percent	1.10	11.92	11.72	06/24/13	hossain	0	5
Sample	AC72935-011	84	84.15354	Percent	1.11	11.27	9.66	06/24/13	hossain		
Sample	AC73102-033	83	82.69962	Percent	1.10	11.62	9.80	06/24/13	hossain		
Sample	AC73102-038	63	62.76803	Percent	1.10	11.36	7.56	06/24/13	hossain		
Sample	AC73102-039	60	60.40856	Percent	1.11	11.39	7.34	06/24/13	hossain		
Sample	AC73102-040	71	71.09602	Percent	1.10	11.41	8.44	06/24/13	hossain		
Sample	AC73102-041	77	77.43786	Percent	1.10	11.56	9.21	06/24/13	hossain		
Sample	AC73105-001	78	77.57101	Percent	1.13	11.34	9.06	06/24/13	hossain		
Sample	AC73105-002	59	59.11283	Percent	1.12	11.49	7.27	06/24/13	hossain		
Sample	AC73105-003	85	84.54012	Percent	1.10	11.32	9.75	06/24/13	hossain		
Sample	AC73106-001	98	98.05915	Percent	1.11	11.93	11.73	06/24/13	hossain		
Sample	AC73106-002	99	98.67424	Percent	1.10	11.66	11.53	06/24/13	hossain		
Sample	AC73106-003	98	97.88603	Percent	1.09	11.97	11.75	06/24/13	hossain		
Sample	AC73106-004	99	98.78163	Percent	1.09	11.76	11.64	06/24/13	hossain		
Sample	AC73106-005	98	98.23702	Percent	1.10	11.31	11.13	06/24/13	hossain		
Sample	AC73106-006	99	98.59023	Percent	1.11	11.75	11.62	06/24/13	hossain		
Sample	AC73106-007	98	97.97688	Percent	1.11	11.49	11.29	06/24/13	hossain		
Sample	AC73106-008	99	98.69646	Percent	1.10	11.84	11.70	06/24/13	hossain		
Sample	AC73108-001	85	85.11029	Percent	1.10	11.98	10.37	06/24/13	hossain		
Sample	AC73108-002	77	76.58582	Percent	1.10	11.82	9.32	06/24/13	hossain		
Sample	AC73108-003	63	63.10312	Percent	1.10	11.67	7.78	06/24/13	hossain		

* - Indicates Failed Rpd Criteria

HC·V
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Last Page of Report

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WWW.HCVLAB.COM

Project: Rhodia/Morrisville

Client PO: 4501945837

Report To: ARCADIS
10 Friends ln
Suite 200
Newton, PA 18940

Attn: Deric Kearns

Received Date: 9/25/2013

Report Date: 11/11/2013

Deliverables: PADEP-R

Lab ID: AC74782

Lab Project No: 3092514

This report is a true report of results obtained from our tests of this material. The report relates only to those samples received and analyzed by the laboratory. All results meet the requirements of the NELAC Institute standards. Laboratory reports may not be reproduced, except in full, without the written approval of the laboratory.

In lieu of a formal contract document, the total aggregate liability of Veritech to all parties shall not exceed Veritech's total fee for analytical services rendered.

Robin Cousineau - Quality Assurance Director OR **Stanley Gilewicz - Laboratory Director**

NJ (07071) NY (ELAP11408) CT (PH-0671)
PA (68-00463) KY (90124)

NELAP ACCREDITED TNI LABORATORY

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Sample Summary

Client: ARCADIS
Project: Rhodia/Morrisville

HCV Project #: 3092514

Lab#	SampleID	Matrix	Collection Date	Receipt Date
AC74782-001	FB-09232013	Aqueous	9/23/2013	9/25/2013
AC74782-002	AR-38_1.5-2.0	Soil	9/23/2013	9/25/2013
AC74782-003	AR-39_1.0-1.5	Soil	9/23/2013	9/25/2013
AC74782-004	AR-41_1.5-2.0	Soil	9/23/2013	9/25/2013
AC74782-005	AR-40_0.0-0.5	Soil	9/23/2013	9/25/2013
AC74782-006	AR-37_1.5-2.0	Soil	9/23/2013	9/25/2013
AC74782-007	AR-36_0.75-1.25	Soil	9/23/2013	9/25/2013
AC74782-008	BD-01-09232013	Soil	9/23/2013	9/25/2013
AC74782-009	AR-38_1.5-2.0 MS	Soil	9/23/2013	9/25/2013
AC74782-010	AR-38_1.5-2.0 MSD	Soil	9/23/2013	9/25/2013
AC74782-011	AR-42_1.0-1.5	Soil	9/23/2013	9/25/2013
AC74782-012	AR-43_1.5-2.0	Soil	9/23/2013	9/25/2013
AC74782-013	AR-26_1.0-1.5	Soil	9/23/2013	9/25/2013
AC74782-014	AR-25_1.0-1.5	Soil	9/23/2013	9/25/2013
AC74782-015	AR-35_1.5-2.0	Soil	9/23/2013	9/25/2013
AC74782-016	AR-24_1.5-2.0	Soil	9/23/2013	9/25/2013
AC74782-017	AR-34_1.5-2.0	Soil	9/23/2013	9/25/2013
AC74782-018	AR-33_1.5-2.0	Soil	9/23/2013	9/25/2013
AC74782-019	FB-09242013	Aqueous	9/24/2013	9/25/2013
AC74782-020	AR-27_1.5-2.0	Soil	9/24/2013	9/25/2013
AC74782-021	AR-32_1.5-2.0	Soil	9/24/2013	9/25/2013
AC74782-022	AR-22_1.5-2.0	Soil	9/24/2013	9/25/2013
AC74782-023	AR-45_1.5-2.0	Soil	9/24/2013	9/25/2013
AC74782-024	AR-44_1.5-2.0	Soil	9/24/2013	9/25/2013
AC74782-025	AR-31_1.5-2.0	Soil	9/24/2013	9/25/2013
AC74782-026	AR-21_1.0-1.5	Soil	9/24/2013	9/25/2013
AC74782-027	AR-30_1.5-2.0	Soil	9/24/2013	9/25/2013
AC74782-028	AR-20_0.5-1.0	Soil	9/24/2013	9/25/2013
AC74782-029	AR-29_1.5-2.0	Soil	9/24/2013	9/25/2013
AC74782-030	AR-28_1.5-2.0	Soil	9/24/2013	9/25/2013
AC74782-031	BD-02-09242013	Soil	9/24/2013	9/25/2013
AC74782-032	AR-20_0.5-1.0-MS	Soil	9/24/2013	9/25/2013
AC74782-033	AR-20_0.5-1.0-MSD	Soil	9/24/2013	9/25/2013

Client: ARCADIS **HCV Project #:** 3092514

Project: Rhodia/Morrisville

Lab#	SampleID	Matrix	Collection Date	Receipt Date
AC74782-034	AR-23_1.5-2.0	Soil	9/23/2013	9/25/2013

HCV Case Narrative

Client: Arcadis
Project: Rhodia/Morrisville

HCV Project: 3092514

This case narrative is in the form of an exception report. Method specific and/or QA/QC anomalies related to this report only are detailed below.

Metals Analysis:

Data conforms to method requirements.

Robin Cousineau
Quality Assurance Director

Or

Stanley Gilewicz
Laboratory Director

11/11/2013
Date

HCV Executive Summary

Client: ARCADIS **HCV Project #:** 3092514

Project: Rhodia/Morrisville

Lab#: AC74782-012 **Sample ID: AR-43_1.5-2.0**

Analyte	Units	RL	Result	Analytical Method
Arsenic	mg/kg	5.0	6.3	EPA 6010B

Lab#: AC74782-013 **Sample ID: AR-26_1.0-1.5**

Analyte	Units	RL	Result	Analytical Method
Arsenic	mg/kg	2.6	25	EPA 6010B

Lab#: AC74782-014 **Sample ID: AR-25_1.0-1.5**

Analyte	Units	RL	Result	Analytical Method
Arsenic	mg/kg	2.6	20	EPA 6010B

Lab#: AC74782-016 **Sample ID: AR-24_1.5-2.0**

Analyte	Units	RL	Result	Analytical Method
Arsenic	mg/kg	2.6	17	EPA 6010B

Lab#: AC74782-020 **Sample ID: AR-27_1.5-2.0**

Analyte	Units	RL	Result	Analytical Method
Arsenic	mg/kg	2.6	29	EPA 6010B

Lab#: AC74782-022 **Sample ID: AR-22_1.5-2.0**

Analyte	Units	RL	Result	Analytical Method
Arsenic	mg/kg	2.6	27	EPA 6010B

Lab#: AC74782-023 **Sample ID: AR-45_1.5-2.0**

Analyte	Units	RL	Result	Analytical Method
Arsenic	mg/kg	2.5	7.0	EPA 6010B

Lab#: AC74782-026 **Sample ID: AR-21_1.0-1.5**

Analyte	Units	RL	Result	Analytical Method
Arsenic	mg/kg	2.6	51	EPA 6010B

Lab#: AC74782-028 **Sample ID: AR-20_0.5-1.0**

Analyte	Units	RL	Result	Analytical Method
Arsenic	mg/kg	2.5	21	EPA 6010B

HCV Executive Summary

Client: ARCADIS **HCV Project #:** 3092514

Project: Rhodia/Morrisville

Lab#: AC74782-031 **Sample ID: BD-02-09242013**

Analyte	Units	RL	Result	Analytical Method
Arsenic	mg/kg	2.5	19	EPA 6010B

Lab#: AC74782-032 **Sample ID: AR-20_0.5-1.0-MS**

Analyte	Units	RL	Result	Analytical Method
Arsenic	mg/kg	2.5	80	EPA 6010B

Lab#: AC74782-033 **Sample ID: AR-20_0.5-1.0-MSD**

Analyte	Units	RL	Result	Analytical Method
Arsenic	mg/kg	2.5	80	EPA 6010B

Lab#: AC74782-034 **Sample ID: AR-23_1.5-2.0**

Analyte	Units	RL	Result	Analytical Method
Arsenic	mg/kg	2.5	18	EPA 6010B

HCV Report Of Analysis

Client: ARCADIS
Project: Rhodia/Morrisville

HCV Project #: 3092514

Sample ID: FB-09232013
Lab#: AC74782-001
Matrix: Aqueous

Collection Date: 9/23/2013
Receipt Date: 9/25/2013

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	ug/l	20	ND

Sample ID: AR-43_1.5-2.0
Lab#: AC74782-012
Matrix: Soil

Collection Date: 9/23/2013
Receipt Date: 9/25/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		80

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	5.0	6.3

Sample ID: AR-26_1.0-1.5
Lab#: AC74782-013
Matrix: Soil

Collection Date: 9/23/2013
Receipt Date: 9/25/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		76

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	2.6	25

Sample ID: AR-25_1.0-1.5
Lab#: AC74782-014
Matrix: Soil

Collection Date: 9/23/2013
Receipt Date: 9/25/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		77

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	2.6	20

Sample ID: AR-24_1.5-2.0
Lab#: AC74782-016
Matrix: Soil

Collection Date: 9/23/2013
Receipt Date: 9/25/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		78

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	2.6	17

Sample ID: FB-09242013
Lab#: AC74782-019
Matrix: Aqueous

Collection Date: 9/24/2013
Receipt Date: 9/25/2013

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	ug/l	20	ND

Sample ID: AR-27_1.5-2.0
Lab#: AC74782-020
Matrix: Soil

Collection Date: 9/24/2013
Receipt Date: 9/25/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		76

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	2.6	29

Sample ID: AR-22_1.5-2.0
Lab#: AC74782-022
Matrix: Soil

Collection Date: 9/24/2013
Receipt Date: 9/25/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		77

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	2.6	27

Sample ID: AR-45_1.5-2.0
Lab#: AC74782-023
Matrix: Soil

Collection Date: 9/24/2013
Receipt Date: 9/25/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		79

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	2.5	7.0

Sample ID: AR-31_1.5-2.0
Lab#: AC74782-025
Matrix: Soil

Collection Date: 9/24/2013
Receipt Date: 9/25/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		80

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	5.0	ND

Sample ID: AR-21_1.0-1.5
Lab#: AC74782-026
Matrix: Soil

Collection Date: 9/24/2013
Receipt Date: 9/25/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		78

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	2.6	51

Sample ID: AR-20_0.5-1.0
Lab#: AC74782-028
Matrix: Soil

Collection Date: 9/24/2013
Receipt Date: 9/25/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		80

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	2.5	21

Sample ID: BD-02-09242013
Lab#: AC74782-031
Matrix: Soil

Collection Date: 9/24/2013
Receipt Date: 9/25/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		79

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	2.5	19

Sample ID: AR-20_0.5-1.0-MS
Lab#: AC74782-032
Matrix: Soil

Collection Date: 9/24/2013
Receipt Date: 9/25/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		80

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	2.5	80

Sample ID: AR-20_0.5-1.0-MSD
Lab#: AC74782-033
Matrix: Soil

Collection Date: 9/24/2013
Receipt Date: 9/25/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		80

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	2.5	80

Sample ID: AR-23_1.5-2.0
Lab#: AC74782-034
Matrix: Soil

Collection Date: 9/23/2013
Receipt Date: 9/25/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		80

Metals (single) 6010

Analyte	DF	Units	RL	Result
Arsenic	1	mg/kg	2.5	18

HCV Reporting Limit Definitions/Data Qualifiers

REPORTING DEFINITIONS

DF = Dilution Factor

MDL = Method Detection Limit

RL* = Reporting Limit

ND = Not Detected

RT = Retention Time

NA = Not Applicable

**Samples with elevated Reporting Limits (RLs) as a result of a dilution may not achieve client reporting limits in some cases. The elevated RLs are unavoidable consequences of sample dilution required to quantitate target analytes that exceed the calibration range of the instrument.*

DATA QUALIFIERS

B- Indicates analyte was present in the Method Blank and sample.

d- For Pesticide and PCB analysis, the concentration between primary and secondary columns is greater than 40%. The lower concentration is generally reported.

E- Indicates the concentration exceeded the upper calibration range of the instrument.

J- Indicates the value is estimated because it is either a Tentatively Identified Compound (TIC) or the reported concentration is greater than the MDL but less than the RL. For samples results between the MDL and RL there is a possibility of false positives or misidentification at the quantitation levels. Additionally, the acceptance criteria for QC samples may not be met.

Laboratory Chronicle

Client: ARCADIS
Project: Rhodia/Morrisville

HCV Project #: 3092514

Lab#: AC74782-001 **Sample ID: FB-09232013**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
Metals (single) 6010	3005&10/3050	09/28/13	aadewusi	EPA 6010B	9/29/13 03:24	OA

Lab#: AC74782-012 **Sample ID: AR-43_1.5-2.0**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	10/16/13 00:00	HOSSAIN
Metals (single) 6010	3005&10/3050	10/23/13	aadewusi	EPA 6010B	10/25/13 11:17	OA

Lab#: AC74782-013 **Sample ID: AR-26_1.0-1.5**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	9/26/13 00:00	hossain
Metals (single) 6010	3005&10/3050	09/28/13	aadewusi	EPA 6010B	9/29/13 03:27	OA

Lab#: AC74782-014 **Sample ID: AR-25_1.0-1.5**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	9/26/13 00:00	hossain
Metals (single) 6010	3005&10/3050	09/28/13	aadewusi	EPA 6010B	9/29/13 03:31	OA

Lab#: AC74782-016 **Sample ID: AR-24_1.5-2.0**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	9/26/13 00:00	hossain
Metals (single) 6010	3005&10/3050	09/28/13	aadewusi	EPA 6010B	9/29/13 03:35	OA

Laboratory Chronicle

Client: ARCADIS
Project: Rhodia/Morrisville

HCV Project #: 3092514

Lab#: AC74782-019 **Sample ID: FB-09242013**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
Metals (single) 6010	3005&10/3050	09/28/13	aadewusi	EPA 6010B	9/29/13 03:38	OA

Lab#: AC74782-020 **Sample ID: AR-27_1.5-2.0**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	9/26/13 00:00	hossain
Metals (single) 6010	3005&10/3050	09/28/13	aadewusi	EPA 6010B	9/29/13 03:42	OA

Lab#: AC74782-022 **Sample ID: AR-22_1.5-2.0**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	9/26/13 00:00	hossain
Metals (single) 6010	3005&10/3050	09/28/13	aadewusi	EPA 6010B	9/29/13 04:01	OA

Lab#: AC74782-023 **Sample ID: AR-45_1.5-2.0**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	9/26/13 00:00	hossain
Metals (single) 6010	3005&10/3050	09/28/13	aadewusi	EPA 6010B	9/29/13 04:05	OA

Lab#: AC74782-025 **Sample ID: AR-31_1.5-2.0**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	10/16/13 00:00	HOSSAIN
Metals (single) 6010	3005&10/3050	10/23/13	aadewusi	EPA 6010B	10/25/13 11:21	OA

Laboratory Chronicle

Client: ARCADIS **HCV Project #:** 3092514

Project: Rhodia/Morrisville

Lab#: AC74782-026 **Sample ID: AR-21_1.0-1.5**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	9/26/13 00:00	hossain
Metals (single) 6010	3005&10/3050	09/28/13	aadewusi	EPA 6010B	9/29/13 04:08	OA

Lab#: AC74782-028 **Sample ID: AR-20_0.5-1.0**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	9/26/13 00:00	hossain
Metals (single) 6010	3005&10/3050	09/28/13	aadewusi	EPA 6010B	9/29/13 02:56	OA

Lab#: AC74782-031 **Sample ID: BD-02-09242013**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	9/26/13 00:00	hossain
Metals (single) 6010	3005&10/3050	09/28/13	aadewusi	EPA 6010B	9/29/13 04:12	OA

Lab#: AC74782-032 **Sample ID: AR-20_0.5-1.0-MS**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	9/26/13 00:00	hossain
Metals (single) 6010	3005&10/3050	09/28/13	aadewusi	EPA 6010B	9/29/13 03:03	OA

Lab#: AC74782-033 **Sample ID: AR-20_0.5-1.0-MSD**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	9/26/13 00:00	hossain
Metals (single) 6010	3005&10/3050	09/28/13	aadewusi	EPA 6010B	9/29/13 03:06	OA

Laboratory Chronicle

Client: ARCADIS
Project: Rhodia/Morrisville

HCV Project #: 3092514

Lab#: AC74782-034 **Sample ID: AR-23_1.5-2.0**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	9/26/13 00:00	hossain
Metals (single) 6010	3005&10/3050	09/28/13	aadewusi	EPA 6010B	9/29/13 04:16	OA

Chain of Custody

Ventech/Division of Hampton-Clarke
175 Route 46 West and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787 | 973-439-1458
Service Center: 137-D Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056
NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | WV #353 | KY #90124

HC-V HamptonClarke·Veritech

CHAIN OF CUSTODY RECORD

3092514 0028

3092514 Page 1 of 4

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Deliv.
24 Hours (100%)	Data Summary	Hazsite/CSV
48 Hours (75%)	Waste	EQuIS 4-File / EZ / NYS
72 Hours (50%)	Red - NJ / NY / PA	EQuIS EPA Region 2 or 5
4 Days (35%; TPH)	CLP	Excel - NJ Regulatory
1 Week (25%; EPH)	Full / Category B	Excel - NY Regulatory
10 Days (10%)	Category A	Excel - PA Regulatory
2 Weeks	Other:	PDF
Other: Standard TAT		Other:

Expedited TAT Not Always Available. Please Check with Lab.

Customer Information

1a) Customer: Arcadis
Address: 10 Friends Ln Newtown, PA 18940
1b) Email/Cell/Fax/Ph: 267-685-1810
1c) Send Invoice to: Deric Keans
1d) Send Report to: Deric.KeansCarcadis-us.com

Project Information

2a) Project: Rhodia/Morrisville
2b) Project Mgr: Ryan Fitzpatrick
2c) Project Location (City/State): 200 Pennsylvania Ave Morrisville, PA
2d) Quote/PO # (If Applicable):

FOR LAB USE ONLY ↓

Batch # AC14782

Check If Contingent ===>

Matrix Codes

DW - Drinking Water S - Soil A - Air
GW - Ground Water SL - Sludge
WW - Waste Water OL - Oil
OT - Other (please specify under item 9, Comments)

7) Analysis Request

<=== Check If Contingent

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	Arsenic USEPA Method	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
-001	FB-09232013	OT	9/23/13	0815		X	X							2		Field Blank
-002	AR-38_1.5-2.0	S		0855			X	1								Contingency
-003	AR-39_1.0-1.5	S		0935			X	1								Contingency
-004	AR-41_1.5-2.0	S		0945			X	1								Contingency
-005	AR-40_0.0-0.5	S		1007			X	1								Contingency
-006	AR-37_1.5-2.0	S		1035			X	1								Contingency
-007	AR-36_0.75-1.25	S		1105			X	1								Contingency
-008	BD-01-09232013	S		—			X	1								Contingency
	BD-02-09232013	S		—			X	NO SAMPLE								
010-009	AR-38_1.5-2.0_MS/MSD	S		0855		↓	X	2								Contingency

10) Relinquished by:	Accepted by:	Date	Time
Ashley Poling	[signature]	9/25/13	1020
[signature]	[signature]	9/25/13	14:11

Additional Notes: See comments for samples to be placed on hold as contingency samples.

Comments, Notes, Special Requirements, HAZARDS

Note: Check if low-level groundwater methods required to meet current standards in NJ or PA:

- ☐ BN or BNA (8270C SIM)
- ☐ VOC (8260B SIM or 8011)
- ☐ Metals (ICP-MS 200.8 or 6020)
- ☐ Metals-Soil (ICP-MS 6020 for Be & Ag)

Note: Check if applicable:

- ☐ Project-Specific Reporting Limits
- ☐ High Contaminant Concentrations
- ☐ NJ LSRP Project

Cooler Temperature: 2.0

11) Sampler (print name): Ashley Poling Brian McCann Date: 9/23/13

Please circle required parameter list (refer to HC-V summary): i) NJ 2008 SRS; ii) Current TCL; iii) HC-V 2010 Merged; iv) PA; v) NY; vi) Project-Specific

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

3092514 0029

Vertech/Division of Hampton-Clarke
175 Route 46 West and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787 | 973-439-1458
Service Center: 137-D Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056
NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | WV #353 | KY #90124

HC-V HAMPTON·CLARKE·VERITECH

CHAIN OF CUSTODY RECORD

Project # 3092514 | Page 2 of 4

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Deliv.
24 Hours (100%)	Data Summary	Hazsite/CSV
48 Hours (75%)	Waste	EQuIS 4-File / EZ / NYS
72 Hours (50%)	Red - NJ / NY / PA	EQuIS EPA Region 2 or 5
4 Days (35%; TPH)	CLP	Excel - NJ Regulatory
1 Week (25%; EPH)	Full / Category B	Excel - NY Regulatory
10 Days (10%)	Category A	Excel - PA Regulatory
2 Weeks	Other: _____	PDF
Other: Standard TAT		Other: _____

Expedited TAT Not Always Available. Please Check with Lab.

Customer Information

1a) Customer: Arcadis
Address: 10 Friends Ln
Newtown ~~Abington~~, PA 18940
1b) Email/Cell/Fax/Ph: 267-685-1800
1c) Send Invoice to: Deric Kreans
1d) Send Report to: Deric.Kreans@arcadis-us.com

Project Information

2a) Project: Rhodia/Morrisville
2b) Project Mgr: Ryan Fitzpatrick
2c) Project Location (City/State): 2300 Pennsylvania Ave Morrisville, PA
2d) Quote/PO # (If Applicable):

FOR LAB USE ONLY

Batch # AC14782

Check If Contingent ===>

Matrix Codes
DW - Drinking Water | S - Soil | A - Air
GW - Ground Water | SL - Sludge
WW - Waste Water | OL - Oil
OT - Other (please specify under item 9, Comments)

7) Analysis Request

<=== Check If Contingent

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	USEPA Arsenic WIPES	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
	~~AR-39_1.0-1.5_WIPE~~	~~S~~	~~9/23/13~~	~~0935~~		X	X	NO SAMPLE								
011	~~010~~ AR-42_1.0-1.5	S	9/23/13	1335			X	1								Contingency
012	~~011~~ AR-43_1.5-2.0	S		1150			X	1								Contingency
013	~~012~~ AR-26_1.0-1.5	S		1320			X	1								
014	~~013~~ AR-25_1.0-1.5	S		1330			X	1								
015	~~014~~ AR-35_1.5-2.0	S		1355			X	1								
016	~~015~~ AR-24_1.5-2.0	S		1405			X	1								
017	~~016~~ AR-34_1.5-20	S		1420			X	1								Contingency
018	~~017~~ AR-33_1.5-2.0	S		1440			X	1								Contingency
019	~~018~~ FB-09242013	OT	9/24/13	745			X							2		

10) Relinquished by: Ashley Poling

Accepted by:

Date	Time
9/25/13	1020
9/25/13	14:11

Comments, Notes, Special Requirements, HAZARDS

Note: Check if low-level groundwater methods required to meet current standards in NJ or PA:
- [ ] BN or BNA (8270C SIM)
- [ ] VOC (8260B SIM or 8011)
- [ ] Metals (ICP-MS 200.8 or 6020)
- [ ] Metals-Soil (ICP-MS 6020 for Be & Ag)

Note: Check if applicable:
- [ ] Project-Specific Reporting Limits
- [ ] High Contaminant Concentrations
- [ ] NJ LSRP Project

Cooler Temperature: 2.0

Additional Notes
See Comments for samples to be placed on hold as contingency samples

11) Sampler (print name): Brian McCann Ashley Poling **Date:** 9/23/13

Please circle required parameter list (refer to HC-V summary): i) NJ 2008 SRS; ii) Current TCL; iii) HC-V 2010 Merged; iv) PA; v) NY; vi) Project-Specific

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

3092514 0030

Veritech/Division of Hampton-Clarke
175 Route 46 West and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787 | 973-439-1458
Service Center: 137-D Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056

HC-V HamptonClarke-Veritech

CHAIN OF CUSTODY RECORD

Project # (Lab Use Only): 3092514

NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | WV #353 | KY #90124

Customer Information

- 1a) Customer: Arcadis
- Address: 10 Friends Ln, Newtown, PA 18940
- 1b) Email/Cell/Fax/Ph: 267-685-1800
- 1c) Send Invoice to: Deric Kearns
- 1d) Send Report to: deric.kearns@arcadis-us.com

Project Information

- 2a) Project: Rhodia/Morrisville
- 2b) Project Mgr: Ryan Fitzpatrick
- 2c) Project Location (City/State): Morrisville, PA
- 2d) Quote/PO # (If Applicable):

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Deliv.
24 Hours (100%)	Data Summary	Hazsite/CSV
48 Hours (75%)	Waste	EQuIS 4-File / EZ / NYS
72 Hours (50%)	Red - NJ / NY / PA	EQuIS EPA Region 2 or 5
4 Days (35%; TPH)	CLP	Excel - NJ Regulatory
1 Week (25%; EPH)	Full / Category B	Excel - NY Regulatory
10 Days (10%)	Category A	Excel - PA Regulatory
2 Weeks	Other: _____	PDF
Other: Std. TAT		Other: _____

Expedited TAT Not Always Available. Please Check with Lab.

FOR LAB USE ONLY

Batch # AC14782

Check If Contingent ===>

Matrix Codes
DW - Drinking Water; S - Soil; A - Air; GW - Ground Water; SL - Sludge; WW - Waste Water; OL - Oil; OT - Other (please specify under item 9, Comments)

7) Analysis Request — <=== Check If Contingent

	Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	Arsenic USEPA 6010B	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
20	~~-019~~	AR-27_1.5-2.0	S	9/24/13	1305		X		1								
21	~~-020~~	AR-32_1.5-2.0	S		820				1								Contingency
22	~~-021~~	AR-22_1.5-2.0	S		835				1								
23	~~-022~~	AR-45_1.5-2.0	S		915				1								
24	~~-023~~	AR-44_1.5-2.0	S		925				1								Contingency
25	~~-024~~	AR-31_1.5-2.0	S		938				1								Contingency
26	~~-025~~	AR-21_1.0-1.5	S		950				1								
27	~~-026~~	AR-30_1.5-2.0	S		955				1								Contingency
28	~~-027~~	AR-20_0.5-1.0	S		1020				1								
29	~~-028~~	AR-29_1.5-2.0	S		1035				1								Contingency

10) Relinquished by:	Accepted by:	Date	Time
Ashley Paling		9/25/13	1020
		9/25/13	14:11

Comments, Notes, Special Requirements, HAZARDS

Note: Check if low-level groundwater methods required to meet current standards in NJ or PA:
- ☐ BN or BNA (8270C SIM)
- ☐ VOC (8260B SIM or 8011)
- ☐ Metals (ICP-MS 200.8 or 6020)
- ☐ Metals-Soil (ICP-MS 6020 for Be & Ag)

Note: Check if applicable:
- ☐ Project-Specific Reporting Limits
- ☐ High Contaminant Concentrations
- ☐ NJ LSRP Project

Additional Notes
See comments for samples to be placed on hold as Contingency samples.

Cooler Temperature: 2.0

11) Sampler (print name): Brian Mccann Ashley Paling Date: 9/24/13

Please circle required parameter list (refer to HC-V summary): i) NJ 2008 SRS; ii) Current TCL; iii) HC-V 2010 Merged; iv) PA; v) NY; vi) Project-Specific

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

Vertech/Division of Hampton Clarke
175 Route 46 West and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787 | 973-439-1458
Service Center: 137-D Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056
NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | WV #353 | KY #90124

HC-V HamptonClarke·Veritech

CHAIN OF CUSTODY RECORD

3092514 | Page 1 of 4

3092514 0031

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Deliv.
24 Hours (100%)	Data Summary	Hazsite/CSV
48 Hours (75%)	Waste	EQuIS 4-File / EZ / NYS
72 Hours (50%)	Red - NJ / NY / PA	EQuIS EPA Region 2 or 5
4 Days (35%; TPH)	CLP	Excel - NJ Regulatory
1 Week (25%; EPH)	Full / Category B	Excel - NY Regulatory
10 Days (10%)	Category A	Excel - PA Regulatory
2 Weeks	Other:	PDF
Other: Standard TAT		Other:

Expedited TAT Not Always Available. Please Check with Lab.

Customer Information

2a) Customer: Arcadis
Address: 10 Friends Ln
Newtown, PA 18940
1b) Email/Cell/Fax/Ph: 267-685-1800
1c) Send Invoice to: Deric Keasns
1d) Send Report to: Deric.Keasns@arcadis-us.com

Project Information

2a) Project: Rhodia/Morrisville
2b) Project Mgr: Ryan Fitzpatrick
2c) Project Location (City/State): 2300 Pennsylvania Ave Morrisville, PA
2d) Quote/PO # (If Applicable):

FOR LAB USE ONLY ↓

Batch # AC14782

Check If Contingent ===>

Matrix Codes
DW - Drinking Water | S - Soil | A - Air
GW - Ground Water | SL - Sludge
WW - Waste Water | OL - Oil
OT - Other (please specify under item 9, Comments)

7) Analysis Request

<=== Check If Contingent

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	USEPA 6010B Arsenic	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
-030	AR-28_1.5-2.0	S	9/24/13	1040		X	X	1								Contingency
031	BD-02-09242013	S	9/24/13	—		X	X	1								
032/033	AR-20_0.5-1.0-MS/MSD	S	9/24/13	1020		X	X	2								
034	AR-23_1.5-2.0	S	9/23/13	1450		X	X	1								

10) Relinquished by: Ashley Poliy

Accepted by:

Date	Time
9/25/13	1420
9/25/13	14:11

Comments, Notes, Special Requirements, HAZARDS

Note: Check if low-level groundwater methods required to meet current standards in NJ or PA:
- ☐ BN or BNA (8270C SIM)
- ☐ VOC (8260B SIM or 8011)
- ☐ Metals (ICP-MS 200.8 or 6020)
- ☐ Metals-Soil (ICP-MS 6020 for Be & Ag)

Note: Check if applicable:
- ☐ Project-Specific Reporting Limits
- ☐ High Contaminant Concentrations
- ☐ NJ LSRP Project

Cooler Temperature: 2.0

Additional Notes
See comments for samples to be placed on hold as contingency samples

Please circle required parameter list (refer to HC-V summary): i) NJ 2008 SRS; ii) Current TCL; iii) HC-V 2010 Merged; iv) PA; v) NY; vi) Project-Specific

11) Sampler (print name): Brian McCann Ashley Poliy Date: 9/24/13

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

PROJECT MODIFICATIONS

Client: ARCADIS-PA **HCV Project #:** 3092514
Project: Rhodia/Morrisville

---

sherree192.168.1.52
9/27/2013 10:19:35 AM

Per Deric Kearns, AR-35 (1.5-2) (-015)should be placed on contingency hold. SB 9/27/13

---

sherree192.168.1.52
10/15/2013 8:17:20 AM

Per Deric Kearns, release the following two soil samples from contingency for analysis:
AR-43 (1.5-2.0) (-012) and AR-31 (1.5-2.0) (-025). SB 10/15/13

CONDITION UPON RECEIPT Ricardo

Batch Number AC74782 Entered By: ~~maxwell~~

Date Entered 9/25/2013 2:23:00 PM

1	Yes	Is there a corresponding COC included with the samples?
2	Yes	Are the samples in a container such as a cooler or Ice chest?
3	NO	Are the COC seals intact?
4	Yes	Please specify the Temperature inside the container (in degC) 2.0
5	Yes	Are the samples refrigerated (where required)/have they arrived on ice?
6	Yes	Are the samples within the holding times for the parameters listed on the COC? IF no, list parameters and samples:
7	Yes	Are all of the sample bottles intact? If no, specify sample numbers broken/leaking
8	Yes	Are all of the sample labels or numbers legible? If no specify:
9	Yes	Do the contents match the COC? If no, specify
10	Yes	Is there enough sample sent for the analyses listed on the COC? If no, specify:
11	Yes	Are samples preserved correctly?
12	Yes	Was temperature blank present (Place comment below if not)? If not was temperature of samples verified?
13	NA	Other comments ...Specify
14	NA	Corrective actions (Specify item number and corrective action taken).

PRESERVATION DOCUMENT

Batch Number AC74782

Entered By: ~~maxwell~~ Ricardo

Date Entered 9/25/2013 2:23:00 PM

Lab#:	Container Siz	Container Typ	Paramete	Preservative	PH
AC74782-001	1L	P	METALS	HNO3	1
AC74782-002	NA	NA	NA	NA	NA
AC74782-003	NA	NA	NA	NA	NA
AC74782-004	NA	NA	NA	NA	NA
AC74782-005	NA	NA	NA	NA	NA
AC74782-006	NA	NA	NA	NA	NA
AC74782-007	NA	NA	NA	NA	NA
AC74782-008	NA	NA	NA	NA	NA
AC74782-009	NA	NA	NA	NA	NA
AC74782-010	NA	NA	NA	NA	NA
AC74782-011	NA	NA	NA	NA	NA
AC74782-012	NA	NA	NA	NA	NA
AC74782-013	NA	NA	NA	NA	NA
AC74782-014	NA	NA	NA	NA	NA
AC74782-015	NA	NA	NA	NA	NA
AC74782-016	NA	NA	NA	NA	NA
AC74782-017	NA	NA	NA	NA	NA
AC74782-018	NA	NA	NA	NA	NA
AC74782-019	1L	P	METALS	HNO3	1
AC74782-020	NA	NA	NA	NA	NA
AC74782-021	NA	NA	NA	NA	NA
AC74782-022	NA	NA	NA	NA	NA
AC74782-023	NA	NA	NA	NA	NA
AC74782-024	NA	NA	NA	NA	NA
AC74782-025	NA	NA	NA	NA	NA
AC74782-026	NA	NA	NA	NA	NA
AC74782-027	NA	NA	NA	NA	NA
AC74782-028	NA	NA	NA	NA	NA
AC74782-029	NA	NA	NA	NA	NA
AC74782-030	NA	NA	NA	NA	NA
AC74782-031	NA	NA	NA	NA	NA
AC74782-032	NA	NA	NA	NA	NA
AC74782-033	NA	NA	NA	NA	NA
AC74782-034	NA	NA	NA	NA	NA

Internal Chain of Custody

Lab#:	DateTime:	Loc or User	Bot Nu	A/M	Analysis
AC74782-001	09/25/13 14:11	MAXW	0	M	Received
AC74782-001	09/25/13 14:23	MAXW	0	M	Login
AC74782-001	09/28/13 09:35	AM	1	A	TDSI
AC74782-001	09/28/13 09:35	AM	1	A	R12
AC74782-001	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-001	11/06/13 10:47	JOSEL	2	A	SHELF
AC74782-002	09/25/13 14:11	MAXW	0	M	Received
AC74782-002	09/25/13 14:23	MAXW	0	M	Login
AC74782-002	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-003	09/25/13 14:11	MAXW	0	M	Received
AC74782-003	09/25/13 14:23	MAXW	0	M	Login
AC74782-003	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-004	09/25/13 14:11	MAXW	0	M	Received
AC74782-004	09/25/13 14:23	MAXW	0	M	Login
AC74782-004	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-005	09/25/13 14:11	MAXW	0	M	Received
AC74782-005	09/25/13 14:23	MAXW	0	M	Login
AC74782-005	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-006	09/25/13 14:11	MAXW	0	M	Received
AC74782-006	09/25/13 14:23	MAXW	0	M	Login
AC74782-006	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-007	09/25/13 14:11	MAXW	0	M	Received
AC74782-007	09/25/13 14:23	MAXW	0	M	Login
AC74782-007	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-008	09/25/13 14:11	MAXW	0	M	Received
AC74782-008	09/25/13 14:23	MAXW	0	M	Login
AC74782-008	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-009	09/25/13 14:11	MAXW	0	M	Received
AC74782-009	09/25/13 14:23	MAXW	0	M	Login
AC74782-009	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-010	09/25/13 14:11	MAXW	0	M	Received
AC74782-010	09/25/13 14:23	MAXW	0	M	Login
AC74782-010	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-011	09/25/13 14:11	MAXW	0	M	Received
AC74782-011	09/25/13 14:23	MAXW	0	M	Login
AC74782-011	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-012	09/25/13 14:11	MAXW	0	M	Received
AC74782-012	09/25/13 14:23	MAXW	0	M	Login
AC74782-012	10/15/13 22:34	PA	1	A	mixing
AC74782-012	10/15/13 22:34	R12	1	A	NONE
AC74782-012	10/16/13 07:13	HS	1	A	%solids
AC74782-012	10/16/13 12:16	R12	1	A	NONE
AC74782-012	10/23/13 17:03	AM	1	A	tdsi/hg
AC74782-012	10/23/13 17:05	AM	1	A	r12
AC74782-012	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-013	09/25/13 14:11	MAXW	0	M	Received
AC74782-013	09/25/13 14:23	MAXW	0	M	Login
AC74782-013	09/25/13 22:45	PA	1	A	mixing
AC74782-013	09/25/13 22:46	R12	1	A	NONE
AC74782-013	09/26/13 06:34	HS	1	A	%solids
AC74782-013	09/26/13 13:56	R12	1	A	NONE
AC74782-013	09/28/13 09:35	AM	1	A	R12
AC74782-013	09/28/13 09:35	AM	1	A	TDSI
AC74782-013	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-014	09/25/13 14:11	MAXW	0	M	Received
AC74782-014	09/25/13 14:23	MAXW	0	M	Login
AC74782-014	09/25/13 22:45	PA	1	A	mixing
AC74782-014	09/25/13 22:46	R12	1	A	NONE
AC74782-014	09/26/13 06:34	HS	1	A	%solids
AC74782-014	09/26/13 13:56	R12	1	A	NONE
AC74782-014	09/28/13 09:35	AM	1	A	R12
AC74782-014	09/28/13 09:35	AM	1	A	TDSI
AC74782-014	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-015	09/25/13 14:11	MAXW	0	M	Received
AC74782-015	09/25/13 14:23	MAXW	0	M	Login
AC74782-015	09/25/13 22:45	PA	1	A	mixing
AC74782-015	09/25/13 22:46	R12	1	A	NONE
AC74782-015	09/26/13 06:34	HS	1	A	%solids
AC74782-015	09/26/13 13:56	R12	1	A	NONE
AC74782-015	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-016	09/25/13 14:11	MAXW	0	M	Received
AC74782-016	09/25/13 14:23	MAXW	0	M	Login
AC74782-016	09/25/13 22:45	PA	1	A	mixing
AC74782-016	09/25/13 22:46	R12	1	A	NONE
AC74782-016	09/26/13 06:34	HS	1	A	%solids
AC74782-016	09/26/13 13:56	R12	1	A	NONE
AC74782-016	09/28/13 09:35	AM	1	A	R12
AC74782-016	09/28/13 09:35	AM	1	A	TDSI
AC74782-016	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-017	09/25/13 14:11	MAXW	0	M	Received
AC74782-017	09/25/13 14:23	MAXW	0	M	Login
AC74782-017	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-018	09/25/13 14:11	MAXW	0	M	Received
AC74782-018	09/25/13 14:23	MAXW	0	M	Login
AC74782-018	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-019	09/25/13 14:11	MAXW	0	M	Received
AC74782-019	09/25/13 14:23	MAXW	0	M	Login
AC74782-019	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-019	09/28/13 09:35	AM	2	A	R12
AC74782-019	09/28/13 09:35	AM	2	A	TDSI
AC74782-019	11/06/13 10:47	JOSEL	2	A	SHELF
AC74782-020	09/25/13 14:11	MAXW	0	M	Received
AC74782-020	09/25/13 14:23	MAXW	0	M	Login
AC74782-020	09/25/13 22:45	PA	1	A	mixing
AC74782-020	09/25/13 22:46	R12	1	A	NONE
AC74782-020	09/26/13 06:34	HS	1	A	%solids
AC74782-020	09/26/13 13:56	R12	1	A	NONE
AC74782-020	09/28/13 09:35	AM	1	A	TDSI
AC74782-020	09/28/13 09:35	AM	1	A	R12
AC74782-020	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-021	09/25/13 14:11	MAXW	0	M	Received
AC74782-021	09/25/13 14:23	MAXW	0	M	Login
AC74782-021	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-022	09/25/13 14:11	MAXW	0	M	Received
AC74782-022	09/25/13 14:23	MAXW	0	M	Login
AC74782-022	09/25/13 22:45	PA	1	A	mixing
AC74782-022	09/25/13 22:46	R12	1	A	NONE
AC74782-022	09/26/13 06:34	HS	1	A	%solids
AC74782-022	09/26/13 13:56	R12	1	A	NONE
AC74782-022	09/28/13 09:35	AM	1	A	R12
AC74782-022	09/28/13 09:35	AM	1	A	TDSI
AC74782-022	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-023	09/25/13 14:11	MAXW	0	M	Received
AC74782-023	09/25/13 14:23	MAXW	0	M	Login
AC74782-023	09/25/13 22:45	PA	1	A	mixing
AC74782-023	09/25/13 22:46	R12	1	A	NONE
AC74782-023	09/26/13 06:34	HS	1	A	%solids
AC74782-023	09/26/13 13:56	R12	1	A	NONE
AC74782-023	09/28/13 09:35	AM	1	A	R12
AC74782-023	09/28/13 09:35	AM	1	A	TDSI
AC74782-023	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-024	09/25/13 14:11	MAXW	0	M	Received
AC74782-024	09/25/13 14:23	MAXW	0	M	Login
AC74782-024	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-025	09/25/13 14:11	MAXW	0	M	Received
AC74782-025	09/25/13 14:23	MAXW	0	M	Login
AC74782-025	10/15/13 22:34	PA	1	A	mixing
AC74782-025	10/15/13 22:34	R12	1	A	NONE
AC74782-025	10/16/13 07:13	HS	1	A	%solids
AC74782-025	10/16/13 12:16	R12	1	A	NONE
AC74782-025	10/23/13 17:03	AM	1	A	tdsi/hg
AC74782-025	10/23/13 17:05	AM	1	A	r12
AC74782-025	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-026	09/25/13 14:11	MAXW	0	M	Received
AC74782-026	09/25/13 14:23	MAXW	0	M	Login
AC74782-026	09/25/13 22:45	PA	1	A	mixing
AC74782-026	09/25/13 22:46	R12	1	A	NONE
AC74782-026	09/26/13 06:34	HS	1	A	%solids
AC74782-026	09/26/13 13:56	R12	1	A	NONE
AC74782-026	09/28/13 09:35	AM	1	A	R12
AC74782-026	09/28/13 09:35	AM	1	A	TDSI
AC74782-026	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-027	09/25/13 14:11	MAXW	0	M	Received
AC74782-027	09/25/13 14:23	MAXW	0	M	Login
AC74782-027	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-028	09/25/13 14:11	MAXW	0	M	Received
AC74782-028	09/25/13 14:23	MAXW	0	M	Login
AC74782-028	09/25/13 22:45	PA	1	A	mixing
AC74782-028	09/25/13 22:46	R12	1	A	NONE
AC74782-028	09/26/13 06:34	HS	1	A	%solids

Samples marked as received are stored in coolers or refrigerator R12, or R24 at 4 deg C until Login

Internal Chain of Custody

Lab#:	DateTime:	Loc or User	Bot Nu	A/M	Analysis
AC74782-028	09/26/13 13:56	R12	1	A	NONE
AC74782-028	09/28/13 09:35	AM	1	A	R12
AC74782-028	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-029	09/25/13 14:11	MAXW	0	M	Received
AC74782-029	09/25/13 14:23	MAXW	0	M	Login
AC74782-029	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-030	09/25/13 14:11	MAXW	0	M	Received
AC74782-030	09/25/13 14:23	MAXW	0	M	Login
AC74782-030	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-031	09/25/13 14:11	MAXW	0	M	Received
AC74782-031	09/25/13 14:23	MAXW	0	M	Login
AC74782-031	09/25/13 22:45	PA	1	A	mixing
AC74782-031	09/25/13 22:46	R12	1	A	NONE
AC74782-031	09/26/13 06:34	HS	1	A	%solids
AC74782-031	09/26/13 13:56	R12	1	A	NONE
AC74782-031	09/28/13 09:35	AM	1	A	R12
AC74782-031	09/28/13 09:35	AM	1	A	TDSI
AC74782-031	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-032	09/25/13 14:11	MAXW	0	M	Received
AC74782-032	09/25/13 14:23	MAXW	0	M	Login
AC74782-032	09/25/13 22:45	PA	1	A	mixing
AC74782-032	09/25/13 22:46	R12	1	A	NONE
AC74782-032	09/26/13 06:34	HS	1	A	%solids
AC74782-032	09/26/13 13:56	R12	1	A	NONE
AC74782-032	09/28/13 09:35	AM	1	A	R12
AC74782-032	09/28/13 09:35	AM	1	A	TDSI
AC74782-032	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-033	09/25/13 14:11	MAXW	0	M	Received
AC74782-033	09/25/13 14:23	MAXW	0	M	Login
AC74782-033	09/25/13 22:45	PA	1	A	mixing
AC74782-033	09/25/13 22:46	R12	1	A	NONE
AC74782-033	09/26/13 06:34	HS	1	A	%solids
AC74782-033	09/26/13 13:56	R12	1	A	NONE
AC74782-033	09/28/13 09:35	AM	1	A	R12
AC74782-033	09/28/13 09:35	AM	1	A	TDSI
AC74782-033	11/06/13 10:47	JOSEL	1	A	SHELF
AC74782-034	09/25/13 14:11	MAXW	0	M	Received
AC74782-034	09/25/13 14:23	MAXW	0	M	Login
AC74782-034	09/25/13 22:45	PA	1	A	mixing
AC74782-034	09/25/13 22:46	R12	1	A	NONE
AC74782-034	09/26/13 06:34	HS	1	A	%solids
AC74782-034	09/26/13 13:56	R12	1	A	NONE
AC74782-034	09/28/13 09:35	AM	1	A	R12
AC74782-034	09/28/13 09:35	AM	1	A	TDSI
AC74782-034	11/06/13 10:47	JOSEL	1	A	SHELF

Lab#:	DateTime:	Loc or User	Bot Nu	A/M	Analysis

Samples marked as received are stored in coolers or refrigerator R12, or R24 at 4 deg C until Login

Metal Data

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC74782-001	% Solid:	0	Lab Name:	Veritech	Nras No:	
Client Id:	FB-09232013	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	9/25/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	20	ND	1	50	50	09/29/13	27223	S15516A3	22	P	PEICP3A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC74782-012	% Solid:	80	Lab Name:	Veritech	Nras No:	
Client Id:	AR-43_1.5-2.0	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	9/25/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	5.0	6.3	1	0.5	50	10/25/13	27301	S15590B3	12	P	PEICP3A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC74782-013	% Solid:	76	Lab Name:	Veritech	Nras No:	
Client Id:	AR-26_1.0-1.5	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	9/25/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	2.6	25	1	0.5	50	09/29/13	27223	S15516A3	23	P	PEICP3A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC74782-014	% Solid:	77	Lab Name:	Veritech	Nras No:	
Client Id:	AR-25_1.0-1.5	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	9/25/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	2.6	20	1	0.5	50	09/29/13	27223	S15516A3	24	P	PEICP3A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC74782-016	% Solid:	78	Lab Name:	Veritech	Nras No:	
Client Id:	AR-24_1.5-2.0	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	9/25/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	2.6	17	1	0.5	50	09/29/13	27223	S15516A3	25	P	PEICP3A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC74782-019	% Solid:	0	Lab Name:	Veritech	Nras No:	
Client Id:	FB-09242013	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	9/25/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	20	ND	1	50	50	09/29/13	27223	S15516A3	26	P	PEICP3A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC74782-020	% Solid:	76	Lab Name:	Veritech	Nras No:	
Client Id:	AR-27_1.5-2.0	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	9/25/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	2.6	29	1	0.5	50	09/29/13	27223	S15516A3	27	P	PEICP3A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC74782-022	% Solid:	77	Lab Name:	Veritech	Nras No:	
Client Id:	AR-22_1.5-2.0	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	9/25/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	2.6	27	1	0.5	50	09/29/13	27223	S15516A3	32	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC74782-023	% Solid:	79	Lab Name:	Veritech	Nras No:	
Client Id:	AR-45_1.5-2.0	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	9/25/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	2.5	7.0	1	0.5	50	09/29/13	27223	S15516A3	33	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC74782-025	% Solid:	80	Lab Name:	Veritech	Nras No:	
Client Id:	AR-31_1.5-2.0	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	9/25/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	5.0	ND	1	0.5	50	10/25/13	27301	S15590B3	13	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC74782-026	% Solid:	78	Lab Name:	Veritech	Nras No:	
Client Id:	AR-21_1.0-1.5	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	9/25/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	2.6	51	1	0.5	50	09/29/13	27223	S15516A3	34	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC74782-028	% Solid:	80	Lab Name:	Veritech	Nras No:	
Client Id:	AR-20_0.5-1.0	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	9/25/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	2.5	21	1	0.5	50	09/29/13	27223	S15516A3	14	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC74782-031	% Solid:	79	Lab Name:	Veritech	Nras No:	
Client Id:	BD-02-09242013	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	9/25/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	2.5	19	1	0.5	50	09/29/13	27223	S15516A3	35	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC74782-032	% Solid:	80	Lab Name:	Veritech	Nras No:	
Client Id:	AR-20_0.5-1.0-MS	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	9/25/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	2.5	80	1	0.5	50	09/29/13	27223	S15516A3	16	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC74782-033	% Solid:	80	Lab Name:	Veritech	Nras No:	
Client Id:	AR-20_0.5-1.0-MSD	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	9/25/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	2.5	80	1	0.5	50	09/29/13	27223	S15516A3	17	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC74782-034	% Solid:	80	Lab Name:	Veritech	Nras No:	
Client Id:	AR-23_1.5-2.0	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	9/25/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	2.5	18	1	0.5	50	09/29/13	27223	S15516A3	36	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID: MB 27223 (100) % Solid: 0 Lab Name: Veritech
Client Id: MB 27223 (100) Units: MG/KG Lab Code:
Matrix: SOIL
Level: LOW

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7429-90-5	Aluminum	200	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7440-36-0	Antimony	2.0	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7440-38-2	Arsenic	2.0	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7440-39-3	Barium	10	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7440-41-7	Beryllium	0.60	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7440-43-9	Cadmium	0.60	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7440-70-2	Calcium	1000	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7440-47-3	Chromium	5.0	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7440-48-4	Cobalt	2.5	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7440-50-8	Copper	5.0	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7439-89-6	Iron	200	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7439-92-1	Lead	5.0	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7439-95-4	Magnesium	500	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7439-96-5	Manganese	10	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7439-98-7	Molybdenum	2.5	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7440-02-0	Nickel	5.0	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7782-49-2	Selenium	1.8	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7440-22-4	Silver	1.5	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7440-28-0	Thallium	1.2	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7440-31-5	Tin	5.7	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7440-32-6	Titanium	35	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7440-62-2	Vanadium	10	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A
7440-66-6	Zinc	10	ND	1	0.5	50	09/29/13	27223	S15516A3	11	P	PEICP3A

Comments: _____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID: MB 27301 (100) % Solid: 0 Lab Name: Veritech
Client Id: MB 27301 (100) Units: MG/KG Lab Code:
Matrix: SOIL
Level: LOW

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	4.0	ND	1	0.5	50	10/24/13	27301	S15590A3	12	P	PEICP3A
7440-41-7	Beryllium	1.2	ND	1	0.5	50	10/24/13	27301	S15590A3	12	P	PEICP3A
7439-92-1	Lead	5.0	ND	1	0.5	50	10/24/13	27301	S15590A3	12	P	PEICP3A
7440-02-0	Nickel	5.0	ND	1	0.5	50	10/24/13	27301	S15590A3	12	P	PEICP3A

Comments: _____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

FORM 2
(ICV/CCV Summary)

Date Analyzed: 09/29/13
Data File: S15516A3
Prep Batch: 27223
Analytical Method: 6010B/6010C/7470A,7471A/7471B(Hg),6020/6020A
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3092514

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICV/CCV SOURCE: VHG LABS

Analyte	ICV/CCV Amt	ICV (2) V-171067-7	Rec	CCV V-172372-19	Rec	CCV V-172372-30	Rec	CCV V-172372-40	Rec	CCV V-172372-48	Rec		Rec		Rec		Rec
Arsenic	1/.5	0.98601	99	0.47545	95	0.46903	94	0.45735	91	0.46205	92						
Vanadium	1/.5	0.96448	96	0.49042	98	0.49190	98	0.48383	97	0.48506	97						

Notes: a-indicates analyte failed the ICV limits for 6010B/6010C, 6020/6020A
b-indicates analyte failed the ICV limits for 200.7 or 200.8
c-indicates analyte failed the CCV limits for 200.7/200.8/245.1/6010B/6010C (Except Hg 7470/7470A,7471A/7471B),6020/6020A
d-indicates analyte failed the CCV limits Hg 7470A/7471A/7471B

Qc Limits: ICV - 200.7 : 95-105
CCV- 200.7/200.8/6010B/6010C/245.1 : 90-110 (Except Hg 7470/7470A/ 7471A/7471B=80-120)
ICV -6010B/6010C/6020/6020A/200.8 : 90-110

CLP ICP ICV/CCV: 90-110
CLP Hg ICV/CCV: 80-120

FORM 2
(ICV/CCV Summary)

Date Analyzed: 10/24/13
Data File: S15590A3
Prep Batch: 27301
Analytical Method: 6010B/6010C/7470A,7471A/7471B(Hg),6020/6020A
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICV/CCV SOURCE: VHG LABS

Analyte	ICV/CCV Amt	ICV (1) V-174627-7	Rec	CCV V-174627-20	Rec	CCV V-174627-26	Rec	Rec	Rec	Rec	Rec	Rec	Rec	Rec	Rec
Aluminum	10/5	4.96498	99	4.93761	99	4.89150	98								
Antimony	1/.5	0.51503	103	0.51613	103	0.50906	102								
Arsenic	1/.5	0.48687	97	0.49677	99	0.49117	98								
Barium	1/.5	0.51242	102	0.51180	102	0.50645	101								
Beryllium	1/.5	0.49584	99	0.49926	100	0.49895	100								
Cadmium	1/.5	0.51050	102	0.50884	102	0.50410	101								
Calcium	100/50	51.04990	102	51.42850	103	51.43760	103								
Chromium	1/.5	0.51799	104	0.51786	104	0.51271	103								
Cobalt	1/.5	0.51019	102	0.51050	102	0.50268	101								
Copper	1/.5	0.50116	100	0.49843	100	0.49451	99								
Iron	10/5	5.10348	102	5.09501	102	5.04016	101								
Lead	1/.5	0.50380	101	0.50508	101	0.50649	101								
Magnesium	100/50	52.42010	105	52.83020	106	52.86520	106								
Manganese	1/.5	0.50161	100	0.50002	100	0.49417	99								
Molybdenum	1/.5	0.49783	100	0.50153	100	0.49758	100								
Nickel	1/.5	0.51345	103	0.51366	103	0.50834	102								
Selenium	1/.5	0.50956	102	0.50593	101	0.50315	101								
Silver	0.2/0.1	0.10409	104	0.10326	103	0.10218	102								
Thallium	1/.5	0.51949	104	0.52447	105	0.53096	106								
Tin	1/.5	0.51208	102	0.51844	104	0.50994	102								
Titanium	1/.5	0.49435	99	0.49288	99	0.48751	98								
Vanadium	1/.5	0.50342	101	0.50170	100	0.49594	99								
Zinc	1/.5	0.50854	102	0.50819	102	0.50242	100								

Notes: a-indicates analyte failed the ICV limits for 6010B/6010C, 6020/6020A
b-indicates analyte failed the ICV limits for 200.7 or 200.8
c-indicates analyte failed the CCV limits for 200.7/200.8/245.1/6010B/6010C (Except Hg 7470/7470A,7471A/7471B),6020/6020A
d-indicates analyte failed the CCV limits Hg 7470A/7471A/7471B

Qc Limits: ICV - 200.7 : 95-105
CCV- 200.7/200.8/6010B/6010C/245.1 : 90-110 (Except Hg 7470/7470A/ 7471A/7471B=80-120)
ICV -6010B/6010C/6020/6020A/200.8 : 90-110

CLP ICP ICV/CCV: 90-110
CLP Hg ICV/CCV: 80-120

FORM 2
(LLICV/LLCCV Summary)

Date Analyzed: 10/24/13
Data File: S15590A3
Prep Batch: 27301
Analytical Method: 6010B/6010C/7470A,7471A/7471B(Hg),6020/6020A
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICV/CCV SOURCE: VHG LABS

Analyte	LLICV/ LLCCV Amt	LLICV V-174981-8	Rec	LLCCV V-174981-21	Rec	LLCCV V-174981-27	Rec	Rec	Rec	Rec	Rec	Rec	Rec	Rec	Rec	Rec
Aluminum	2.0/2	1.99076	100	1.97341	99	1.96703	98									
Antimony	0.04/0.04	0.0397426	99	0.0372584	93	0.0347413	87									
Arsenic	0.04/0.04	0.0366528	92	0.0393229	98	0.0357202	89									
Barium	0.1/0.1	0.107394	107	0.107774	108	0.106579	107									
Beryllium	0.012/0.012	0.0135572	113	0.0135300	113	0.0135572	113									
Cadmium	0.012/0.012	0.0132947	111	0.0133668	111	0.0133331	111									
Calcium	10/10	10.6129	106	10.5477	105	10.5765	106									
Chromium	0.05/0.05	0.0537088	107	0.0535738	107	0.0529425	106									
Cobalt	0.025/0.025	0.0272018	109	0.0264261	106	0.0272567	109									
Copper	0.05/0.05	0.0528347	106	0.0539325	108	0.0531406	106									
Iron	2.0/2	2.12071	106	2.11378	106	2.10431	105									
Lead	0.05/0.05	0.0536761	107	0.0550458	110	0.0539784	108									
Magnesium	5.0/5	5.24175	105	5.19834	104	5.20120	104									
Manganese	0.1/0.1	0.107105	107	0.106529	107	0.106239	106									
Molybdenum	0.025/0.025	0.0269282	108	0.0266238	106	0.0270401	108									
Nickel	0.05/0.05	0.0545309	109	0.0534385	107	0.0544144	109									
Selenium	0.03/0.03	0.0293333	98	0.0288931	96	0.0214262	71									
Silver	0.015/0.015	0.0166080	111	0.0164756	110	0.0159889	107									
Thallium	0.015/0.015	0.0205763	137 a	0.0199968	133 c	0.0170001	113									
Tin	0.2/0.2	0.214774	107	0.216018	108	0.217426	109									
Titanium	0.1/0.1	0.105434	105	0.104586	105	0.103084	103									
Vanadium	0.1/0.1	0.103904	104	0.102573	103	0.101759	102									
Zinc	0.1/0.1	0.103234	103	0.102777	103	0.103753	104									

Notes: a-indicates analyte failed the LLICV limits for 6010B, 6010C, 6020, 6020A
c-indicates analyte failed the LLCCV limits for 6010B, 6010C, 6020, 6020A

Qc Limits: LLCCV- 6010B/6010C/6020/6020A (70-130)
LLICV -6010B/6010C/6020/6020A :70-130

FORM 2
(ICV/CCV Summary)

Date Analyzed: 10/25/13
Data File: S15590B3
Prep Batch: 27301
Analytical Method: 6010B/6010C/7470A,7471A/7471B(Hg),6020/6020A
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3092514

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICV/CCV SOURCE: VHG LABS

Analyte	ICV/CCV Amt	ICV (1) V-174627-7	Rec	CCV V-174627-20	Rec	CCV V-174627-33	Rec		Rec		Rec		Rec		Rec		Rec
Arsenic	1/.5	0.47706	95	0.46515	93	0.44931	90										
Beryllium	1/.5	0.48181	96	0.47999	96	0.48465	97										
Lead	1/.5	0.49507	99	0.49031	98	0.48929	98										
Nickel	1/.5	0.48945	98	0.49031	98	0.48946	98										

Notes: a-indicates analyte failed the ICV limits for 6010B/6010C, 6020/6020A
b-indicates analyte failed the ICV limits for 200.7 or 200.8
c-indicates analyte failed the CCV limits for 200.7/200.8/245.1/6010B/6010C (Except Hg 7470/7470A,7471A/7471B),6020/6020A
d-indicates analyte failed the CCV limits Hg 7470A/7471A/7471B

Qc Limits: ICV - 200.7 : 95-105
CCV- 200.7/200.8/6010B/6010C/245.1 : 90-110 (Except Hg 7470/7470A/ 7471A/7471B=80-120)
ICV -6010B/6010C/6020/6020A/200.8 : 90-110

CLP ICP ICV/CCV: 90-110
CLP Hg ICV/CCV: 80-120

FORM 2
(LLICV/LLCCV Summary)

Date Analyzed: 10/25/13
Data File: S15590B3
Prep Batch: 27301
Analytical Method: 6010B/6010C/7470A,7471A/7471B(Hg),6020/6020A
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3092514

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICV/CCV SOURCE: VHG LABS

Analyte	LLICV/ LLCCV Amt	LLICV V-174981-8	Rec	LLCCV V-174981-21	Rec	LLCCV V-174981-34	Rec		Rec		Rec		Rec		Rec		Rec		Rec
Arsenic	0.04/0.04	0.0296976	74	0.0325556	81	0.0320512	80												
Beryllium	0.012/0.012	0.0111240	93	0.0114504	95	0.0116430	97												
Lead	0.05/0.05	0.0493913	99	0.0532344	106	0.0537273	107												
Nickel	0.05/0.05	0.0467255	93	0.0464402	93	0.0476240	95												

Notes: a-indicates analyte failed the LLICV limits for 6010B, 6010C, 6020, 6020A
c-indicates analyte failed the LLCCV limits for 6010B, 6010C, 6020, 6020A

Qc Limits: LLCCV- 6010B/6010C/6020/6020A (70-130)
LLICV -6010B/6010C/6020/6020A :70-130

FORM 3
(ICB/CCB/MB Summary)

Date Analyzed: 10/24/13
Data File: S15590A3
Prep Batch: 27301
Reporting Limits Used: 6010B/6010C/7470A,7471A/7471B(Hg),6020/6020A
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:

Analyte	ICB V-174666-9	CCB V-174666-22	CCB V-174666-28	MB 27301 (100)-12				
Aluminum	2 U	2 U	2 U	200 U				
Antimony	.04 U	.04 U	.04 U	4 U				
Arsenic	.04 U	.04 U	.04 U	4 U				
Barium	.1 U	.1 U	.1 U	10 U				
Beryllium	.012 U	.012 U	.012 U	1.2 U				
Cadmium	.012 U	.012 U	.012 U	1.2 U				
Calcium	10 U	10 U	10 U	1000 U				
Chromium	.05 U	.05 U	.05 U	5 U				
Cobalt	.025 U	.025 U	.025 U	2.5 U				
Copper	.05 U	.05 U	.05 U	5 U				
Iron	2 U	2 U	2 U	200 U				
Lead	.05 U	.05 U	.05 U	5 U				
Magnesium	5 U	5 U	5 U	500 U				
Manganese	.1 U	.1 U	.1 U	10 U				
Molybdenum	.025 U	.025 U	.025 U	2.5 U				
Nickel	.05 U	.05 U	.05 U	5 U				
Selenium	.03 U	.03 U	.03 U	3 U				
Silver	.015 U	.015 U	.015 U	1.5 U				
Thallium	.015 U	.015 U	.015 U	1.5 U				
Tin	.2 U	.2 U	.2 U	20 U				
Titanium	.1 U	.1 U	.1 U	10 U				
Vanadium	.1 U	.1 U	.1 U	10 U				
Zinc	.1 U	.1 U	.1 U	10 U				

Notes: a-indicates absolute value of result found above the reporting limits in CCB/ICB or result found above reporting limit in the MB
u-indicates result below reporting limit

FORM 3
(ICB/CCB/MB Summary)

Date Analyzed: 09/29/13
Data File: S15516A3
Prep Batch: 27223
Reporting Limits Used: 6010B/6010C/7470A,7471A/7471B(Hg),6020/6020A
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3092514

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:

Analyte	ICB V-170817-8	CCB V-170817-20	CCB V-170817-31	CCB V-170817-41	CCB V-170817-49	MB 27223 (100)-11	MB FB (1)-44
Arsenic	.02 U	.02 U	.02 U	.02 U	.02 U	2 U	.02 U
Vanadium	.1 U	.1 U	.1 U	.1 U	.1 U	10 U	.1 U

Notes: a-indicates absolute value of result found above the reporting limits in CCB/ICB or result found above reporting limit in the MB
u-indicates result below reporting limit

FORM 3
(ICB/CCB/MB Summary)

Date Analyzed: 10/25/13
Data File: S15590B3
Prep Batch: 27301
Reporting Limits Used: 6010B/6010C/7470A,7471A/7471B(Hg),6020/6020A
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3092514

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:

Analyte	ICB V-174666-9	CCB V-174666-22	CCB V-174666-35					
Arsenic	.04 U	.04 U	.04 U					
Beryllium	.012 U	.012 U	.012 U					
Lead	.05 U	.05 U	.05 U					
Nickel	.05 U	.05 U	.05 U					

Notes: a-indicates absolute value of result found above the reporting limits in CCB/ICB or result found above reporting limit in the MB
u-indicates result below reporting limit

FORM 4
(ICSA/ICSAB Summary)

Date Analyzed: 09/29/13
Data File: S15516A3
Prep Batch: 27223
Reporting Limits Used: 6010B/6010C/7470A,7471A/7471B(Hg),6020/6020A
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3092514

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICSA/ICSAB: SOURCE: VHG LABS

Analyte	Spk Amt	ICSA V-172439-9	Rec	ICSAB V-171736-10	Rec	ICSA V-172439-28	Rec	ICSAB V-171736-29	Rec	ICSA V-172439-38	Rec	ICSAB V-171736-39	Rec	ICSA V-172439-46	Rec	ICSAB V-171736-47	Rec
Aluminum	500	486.74	97	496.49700	99	488.492	98	500.83500	100	483.602	97	493.49100	99	485.77	97	497.63200	100
Arsenic	1	U		1.01528	102	U		0.99458	99	U		0.96783	97	U		0.96755	97
Calcium	500	472.099	94	474.67500	95	470.638	94	479.68200	96	461.375	92	476.08700	95	471.885	94	480.54700	96
Iron	200	185.404	93	190.00300	95	185.866	93	189.51600	95	183.657	92	185.36000	93	183.974	92	188.90900	94
Magnesium	500	503.714	101	516.41500	103	504.625	101	511.39800	102	498.366	100	499.12800	100	498.586	100	511.84900	102
Vanadium	.5	U		0.48267	97	U		0.48315	97	U		0.47799	96	U		0.47809	96

Notes: a-indicates absolute value of the concentration > 2 * Reporting Limits In the ICSA
b-indicates absolute value of the concentration above Reporting Limits but < 2 * Reporting Limits in the ICSA
c-indicates the recovery failed the Qc Criteria in the ICSAB
u-indicates the absolute value of the concentration was below the reporting limit

FORM 4
(ICSA/ICSAB Summary)

Date Analyzed: 10/25/13
Data File: S15590B3
Prep Batch: 27301
Reporting Limits Used: 6010B/6010C/7470A,7471A/7471B(Hg),6020/6020A
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3092514

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICSA/ICSAB: SOURCE: VHG LABS

Analyte	Spk Amt	ICSA V-173614-10	Rec	ICSAB V-173231-11	Rec	ICSA V-173614-18	Rec	ICSAB V-173231-19	Rec	ICSA V-173614-31	Rec	ICSAB V-173231-32	Rec		Rec		Rec
Aluminum	500	481.795	96	470.12500	94	495.308	99	467.38900	93	508.452	102	492.88300	99				
Arsenic	1	U		0.95076	95	U		0.95210	95	U		0.94516	95				
Beryllium	.5	U		0.49918	100	U		0.50461	101	U		0.50405	101				
Calcium	500	492.458	98	470.80100	94	495.675	99	476.27500	95	498.086	100	485.29600	97				
Iron	200	185.216	93	182.42800	91	183.61	92	183.43300	92	189	94	183.72400	92				
Lead	1	U		0.91926	92	U		0.92992	93	U		0.94294	94				
Magnesium	500	508.192	102	501.56900	100	505.066	101	506.34800	101	522.846	105	508.34000	102				
Nickel	1	U		0.90266	90	U		0.91898	92	U		0.91650	92				

Notes: a-indicates absolute value of the concentration > 2 * Reporting Limits In the ICSA
b-indicates absolute value of the concentration above Reporting Limits but < 2 * Reporting Limits in the ICSA
c-indicates the recovery failed the Qc Criteria in the ICSAB
u-indicates the absolute value of the concentration was below the reporting limit

FORM 4
(ICSA/ICSAB Summary)

Date Analyzed: 10/24/13
Data File: S15590A3
Prep Batch: 27301
Reporting Limits Used: 6010B/6010C/7470A,7471A/7471B(Hg),6020/6020A
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICSA/ICSAB: SOURCE: VHG LABS

Analyte	Spk Amt	ICSA V-173614-10	Rec	ICSAB V-173231-11	Rec	ICSA V-173614-24	Rec	ICSAB V-173231-25	Rec	Rec	Rec	Rec	Rec
Aluminum	500	510.79	102	479.90700	96	516.324	103	516.76000	103				
Antimony	1	U		1.05506	106	U		1.05593	106				
Arsenic	1	U		1.00674	101	U		1.01936	102				
Barium	.5	U		0.53020	106	U		0.54208	108				
Beryllium	.5	U		0.51142	102	U		0.52027	104				
Cadmium	1	U		1.05183	105	U		1.07233	107				
Calcium	500	484.896	97	490.00700	98	495.959	99	492.16700	98				
Chromium	.5	U		0.50578	101	U		0.51707	103				
Cobalt	.5	U		0.49191	98	U		0.49494	99				
Copper	.5	U		0.53576	107	U		0.54606	109				
Iron	200	190.229	95	189.19600	95	192.568	96	193.06900	97				
Lead	1	U		0.97547	98	U		0.95837	96				
Magnesium	500	522.389	104	519.65600	104	529.057	106	530.63100	106				
Manganese	.5	U		0.48396	97	U		0.49436	99				
Nickel	1	U		0.94481	94	U		0.96616	97				
Selenium	1	U		1.02286	102	U		1.01837	102				
Silver	1	U		1.09850	110	U		1.11578	112				
Thallium	1	U		0.99594	100	U		1.00079	100				
Vanadium	.5	U		0.51329	103	U		0.52454	105				
Zinc	1	U		0.95461	95	U		0.97967	98				

Notes: a-indicates absolute value of the concentration > 2 * Reporting Limits In the ICSA
b-indicates absolute value of the concentration above Reporting Limits but < 2 * Reporting Limits in the ICSA
c-indicates the recovery failed the Qc Criteria in the ICSAB
u-indicates the absolute value of the concentration was below the reporting limit

FORM5/FORM7

SPIKE RECOVERY DATA

PREP BATCH: 27223

Instrument Type: ICP/HG

Analytical Method(s):6010/200.7/7470A/7471A/245.1

ICP units in ppm, ICPMS and Hg in ppb

TxtQcType: LCS Matrix: AQUEOUS SampleID: LCSW

Analyte	BatchId	DF	Data Fil	Seq#:	Spk Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	27223	1	S15516A3	45	0.4635	0.500	93		80	120

TxtQcType: LCSMR Matrix: SOIL SampleID: LCS MR 27223

Analyte	BatchId	DF	Data Fil	Seq#:	Spk Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	27223	1	S15516A3	13	0.9752	0.996	98		81	119

TxtQcType: LCS Matrix: SOIL SampleID: LCS 27223

Analyte	BatchId	DF	Data Fil	Seq#:	Spk Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	27223	1	S15516A3	12	0.9444	0.996	95		81	119

TxtQcType: MSD Matrix: SOIL SampleID: AC74782-033

Analyte	BatchId	DF	Data Fil	Seq#:	NS Data Fil	Seq#	Spk Conc:	NS Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	27223	1	S15516A3	17	S15516A3	14	0.6428	0.1673	0.5	95		75	125

TxtQcType: MS Matrix: SOIL SampleID: AC74782-032

Analyte	BatchId	DF	Data Fil	Seq#:	NS Data Fil	Seq#	Spk Conc:	NS Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	27223	1	S15516A3	16	S15516A3	14	0.6403	0.1673	0.5	95		75	125

a-Indicates Recovery Failed the criteria b-Indicates Recovery Failed the criteria but non spike concentration >4*spike amount

FORM5/FORM7

SPIKE RECOVERY DATA

PREP BATCH: 27301

Instrument Type: ICP/HG

Analytical Method(s):6010/200.7/7470A/7471A/245.1 ICP units in ppm, ICPMS and Hg in ppb

TxtQcType: LCSMR Matrix: SOIL SampleID: LCS MR 27301

Analyte	BatchId	DF	Data Fil	Seq#:	Spk Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	27301	1	S15590A3	14	0.9415	0.996	95		81	119

TxtQcType: LCS Matrix: SOIL SampleID: LCS 27301

Analyte	BatchId	DF	Data Fil	Seq#:	Spk Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	27301	1	S15590A3	13	0.9696	0.996	97		81	119

TxtQcType: MSD Matrix: SOIL SampleID: AC75258-011

Analyte	BatchId	DF	Data Fil	Seq#:	NS Data Fil	Seq#	Spk Conc:	NS Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	27301	1	S15590A3	18	S15590A3	15	0.4619	0.04U	0.5	92		75	125

TxtQcType: MS Matrix: SOIL SampleID: AC75258-011

Analyte	BatchId	DF	Data Fil	Seq#:	NS Data Fil	Seq#	Spk Conc:	NS Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	27301	1	S15590A3	17	S15590A3	15	0.4803	0.04U	0.5	96		75	125

a-Indicates Recovery Failed the criteria b-Indicates Recovery Failed the criteria but non spike concentration >4*spike amount

FORM6/FORM9

RPD/%Difference Data

PREP BATCH: 27223

Instrument Type: ICP/HG

Analytical Method(s):6010/200.7/7470A/7471A/245.1

ICP units in ppm, ICPMS and Hg in ppb

TxtQcType: LCSMR		Matrix: SOIL		SampleID: LCS MR 27223					
Analyte	BatchId	Data Fil	Seq#:	NS File	Seq#	Result 1	Result 2	RPD	Limit
Arsenic	27223	S15516A3	13	S15516A3	12	0.9752	0.9444	3.2	20

TxtQcType: MR		Matrix: SOIL		SampleID: AC74782-028					
Analyte	BatchId	Data Fil	Seq#:	NS File	Seq#	Result 1	Result 2	RPD	Limit
Arsenic	27223	S15516A3	15	S15516A3	14	0.1403	0.1673	18	20

TxtQcType: MSD		Matrix: SOIL		SampleID: AC74782-033					
Analyte	BatchId	Data Fil	Seq#:	MS File	Seq#	Result 1	Result 2	RPD	Limit
Arsenic	27223	S15516A3	17	S15516A3	16	0.6428	0.6403	.38	20

TxtQcType: SD		Matrix: SOIL		SampleID: AC74782-028						
Analyte	BatchId	Data Fil	Seq#:	NS File	Seq#	DF	Result 1	Result 2	%Diff	Limit
Arsenic	27223	S15516A3	21	S15516A3	14	5	0.0320	0.1673	4.4	10

a-Indicates Rpd Failed the criteria

b-Method Rep Out but concentrations < 5*RL

c-Serial dilution Out but conc < 10 * IDL

FORM6/FORM9

RPD/%Difference Data

PREP BATCH: 27301

Instrument Type: ICP/HG

Analytical Method(s):6010/200.7/7470A/7471A/245.1

ICP units in ppm, ICPMS and Hg in ppb

TxtQcType: LCSMR Matrix: SOIL SampleID: LCS MR 27301

Analyte	BatchId	Data Fil	Seq#:	NS File	Seq#	Result 1	Result 2	RPD	Limit
Arsenic	27301	S15590A3	14	S15590A3	13	0.9415	0.9696	2.9	20

TxtQcType: MR Matrix: SOIL SampleID: AC75258-011

Analyte	BatchId	Data Fil	Seq#:	NS File	Seq#	Result 1	Result 2	RPD	Limit
Arsenic	27301	S15590A3	16	S15590A3	15	0.04U	0.04U	---	20

TxtQcType: MSD Matrix: SOIL SampleID: AC75258-011

Analyte	BatchId	Data Fil	Seq#:	MS File	Seq#	Result 1	Result 2	RPD	Limit
Arsenic	27301	S15590A3	18	S15590A3	17	0.4619	0.4803	3.9	20

TxtQcType: SD Matrix: SOIL SampleID: AC75258-011

Analyte	BatchId	Data Fil	Seq#:	NS File	Seq#	DF	Result 1	Result 2	%Diff	Limit
Arsenic	27301	S15590A3	23	S15590A3	15	5	0.0038	0.0119	---	10

a-Indicates Rpd Failed the criteria

b-Method Rep Out but concentrations < 5*RL

c-Serial dilution Out but conc < 10 * IDL

Hampton-Clarke/Veritech

ICP SAMPLE PREPARATION LOG

ANALYTICAL METHOD: 3010A 3005A (3050B) 200.7/200.8 OTHER_____

Batch No.: 15516 Analyst: LM

QC Number: 27223 Prep Date: 9/28/13

Matrix: Soil Reviewed By: [signature]

LAB ID#	ICP		ICP-MS (Secondary dil)		TCLP		COMMENTS
	Initial	Final	Aliquot	Final	Eff	TCLP	
Method blank	50ml	50ml				--	
LCS	0.5g					--	
LCSD						--	
1 LC 74782-028							
MR 74782-028							
MS 74782-032							
MSD 74782-033							
2. 74782-001	50ml						FB
3. 74782-013	0.5g						
4. 74782-014							
5. 74782-016							
6. 74782-019	50ml						FB
7. 74782-020	0.5g						
8. 74782-022							
9. 74782-023							
10. 74782-026							
11. 74782-031							
12. 74782-034							
13. 74617-012							
14. 74617-013							
15. 74617-014	↓						
16. FBMB	50ml						
17. LCSW	50ml	50ml					
18.							
19.							
20.							

Hot Plate Temperature: 92.8 C (90-95° C)

	Volume mL	Lot #
LCS, LCSD	0.5g	V- 8106
LLLCS, LLLCSD		V-
MS, MSD	0.5ml	V-7685, 7686
LLMS, LLMSD		V-

Acid	Vol mL	Lot#
HNO_3	2.5ml	V-8078
HCl	5ml	V-8068
H_2O_2	1.5ml	V-7423

Acid	Vol mL	Lot#
1:1 HNO_3	5ml	V-172200
1:1 HCl		V-

Relinquished By LM Date 9/28/13

Received By [signature] Date 09/30/2013

Run Log

Data File: W:\METALS.FRM\ICPDATA\New\PEICP3A\S15516A3.txt

Analysis Date: 09/29/13 **Instrument:** PEICP3A

Sample Id	DF	Qc Type	Time	Run #	Test Group	Rept Limit Matrix	Qc Matrix	Anal Method	Prep Batch	Comments:	Stds:
Calib Blank 1 V-170817	1	CAL	02:05	1							V-170817(ICB/CCB)
Calib 1 V-172862	1	CAL	02:08	2							V-172862(ICS1 Lowest std)
Calib 2 V-171812	1	CAL	02:12	3							V-171812(ICS2- Low Std)
Calib 3 V-171063	1	CAL	02:15	4							V-171063(ICS3 - Middle Std)
Calib 4 V-171914	1	CAL	02:19	5							V-171914(ICS4 - High std)
ICS3 V-171063	1	ICS	02:23	6							V-171063(ICS3 - Middle Std)
ICV (2) V-171067	1	ICV	02:27	7							V-171067(ICV)
ICB V-170817	1	ICB	02:31	8							V-170817(ICB/CCB)
ICSA V-172439	1	ICSA	02:35	9							V-172439(ICSA)
ICSAB V-171736	1	ICSAB	02:39	10							V-171736(ICSAB)
MB 27223 (100)	1	MB	02:44	11		SOIL	SOIL	SW846	27223		()
LCS 27223	1	LCS	02:47	12		SOIL	SOIL	SW846	27223		()
LCS MR 27223	1	LCS	02:51	13		SOIL	SOIL	SW846	27223		()
AC74782-028	1	SMP	02:56	14	MET-1-SOIL	SOIL	SOIL	SW846	27223		()
AC74782-028	1	MR	02:59	15	MET-1-SOIL	SOIL	SOIL	SW846	27223		()
AC74782-032	1	MS	03:03	16	MET-1-SOIL	SOIL	SOIL	SW846	27223		()
AC74782-033	1	MSD	03:06	17	MET-1-SOIL	SOIL	SOIL	SW846	27223		()
AC74782-028	1	PS	03:10	18	MET-1-SOIL	SOIL	SOIL	SW846	27223		()
CCV V-172372	1	CCV	03:14	19							V-172372(CCV)
CCB V-170817	1	CCB	03:17	20							V-170817(ICB/CCB)
AC74782-028	5	SD	03:21	21	MET-1-SOIL	SOIL	SOIL	SW846	27223		()
AC74782-001	1	SMP	03:24	22	MET-1-SOIL	SOIL	AQUEO	SW846	27223		()
AC74782-013	1	SMP	03:27	23	MET-1-SOIL	SOIL	SOIL	SW846	27223		()
AC74782-014	1	SMP	03:31	24	MET-1-SOIL	SOIL	SOIL	SW846	27223		()
AC74782-016	1	SMP	03:35	25	MET-1-SOIL	SOIL	SOIL	SW846	27223		()
AC74782-019	1	SMP	03:38	26	MET-1-SOIL	SOIL	AQUEO	SW846	27223		()
AC74782-020	1	SMP	03:42	27	MET-1-SOIL	SOIL	SOIL	SW846	27223		()
ICSA V-172439	1	ICSA	03:45	28							V-172439(ICSA)
ICSAB V-171736	1	ICSAB	03:50	29							V-171736(ICSAB)
CCV V-172372	1	CCV	03:54	30							V-172372(CCV)
CCB V-170817	1	CCB	03:58	31							V-170817(ICB/CCB)
AC74782-022	1	SMP	04:01	32	MET-1-SOIL	SOIL	SOIL	SW846	27223		()
AC74782-023	1	SMP	04:05	33	MET-1-SOIL	SOIL	SOIL	SW846	27223		()
AC74782-026	1	SMP	04:08	34	MET-1-SOIL	SOIL	SOIL	SW846	27223		()
AC74782-031	1	SMP	04:12	35	MET-1-SOIL	SOIL	SOIL	SW846	27223		()
AC74782-034	1	SMP	04:16	36	MET-1-SOIL	SOIL	SOIL	SW846	27223		()
AC74617-012	1	SMP	04:19	37	MET-1-SOIL	SOIL	SOIL	SW846	27223		()
ICSA V-172439	1	ICSA	04:24	38							V-172439(ICSA)
ICSAB V-171736	1	ICSAB	04:28	39							V-171736(ICSAB)
CCV V-172372	1	CCV	04:33	40							V-172372(CCV)
CCB V-170817	1	CCB	04:36	41							V-170817(ICB/CCB)
AC74617-013	1	SMP	04:39	42	MET-1-SOIL	SOIL	SOIL	SW846	27223		()
AC74617-014	1	SMP	04:44	43	MET-1-SOIL	SOIL	SOIL	SW846	27223		()
MB FB (1)	1	MB	04:48	44		SOIL	AQUEO	SW846	27223		()
LCSW	1	LCS	04:52	45		SOIL	AQUEO	SW846	27223		()
ICSA V-172439	1	ICSA	04:55	46							V-172439(ICSA)
ICSAB V-171736	1	ICSAB	05:00	47							V-171736(ICSAB)
CCV V-172372	1	CCV	05:04	48							V-172372(CCV)
CCB V-170817	1	CCB	05:08	49							V-170817(ICB/CCB)

Comments/Reviewedby:

OLUFEMI
192.168.1.85 9/30/2013 10:44:39 AM

RUN IS OK
As,V reported

10/4/13

Standard/Batch/SnCl2 Lot #:

ICP SAMPLE PREPARATION LOG

3092514 0073

ANALYTICAL METHOD: 3010A 3005A 3050B 200.7/200.8 OTHER_____

Batch No.: 15590 Analyst: tm

QC Number: 27301 Prep Date: 10/23/13

Matrix: Soil Reviewed By: QA

LAB ID#	ICP		ICP-MS (Secondary dil)		TCLP		COMMENTS
	Initial	Final	Aliquot	Final	Eff	TCLP	
Method blank	50ml	50ml				--	
LCS	0.5g					--	
LCSD						--	
1. ~~LC~~ 75258-011							
MR 75258-011							
MS 75258-011							
MSD 75258-011							
2. 74782-012							
3. 74782-025							
4. 75145-001							
5. 75145-002							
6. 75145-003							
7. 75145-004							
8. 75221-001							
9. 75221-002							
10. 75221-003							
11. 75264-001							
12. 75264-002							
13. 75258-001							
14. 75258-002							
15. 75258-003							
AM 16. ~~75258-008~~							
17. 7							
18.							
19.							
20.							

Hot Plate Temperature: 93+1 C (90-95° C)

	Volume mL	Lot #
LCS, LCSD	0.5g	V- 8106
LLLCS, LLLCSD		V-
MS, MSD	0.5ml	V- 7685, 7686
LLMS, LLMSD		V-

Acid	Vol mL	Lot#
HNO_3	2.5ml	V- 8123
HCl	5ml	V- 8122
H_2O_2	1.5ml	V- 7423

Acid	Vol mL	Lot#
1:1 HNO_3	5ml	V- 174021
1:1 HCl		V-

Relinquished By tm Date 10/23/13

Received By QA. Date 10/25/2013

T:\QC\FORMS\LOGBOOK FORMS\METALS\ICP sample prep log 2012.DOC

Run Log

Data File: W:\METALS.FRM\ICPDATA\New\PEICP3A\S15590A3.txt

Analysis Date: 10/24/13 **Instrument:** PEICP3A

Sample Id	DF	Qc Type	Time	Run #	Test Group	Rept Limit Matrix	Qc Matrix	Anal Method	Prep Batch	Comments:	Stds:
Calib Blank 1 V-174666	1	CAL	13:51	1							V-174666(ICB/CCB)
Calib 1 V-173067	1	CAL	13:55	2							V-173067(ICS1 Lowest std)
Calib 2 V-173273	1	CAL	13:58	3							V-173273(ICS2- Low Std)
Calib 3 V-173274	1	CAL	14:02	4							V-173274(ICS3 - Middle Std)
Calib 4 V-174144	1	CAL	14:05	5							V-174144(ICS4 - High std)
ICS3 V-173274	1	ICS	14:09	6							V-173274(ICS3 - Middle Std)
ICV (1) V-174627	1	ICV	14:12	7							V-174627(CCV)
LLICV V-174981	1	LLICV	14:16	8		SOIL	SOIL	SW846	27301		V-174981(LLICV/CCV-SOIL)
ICB V-174666	1	ICB	14:19	9							V-174666(ICB/CCB)
ICSA V-173614	1	ICSA	14:23	10							V-173614(ICSA)
ICSAB V-173231	1	ICSAB	14:27	11							V-173231(ICSAB)
MB 27301 (100)	1	MB	14:31	12		SOIL	SOIL	SW846	27301		()
LCS 27301	1	LCS	14:34	13		SOIL	SOIL	SW846	27301		()
LCS MR 27301	1	LCS	14:38	14		SOIL	SOIL	SW846	27301		()
AC75258-011	1	SMP	14:42	15	SPLP-VOL	SOIL	SOIL	SW846	27301		()
AC75258-011	1	MR	14:46	16	SPLP-VOL	SOIL	SOIL	SW846	27301		()
AC75258-011	1	MS	14:49	17	SPLP-VOL	SOIL	SOIL	SW846	27301		()
AC75258-011	1	MSD	14:53	18	SPLP-VOL	SOIL	SOIL	SW846	27301		()
AC75258-011	1	PS	14:56	19	SPLP-VOL	SOIL	SOIL	SW846	27301		()
CCV V-174627	1	CCV	15:00	20							V-174627(CCV)
LLCCV V-174981	1	LLCCV	15:03	21		SOIL	SOIL	SW846	27301		V-174981(LLICV/CCV-SOIL)
CCB V-174666	1	CCB	15:07	22							V-174666(ICB/CCB)
AC75258-011	5	SD	15:10	23	SPLP-VOL	SOIL	SOIL	SW846	27301		()
ICSA V-173614	1	ICSA	15:14	24							V-173614(ICSA)
ICSAB V-173231	1	ICSAB	15:18	25							V-173231(ICSAB)
CCV V-174627	1	CCV	15:22	26							V-174627(CCV)
LLCCV V-174981	1	LLCCV	15:26	27		SOIL	SOIL	SW846	27301		V-174981(LLICV/CCV-SOIL)
CCB V-174666	1	CCB	15:29	28							V-174666(ICB/CCB)

Comments/Reviewedby:

OLUFEMI
192.168.1.85 10/24/2013 4:28:48 PM

RUN IS OK
As,Pb,Be,Ni reported

10/24/13

Standard/Batch/SnCl2 Lot #:

Run Log

Data File: W:\METALS.FRM\ICPDATA\New\PEICP3A\S15590B3.txt

Analysis Date: 10/25/13 **Instrument:** PEICP3A

Sample Id	DF	Qc Type	Time	Run #	Test Group	Rept Limit Matrix	Qc Matrix	Anal Method	Prep Batch	Comments:	Stds:
Calib Blank 1 V-174666	1	CAL	10:37	1							V-174666(ICB/CCB)
Calib 1 V-173067	1	CAL	10:41	2							V-173067(ICS1 Lowest std)
Calib 2 V-173273	1	CAL	10:44	3							V-173273(ICS2- Low Std)
Calib 3 V-173274	1	CAL	10:48	4							V-173274(ICS3 - Middle Std)
Calib 4 V-174144	1	CAL	10:51	5							V-174144(ICS4 - High std)
ICS3 V-173274	1	ICS	10:55	6							V-173274(ICS3 - Middle Std)
ICV (1) V-174627	1	ICV	10:58	7							V-174627(CCV)
LLICV V-174981	1	LLICV	11:02	8		SOIL	SOIL	SW846	27301		V-174981(LLICV/CCV-SOIL)
ICB V-174666	1	ICB	11:05	9							V-174666(ICB/CCB)
ICSA V-173614	1	ICSA	11:09	10							V-173614(ICSA)
ICSAB V-173231	1	ICSAB	11:13	11							V-173231(ICSAB)
AC74782-012	1	SMP	11:17	12	MET-1-SOIL	SOIL	SOIL	SW846	27301		0
AC74782-025	1	SMP	11:21	13	MET-1-SOIL	SOIL	SOIL	SW846	27301		0
AC75145-001	1	SMP	11:24	14	PB-SOIL	SOIL	SOIL	SW846	27301		0
AC75145-002	1	SMP	11:28	15	PB-SOIL	SOIL	SOIL	SW846	27301		0
AC75145-003	1	SMP	11:31	16	PB-SOIL	SOIL	SOIL	SW846	27301		0
AC75145-004	1	SMP	11:35	17	PB-SOIL	SOIL	SOIL	SW846	27301		0
ICSA V-173614	1	ICSA	11:39	18							V-173614(ICSA)
ICSAB V-173231	1	ICSAB	11:43	19							V-173231(ICSAB)
CCV V-174627	1	CCV	11:47	20							V-174627(CCV)
LLCCV V-174981	1	LLCCV	11:50	21		SOIL	SOIL	SW846	27301		V-174981(LLICV/CCV-SOIL)
CCB V-174666	1	CCB	11:54	22							V-174666(ICB/CCB)
AC75221-001	1	SMP	11:57	23	PB-SOIL	SOIL	SOIL	SW846	27301		0
AC75221-002	1	SMP	12:01	24	PB-SOIL	SOIL	SOIL	SW846	27301		0
AC75221-003	1	SMP	12:04	25	PB-SOIL	SOIL	SOIL	SW846	27301		0
AC75264-001	1	SMP	12:08	26	MET-2-SOIL	SOIL	SOIL	SW846	27301		0
AC75264-002	1	SMP	12:11	27	MET-2-SOIL	SOIL	SOIL	SW846	27301		0
AC75258-001	1	SMP	12:15	28	PB-SOIL	SOIL	SOIL	SW846	27301		0
AC75258-002	1	SMP	12:19	29	PB-SOIL	SOIL	SOIL	SW846	27301		0
AC75258-003	1	SMP	12:22	30	PB-SOIL	SOIL	SOIL	SW846	27301		0
ICSA V-173614	1	ICSA	12:26	31							V-173614(ICSA)
ICSAB V-173231	1	ICSAB	12:31	32							V-173231(ICSAB)
CCV V-174627	1	CCV	12:35	33							V-174627(CCV)
LLCCV V-174981	1	LLCCV	12:38	34		SOIL	SOIL	SW846	27301		V-174981(LLICV/CCV-SOIL)
CCB V-174666	1	CCB	12:42	35							V-174666(ICB/CCB)

Comments/Reviewedby: **Standard/Batch/SnCl2 Lot #:**

OLUFEMI
192.168.1.85 10/25/2013 1:04:33 PM

RUN IS OK
As,Pb,Be,Ni reported

10/25/13

Wet Chemistry Data

VERITECH Wet Chem Form1 Analysis Summary
% Solids

TestGroupName: % Solids SM2540G **Project #: 3092514**

TestGroup: %SOLIDS

Lab#	Client SampleID	Matrix	Dilution:	Result	Units:	RL	Prep Date	Analysis Date	Received Date	Collect Date
AC74782-012	AR-43_1.5-2.0	Soil	1	80	Percent			10/16/13	09/25/13	09/23/13
AC74782-013	AR-26_1.0-1.5	Soil	1	76	Percent			09/26/13	09/25/13	09/23/13
AC74782-014	AR-25_1.0-1.5	Soil	1	77	Percent			09/26/13	09/25/13	09/23/13
AC74782-016	AR-24_1.5-2.0	Soil	1	78	Percent			09/26/13	09/25/13	09/23/13
AC74782-020	AR-27_1.5-2.0	Soil	1	76	Percent			09/26/13	09/25/13	09/24/13
AC74782-022	AR-22_1.5-2.0	Soil	1	77	Percent			09/26/13	09/25/13	09/24/13
AC74782-023	AR-45_1.5-2.0	Soil	1	79	Percent			09/26/13	09/25/13	09/24/13
AC74782-025	AR-31_1.5-2.0	Soil	1	80	Percent			10/16/13	09/25/13	09/24/13
AC74782-026	AR-21_1.0-1.5	Soil	1	78	Percent			09/26/13	09/25/13	09/24/13
AC74782-028	AR-20_0.5-1.0	Soil	1	80	Percent			09/26/13	09/25/13	09/24/13
AC74782-031	BD-02-09242013	Soil	1	79	Percent			09/26/13	09/25/13	09/24/13
AC74782-032	AR-20_0.5-1.0-MS	Soil	1	80	Percent			09/26/13	09/25/13	09/24/13
AC74782-033	AR-20_0.5-1.0-MS	Soil	1	80	Percent			09/26/13	09/25/13	09/24/13
AC74782-034	AR-23_1.5-2.0	Soil	1	80	Percent			09/26/13	09/25/13	09/23/13

% Solids Report

Analysis Type: SOLIDS-SS
BatchID: SOLIDS-SS-2313

QcType	SampleID:	Rounded Result	Raw Result	Units	Tare Weight	Wet Weight	Dry Weight	Analysis Date	Analyzed By	QC RPD	Rpd Limit
DUP	AC74782-014	78	78.37583	Percent	1.10	11.69	9.39	09/26/13	hossain	1.3	5
Sample	AC74781-001	85	85.17469	Percent	1.10	11.69	10.13	09/26/13	hossain		
Sample	AC74781-002	87	86.50422	Percent	1.11	11.78	10.35	09/26/13	hossain		
Sample	AC74781-003	87	86.70465	Percent	1.10	11.63	10.26	09/26/13	hossain		
Sample	AC74781-004	81	81.17002	Percent	1.11	12.05	9.99	09/26/13	hossain		
Sample	AC74781-005	84	83.71041	Percent	1.11	12.16	10.37	09/26/13	hossain		
Sample	AC74781-006	73	72.63969	Percent	1.12	11.50	8.65	09/26/13	hossain		
Sample	AC74781-007	72	72.08448	Percent	1.10	11.99	8.94	09/26/13	hossain		
Sample	AC74781-009	87	87.23022	Percent	1.10	12.22	10.82	09/26/13	hossain		
Sample	AC74781-010	84	83.62403	Percent	1.09	11.41	9.75	09/26/13	hossain		
Sample	AC74781-012	81	80.90211	Percent	1.11	11.53	9.53	09/26/13	hossain		
Sample	AC74781-013	82	81.89739	Percent	1.10	11.43	9.57	09/26/13	hossain		
Sample	AC74781-015	83	83.26923	Percent	1.09	11.49	9.74	09/26/13	hossain		
Sample	AC74781-016	82	82.39234	Percent	1.10	11.55	9.72	09/26/13	hossain		
Sample	AC74782-013	76	75.74391	Percent	1.10	12.19	9.50	09/26/13	hossain		
Sample	AC74782-014	77	77.38884	Percent	1.09	11.66	9.26	09/26/13	hossain		
Sample	AC74782-015	80	79.85005	Percent	1.10	11.77	9.62	09/26/13	hossain		
Sample	AC74782-016	78	78.21394	Percent	1.10	11.29	9.05	09/26/13	hossain		
Sample	AC74782-020	76	76.29151	Percent	1.11	11.95	9.38	09/26/13	hossain		
Sample	AC74782-022	77	76.59766	Percent	1.11	12.22	9.63	09/26/13	hossain		
Sample	AC74788-007	83	82.71493	Percent	1.10	12.15	10.24	09/26/13	hossain		

* - Indicates Failed Rpd Criteria

% Solids Report

Analysis Type: SOLIDS-SS
BatchID: SOLIDS-SS-2314

QcType	SampleID:	Rounded Result	Raw Result	Units	Tare Weight	Wet Weight	Dry Weight	Analysis Date	Analyzed By	QC RPD	Rpd Limit
DUP	AC74782-023	80	80.05894	Percent	1.10	11.28	9.25	09/26/13	hossain	0.83	5
Sample	AC74782-023	79	79.39453	Percent	1.09	11.33	9.22	09/26/13	hossain		
Sample	AC74782-026	78	78.25661	Percent	1.11	11.32	9.10	09/26/13	hossain		
Sample	AC74782-028	80	79.59744	Percent	1.09	12.02	9.79	09/26/13	hossain		
Sample	AC74782-031	79	79.05860	Percent	1.10	11.51	9.33	09/26/13	hossain		
Sample	AC74782-032	80	80.19982	Percent	1.10	12.11	9.94	09/26/13	hossain		
Sample	AC74782-033	80	79.68606	Percent	1.10	11.93	9.73	09/26/13	hossain		
Sample	AC74782-034	80	79.83193	Percent	1.09	11.80	9.64	09/26/13	hossain		
Sample	AC74790-001	79	79.38639	Percent	1.10	11.53	9.39	09/26/13	hossain		

* - Indicates Failed Rpd Criteria

% Solids Report

Analysis Type: SOLIDS-SS
BatchID: SOLIDS-SS-2383

QcType	SampleID:	Rounded Result	Raw Result	Units	Tare Weight	Wet Weight	Dry Weight	Analysis Date	Analyzed By	QC RPD	Rpd Limit
DUP	AC74782-012	81	81.04982	Percent	1.08	12.32	10.19	10/16/13	HOSSAIN	0.77	5
Sample	AC74782-012	80	80.42516	Percent	1.09	12.38	10.17	10/16/13	HOSSAIN		
Sample	AC74782-025	80	80.20446	Percent	1.06	11.82	9.69	10/16/13	HOSSAIN		
Sample	AC75137-001	94	94.42096	Percent	1.06	12.89	12.22	10/16/13	HOSSAIN		
Sample	AC75137-002	90	90.00000	Percent	1.06	11.26	10.24	10/16/13	HOSSAIN		
Sample	AC75137-003	89	89.47876	Percent	1.07	11.43	10.34	10/16/13	HOSSAIN		
Sample	AC75137-004	61	61.31528	Percent	1.06	11.40	7.40	10/16/13	HOSSAIN		
Sample	AC75137-005	50	50.26690	Percent	1.06	12.30	6.71	10/16/13	HOSSAIN		
Sample	AC75137-006	92	91.94396	Percent	1.09	12.51	11.59	10/16/13	HOSSAIN		
Sample	AC75153-001	92	91.76365	Percent	1.09	12.26	11.35	10/16/13	HOSSAIN		
Sample	AC75153-003	79	78.57143	Percent	1.07	12.13	9.78	10/16/13	HOSSAIN		
Sample	AC75153-020	80	80.46647	Percent	1.11	11.40	9.38	10/16/13	HOSSAIN		
Sample	AC75154-001	90	90.24390	Percent	1.11	12.59	11.47	10/16/13	HOSSAIN		
Sample	AC75154-002	83	82.89007	Percent	1.10	12.38	10.45	10/16/13	HOSSAIN		
Sample	AC75154-003	84	83.56299	Percent	1.09	11.25	9.58	10/16/13	HOSSAIN		
Sample	AC75154-004	75	75.43064	Percent	1.10	12.13	9.41	10/16/13	HOSSAIN		
Sample	AC75154-005	97	96.76550	Percent	1.10	12.23	11.87	10/16/13	HOSSAIN		
Sample	AC75154-006	92	92.17082	Percent	1.09	12.33	11.45	10/16/13	HOSSAIN		
Sample	AC75154-007	77	76.66667	Percent	1.11	11.01	8.70	10/16/13	HOSSAIN		
Sample	AC75154-008	79	79.45472	Percent	1.11	11.38	9.27	10/16/13	HOSSAIN		
Sample	AC75154-009	90	89.91826	Percent	1.10	12.11	11.00	10/16/13	HOSSAIN		

* - Indicates Failed Rpd Criteria

HC·V
HAMPTONCLARKE·VERITECH

Last Page of Report

HC·V
HAMPTONCLARKE·VERITECH

175 ROUTE 46 WEST, UNIT D · FAIRFIELD, NJ 07004
2 MADISON ROAD, FAIRFIELD, NJ 07004
800-426-9992 973-244-9770
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WWW.HCVLAB.COM

Project: Solvay,USA/Morrisville

Client PO: Not Available

Report To: ARCADIS
10 Friends Lane
Newtown, PA 18940

Attn: Deric Kearns

Received Date: 11/27/2013

Report Date: 1/8/2014

Deliverables: PADEP-R

Lab ID: AC75938

Lab Project No: 3112730

This report is a true report of results obtained from our tests of this material. The report relates only to those samples received and analyzed by the laboratory. All results meet the requirements of the NELAC Institute standards. Laboratory reports may not be reproduced, except in full, without the written approval of the laboratory.

In lieu of a formal contract document, the total aggregate liability of Veritech to all parties shall not exceed Veritech's total fee for analytical services rendered.

Robin Cousineau - Quality Assurance Director OR **Stanley Gilewicz - Laboratory Director**

NJ (07071) NY (ELAP11408) CT (PH-0671)
PA (68-00463) KY (90124)

NELAP ACCREDITED TNI LABORATORY

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Sample Summary

Client: ARCADIS
Project: Solvay,USA/Morrisville

HCV Project #: 3112730

Lab#	SampleID	Matrix	Collection Date	Receipt Date
AC75938-001	WP-4 (1.5-2.0)	Soil	11/26/2013	11/27/2013
AC75938-002	WP-5 (1.5-2.0)	Soil	11/26/2013	11/27/2013
AC75938-003	WP-6 (1.5-2.0)	Soil	11/26/2013	11/27/2013
AC75938-004	WP-7 (1.5-2.0)	Soil	11/26/2013	11/27/2013
AC75938-005	WP-8 (1.5-2.0)	Soil	11/26/2013	11/27/2013
AC75938-006	WP-8 (3.5-4.0)	Soil	11/26/2013	11/27/2013
AC75938-007	WP-9 (1.5-2.0)	Soil	11/26/2013	11/27/2013
AC75938-008	WP-9 (3.5-4.0)	Soil	11/26/2013	11/27/2013
AC75938-009	WP-10 (1.5-2.0)	Soil	11/26/2013	11/27/2013
AC75938-010	WP-10 (3.5-4.0)	Soil	11/26/2013	11/27/2013
AC75938-011	WP-11 (1.5-2.0)	Soil	11/26/2013	11/27/2013
AC75938-012	WP-11 (3.5-4.0)	Soil	11/26/2013	11/27/2013
AC75938-013	A3-9 (1.5-2.0)	Soil	11/26/2013	11/27/2013
AC75938-014	A3-9 (1.5-2.0)a	Soil	11/26/2013	11/27/2013
AC75938-015	A3-9 (1.5-2.0) MS	Soil	11/26/2013	11/27/2013
AC75938-016	A3-9 (1.5-2.0) MSD	Soil	11/26/2013	11/27/2013
AC75938-017	A3-10 (1.5-2.0)	Soil	11/26/2013	11/27/2013
AC75938-018	A3-11 (1.5-2.0)	Soil	11/26/2013	11/27/2013
AC75938-019	A3-12 (1.5-2.0)	Soil	11/26/2013	11/27/2013
AC75938-020	A3-13 (1.5-2.0)	Soil	11/26/2013	11/27/2013
AC75938-021	A3-14 (1.5-2.0)	Soil	11/26/2013	11/27/2013
AC75938-022	A3-15 (1.5-2.0)	Soil	11/26/2013	11/27/2013
AC75938-023	IA-22 (5.5-6.0)	Soil	11/26/2013	11/27/2013
AC75938-024	IA-23 (5.5-6.0)	Soil	11/26/2013	11/27/2013
AC75938-025	A8-6 (7.0-7.5)	Soil	11/26/2013	11/27/2013
AC75938-026	A8-7 (7.0-7.5)	Soil	11/26/2013	11/27/2013
AC75938-027	FB-112613	Aqueous	11/26/2013	11/27/2013

HCV Case Narrative

Client: ARCADIS **HCV Project:** 3112730
Project: Solvay, USA/Morrisville

This case narrative is in the form of an exception report. Method specific and/or QA/QC anomalies related to this report only are detailed below.

Base Neutral/Acid Extractable Analysis:

Samples AC75938-013-016 were analyzed at a dilution due to high concentration of non-target analytes.

Samples AC75938-013, 014 had one or more internal standard areas outside +100% / -50% window from most recent calibration verification standard. The samples were re-extracted and re-analyzed confirming internal standard area counts out due to matrix interference.

There is no surrogate recovery data for samples AC75938-013-016 due to high sample dilution.

The spiking compounds were diluted outside the recovery criteria in samples AC75938-013(non-spike) , AC75938-015(MS) , AC75938-016(MSD) , but the QC criteria for batch was met based on the MBS

Metals Analysis:

The RPD between the QC sample and the Method Replicate had recoveries outside QC limits in batch 28527. The RPD criteria were met between the LCS/LCS Method Replicate.

Reported to MDL per client request. When reporting to the MDL, detections are typically found in the blanks. Acceptance criteria for blanks are based on the RL.

Wet Chemistry Analysis:

Data conforms to method requirements.

Robin Cousineau
Quality Assurance Director

Or

Stanley Gilewicz
Laboratory Director

1/10/2014
Date

HCV Executive Summary

Client: ARCADIS **HCV Project #:** 3112730

Project: Solvay,USA/Morrisville

Lab#: AC75938-001 **Sample ID: WP-4 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.42	5.4	EPA 6010C

Lab#: AC75938-002 **Sample ID: WP-5 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.46	16	EPA 6010C

Lab#: AC75938-003 **Sample ID: WP-6 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.47	44	EPA 6010C

Lab#: AC75938-005 **Sample ID: WP-8 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.44	25	EPA 6010C

Lab#: AC75938-006 **Sample ID: WP-8 (3.5-4.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.46	18	EPA 6010C

Lab#: AC75938-007 **Sample ID: WP-9 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.45	16	EPA 6010C

Lab#: AC75938-008 **Sample ID: WP-9 (3.5-4.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.46	21	EPA 6010C

Lab#: AC75938-009 **Sample ID: WP-10 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.46	13	EPA 6010C

Lab#: AC75938-010 **Sample ID: WP-10 (3.5-4.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.46	5.6	EPA 6010C

HCV Executive Summary

Client: ARCADIS **HCV Project #:** 3112730

Project: Solvay,USA/Morrisville

Lab#: AC75938-011 **Sample ID: WP-11 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.45	13	EPA 6010C

Lab#: AC75938-012 **Sample ID: WP-11 (3.5-4.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.47	12	EPA 6010C

Lab#: AC75938-013 **Sample ID: A3-9 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.47	3.6J	EPA 6010C

Lab#: AC75938-014 **Sample ID: A3-9 (1.5-2.0)a**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.48	4.4J	EPA 6010C

Lab#: AC75938-015 **Sample ID: A3-9 (1.5-2.0) MS**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.48	64	EPA 6010C
Benzo[a]pyrene	mg/kg	0.37	71	EPA 8270D

Lab#: AC75938-016 **Sample ID: A3-9 (1.5-2.0) MSD**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.47	61	EPA 6010C
Benzo[a]pyrene	mg/kg	0.36	57	EPA 8270D

Lab#: AC75938-017 **Sample ID: A3-10 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.46	5.3	EPA 6010C
Benzo[a]pyrene	mg/kg	0.0044	0.048	EPA 8270D

Lab#: AC75938-018 **Sample ID: A3-11 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.43	5.9	EPA 6010C

Lab#: AC75938-019 **Sample ID: A3-12 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.43	11	EPA 6010C

HCV Executive Summary

Client: ARCADIS **HCV Project #:** 3112730

Project: Solvay,USA/Morrisville

Lab#: AC75938-020 **Sample ID: A3-13 (1.5-2.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.43	4.3J	EPA 6010C
Benzo[a]pyrene	mg/kg	0.0041	0.14	EPA 8270D

Lab#: AC75938-023 **Sample ID: IA-22 (5.5-6.0)**

Analyte	Units	RL/MDL	Result	Analytical Method
Benzo[a]pyrene	mg/kg	0.0043	0.0068J	EPA 8270D

Lab#: AC75938-025 **Sample ID: A8-6 (7.0-7.5)**

Analyte	Units	RL/MDL	Result	Analytical Method
Arsenic	mg/kg	0.47	5.7	EPA 6010C

HCV Report Of Analysis

Client: ARCADIS
Project: Solvay,USA/Morrisville

HCV Project #: 3112730

Sample ID: WP-4 (1.5-2.0)
Lab#: AC75938-001
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		90

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	mg/kg	0.42	4.4	5.4

Sample ID: WP-5 (1.5-2.0)
Lab#: AC75938-002
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		82

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	mg/kg	0.46	4.9	16

Sample ID: WP-6 (1.5-2.0)
Lab#: AC75938-003
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		80

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	mg/kg	0.47	5.0	44

Sample ID: WP-8 (1.5-2.0)
Lab#: AC75938-005
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		86

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	mg/kg	0.44	4.7	25

Sample ID: WP-8 (3.5-4.0)
Lab#: AC75938-006
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		83

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	mg/kg	0.46	4.8	18

Sample ID: WP-9 (1.5-2.0)
Lab#: AC75938-007
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		84

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	mg/kg	0.45	4.8	16

Sample ID: WP-9 (3.5-4.0)
Lab#: AC75938-008
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		83

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	mg/kg	0.46	4.8	21

Sample ID: WP-10 (1.5-2.0)
Lab#: AC75938-009
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		83

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	mg/kg	0.46	4.8	13

Sample ID: WP-10 (3.5-4.0)
Lab#: AC75938-010
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		82

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	mg/kg	0.46	4.9	5.6

Sample ID: WP-11 (1.5-2.0)
Lab#: AC75938-011
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		84

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	mg/kg	0.45	4.8	13

Sample ID: WP-11 (3.5-4.0)
Lab#: AC75938-012
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		81

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	mg/kg	0.47	4.9	12

Sample ID: A3-9 (1.5-2.0)
Lab#: AC75938-013
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		81

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	mg/kg	0.47	4.9	3.6J

PAH Compounds (SIM) 8270

Analyte	DF	Units	RL	Result
Benzo[a]pyrene	40	mg/kg	0.033	ND

Sample ID: A3-9 (1.5-2.0)a
Lab#: AC75938-014
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		79

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	mg/kg	0.48	5.1	4.4J

PAH Compounds (SIM) 8270

Analyte	DF	Units	RL	Result
Benzo[a]pyrene	20	mg/kg	0.017	ND

Sample ID: A3-9 (1.5-2.0) MS
Lab#: AC75938-015
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		79

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	mg/kg	0.48	5.1	64

PAH Compounds 8270

Analyte	DF	Units	MDL	RL	Result
Benzo[a]pyrene	40	mg/kg	0.37	3.4	71

Sample ID: A3-9 (1.5-2.0) MSD
Lab#: AC75938-016
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		80

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	mg/kg	0.47	5.0	61

PAH Compounds 8270

Analyte	DF	Units	MDL	RL	Result
Benzo[a]pyrene	40	mg/kg	0.36	3.3	57

Sample ID: A3-10 (1.5-2.0)
Lab#: AC75938-017
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		82

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	mg/kg	0.46	4.9	5.3

PAH Compounds 8270

Analyte	DF	Units	MDL	RL	Result
Benzo[a]pyrene	1	mg/kg	0.0044	0.041	0.048

Sample ID: A3-11 (1.5-2.0)
Lab#: AC75938-018
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		89

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	mg/kg	0.43	4.5	5.9

Sample ID: A3-12 (1.5-2.0)
Lab#: AC75938-019
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		89

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	mg/kg	0.43	4.5	11

Sample ID: A3-13 (1.5-2.0)
Lab#: AC75938-020
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		88

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	mg/kg	0.43	4.5	4.3J

PAH Compounds 8270

Analyte	DF	Units	MDL	RL	Result
Benzo[a]pyrene	1	mg/kg	0.0041	0.038	0.14

Sample ID: IA-22 (5.5-6.0)
Lab#: AC75938-023
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		84

PAH Compounds 8270

Analyte	DF	Units	MDL	RL	Result
Benzo[a]pyrene	1	mg/kg	0.0043	0.040	0.0068J

Sample ID: A8-6 (7.0-7.5)
Lab#: AC75938-025
Matrix: Soil

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

% Solids SM2540G

Analyte	DF	Units	RL	Result
% Solids	1	percent		80

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	mg/kg	0.47	5.0	5.7

Sample ID: FB-112613
Lab#: AC75938-027
Matrix: Aqueous

Collection Date: 11/26/2013
Receipt Date: 11/27/2013

Metals (single) 6010

Analyte	DF	Units	MDL	RL	Result
Arsenic	1	ug/l	3.8	40	ND

PAH Compounds (SIM) 8270

Analyte	DF	Units	RL	Result
Benzo[a]pyrene	1	ug/l	0.020	ND

HCV Reporting Limit Definitions/Data Qualifiers

REPORTING DEFINITIONS

DF = Dilution Factor

MDL = Method Detection Limit

RL* = Reporting Limit

ND = Not Detected

RT = Retention Time

NA = Not Applicable

**Samples with elevated Reporting Limits (RLs) as a result of a dilution may not achieve client reporting limits in some cases. The elevated RLs are unavoidable consequences of sample dilution required to quantitate target analytes that exceed the calibration range of the instrument.*

DATA QUALIFIERS

B- Indicates analyte was present in the Method Blank and sample.

d- For Pesticide and PCB analysis, the concentration between primary and secondary columns is greater than 40%. The lower concentration is generally reported.

E- Indicates the concentration exceeded the upper calibration range of the instrument.

J- Indicates the value is estimated because it is either a Tentatively Identified Compound (TIC) or the reported concentration is greater than the MDL but less than the RL. For samples results between the MDL and RL there is a possibility of false positives or misidentification at the quantitation levels. Additionally, the acceptance criteria for QC samples may not be met.

Laboratory Chronicle

Client: ARCADIS
Project: Solvay,USA/Morrisville

HCV Project #: 3112730

Lab#: AC75938-001 **Sample ID: WP-4 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/2/13 00:00	hossain
Metals (single) 6010	3005&10/3050	12/03/13	Julijana	EPA 6010C	12/6/13 15:28	OA

Lab#: AC75938-002 **Sample ID: WP-5 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/2/13 00:00	hossain
Metals (single) 6010	3005&10/3050	12/03/13	Julijana	EPA 6010C	12/6/13 15:31	OA

Lab#: AC75938-003 **Sample ID: WP-6 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/19/13 00:00	hossain
Metals (single) 6010	3005&10/3050	12/23/13	Julijana	EPA 6010C	12/24/13 22:07	OA

Lab#: AC75938-005 **Sample ID: WP-8 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/2/13 00:00	hossain
Metals (single) 6010	3005&10/3050	12/03/13	Julijana	EPA 6010C	12/6/13 15:35	OA

Lab#: AC75938-006 **Sample ID: WP-8 (3.5-4.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/2/13 00:00	hossain
Metals (single) 6010	3005&10/3050	12/03/13	Julijana	EPA 6010C	12/6/13 15:38	OA

Laboratory Chronicle

Client: ARCADIS
Project: Solvay,USA/Morrisville

HCV Project #: 3112730

Lab#: AC75938-007 **Sample ID: WP-9 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/2/13 00:00	hossain
Metals (single) 6010	3005&10/3050	12/03/13	Julijana	EPA 6010C	12/6/13 15:42	OA

Lab#: AC75938-008 **Sample ID: WP-9 (3.5-4.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/2/13 00:00	hossain
Metals (single) 6010	3005&10/3050	12/03/13	Julijana	EPA 6010C	12/6/13 15:45	OA

Lab#: AC75938-009 **Sample ID: WP-10 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/19/13 00:00	hossain
Metals (single) 6010	3005&10/3050	12/23/13	Julijana	EPA 6010C	12/24/13 22:30	OA

Lab#: AC75938-010 **Sample ID: WP-10 (3.5-4.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/19/13 00:00	hossain
Metals (single) 6010	3005&10/3050	12/23/13	Julijana	EPA 6010C	12/24/13 22:34	OA

Lab#: AC75938-011 **Sample ID: WP-11 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/19/13 00:00	hossain
Metals (single) 6010	3005&10/3050	12/23/13	Julijana	EPA 6010C	12/24/13 22:38	OA

Laboratory Chronicle

Client: ARCADIS **HCV Project #:** 3112730

Project: Solvay,USA/Morrisville

Lab#: AC75938-012 **Sample ID: WP-11 (3.5-4.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/19/13 00:00	hossain
Metals (single) 6010	3005&10/3050	12/23/13	Julijana	EPA 6010C	12/24/13 22:41	OA

Lab#: AC75938-013 **Sample ID: A3-9 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/2/13 00:00	hossain
Metals (single) 6010	3005&10/3050	12/03/13	Julijana	EPA 6010C	12/6/13 14:54	OA
PAH Compounds (SIM) 8270	3510C/3550C	12/05/13	marie	EPA8270D SIM	12/9/13 11:53	AHD/JB
PAH Compounds 8270	3510C/3550C	12/05/13	marie	EPA 8270D	12/6/13 16:07	AHD/JB

Lab#: AC75938-014 **Sample ID: A3-9 (1.5-2.0)a**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/2/13 00:00	hossain
Metals (single) 6010	3005&10/3050	12/03/13	Julijana	EPA 6010C	12/6/13 15:49	OA
PAH Compounds (SIM) 8270	3510C/3550C	12/05/13	marie	EPA8270D SIM	12/9/13 12:16	AHD/JB
PAH Compounds 8270	3510C/3550C	12/05/13	marie	EPA 8270D	12/5/13 21:32	AHD/JB

Lab#: AC75938-015 **Sample ID: A3-9 (1.5-2.0) MS**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/2/13 00:00	hossain
Metals (single) 6010	3005&10/3050	12/03/13	Julijana	EPA 6010C	12/6/13 15:01	OA
PAH Compounds 8270	3510C/3550C	12/05/13	marie	EPA 8270D	12/6/13 16:30	AHD/JB

Lab#: AC75938-016 **Sample ID: A3-9 (1.5-2.0) MSD**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/2/13 00:00	hossain
Metals (single) 6010	3005&10/3050	12/03/13	Julijana	EPA 6010C	12/6/13 15:05	OA
PAH Compounds 8270	3510C/3550C	12/05/13	marie	EPA 8270D	12/6/13 16:53	AHD/JB

Laboratory Chronicle

Client: ARCADIS
Project: Solvay,USA/Morrisville

HCV Project #: 3112730

Lab#: AC75938-017 **Sample ID: A3-10 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/2/13 00:00	hossain
Metals (single) 6010	3005&10/3050	12/03/13	Julijana	EPA 6010C	12/6/13 16:12	OA
PAH Compounds (SIM) 8270	3510C/3550C	12/05/13	marie	EPA8270D SIM	12/9/13 11:29	AHD/JB
PAH Compounds 8270	3510C/3550C	12/05/13	marie	EPA 8270D	12/5/13 21:34	AHD/JB

Lab#: AC75938-018 **Sample ID: A3-11 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/2/13 00:00	hossain
Metals (single) 6010	3005&10/3050	12/03/13	Julijana	EPA 6010C	12/6/13 16:15	OA

Lab#: AC75938-019 **Sample ID: A3-12 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/2/13 00:00	hossain
Metals (single) 6010	3005&10/3050	12/03/13	Julijana	EPA 6010C	12/6/13 16:19	OA

Lab#: AC75938-020 **Sample ID: A3-13 (1.5-2.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/2/13 00:00	hossain
Metals (single) 6010	3005&10/3050	12/03/13	Julijana	EPA 6010C	12/6/13 16:22	OA
PAH Compounds (SIM) 8270	3510C/3550C	12/05/13	marie	EPA8270D SIM	12/9/13 11:07	AHD/JB
PAH Compounds 8270	3510C/3550C	12/05/13	marie	EPA 8270D	12/5/13 21:58	AHD/JB

Lab#: AC75938-023 **Sample ID: IA-22 (5.5-6.0)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/2/13 00:00	hossain
PAH Compounds (SIM) 8270	3510C/3550C	12/05/13	marie	EPA8270D SIM	12/9/13 10:44	AHD/JB
PAH Compounds 8270	3510C/3550C	12/05/13	marie	EPA 8270D	12/5/13 22:22	AHD/JB

Laboratory Chronicle

Client: ARCADIS
Project: Solvay,USA/Morrisville

HCV Project #: 3112730

Lab#: AC75938-025 **Sample ID: A8-6 (7.0-7.5)**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
% Solids SM2540G				SM 2540G	12/2/13 00:00	hossain
Metals (single) 6010	3005&10/3050	12/03/13	Julijana	EPA 6010C	12/6/13 16:26	OA

Lab#: AC75938-027 **Sample ID: FB-112613**

Test Code	Prep Method	Prep Date	By	Analytical Method	Analysis Date	By
Metals (single) 6010	3005&10/3050	12/03/13	Julijana	EPA 6010C	12/6/13 16:29	OA
PAH Compounds (SIM) 8270	3510C/3550C	12/03/13	dyr	EPA8270D SIM	12/3/13 18:58	AHD/JB
PAH Compounds 8270	3510C/3550C	12/03/13	dyr	EPA 8270D	12/4/13 12:07	AHD/JB

Chain of Custody

HamptonClarke-Veritech Laboratories
175 Route 46 West and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787 | 973-439-1458
Service Center: 137-D Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056
NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | KY #90124

HC-V HamptonClarke Veritech Laboratories
A Women-Owned, Disadvantaged, Small Business Enterprise

CHAIN OF CUSTODY RECORD

3112730

3112730 0035

Customer Information

1a) Customer: Arcadis
Address: 10 Friends Lane
Newtown, PA 18940
1b) Email/Cell/Fax/Ph: 267-685-1800
1c) Send Invoice to: Deric Kearns
1d) Send Report to: deric.kearns@arcadis-us.com

Project Information

2a) Project: Rhodia Inc.
2b) Project Mgr: Ryan Fitzpatrick
2c) Project Location (City/State): Morrisville, PA
2d) Quote/PO # (If Applicable):

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Deliv.
24 Hours (100%)	Data Summary	Hazsite/CSV
48 Hours (75%)	Waste	(EQuIS 4-File / EZ / NYS)
72 Hours (50%)	Red - NJ / NY / PA	EQuIS EPA Region 2 or 5
4 Days (35%; TPH)	CLP	Excel - NJ Regulatory
1 Week (25%; EPH)	Full / Category B	Excel - NY Regulatory
10 Days (10%)	Category A	Excel - PA Regulatory
(2 Weeks)	Other: See notes	PDF
Other:		Other:

Expedited TAT Not Always Available. Please Check with Lab.

FOR LAB USE ONLY ↓

Batch # AC15938

Check If Contingent ===>

Matrix Codes
DW - Drinking Water S - Soil A - Air
GW - Ground Water SL - Sludge
WW - Waste Water OL - Oil
OT - Other (please specify under item 9, Comments)

7) Analysis Request

<=== Check If Contingent

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	Benzo(a)pyrene ONLY via EPA 8270C	Arsenic ONLY via EPA 6010B	Benzo(a)pyrene ONLY via EPA 8270C	Arsenic ONLY via EPA 6010B	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
-001	WP-4(1.5-2.0)	S	11/26/13	0948		X		X											
-002	WP-5(1.5-2.0)	S	11/26/13	0953		X		X											
-003	WP-6(1.5-2.0)	S	11/26/13	0959		X				X									Contingent
-004	WP-7(1.5-2.0)	S	11/26/13	0942		X				X									Contingent
-005	WP-8(1.5-2.0)	S	11/26/13	0930		X		X											
-006	WP-8(3.5-4.0)	S	11/26/13	0930		X		X											
-007	WP-9(1.5-2.0)	S	11/26/13	0920		X		X											
-008	WP-9(3.5-4.0)	S	11/26/13	0920		X		X											
-009	WP-10(1.5-2.0)	S	11/26/13	0940		X				X									Contingent
-010	WP-10(3.5-4.0)	S	11/26/13	0940		X				X									Contingent

10) Relinquished by:	Accepted by:	Date	Time
11/26/13 1515		11/26/13	1030
		11/27/13	13:35

Additional Notes
*Report to MDLs - List SOM 1.2
*SVOCs need low levels

Comments, Notes, Special Requirements, HAZARDS

Note: Check if low-level groundwater methods required to meet current standards in NJ or PA:
- ☐ BN or BNA (8270C SIM)
- ☐ VOC (8260B SIM or 8011)
- ☐ Metals (ICP-MS 200.8 or 6020)
- ☐ Metals-Soil (ICP-MS 6020 for Be & Ag)

Note: Check if applicable:
- ☐ Project-Specific Reporting Limits
- ☐ High Contaminant Concentrations
- ☐ NJ LSRP Project

Cooler Temperature: 3.1

11) Sampler (print name): Rich Makris Date: 11/26/13

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

HamptonClarke-Veritech Laboratories
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NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | KY #90124

HC-V HamptonClarke Veritech Laboratories
A Women-Owned, Disadvantaged, Small Business Enterprise

CHAIN OF CUSTODY RECORD

3112730 0036

3112730

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Deliv.
24 Hours (100%)	Data Summary	Hazsite/CSV
48 Hours (75%)	Waste	EQuIS 4-File / EZ / NYS
72 Hours (50%)	Red - NJ / NY / PA	EQuIS EPA Region 2 or 5
4 Days (35%; TPH)	CLP	Excel - NJ Regulatory
1 Week (25%; EPH)	Full / Category B	Excel - NY Regulatory
10 Days (10%)	Category A	Excel - PA Regulatory
2 Weeks	Other: See notes	PDF
Other:		Other:

Expedited TAT Not Always Available. Please Check with Lab.

Customer Information

1a) Customer: Arcadis
Address: 10 Friends Lane
Newtown, PA 18940
1b) Email/Cell/Fax/Ph: 267-685-1800
1c) Send Invoice to: Deric Kearns
1d) Send Report to: deric.kearns@arcadis-us.com

Project Information

2a) Project: Rhodia Inc.
2b) Project Mgr:
2c) Project Location (City/State): Morrisville, PA
2d) Quote/PO # (If Applicable): NP448.3

FOR LAB USE ONLY ↓

Batch # AC15938

Check If Contingent ===>

Matrix Codes
DW - Drinking Water S - Soil A - Air
GW - Ground Water SL - Sludge
WW - Waste Water OL - Oil
OT - Other (please specify under item 9, Comments)

7) Analysis Request

<=== Check If Contingent

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	Benzo(a)pyrene ONLY via EPA 8270C	Arsenic ONLY via EPA 6010B	Benzo(a)pyrene ONLY via EPA 8270C	Arsenic ONLY via EPA 6010B	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
-011	WP-11 (1.5-2.0)	S	11/26/13	0910		X				X	1								Contingent
-012	WP-11 (3.5-4.0)	S	11/26/13	0912		X				X	1								Contingent
-013	A3-9 (1.5-2.0)	S	11/26/13	1300		X	X	X			1								
-014	A3-9 (1.5-2.0) a	S	11/26/13	1305		X	X	X			1								
015/016	A3-9 (1.5-2.0) MS/MSD	S	11/26/13	1300		X	X	X			2								MS/MSD
017	A3-10 (1.5-2.0)	S	11/26/13	1255		X	X	X			1								
018	A3-11 (1.5-2.0)	S	11/26/13	1240		X		X			1								
019	A3-12 (1.5-2.0)	S	11/26/13	1250		X		X			1								
020	A3-13 (1.5-2.0)	S	11/26/13	1310		X	X	X			1								
021	A3-14 (1.5-2.0)	S	11/26/13	1240		X				X	1								Contingent

10) Relinquished by:	Accepted by:	Date	Time
11/26/13 1515		11/27/13	1030
		11/27/13	13:35

Additional Notes
*Report to MDLs - List SOM 1.2
*SVOCs need low levels

Comments, Notes, Special Requirements, HAZARDS

Note: Check if low-level groundwater methods required to meet current standards in NJ or PA:
- BN or BNA (8270C SIM)
- VOC (8260B SIM or 8011)
- Metals (ICP-MS 200.8 or 6020)
- Metals-Soil (ICP-MS 6020 for Be & Ag)

Note: Check if applicable:
- Project-Specific Reporting Limits
- High Contaminant Concentrations
- NJ LSRP Project

Cooler Temperature: 3.1

11) Sampler (print name): Rich Malizia Date: 11/26/13

Please note NUMBERED items. If not completed your analytical work may be delayed.
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HC·V HamptonClarke Veritech Laboratories
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CHAIN OF CUSTODY RECORD

3112730 0037

3112730

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Deliv.
24 Hours (100%)	Data Summary	Hazsite/CSV
48 Hours (75%)	Waste	(EQuIS 4-File / EZ / NYS)
72 Hours (50%)	Red - NJ / NY / PA	EQuIS EPA Region 2 or 5
4 Days (35%; TPH)	CLP	Excel - NJ Regulatory
1 Week (25%; EPH)	Full / Category B	Excel - NY Regulatory
10 Days (10%)	Category A	Excel - PA Regulatory
(2 Weeks)	Other: See notes	PDF
Other:		Other:

Expedited TAT Not Always Available. Please Check with Lab.

Customer Information

1a) Customer: Arcadis
Address: 10 Friends Ln, Suite 200
Newtown, PA 18940
1b) Email/Cell/Fax/Ph: 267-685-1800
1c) Send Invoice to: Deric Kearns
1d) Send Report to: Deric.Kearns@arcadis-us.com

Project Information

2a) Project: Rhodia - Morrisville
2b) Project Mgr: Ryan Fitzpatrick
2c) Project Location (City/State): Morrisville, PA
2d) Quote/PO # (If Applicable):

FOR LAB USE ONLY ↓

Batch # RC15938

Check If Contingent ===>

Matrix Codes
DW - Drinking Water S - Soil A - Air
GW - Ground Water SL - Sludge
WW - Waste Water OL - Oil
OT - Other (please specify under item 9, Comments)

7) Analysis Request

<=== Check If Contingent

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	Benzo(a)pyrene ONLY via EPA 8270C	Arsenic ONLY via EPA 6010B	Benzo(a)pyrene ONLY via EPA 8270C	Arsenic ONLY via EPA 6010B	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
~~A3-15(1.5-2.0)~~ 022	A3-15(1.5-2.0)	S	11/26/13	1250		X				X	1								Contingent
023	IA-22(5.5-6.0)	S	11/26/13	1130		X	X				1								
024	IA-23(5.5-6.0)	S	11/26/13	1120		X			X		1								Contingent
025	A8-6(7.0-7.5)	S	11/26/13	1040		X		X			1								
026	A8-7(7.0-7.5)	S	11/26/13	1055		X				X	1								Contingent
027	FB-112613	W	11/26/13	1315			X	X			2						1		

10) Relinquished by:	Accepted by:	Date	Time
		11/27/13	1030
11/26/13 1515		11/27/13	13:35

Additional Notes
* Report to MDL's - List SOM 1.2
* SVOCs need low levels

Comments, Notes, Special Requirements, HAZARDS

Note: Check if low-level groundwater methods required to meet current standards in NJ or PA:
- ☐ BN or BNA (8270C SIM)
- ☐ VOC (8260B SIM or 8011)
- ☐ Metals (ICP-MS 200.8 or 6020)
- ☐ Metals-**Soil** (ICP-MS 6020 for Be & Ag)

Note: Check if applicable:
- ☐ **Project-Specific Reporting Limits**
- ☐ **High Contaminant Concentrations**
- ☐ **NJ LSRP Project**

Cooler Temperature: 3.1

11) Sampler (print name): Rich Malizia Date: 11/26/13

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

PROJECT MODIFICATIONS

Client: ARCADIS-PA **HCV Project #:** 3112730

Project: Solvay,USA/Morrisville

---

sherree192.168.1.52
12/18/2013 1:27:07 PM

Per Deric Kearns, based on the initial data, I would like to release the following samples for analysis:
WP-6 (1.5-2.0)
WP-10 (1.5-2.0)
WP-10 (3.5-4.0)
WP-11 (1.5-2.0)
WP-11 (3.5-4.0)
SB 12/18/13

CONDITION UPON RECEIPT

Batch Number AC75938 Entered By: Ricardo

Date Entered 11/27/2013 5:17:00 PM

1	Yes	Is there a corresponding COC included with the samples?
2	Yes	Are the samples in a container such as a cooler or Ice chest?
3	NO	Are the COC seals intact?
4	Yes	Please specify the Temperature inside the container (in degC) 3.1
5	Yes	Are the samples refrigerated (where required)/have they arrived on ice?
6	Yes	Are the samples within the holding times for the parameters listed on the COC? IF no, list parameters and samples:
7	Yes	Are all of the sample bottles intact? If no, specify sample numbers broken/leaking
8	Yes	Are all of the sample labels or numbers legible? If no specify:
9	Yes	Do the contents match the COC? If no, specify
10	Yes	Is there enough sample sent for the analyses listed on the COC? If no, specify:
11	YES	Are samples preserved correctly?
12	Yes	Was temperature blank present (Place comment below if not)? If not was temperature of samples verified?
13	NA	Other comments ...Specify
14	NA	Corrective actions (Specify item number and corrective action taken).

PRESERVATION DOCUMENT

Batch Number AC75938

Entered By: Ricardo

Date Entered 11/27/2013 5:19:00 PM

Lab#:	Container Siz	Container Typ	Paramete	Preservative	PH
AC75938-001	NA	NA	NA	NA	NA
AC75938-002	NA	NA	NA	NA	NA
AC75938-003	NA	NA	NA	NA	NA
AC75938-004	NA	NA	NA	NA	NA
AC75938-005	NA	NA	NA	NA	NA
AC75938-006	NA	NA	NA	NA	NA
AC75938-007	NA	NA	NA	NA	NA
AC75938-008	NA	NA	NA	NA	NA
AC75938-009	NA	NA	NA	NA	NA
AC75938-010	NA	NA	NA	NA	NA
AC75938-011	NA	NA	NA	NA	NA
AC75938-012	NA	NA	NA	NA	NA
AC75938-013	NA	NA	NA	NA	NA
AC75938-014	NA	NA	NA	NA	NA
AC75938-015	NA	NA	NA	NA	NA
AC75938-016	NA	NA	NA	NA	NA
AC75938-017	NA	NA	NA	NA	NA
AC75938-018	NA	NA	NA	NA	NA
AC75938-019	NA	NA	NA	NA	NA
AC75938-020	NA	NA	NA	NA	NA
AC75938-021	NA	NA	NA	NA	NA
AC75938-022	NA	NA	NA	NA	NA
AC75938-023	NA	NA	NA	NA	NA
AC75938-024	NA	NA	NA	NA	NA
AC75938-025	NA	NA	NA	NA	NA
AC75938-026	NA	NA	NA	NA	NA
AC75938-027	1L	P	METALS	HNO3	1

Internal Chain of Custody

Lab#:	DateTime:	Loc or User	Bot Nu	A/M	Analysis
AC75938-001	11/27/13 13:35	RICAR	0	M	Received
AC75938-001	11/27/13 17:17	RICAR	0	M	Login
AC75938-001	11/27/13 22:01	PA	1	A	mixing
AC75938-001	11/27/13 22:02	R12	1	A	NONE
AC75938-001	12/02/13 07:41	HS	1	A	5solids
AC75938-001	12/02/13 12:33	SDL	1	A	R1
AC75938-001	12/03/13 10:09	JU	1	A	tdsi
AC75938-001	12/03/13 10:10	R12	1	A	NONE
AC75938-002	11/27/13 13:35	RICAR	0	M	Received
AC75938-002	11/27/13 17:17	RICAR	0	M	Login
AC75938-002	11/27/13 22:01	PA	1	A	mixing
AC75938-002	11/27/13 22:02	R12	1	A	NONE
AC75938-002	12/02/13 07:41	HS	1	A	5solids
AC75938-002	12/02/13 12:33	SDL	1	A	R1
AC75938-002	12/03/13 10:09	JU	1	A	tdsi
AC75938-002	12/03/13 10:10	R12	1	A	NONE
AC75938-003	11/27/13 13:35	RICAR	0	M	Received
AC75938-003	11/27/13 17:17	RICAR	0	M	Login
AC75938-003	12/18/13 23:09	PA	1	A	mixing
AC75938-003	12/18/13 23:09	R12	1	A	NONE
AC75938-003	12/19/13 08:02	HS	1	A	%solids
AC75938-003	12/19/13 14:39	R12	1	A	NONE
AC75938-003	12/23/13 15:52	JU	1	A	tdsi-hg
AC75938-003	12/23/13 17:18	JU	1	A	r1
AC75938-004	11/27/13 13:35	RICAR	0	M	Received
AC75938-004	11/27/13 17:17	RICAR	0	M	Login
AC75938-005	11/27/13 13:35	RICAR	0	M	Received
AC75938-005	11/27/13 17:17	RICAR	0	M	Login
AC75938-005	11/27/13 22:01	PA	1	A	mixing
AC75938-005	11/27/13 22:02	R12	1	A	NONE
AC75938-005	12/02/13 07:41	HS	1	A	5solids
AC75938-005	12/02/13 12:46	R12	1	A	NONE
AC75938-005	12/03/13 10:09	JU	1	A	tdsi
AC75938-005	12/03/13 10:10	R12	1	A	NONE
AC75938-006	11/27/13 13:35	RICAR	0	M	Received
AC75938-006	11/27/13 17:17	RICAR	0	M	Login
AC75938-006	11/27/13 22:01	PA	1	A	mixing
AC75938-006	11/27/13 22:02	R12	1	A	NONE
AC75938-006	12/02/13 07:41	HS	1	A	5solids
AC75938-006	12/02/13 12:46	R12	1	A	NONE
AC75938-006	12/03/13 10:09	JU	1	A	tdsi
AC75938-006	12/03/13 10:10	R12	1	A	NONE
AC75938-007	11/27/13 13:35	RICAR	0	M	Received
AC75938-007	11/27/13 17:17	RICAR	0	M	Login
AC75938-007	11/27/13 22:01	PA	1	A	mixing
AC75938-007	11/27/13 22:02	R12	1	A	NONE
AC75938-007	12/02/13 07:41	HS	1	A	5solids
AC75938-007	12/02/13 12:46	R12	1	A	NONE
AC75938-007	12/03/13 10:09	JU	1	A	tdsi
AC75938-007	12/03/13 10:10	R12	1	A	NONE
AC75938-008	11/27/13 13:35	RICAR	0	M	Received
AC75938-008	11/27/13 17:17	RICAR	0	M	Login
AC75938-008	11/27/13 22:01	PA	1	A	mixing
AC75938-008	11/27/13 22:02	R12	1	A	NONE
AC75938-008	12/02/13 07:41	HS	1	A	5solids
AC75938-008	12/02/13 12:46	R12	1	A	NONE
AC75938-008	12/03/13 10:09	JU	1	A	tdsi
AC75938-008	12/03/13 10:10	R12	1	A	NONE
AC75938-009	11/27/13 13:35	RICAR	0	M	Received
AC75938-009	11/27/13 17:17	RICAR	0	M	Login
AC75938-009	12/18/13 23:09	PA	1	A	mixing
AC75938-009	12/18/13 23:09	R12	1	A	NONE
AC75938-009	12/19/13 08:02	HS	1	A	%solids
AC75938-009	12/19/13 14:39	R12	1	A	NONE
AC75938-009	12/23/13 15:52	JU	1	A	tdsi-hg
AC75938-009	12/23/13 17:18	JU	1	A	r1
AC75938-010	11/27/13 13:35	RICAR	0	M	Received
AC75938-010	11/27/13 17:17	RICAR	0	M	Login
AC75938-010	12/18/13 23:09	PA	1	A	mixing
AC75938-010	12/18/13 23:09	R12	1	A	NONE
AC75938-010	12/19/13 08:02	HS	1	A	%solids
AC75938-010	12/19/13 14:39	R12	1	A	NONE
AC75938-010	12/23/13 15:52	JU	1	A	tdsi-hg
AC75938-010	12/23/13 17:18	JU	1	A	r1
AC75938-011	11/27/13 13:35	RICAR	0	M	Received
AC75938-011	11/27/13 17:17	RICAR	0	M	Login
AC75938-011	12/18/13 23:09	PA	1	A	mixing
AC75938-011	12/18/13 23:09	R12	1	A	NONE
AC75938-011	12/19/13 08:02	HS	1	A	%solids
AC75938-011	12/19/13 14:39	R12	1	A	NONE
AC75938-011	12/23/13 15:52	JU	1	A	tdsi-hg
AC75938-011	12/23/13 17:18	JU	1	A	r1
AC75938-012	11/27/13 13:35	RICAR	0	M	Received
AC75938-012	11/27/13 17:17	RICAR	0	M	Login
AC75938-012	12/18/13 23:09	PA	1	A	mixing
AC75938-012	12/18/13 23:09	R12	1	A	NONE
AC75938-012	12/19/13 08:02	HS	1	A	%solids
AC75938-012	12/19/13 14:39	R12	1	A	NONE
AC75938-012	12/23/13 15:52	JU	1	A	tdsi-hg
AC75938-012	12/23/13 17:18	JU	1	A	r1
AC75938-013	11/27/13 13:35	RICAR	0	M	Received
AC75938-013	11/27/13 17:17	RICAR	0	M	Login
AC75938-013	11/27/13 22:01	PA	1	A	mixing
AC75938-013	11/27/13 22:02	R12	1	A	NONE
AC75938-013	12/02/13 07:41	HS	1	A	5solids
AC75938-013	12/02/13 12:46	R12	1	A	NONE
AC75938-013	12/03/13 10:09	JU	1	A	tdsi
AC75938-013	12/03/13 10:10	R12	1	A	NONE
AC75938-013	12/05/13 09:04	MSL	1	A	bn
AC75938-013	12/05/13 12:47	R12	1	A	NONE
AC75938-014	11/27/13 13:35	RICAR	0	M	Received
AC75938-014	11/27/13 17:17	RICAR	0	M	Login
AC75938-014	11/27/13 22:01	PA	1	A	mixing
AC75938-014	11/27/13 22:02	R12	1	A	NONE
AC75938-014	12/02/13 07:41	HS	1	A	5solids
AC75938-014	12/02/13 12:46	R12	1	A	NONE
AC75938-014	12/03/13 10:09	JU	1	A	tdsi
AC75938-014	12/03/13 10:10	R12	1	A	NONE
AC75938-014	12/05/13 09:04	MSL	1	A	bn
AC75938-014	12/05/13 12:47	R12	1	A	NONE
AC75938-015	11/27/13 13:35	RICAR	0	M	Received
AC75938-015	11/27/13 17:17	RICAR	0	M	Login
AC75938-015	11/27/13 22:01	PA	1	A	mixing
AC75938-015	11/27/13 22:02	R12	1	A	NONE
AC75938-015	12/02/13 07:41	HS	1	A	5solids
AC75938-015	12/02/13 12:46	R12	1	A	NONE
AC75938-015	12/03/13 10:09	JU	1	A	tdsi
AC75938-015	12/03/13 10:10	R12	1	A	NONE
AC75938-015	12/05/13 09:04	MSL	1	A	bn
AC75938-015	12/05/13 12:47	R12	1	A	NONE
AC75938-016	11/27/13 13:35	RICAR	0	M	Received
AC75938-016	11/27/13 17:17	RICAR	0	M	Login
AC75938-016	11/27/13 22:01	PA	1	A	mixing
AC75938-016	11/27/13 22:02	R12	1	A	NONE
AC75938-016	12/02/13 07:41	HS	1	A	5solids
AC75938-016	12/02/13 12:46	R12	1	A	NONE
AC75938-016	12/03/13 10:09	JU	1	A	tdsi
AC75938-016	12/03/13 10:10	R12	1	A	NONE
AC75938-016	12/05/13 09:04	MSL	1	A	bn
AC75938-016	12/05/13 12:47	R12	1	A	NONE
AC75938-017	11/27/13 13:35	RICAR	0	M	Received
AC75938-017	11/27/13 17:17	RICAR	0	M	Login
AC75938-017	11/27/13 22:01	PA	1	A	mixing
AC75938-017	11/27/13 22:02	R12	1	A	NONE
AC75938-017	12/02/13 07:41	HS	1	A	5solids
AC75938-017	12/02/13 12:46	R12	1	A	NONE
AC75938-017	12/03/13 10:09	JU	1	A	tdsi
AC75938-017	12/03/13 10:10	R12	1	A	NONE
AC75938-017	12/05/13 09:04	MSL	1	A	bn
AC75938-017	12/05/13 12:47	R12	1	A	NONE
AC75938-018	11/27/13 13:35	RICAR	0	M	Received
AC75938-018	11/27/13 17:17	RICAR	0	M	Login
AC75938-018	11/27/13 22:01	PA	1	A	mixing
AC75938-018	11/27/13 22:02	R12	1	A	NONE
AC75938-018	12/02/13 07:41	HS	1	A	5solids
AC75938-018	12/02/13 12:46	R12	1	A	NONE
AC75938-018	12/03/13 10:09	JU	1	A	tdsi
AC75938-018	12/03/13 10:10	R12	1	A	NONE
AC75938-019	11/27/13 13:35	RICAR	0	M	Received
AC75938-019	11/27/13 17:17	RICAR	0	M	Login

Samples marked as received are stored in coolers or refrigerator R12, or R24 at 4 deg C until Login

Internal Chain of Custody

Lab#:	DateTime:	Loc or User	Bot Nu	A/M	Analysis
AC75938-019	11/27/13 22:01	PA	1	A	mixing
AC75938-019	11/27/13 22:02	R12	1	A	NONE
AC75938-019	12/02/13 07:41	HS	1	A	5solids
AC75938-019	12/02/13 12:46	R12	1	A	NONE
AC75938-019	12/03/13 10:09	JU	1	A	tdsi
AC75938-019	12/03/13 10:10	R12	1	A	NONE
AC75938-020	11/27/13 13:35	RICAR	0	M	Received
AC75938-020	11/27/13 17:17	RICAR	0	M	Login
AC75938-020	11/27/13 22:01	PA	1	A	mixing
AC75938-020	11/27/13 22:02	R12	1	A	NONE
AC75938-020	12/02/13 07:41	HS	1	A	5solids
AC75938-020	12/02/13 12:46	R12	1	A	NONE
AC75938-020	12/03/13 10:09	JU	1	A	tdsi
AC75938-020	12/03/13 10:10	R12	1	A	NONE
AC75938-020	12/05/13 09:04	MSL	1	A	bn
AC75938-020	12/05/13 12:47	R12	1	A	NONE
AC75938-021	11/27/13 13:35	RICAR	0	M	Received
AC75938-021	11/27/13 17:17	RICAR	0	M	Login
AC75938-022	11/27/13 13:35	RICAR	0	M	Received
AC75938-022	11/27/13 17:17	RICAR	0	M	Login
AC75938-023	11/27/13 13:35	RICAR	0	M	Received
AC75938-023	11/27/13 17:17	RICAR	0	M	Login
AC75938-023	11/27/13 22:01	PA	1	A	mixing
AC75938-023	11/27/13 22:02	R12	1	A	NONE
AC75938-023	12/02/13 07:41	HS	1	A	5solids
AC75938-023	12/02/13 12:46	R12	1	A	NONE
AC75938-023	12/05/13 09:04	MSL	1	A	bn
AC75938-023	12/05/13 12:47	R12	1	A	NONE
AC75938-024	11/27/13 13:35	RICAR	0	M	Received
AC75938-024	11/27/13 17:17	RICAR	0	M	Login
AC75938-025	11/27/13 13:35	RICAR	0	M	Received
AC75938-025	11/27/13 17:17	RICAR	0	M	Login
AC75938-025	11/27/13 22:01	PA	1	A	mixing
AC75938-025	11/27/13 22:02	R12	1	A	NONE
AC75938-025	12/02/13 07:41	HS	1	A	5solids
AC75938-025	12/02/13 12:46	R12	1	A	NONE
AC75938-025	12/03/13 10:09	JU	1	A	tdsi
AC75938-025	12/03/13 10:10	R12	1	A	NONE
AC75938-026	11/27/13 13:35	RICAR	0	M	Received
AC75938-026	11/27/13 17:17	RICAR	0	M	Login
AC75938-027	11/27/13 13:35	RICAR	0	M	Received
AC75938-027	11/27/13 17:17	RICAR	0	M	Login
AC75938-027	12/03/13 08:24	DYR	2	A	bna
AC75938-027	12/03/13 10:09	JU	3	A	tdsi

Lab#:	DateTime:	Loc or User	Bot Nu	A/M	Analysis

Samples marked as received are stored in coolers or refrigerator R12, or R24 at 4 deg C until Login

Semi-Volatile Data

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AC75938-013(40X)
Client Id: A3-9 (1.5-2.0)
Data File: 9M54226.D
Analysis Date: 12/06/13 16:07
Date Rec/Extracted: 11/27/13-12/05/13
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270D
Matrix: Soil
Initial Vol: 30g
Final Vol: 1ml
Dilution: 40
Solids: 81

Units: mg/Kg

Cas #	Compound	MDL	RL	Conc	Cas #	Compound	MDL	RL	Conc
50-32-8	Benzo[a]pyrene	0.36	3.3	U					

Worksheet #: 286673

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used.

Quantitation Report (QT Reviewed)

3112730 0045

SampleID : AC75938-013(40X) Operator : AHD/JB Qt Meth : 9M_1105.M
Data File: 9M54226.D Sam Mult : 1 Vial# : 16 Qt On : 12/09/13 12:41
Acq On : 12/ 6/13 16:07 Misc : S,BNA:80 Qt Upd On: 12/04/13 14:15

Data Path : G:\GcMsData\2013\GCMS_9\Data\12-06-13\
Qt Path : G:\GCMSDATA\2013\GCMS_9\METHODQT\
Qt Resp Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
7) 1,4-Dichlorobenzene-d4	5.582	152	104881	40.00	ng	-0.14
29) Naphthalene-d8	6.598	136	417765	40.00	ng	-0.13
47) Acenaphthene-d10	7.994	164	260101	40.00	ng	-0.16
74) Phenanthrene-d10	9.443	188	473843	40.00	ng	-0.17
88) Chrysene-d12	12.497	240	549183	40.00	ng	-0.17
100) Perylene-d12	14.102	264	344428	40.00	ng	-0.18
System Monitoring Compounds						
10) 2-Fluorophenol	0.000	112	0	0.00	ng	
Spiked Amount 100.000			Recovery =	0.00%		
15) Phenol-d5	0.000	99	0d	0.00	ng	
Spiked Amount 100.000			Recovery =	0.00%		
30) Nitrobenzene-d5	0.000	128	0d	0.00	ng	
Spiked Amount 50.000			Recovery =	0.00%		
52) 2-Fluorobiphenyl	0.000	172	0d	0.00	ng	
Spiked Amount 50.000			Recovery =	0.00%		
77) 2,4,6-Tribromophenol	0.000	330	0d	0.00	ng	
Spiked Amount 100.000			Recovery =	0.00%		
91) Terphenyl-d14	0.000	244	0d	0.00	ng	
Spiked Amount 50.000			Recovery =	0.00%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

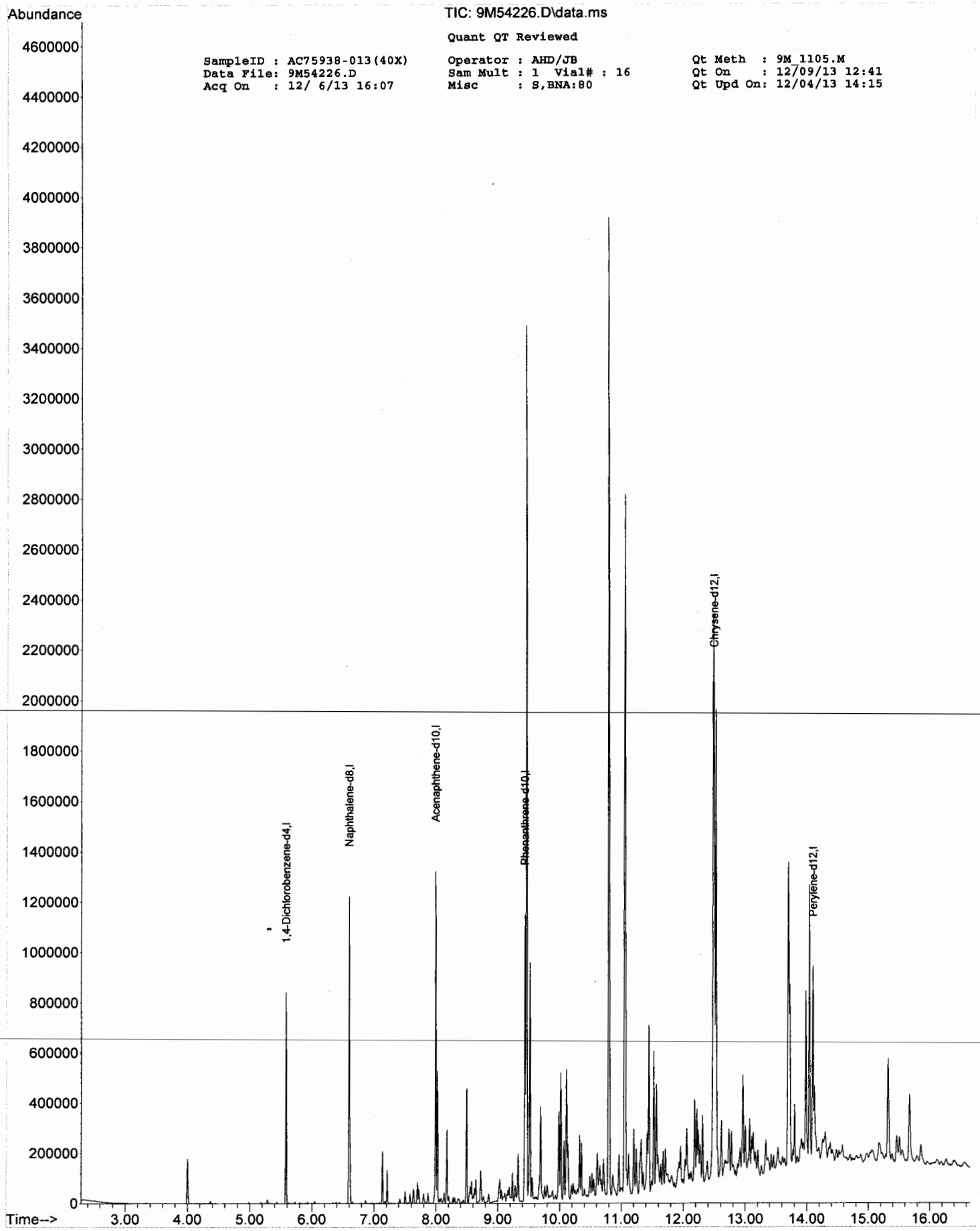
TIC: 9M54226.D\data.ms

Quant QT Reviewed

SampleID : AC75938-013(40X)
Data File: 9M54226.D
Acq On : 12/ 6/13 16:07

Operator : AHD/JB
Sam Mult : 1 Vial# : 16
Misc : S,BNA:80

Qt Meth : 9M_1105.M
Qt On : 12/09/13 12:41
Qt Upd On: 12/04/13 14:15



Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AC75938-013(40X)
Client Id: A3-9 (1.5-2.0)
Data File: 12M17610.D
Analysis Date: 12/09/13 11:53
Date Rec/Extracted: 11/27/13-12/05/13
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA8270D SIM
Matrix: Soil
Initial Vol: 30g
Final Vol: 1ml
Dilution: 40
Solids: 81

Units: mg/Kg

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
50-32-8	Benzo[a]pyrene	0.033	U				

Worksheet #: 286671

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used

Quantitation Report (QT Reviewed)

3112730 0048

SampleID : AC75938-013(40X) Operator : AHD/JB Qt Meth : 12SM_1205.M
Data File: 12M17610.D Sam Mult : 1 Vial# : 7 Qt On : 12/09/13 12:35
Acq On : 12/ 9/13 11:53 Misc : S,BN:80 Qt Upd On: 12/05/13 12:22

Data Path : G:\GcMsData\2013\GCMS_12SM\Data\12-09-13\
Qt Path : G:\GCMSDATA\2013\GCMS_12SM\METHODQT\
Qt Resp Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	6.271	152	5103	0.40	ng	0.02
7) Naphthalene-d8	7.271	136	14988	0.40	ng	0.00
11) Acenaphthene-d10	8.740	164	10603	0.40	ng	-0.01
21) Phenanthrene-d10	10.250	188	16079	0.40	ng	0.00
28) Chrysene-d12	13.353	240	5424m	0.40	ng	0.03
33) Perylene-d12	15.055	264	4811m	0.40	ng	0.00
System Monitoring Compounds						
8) Nitrobenzene-d5	6.705	82	4645	0.69	ng	0.02
Spiked Amount 50.000			Recovery = 1.38%			
14) 2-Fluorobiphenyl	8.120	172	15155	0.57	ng	0.00
Spiked Amount 50.000			Recovery = 1.14%			
30) Terphenyl-d14	12.056	244	20728	1.91	ng	0.00
Spiked Amount 50.000			Recovery = 3.82%			
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

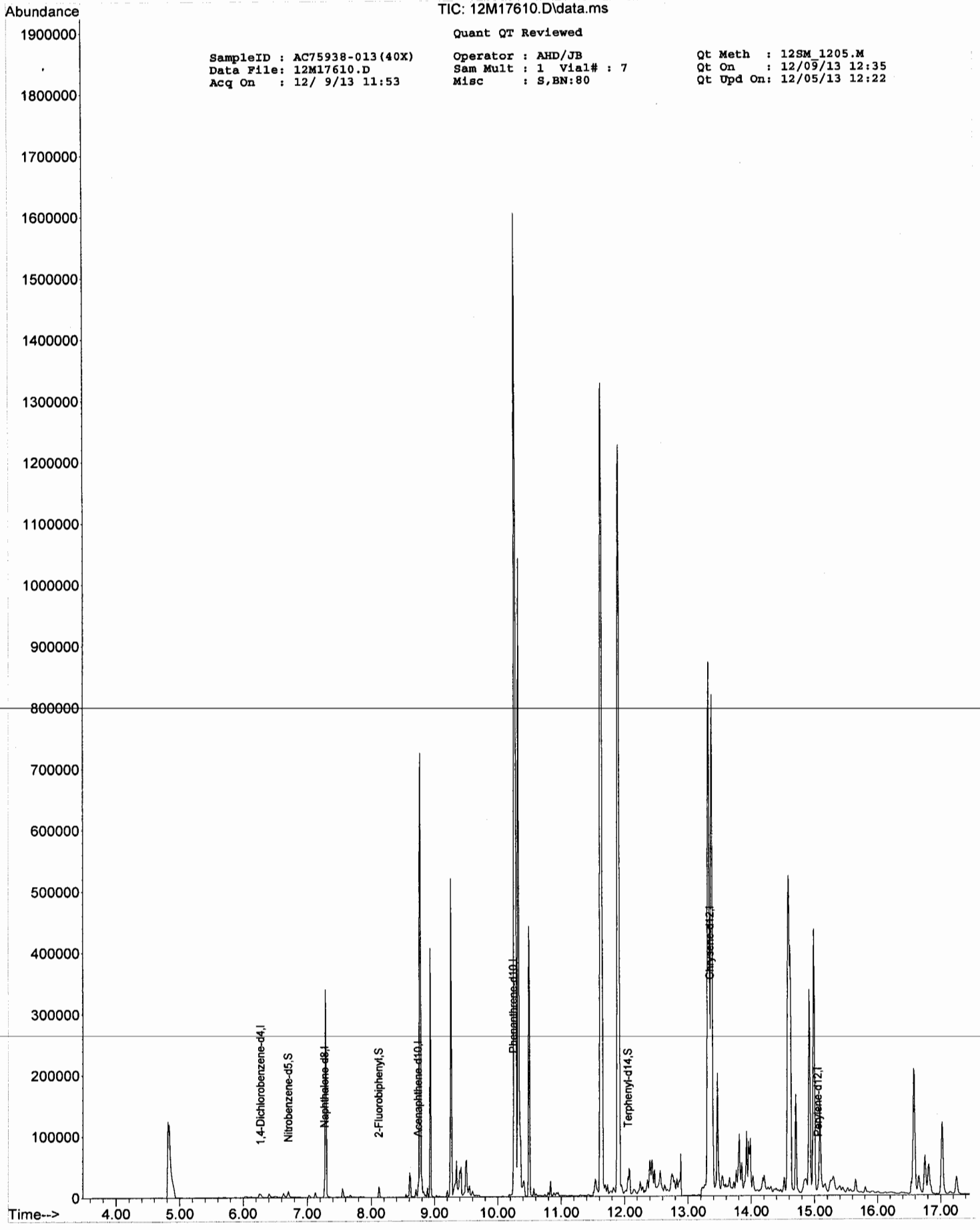
TIC: 12M17610.D\data.ms

Quant QT Reviewed

SampleID : AC75938-013(40X)
Data File: 12M17610.D
Acq On : 12/ 9/13 11:53

Operator : AHD/JB
Sam Mult : 1 Vial# : 7
Misc : S,BN:80

Qt Meth : 12SM_1205.M
Qt On : 12/09/13 12:35
Qt Upd On: 12/05/13 12:22



Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AC75938-014(20X)
Client Id: A3-9 (1.5-2.0)a
Data File: 9M54208.D
Analysis Date: 12/05/13 21:32
Date Rec/Extracted: 11/27/13-12/05/13
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270D
Matrix: Soil
Initial Vol: 30g
Final Vol: 1ml
Dilution: 20
Solids: 79

Units: mg/Kg

Cas #	Compound	MDL	RL	Conc	Cas #	Compound	MDL	RL	Conc
50-32-8	Benzo[a]pyrene	0.18	1.7	U					

Worksheet #: 286673

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used.

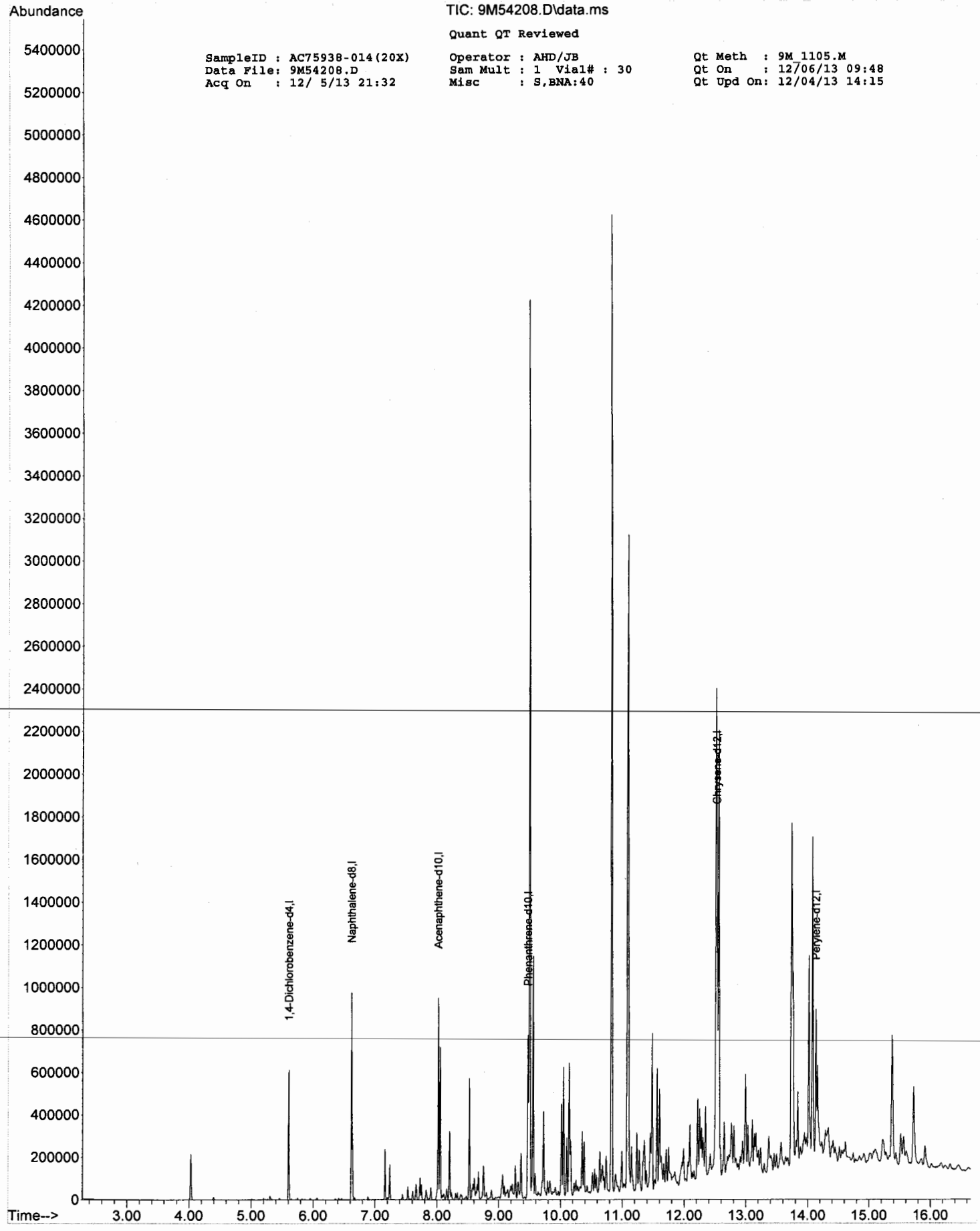
Quantitation Report (QT Reviewed)

SampleID : AC75938-014(20X) Operator : AHD/JB Qt Meth : 9M_1105.M
Data File: 9M54208.D Sam Mult : 1 Vial# : 30 Qt On : 12/06/13 09:48
Acq On : 12/ 5/13 21:32 Misc : S,BNA:40 Qt Upd On: 12/04/13 14:15

Data Path : G:\GcMsData\2013\GCMS_9\Data\12-05-13\
Qt Path : G:\GCMSDATA\2013\GCMS_9\METHODQT\
Qt Resp Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
7) 1,4-Dichlorobenzene-d4	5.608	152	85158	40.00	ng	-0.11
29) Naphthalene-d8	6.619	136	328026	40.00	ng	-0.11
47) Acenaphthene-d10	8.021	164	198931	40.00	ng	-0.13
74) Phenanthrene-d10	9.475	188	334141	40.00	ng	-0.13
88) Chrysene-d12	12.529	240	358057	40.00	ng	-0.14
100) Perylene-d12	14.134	264	292804	40.00	ng	-0.14
System Monitoring Compounds						
10) 2-Fluorophenol	0.000	112	0	0.00	ng	
Spiked Amount 100.000			Recovery =	0.00%		
15) Phenol-d5	0.000	99	0d	0.00	ng	
Spiked Amount 100.000			Recovery =	0.00%		
30) Nitrobenzene-d5	0.000	128	0d	0.00	ng	
Spiked Amount 50.000			Recovery =	0.00%		
52) 2-Fluorobiphenyl	0.000	172	0d	0.00	ng	
Spiked Amount 50.000			Recovery =	0.00%		
77) 2,4,6-Tribromophenol	0.000	330	0d	0.00	ng	
Spiked Amount 100.000			Recovery =	0.00%		
91) Terphenyl-d14	0.000	244	0d	0.00	ng	
Spiked Amount 50.000			Recovery =	0.00%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed


Abundance
TIC: 9M54208.D\data.ms
Quant QT Reviewed
SampleID : AC75938-014(20X)
Data File: 9M54208.D
Acq On : 12/ 5/13 21:32
Operator : AHD/JB
Sam Mult : 1 Vial# : 30
Misc : S,BNA:40
Qt Meth : 9M_1105.M
Qt On : 12/06/13 09:48
Qt Upd On: 12/04/13 14:15
5400000
5200000
5000000
4800000
4600000
4400000
4200000
4000000
3800000
3600000
3400000
3200000
3000000
2800000
2600000
2400000
2200000
2000000
1800000
1600000
1400000
1200000
1000000
800000
600000
400000
200000
0
1,4-Dichlorobenzene-d4,I
Naphthalene-d8,I
Acenaphthene-d10,I
Phenanthrene-d10,I
Chrysene-d12,I
Perylene-d12,I
Time-->
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
11.00
12.00
13.00
14.00
15.00
16.00

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AC75938-014(20X)
Client Id: A3-9 (1.5-2.0)a
Data File: 12M17611.D
Analysis Date: 12/09/13 12:16
Date Rec/Extracted: 11/27/13-12/05/13
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA8270D SIM
Matrix: Soil
Initial Vol: 30g
Final Vol: 1ml
Dilution: 20
Solids: 79

Units: mg/Kg

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
50-32-8	Benzo[a]pyrene	0.017	U				

Worksheet #: 286671

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used

Quantitation Report (QT Reviewed)

3112730 0054

SampleID : AC75938-014(20X) Operator : AHD/JB Qt Meth : 12SM_1205.M
Data File: 12M17611.D Sam Mult : 1 Vial# : 8 Qt On : 12/09/13 12:36
Acq On : 12/ 9/13 12:16 Misc : S,BN:40 Qt Upd On: 12/05/13 12:22

Data Path : G:\GcMsData\2013\GCMS_12SM\Data\12-09-13\
Qt Path : G:\GCMSDATA\2013\GCMS_12SM\METHODQT\
Qt Resp Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	6.271	152	4593	0.40	ng	0.02
7) Naphthalene-d8	7.271	136	14165	0.40	ng	0.00
11) Acenaphthene-d10	8.740	164	10650	0.40	ng	-0.01
21) Phenanthrene-d10	10.250	188	14986	0.40	ng	0.00
28) Chrysene-d12	13.355	240	4039m	0.40	ng	0.03
33) Perylene-d12	15.057	264	3814m	0.40	ng	0.01
System Monitoring Compounds						
8) Nitrobenzene-d5	6.704	82	6589	1.03	ng	0.02
Spiked Amount 50.000			Recovery =	2.06%		
14) 2-Fluorobiphenyl	8.119	172	21664	0.81	ng	0.00
Spiked Amount 50.000			Recovery =	1.62%		
30) Terphenyl-d14	12.056	244	29296	3.65	ng	0.00
Spiked Amount 50.000			Recovery =	7.30%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

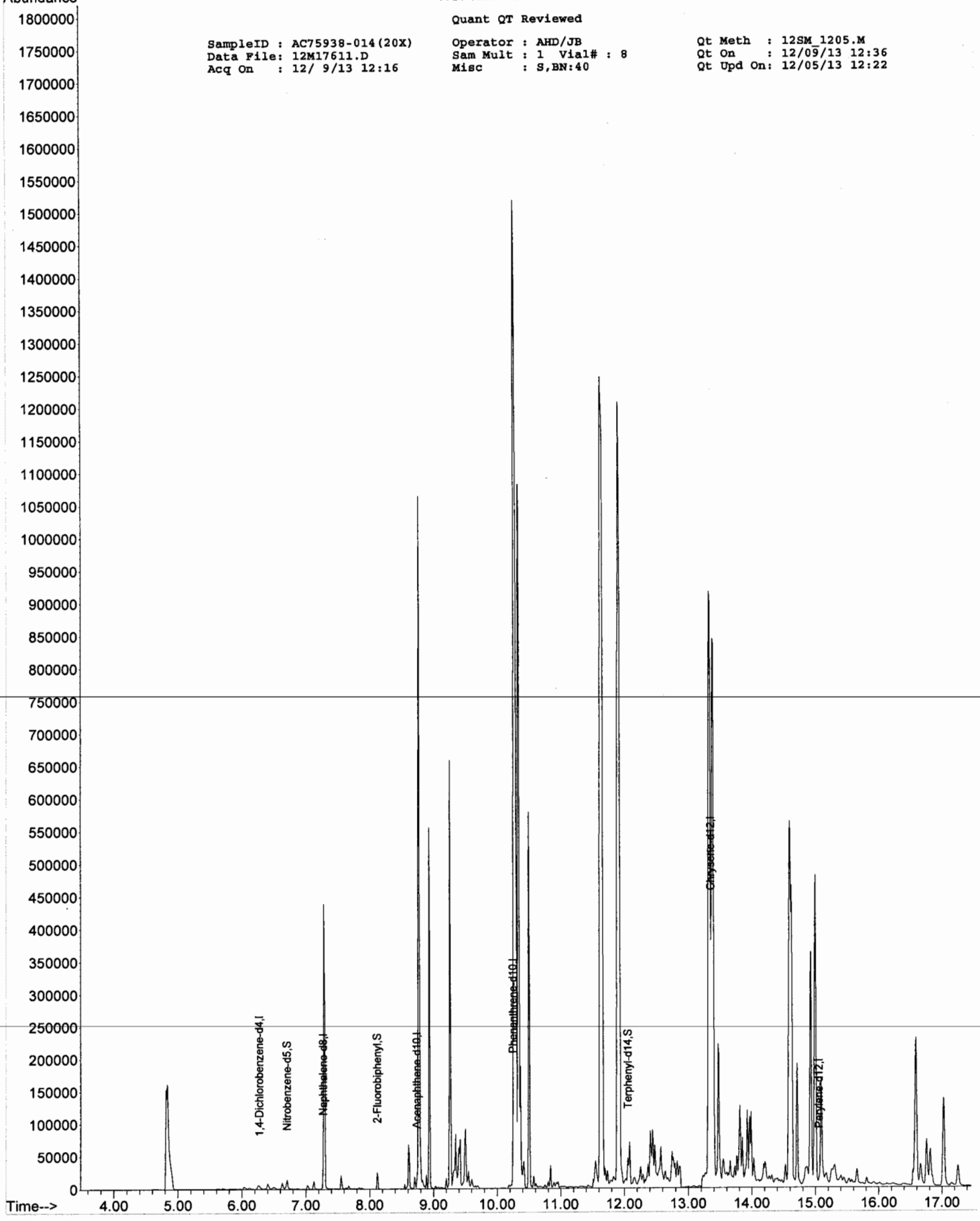
TIC: 12M17611.D\data.ms

Quant QT Reviewed

SampleID : AC75938-014(20X)
Data File: 12M17611.D
Acq On : 12/ 9/13 12:16

Operator : AHD/JB
Sam Mult : 1 Vial# : 8
Misc : S,BN:40

Qt Meth : 12SM_1205.M
Qt On : 12/09/13 12:36
Qt Upd On: 12/05/13 12:22



Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AC75938-015(40X)(MS:
Client Id: A3-9 (1.5-2.0) MS
Data File: 9M54227.D
Analysis Date: 12/06/13 16:30
Date Rec/Extracted: 11/27/13-12/05/13
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270D
Matrix: Soil
Initial Vol: 30g
Final Vol: 1ml
Dilution: 40
Solids: 79

Units: mg/Kg

Cas #	Compound	MDL	RL	Conc	Cas #	Compound	MDL	RL	Conc
50-32-8	**Benzo[a]pyrene**	**0.37**	**3.4**	**71**					

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used.

Quantitation Report (QT Reviewed)

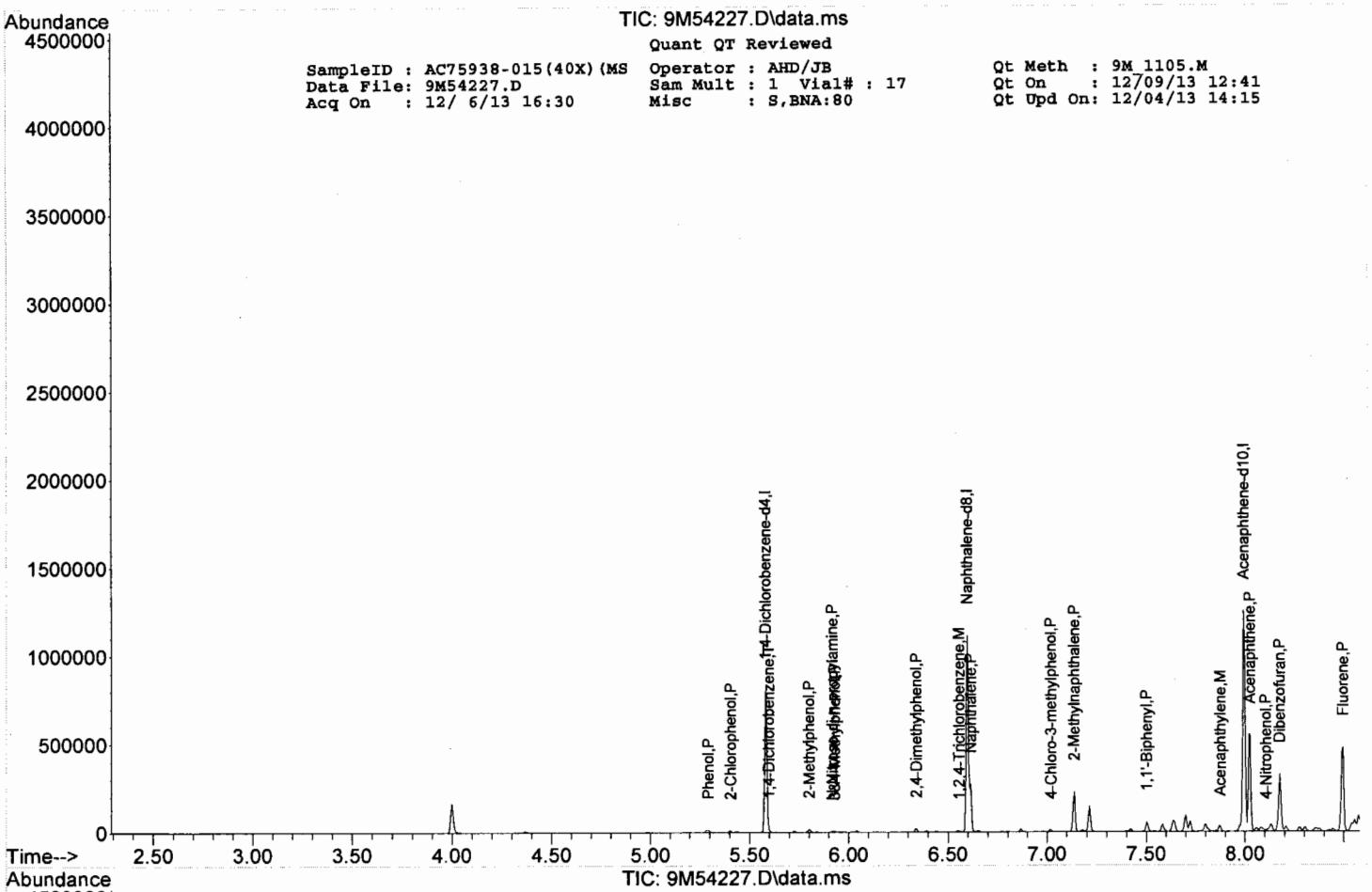
3112730 0057

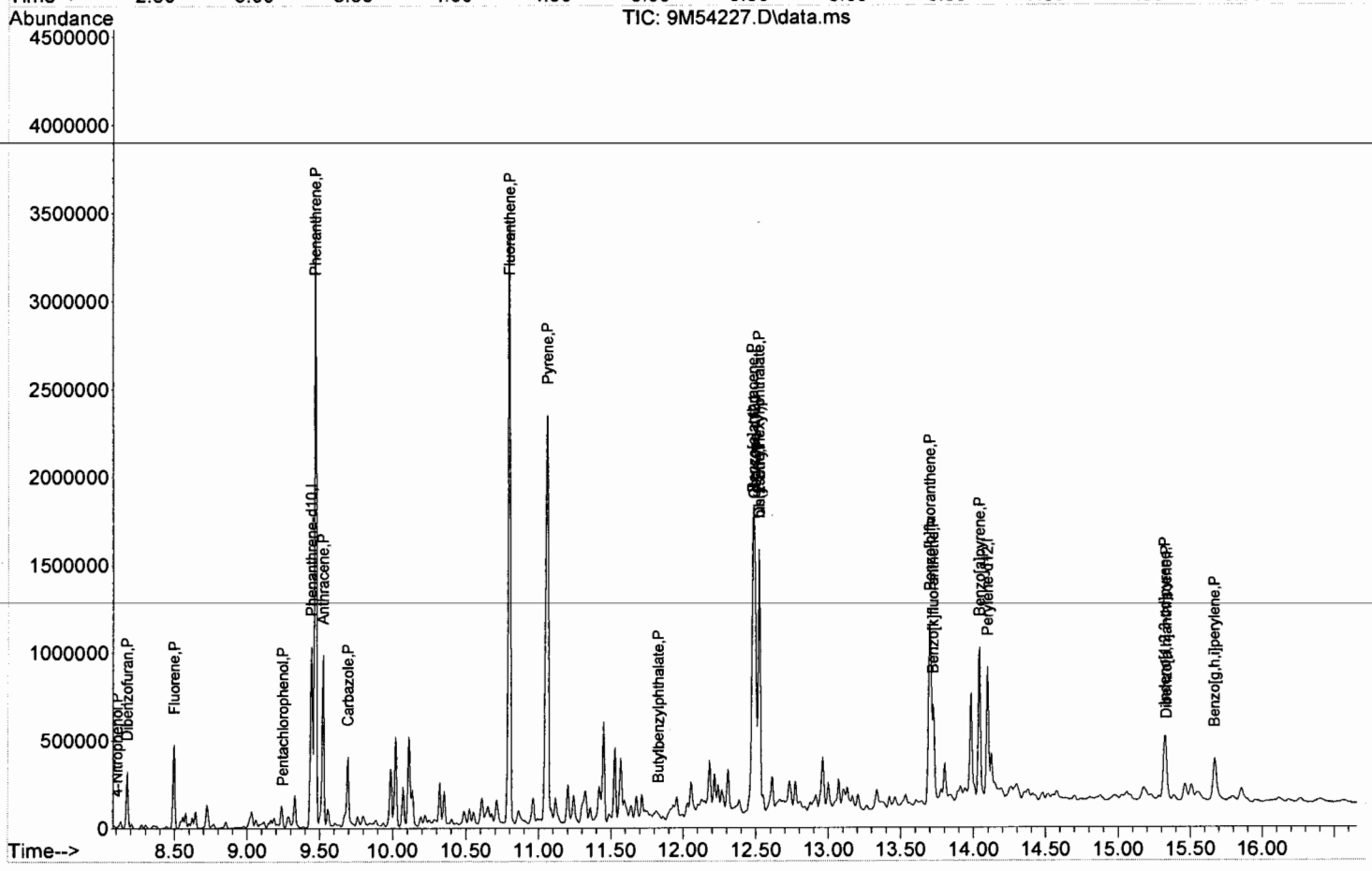
SampleID : AC75938-015(40X)(MS Operator : AHD/JB Qt Meth : 9M_1105.M
Data File: 9M54227.D Sam Mult : 1 Vial# : 17 Qt On : 12/09/13 12:41
Acq On : 12/ 6/13 16:30 Misc : S,BNA:80 Qt Upd On: 12/04/13 14:15

Data Path : G:\GcMsData\2013\GCMS_9\Data\12-06-13\
Qt Path : G:\GCMSDATA\2013\GCMS_9\METHODQT\
Qt Resp Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
7) 1,4-Dichlorobenzene-d4	5.582	152	100341	40.00	ng	-0.14
29) Naphthalene-d8	6.598	136	396418	40.00	ng	-0.13
47) Acenaphthene-d10	7.994	164	243089	40.00	ng	-0.16
74) Phenanthrene-d10	9.443	188	431711	40.00	ng	-0.17
88) Chrysene-d12	12.492	240	421394	40.00	ng	-0.18
100) Perylene-d12	14.097	264	302463	40.00	ng	-0.18
System Monitoring Compounds						
10) 2-Fluorophenol	0.000	112	0	0.00	ng	
Spiked Amount 100.000			Recovery =	0.00%		
15) Phenol-d5	0.000	99	0d	0.00	ng	
Spiked Amount 100.000			Recovery =	0.00%		
30) Nitrobenzene-d5	0.000	128	0d	0.00	ng	
Spiked Amount 50.000			Recovery =	0.00%		
52) 2-Fluorobiphenyl	0.000	172	0d	0.00	ng	
Spiked Amount 50.000			Recovery =	0.00%		
77) 2,4,6-Tribromophenol	0.000	330	0d	0.00	ng	
Spiked Amount 100.000			Recovery =	0.00%		
91) Terphenyl-d14	0.000	244	0d	0.00	ng	
Spiked Amount 50.000			Recovery =	0.00%		
Target Compounds						Qvalue
16) Phenol	5.293	94	3210	0.7803	ng	95
17) 2-Chlorophenol	5.405	128	2446	0.6475	ng	71
20) 1,4-Dichlorobenzene	5.598	146	1501	0.3475	ng	91
24) 2-Methylphenol	5.801	108	2569m	0.8030	ng	
27) N-Nitroso-di-n-propyla...	5.919	70	773	0.2944	ng	67
28) 3&4-Methylphenol	5.929	108	1240m	0.3664	ng	
34) 2,4-Dimethylphenol	6.341	107	3407	0.8985	ng	92
38) 1,2,4-Trichlorobenzene	6.555	180	1352	0.3403	ng	85
39) Naphthalene	6.614	128	95486	8.0805	ng	98
43) 4-Chloro-3-methylphenol	7.020	107	2244	0.7001	ng	93
44) 2-Methylnaphthalene	7.138	142	49711	5.6970	ng	99
46) 1,1'-Biphenyl	7.502	154	14146	1.2750	ng	87
59) Acenaphthylene	7.876	152	6934	0.5653	ng	92
62) Acenaphthene	8.026	153	137484	16.8196	ng	95
65) Dibenzofuran	8.176	168	107791	10.8790	ng	90
67) 4-Nitrophenol	8.106	65	1285	0.9508	ng	57
69) Fluorene	8.497	166	129774	13.1623	ng	99
82) Pentachlorophenol	9.245	266	821	0.7434	ng	90
83) Phenanthrene	9.470	178	1318282	103.1162	ng	99
84) Anthracene	9.524	178	385473	29.9851	ng	100
85) Carbazole	9.695	167	154322	12.7593	ng	97
87) Fluoranthene	10.802	202	1564554	99.2834	ng	79
89) Pyrene	11.064	202	1175888	98.5004	ng	75
94) Butylbenzylphthalate	11.829	149	2517	0.4872	ng	63
97) Benzo[a]anthracene	12.481	228	687869	59.5574	ng	98
98) Chrysene	12.524	228	573187	54.2766	ng	98
99) bis(2-Ethylhexyl)phtha...	12.524	149	53864	7.5944	ng	93
102) Benzo[b]fluoranthene	13.701	252	560277m	56.7001	ng	
103) Benzo[k]fluoranthene	13.722	252	179958m	17.3036	ng	
104) Benzo[a]pyrene	14.043	252	370924	42.0017	ng	87
105) Indeno[1,2,3-cd]pyrene	15.321	276	210178	25.6197	ng	69
106) Dibenzo[a,h]anthracene	15.332	278	71564m	11.1689	ng	
107) Benzo[g,h,i]perylene	15.669	276	162638	21.7676	ng	69

(#) = qualifier out of range (m) = manual integration (+) = signals summed


TIC: 9M54227.D\data.ms
Quant QT Reviewed
SampleID : AC75938-015(40X)(MS
Data File: 9M54227.D
Acq On : 12/ 6/13 16:30
Operator : AHD/JB
Sam Mult : 1 Vial# : 17
Misc : S,BNA:80
Qt Meth : 9M_1105.M
Qt On : 12/09/13 12:41
Qt Upd On: 12/04/13 14:15
Abundance
Time-->


TIC: 9M54227.D\data.ms
Abundance
Time-->

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AC75938-016(40X)(MS
Client Id: A3-9 (1.5-2.0) MSD
Data File: 9M54228.D
Analysis Date: 12/06/13 16:53
Date Rec/Extracted: 11/27/13-12/05/13
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270D
Matrix: Soil
Initial Vol: 30g
Final Vol: 1ml
Dilution: 40
Solids: 80

Units: mg/Kg

Cas #	Compound	MDL	RL	Conc	Cas #	Compound	MDL	RL	Conc
50-32-8	Benzo[a]pyrene	0.36	3.3	57					

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used.

Quantitation Report (QT Reviewed)

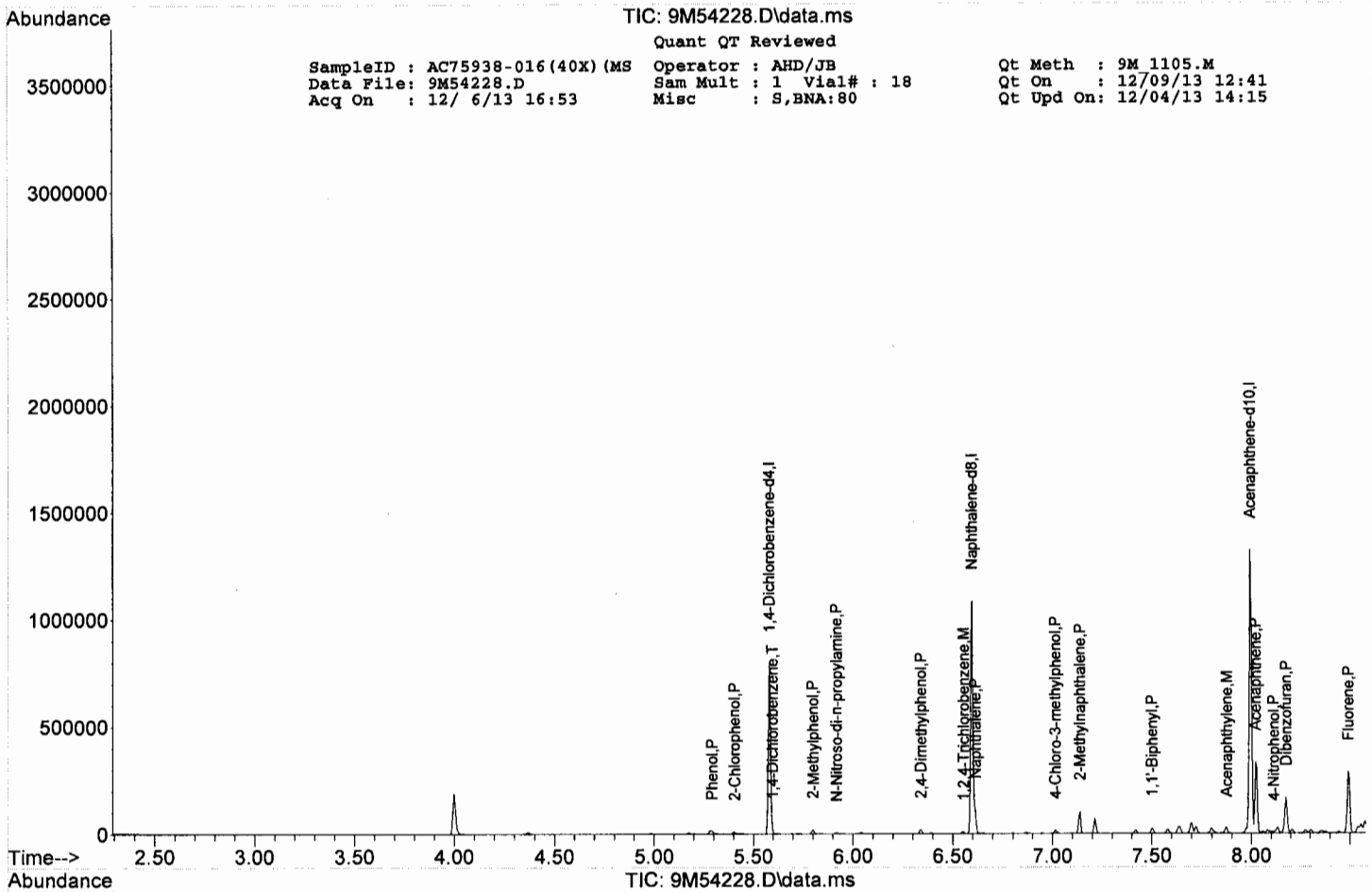
3112730 0060

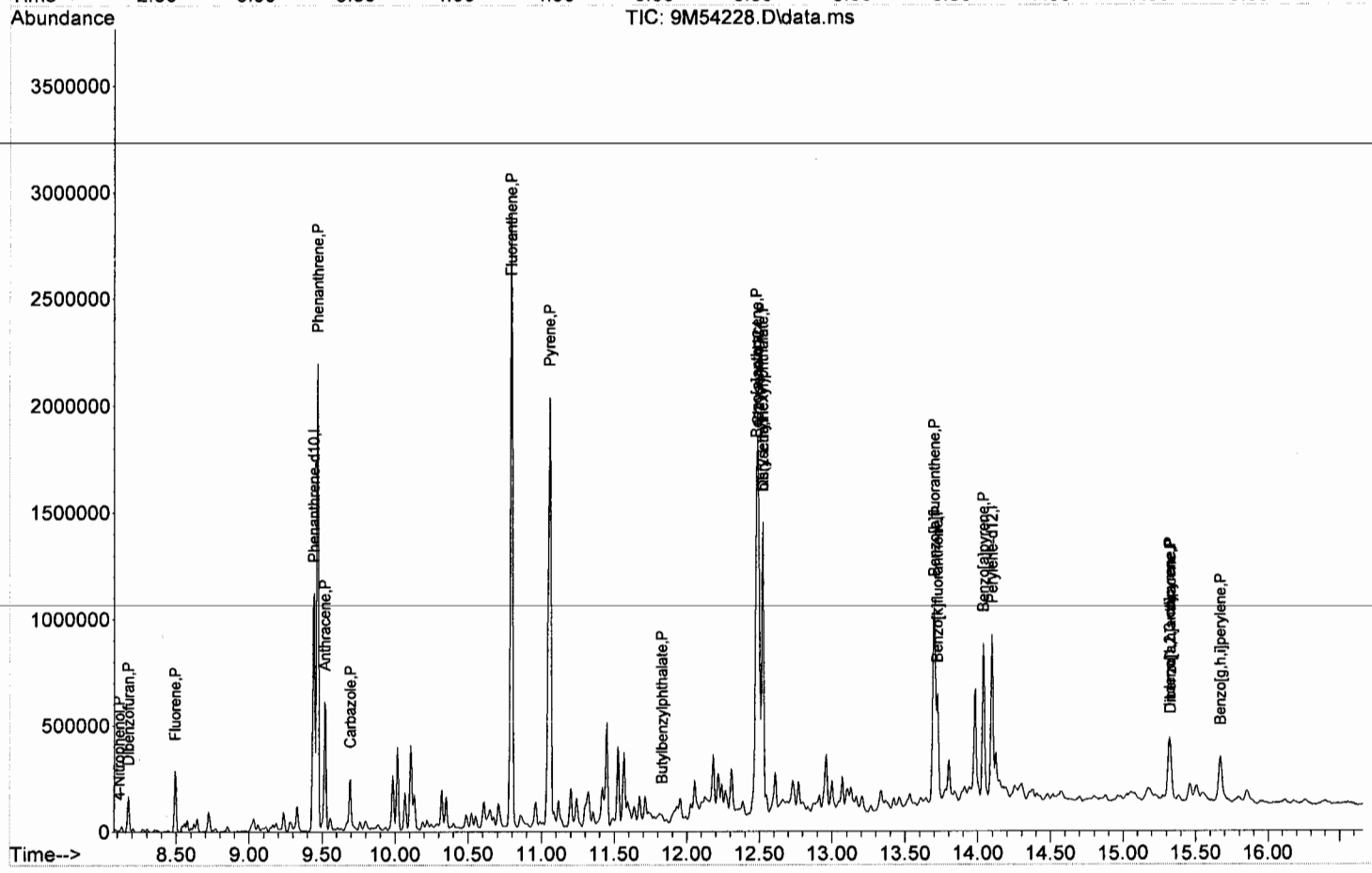
SampleID : AC75938-016(40X)(MS Operator : AHD/JB Qt Meth : 9M_1105.M
Data File: 9M54228.D Sam Mult : 1 Vial# : 18 Qt On : 12/09/13 12:41
Acq On : 12/ 6/13 16:53 Misc : S,BNA:80 Qt Upd On: 12/04/13 14:15

Data Path : G:\GcMsData\2013\GCMS_9\Data\12-06-13\
Qt Path : G:\GCMSDATA\2013\GCMS_9\METHODQT\
Qt Resp Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
7) 1,4-Dichlorobenzene-d4	5.582	152	97887	40.00	ng	-0.14
29) Naphthalene-d8	6.598	136	397319	40.00	ng	-0.13
47) Acenaphthene-d10	7.994	164	251431	40.00	ng	-0.16
74) Phenanthrene-d10	9.443	188	465553	40.00	ng	-0.17
88) Chrysene-d12	12.492	240	500057	40.00	ng	-0.18
100) Perylene-d12	14.097	264	322859	40.00	ng	-0.18
System Monitoring Compounds						
10) 2-Fluorophenol	0.000	112	0	0.00	ng	
Spiked Amount 100.000			Recovery =	0.00%		
15) Phenol-d5	0.000	99	0d	0.00	ng	
Spiked Amount 100.000			Recovery =	0.00%		
30) Nitrobenzene-d5	0.000	128	0d	0.00	ng	
Spiked Amount 50.000			Recovery =	0.00%		
52) 2-Fluorobiphenyl	0.000	172	0d	0.00	ng	
Spiked Amount 50.000			Recovery =	0.00%		
77) 2,4,6-Tribromophenol	0.000	330	0d	0.00	ng	
Spiked Amount 100.000			Recovery =	0.00%		
91) Terphenyl-d14	0.000	244	0d	0.00	ng	
Spiked Amount 50.000			Recovery =	0.00%		
Target Compounds						Qvalue
16) Phenol	5.293	94	3063	0.7633	ng	88
17) 2-Chlorophenol	5.405	128	2993	0.8121	ng	62
20) 1,4-Dichlorobenzene	5.598	146	1501	0.3562	ng	92
24) 2-Methylphenol	5.801	108	2671	0.8559	ng	97
27) N-Nitroso-di-n-propyla...	5.919	70	892	0.3482	ng	80
34) 2,4-Dimethylphenol	6.341	107	3236	0.8515	ng	88
38) 1,2,4-Trichlorobenzene	6.555	180	1485	0.3729	ng	90
39) Naphthalene	6.614	128	41205	3.4791	ng	99
43) 4-Chloro-3-methylphenol	7.015	107	2870	0.8931	ng	86
44) 2-Methylnaphthalene	7.138	142	22031	2.5191	ng	97
46) 1,1'-Biphenyl	7.502	154	6352	0.5712	ng	88
59) Acenaphthylene	7.876	152	7896	0.6224	ng	93
62) Acenaphthene	8.021	153	79175	9.3648	ng	95
65) Dibenzofuran	8.176	168	54686	5.3994	ng	90
67) 4-Nitrophenol	8.112	65	1162	0.8315	ng	98
69) Fluorene	8.491	166	75356	7.3894	ng	98
83) Phenanthrene	9.470	178	848415	61.5391	ng	99
84) Anthracene	9.518	178	257358	18.5641	ng	99
85) Carbazole	9.695	167	95875	7.3507	ng	97
87) Fluoranthene	10.797	202	1264623	74.4169	ng	81
89) Pyrene	11.059	202	980542	69.2161	ng	78
94) Butylbenzylphthalate	11.829	149	3411	0.5564	ng	65
97) Benzo[a]anthracene	12.481	228	633565	46.2264	ng	99
98) Chrysene	12.524	228	515788	41.1582	ng	98
99) bis(2-Ethylhexyl)phtha...	12.524	149	52681	6.2692	ng	98
102) Benzo[b]fluoranthene	13.701	252	505968m	48.6481	ng	
103) Benzo[k]fluoranthene	13.722	252	146324m	13.1808	ng	
104) Benzo[a]pyrene	14.038	252	315488	33.9883	ng	88
105) Indeno[1,2,3-cd]pyrene	15.322	276	174098	20.1716	ng	66
106) Dibenzo[a,h]anthracene	15.327	278	56901m	8.3895	ng	
107) Benzo[g,h,i]perylene	15.669	276	144395m	18.1051	ng	

(#) = qualifier out of range (m) = manual integration (+) = signals summed


Abundance
TIC: 9M54228.D\data.ms
Quant QT Reviewed
SampleID : AC75938-016(40X)(MS
Data File: 9M54228.D
Acq On : 12/ 6/13 16:53
Operator : AHD/JB
Sam Mult : 1 Vial# : 18
Misc : S,BNA:80
Qt Meth : 9M_1105.M
Qt On : 12/09/13 12:41
Qt Upd On: 12/04/13 14:15
Phenol,P
2-Chlorophenol,P
1,4-Dichlorobenzene,T
1,4-Dichlorobenzene-d4,I
2-Methylphenol,P
N-Nitroso-di-n-propylamine,P
2,4-Dimethylphenol,P
1,2,4-Trichlorobenzene,M
Naphthalene,P
Naphthalene-d8,I
4-Chloro-3-methylphenol,P
2-Methylnaphthalene,P
1,1'-Biphenyl,P
Acenaphthylene,M
Acenaphthene,P
Acenaphthene-d10,I
4-Nitrophenol,P
Dibenzofuran,P
Fluorene,P
Time-->


Abundance
TIC: 9M54228.D\data.ms
4-Nitrophenol,P
Dibenzofuran,P
Fluorene,P
Phenanthrene,P
Phenanthrene-d10,I
Anthracene,P
Carbazole,P
Fluoranthene,P
Pyrene,P
Butylbenzylphthalate,P
Benzo[a]anthracene,P
Chrysene,P
Benzo[b]fluoranthene,P
Benzo[k]fluoranthene,P
Benzo[a]pyrene,P
Perylene-d12,I
Indeno[1,2,3-cd]pyrene,P
Dibenz[a,h]anthracene,P
Benzo[g,h,i]perylene,P
Time-->

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AC75938-017
Client Id: A3-10 (1.5-2.0)
Data File: 7M61320.D
Analysis Date: 12/05/13 21:34
Date Rec/Extracted: 11/27/13-12/05/13
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270D
Matrix: Soil
Initial Vol: 30g
Final Vol: 0.5ml
Dilution: 1
Solids: 82

Units: mg/Kg

Cas #	Compound	MDL	RL	Conc	Cas #	Compound	MDL	RL	Conc
50-32-8	**Benzo[a]pyrene**	**0.0044**	**0.041**	**0.048**					

Worksheet #: 286673

Total Target Concentration 0.048

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used.

Quantitation Report (QT Reviewed)

3112730 0063

SampleID : AC75938-017 Operator : AHD/JB Qt Meth : 7M_1205.M
Data File: 7M61320.D Sam Mult : 1 Vial# : 19 Qt On : 12/06/13 08:51
Acq On : 12/ 5/13 21:34 Misc : S,BNA Qt Upd On: 12/05/13 14:00

Data Path : G:\GcMsData\2013\GCMS_7\Data\12-0513\
Qt Path : G:\GCMSDATA\2013\GCMS_7\METHODQT\
Qt Resp Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
7) 1,4-Dichlorobenzene-d4	5.897	152	130433	40.00	ng	0.00
29) Naphthalene-d8	6.907	136	508215	40.00	ng	0.00
47) Acenaphthene-d10	8.349	164	271888	40.00	ng	-0.02
74) Phenanthrene-d10	9.834	188	461413	40.00	ng	-0.01
88) Chrysene-d12	12.917	240	467909	40.00	ng	0.00
100) Perylene-d12	14.568	264	394342	40.00	ng	-0.02
System Monitoring Compounds						
10) 2-Fluorophenol	4.711	112	365893	87.32	ng	0.01
Spiked Amount 100.000			Recovery = 87.32%			
15) Phenol-d5	5.577	99	543989	92.10	ng	0.00
Spiked Amount 100.000			Recovery = 92.10%			
30) Nitrobenzene-d5	6.346	128	95510	42.49	ng	0.00
Spiked Amount 50.000			Recovery = 84.98%			
52) 2-Fluorobiphenyl	7.751	172	468525	47.43	ng	-0.01
Spiked Amount 50.000			Recovery = 94.86%			
77) 2,4,6-Tribromophenol	9.102	330	150240	99.00	ng	-0.01
Spiked Amount 100.000			Recovery = 99.00%			
91) Terphenyl-d14	11.656	244	481035	54.26	ng	0.00
Spiked Amount 50.000			Recovery = 108.52%			
Target Compounds						Qvalue
104) Benzo[a]pyrene	14.498	252	26697	2.3463	ng	93

(#) = qualifier out of range (m) = manual integration (+) = signals summed

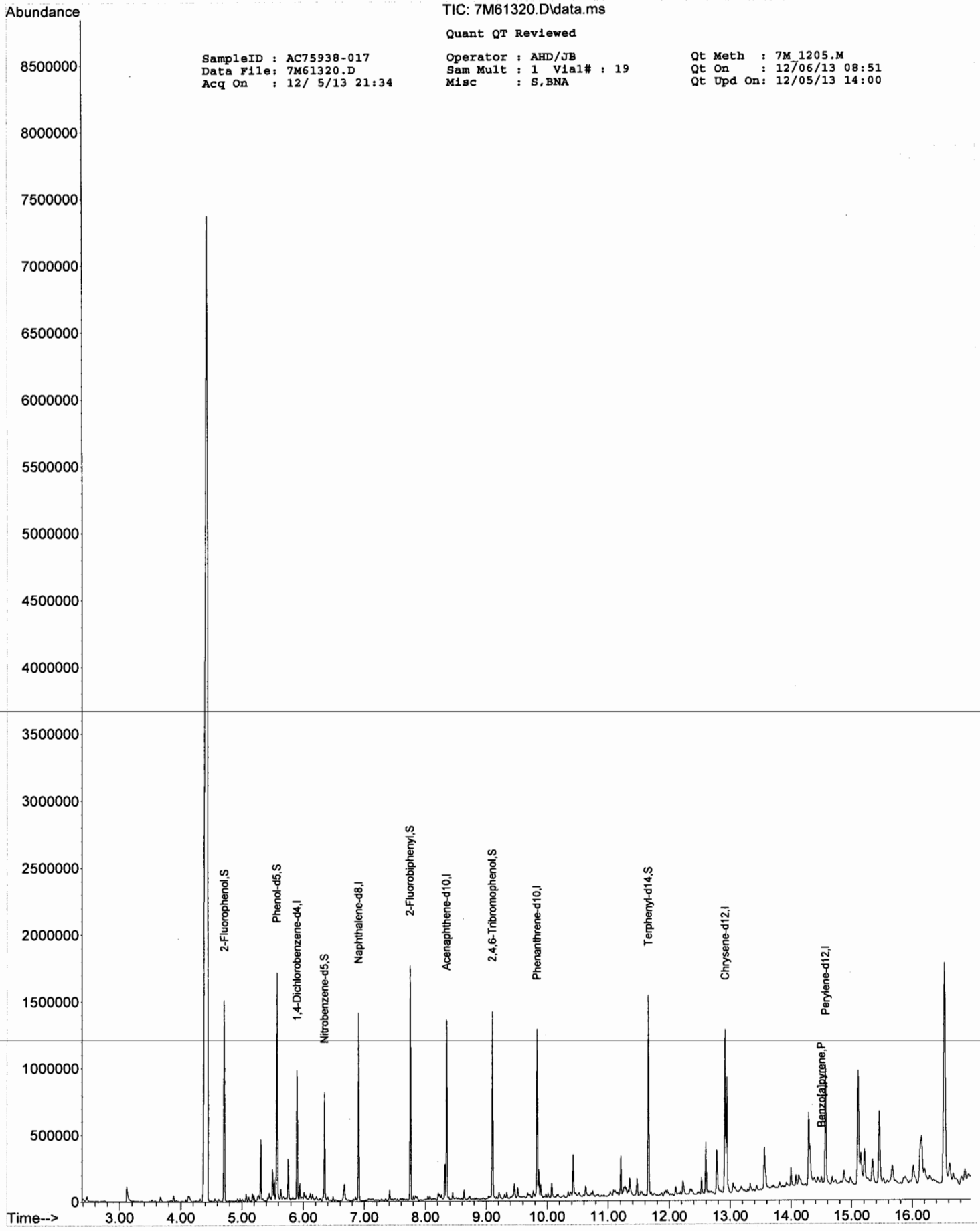
TIC: 7M61320.D\data.ms

Quant QT Reviewed

SampleID : AC75938-017
Data File: 7M61320.D
Acq On : 12/ 5/13 21:34

Operator : AHD/JB
Sam Mult : 1 Vial# : 19
Misc : S,BNA

Qt Meth : 7M_1205.M
Qt On : 12/06/13 08:51
Qt Upd On: 12/05/13 14:00



Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AC75938-017
Client Id: A3-10 (1.5-2.0)
Data File: 12M17609.D
Analysis Date: 12/09/13 11:29
Date Rec/Extracted: 11/27/13-12/05/13
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA8270D SIM
Matrix: Soil
Initial Vol: 30g
Final Vol: 0.5ml
Dilution: 1
Solids: 82

Units: mg/Kg

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
50-32-8	**Benzo[a]pyrene**	**0.00041**	**0.049**				

Worksheet #: 286671

Total Target Concentration 0.049

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used

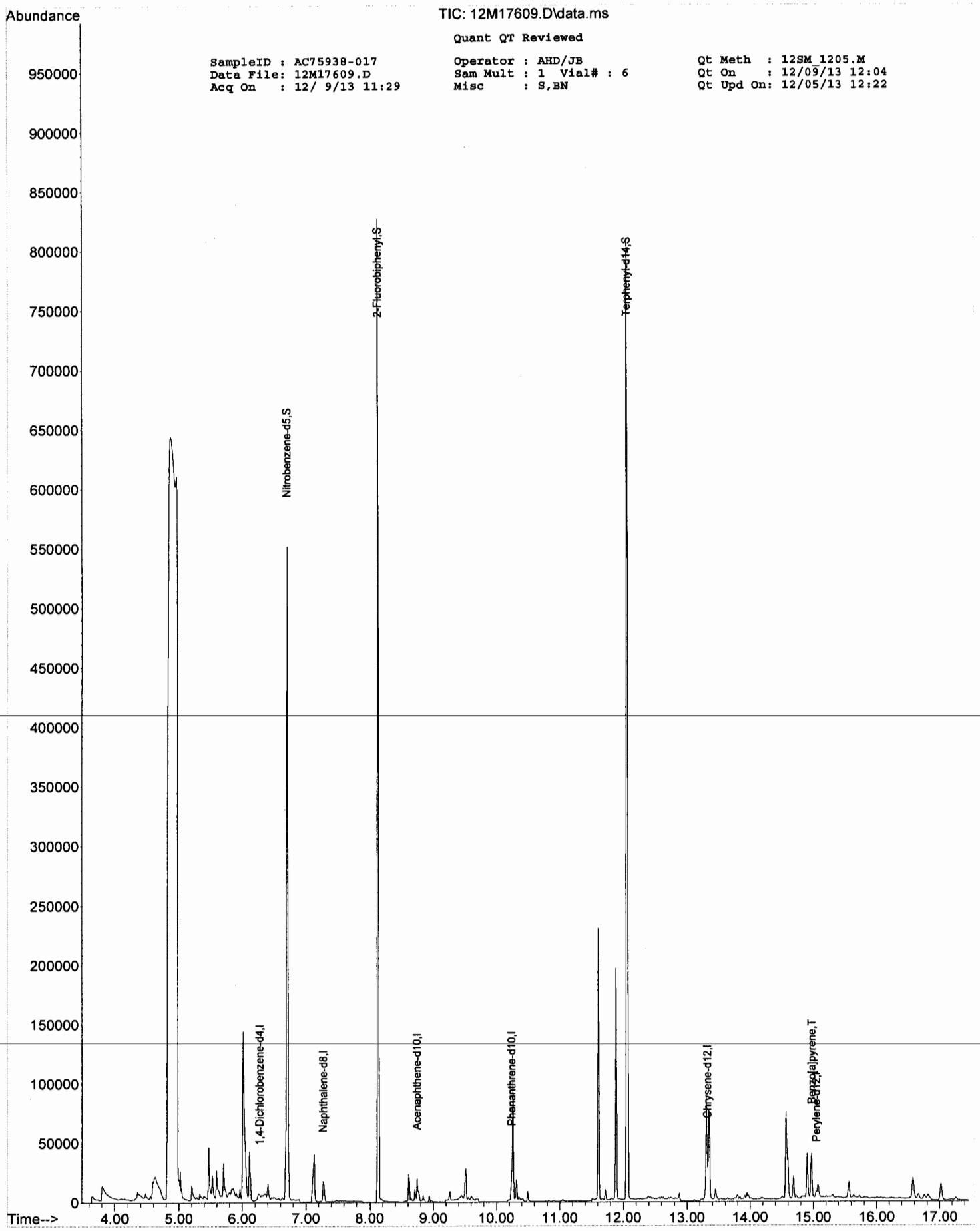
Quantitation Report (QT Reviewed)

SampleID : AC75938-017 Operator : AHD/JB Qt Meth : 12SM_1205.M
Data File: 12M17609.D Sam Mult : 1 Vial# : 6 Qt On : 12/09/13 12:04
Acq On : 12/ 9/13 11:29 Misc : S,BN Qt Upd On: 12/05/13 12:22

Data Path : G:\GcMsData\2013\GCMS_12SM\Data\12-09-13\
Qt Path : G:\GCMSDATA\2013\GCMS_12SM\METHODQT\
Qt Resp Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	6.271	152	4486	0.40	ng	0.02
7) Naphthalene-d8	7.271	136	15202	0.40	ng	0.00
11) Acenaphthene-d10	8.740	164	8494	0.40	ng	-0.01
21) Phenanthrene-d10	10.239	188	16134	0.40	ng	-0.01
28) Chrysene-d12	13.323	240	10188	0.40	ng	0.00
33) Perylene-d12	15.046	264	4881	0.40	ng	0.00
System Monitoring Compounds						
8) Nitrobenzene-d5	6.705	82	390991	56.16	ng	0.02
Spiked Amount 50.000			Recovery = 112.32%			
14) 2-Fluorobiphenyl	8.130	172	669960	38.51	ng	0.00
Spiked Amount 50.000			Recovery = 77.02%			
30) Terphenyl-d14	12.065	244	911021	52.22	ng	0.00
Spiked Amount 50.000			Recovery = 104.44%			
Target Compounds						Qvalue
36) Benzo[a]pyrene	14.974	252	40358	2.3913	ng	87

(#) = qualifier out of range (m) = manual integration (+) = signals summed


Abundance
TIC: 12M17609.D\data.ms
Quant QT Reviewed
SampleID : AC75938-017
Data File: 12M17609.D
Acq On : 12/ 9/13 11:29
Operator : AHD/JB
Sam Mult : 1 Vial# : 6
Misc : S,BN
Qt Meth : 12SM_1205.M
Qt On : 12/09/13 12:04
Qt Upd On: 12/05/13 12:22
950000
900000
850000
800000
750000
700000
650000
600000
550000
500000
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
Nitrobenzene-d5,S
2-Fluorobiphenyl,S
Terphenyl-d14,S
1,4-Dichlorobenzene-d4,I
Naphthalene-d8,I
Acenaphthene-d10,I
Phenanthrene-d10,I
Chrysene-d12,I
Perylene-d12,I
Time-->
4.00
5.00
6.00
7.00
8.00
9.00
10.00
11.00
12.00
13.00
14.00
15.00
16.00
17.00

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AC75938-020
Client Id: A3-13 (1.5-2.0)
Data File: 7M61321.D
Analysis Date: 12/05/13 21:58
Date Rec/Extracted: 11/27/13-12/05/13
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270D
Matrix: Soil
Initial Vol: 30g
Final Vol: 0.5ml
Dilution: 1
Solids: 88

Units: mg/Kg

Cas #	Compound	MDL	RL	Conc	Cas #	Compound	MDL	RL	Conc
50-32-8	Benzo[a]pyrene	0.0041	0.038	0.14					

Worksheet #: 286673

Total Target Concentration 0.14

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used.

Quantitation Report (QT Reviewed)

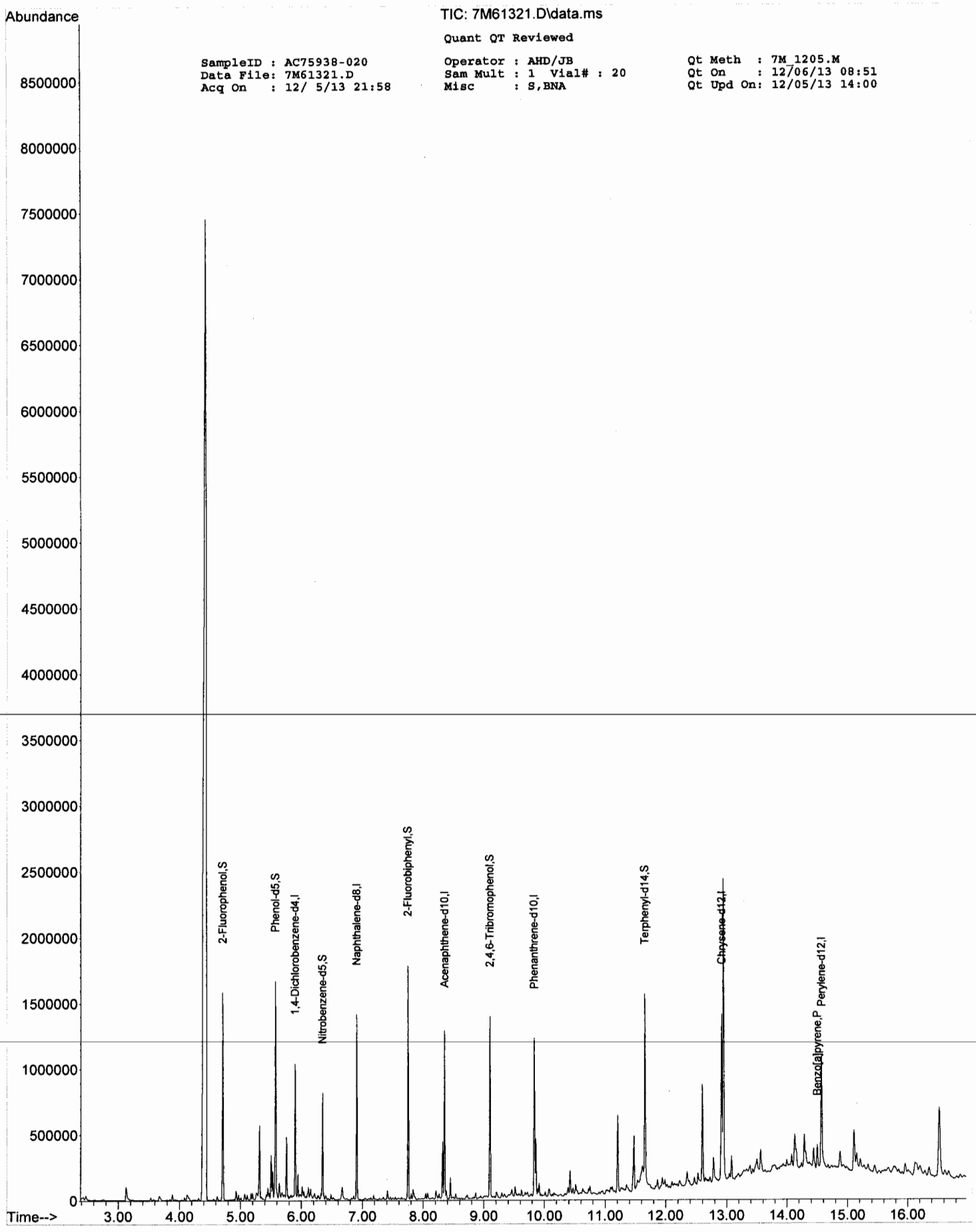
3112730 0069

SampleID : AC75938-020 Operator : AHD/JB Qt Meth : 7M_1205.M
Data File: 7M61321.D Sam Mult : 1 Vial# : 20 Qt On : 12/06/13 08:51
Acq On : 12/ 5/13 21:58 Misc : S,BNA Qt Upd On: 12/05/13 14:00

Data Path : G:\GcMsData\2013\GCMS_7\Data\12-0513\
Qt Path : G:\GCMSDATA\2013\GCMS_7\METHODQT\
Qt Resp Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
7) 1,4-Dichlorobenzene-d4	5.897	152	134743	40.00	ng	0.00
29) Naphthalene-d8	6.907	136	512676	40.00	ng	0.00
47) Acenaphthene-d10	8.354	164	273051	40.00	ng	-0.01
74) Phenanthrene-d10	9.834	188	447712	40.00	ng	-0.01
88) Chrysene-d12	12.917	240	440504	40.00	ng	0.00
100) Perylene-d12	14.567	264	384892	40.00	ng	-0.02
System Monitoring Compounds						
10) 2-Fluorophenol	4.711	112	368426	85.11	ng	0.01
Spiked Amount 100.000			Recovery = 85.11%			
15) Phenol-d5	5.576	99	541416	88.74	ng	0.00
Spiked Amount 100.000			Recovery = 88.74%			
30) Nitrobenzene-d5	6.346	128	93811	41.37	ng	0.00
Spiked Amount 50.000			Recovery = 82.74%			
52) 2-Fluorobiphenyl	7.751	172	468293	47.20	ng	-0.01
Spiked Amount 50.000			Recovery = 94.40%			
77) 2,4,6-Tribromophenol	9.102	330	149821	101.40	ng	-0.01
Spiked Amount 100.000			Recovery = 101.40%			
91) Terphenyl-d14	11.656	244	454377	54.44	ng	0.00
Spiked Amount 50.000			Recovery = 108.88%			
Target Compounds						Qvalue
104) Benzo[a]pyrene	14.498	252	84646	7.6217	ng	90

(#) = qualifier out of range (m) = manual integration (+) = signals summed


Abundance
TIC: 7M61321.D\data.ms
Quant QT Reviewed
SampleID : AC75938-020
Data File: 7M61321.D
Acq On : 12/ 5/13 21:58
Operator : AHD/JB
Sam Mult : 1 Vial# : 20
Misc : S,BNA
Qt Meth : 7M_1205.M
Qt On : 12/06/13 08:51
Qt Upd On: 12/05/13 14:00
8500000
8000000
7500000
7000000
6500000
6000000
5500000
5000000
4500000
4000000
3500000
3000000
2500000
2000000
1500000
1000000
500000
0
2-Fluorophenol,S
Phenol-d5,S
1,4-Dichlorobenzene-d4,I
Nitrobenzene-d5,S
Naphthalene-d8,I
2-Fluorobiphenyl,S
Acenaphthene-d10,I
2,4,6-Tribromophenol,S
Phenanthrene-d10,I
Terphenyl-d14,S
Chrysene-d12,I
Benzo[a]pyrene,P
Perylene-d12,I
Time-->
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
11.00
12.00
13.00
14.00
15.00
16.00

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AC75938-020
Client Id: A3-13 (1.5-2.0)
Data File: 12M17608.D
Analysis Date: 12/09/13 11:07
Date Rec/Extracted: 11/27/13-12/05/13
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA8270D SIM
Matrix: Soil
Initial Vol: 30g
Final Vol: 0.5ml
Dilution: 1
Solids: 88

Units: mg/Kg

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
50-32-8	**Benzo[a]pyrene**	**0.00038**	**0.12**				

Worksheet #: 286671

Total Target Concentration 0.12

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used

Quantitation Report (QT Reviewed)

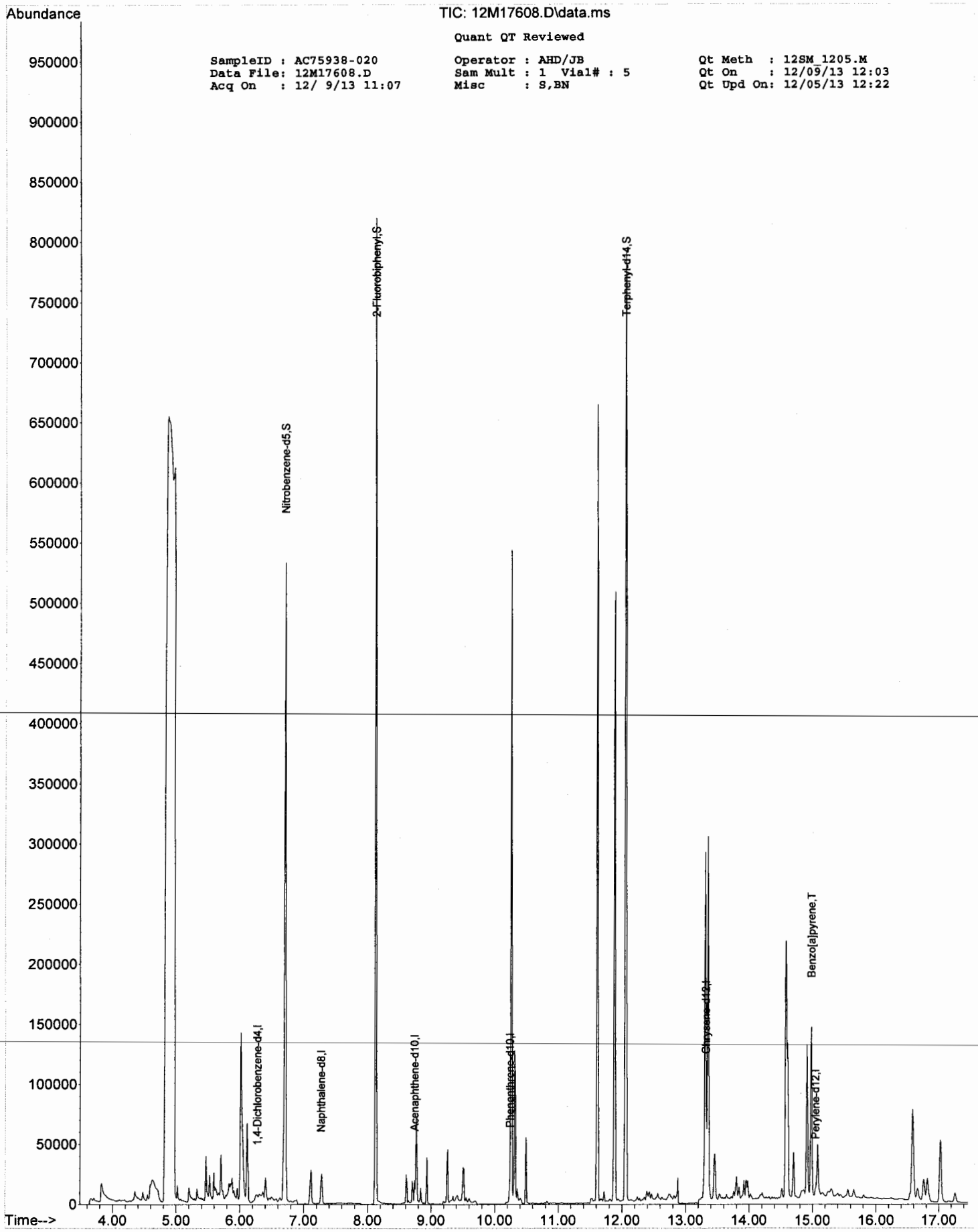
3112730 0072

SampleID : AC75938-020 Operator : AHD/JB Qt Meth : 12SM_1205.M
Data File: 12M17608.D Sam Mult : 1 Vial# : 5 Qt On : 12/09/13 12:03
Acq On : 12/ 9/13 11:07 Misc : S,BN Qt Upd On: 12/05/13 12:22

Data Path : G:\GcMsData\2013\GCMS_12SM\Data\12-09-13\
Qt Path : G:\GCMSDATA\2013\GCMS_12SM\METHODQT\
Qt Resp Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	6.272	152	4665	0.40	ng	0.02
7) Naphthalene-d8	7.271	136	15077	0.40	ng	0.00
11) Acenaphthene-d10	8.740	164	8814	0.40	ng	-0.01
21) Phenanthrene-d10	10.240	188	15847	0.40	ng	-0.01
28) Chrysene-d12	13.324	240	8860	0.40	ng	0.00
33) Perylene-d12	15.047	264	7076	0.40	ng	0.00
System Monitoring Compounds						
8) Nitrobenzene-d5	6.705	82	364524	52.84	ng	0.02
Spiked Amount 50.000			Recovery = 105.68%			
14) 2-Fluorobiphenyl	8.130	172	671658	36.85	ng	0.00
Spiked Amount 50.000			Recovery = 73.70%			
30) Terphenyl-d14	12.065	244	892877	60.51	ng	0.00
Spiked Amount 50.000			Recovery = 121.02%			
Target Compounds						Qvalue
36) Benzo[a]pyrene	14.984	252	155304	6.2923	ng	87

(#) = qualifier out of range (m) = manual integration (+) = signals summed


Abundance
TIC: 12M17608.D\data.ms
Quant QT Reviewed
SampleID : AC75938-020
Data File: 12M17608.D
Acq On : 12/ 9/13 11:07
Operator : AHD/JB
Sam Mult : 1 Vial# : 5
Misc : S,BN
Qt Meth : 12SM_1205.M
Qt On : 12/09/13 12:03
Qt Upd On: 12/05/13 12:22
950000
900000
850000
800000
750000
700000
650000
600000
550000
500000
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
Time-->
4.00
5.00
6.00
7.00
8.00
9.00
10.00
11.00
12.00
13.00
14.00
15.00
16.00
17.00
1,4-Dichlorobenzene-d4,I
Nitrobenzene-d5,S
Naphthalene-d8,I
2-Fluorobiphenyl,S
Acenaphthene-d10,I
Phenanthrene-d10,I
Terphenyl-d14,S
Chrysene-d12,I
Benzo[a]pyrene,T
Perylene-d12,I

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AC75938-023
Client Id: IA-22 (5.5-6.0)
Data File: 7M61322.D
Analysis Date: 12/05/13 22:22
Date Rec/Extracted: 11/27/13-12/05/13
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270D
Matrix: Soil
Initial Vol: 30g
Final Vol: 0.5ml
Dilution: 1
Solids: 84

Units: mg/Kg

Cas #	Compound	MDL	RL	Conc	Cas #	Compound	MDL	RL	Conc
50-32-8	Benzo[a]pyrene	0.0043	0.040	0.0068 J					

Worksheet #: 286673

Total Target Concentration 0.0068

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used.

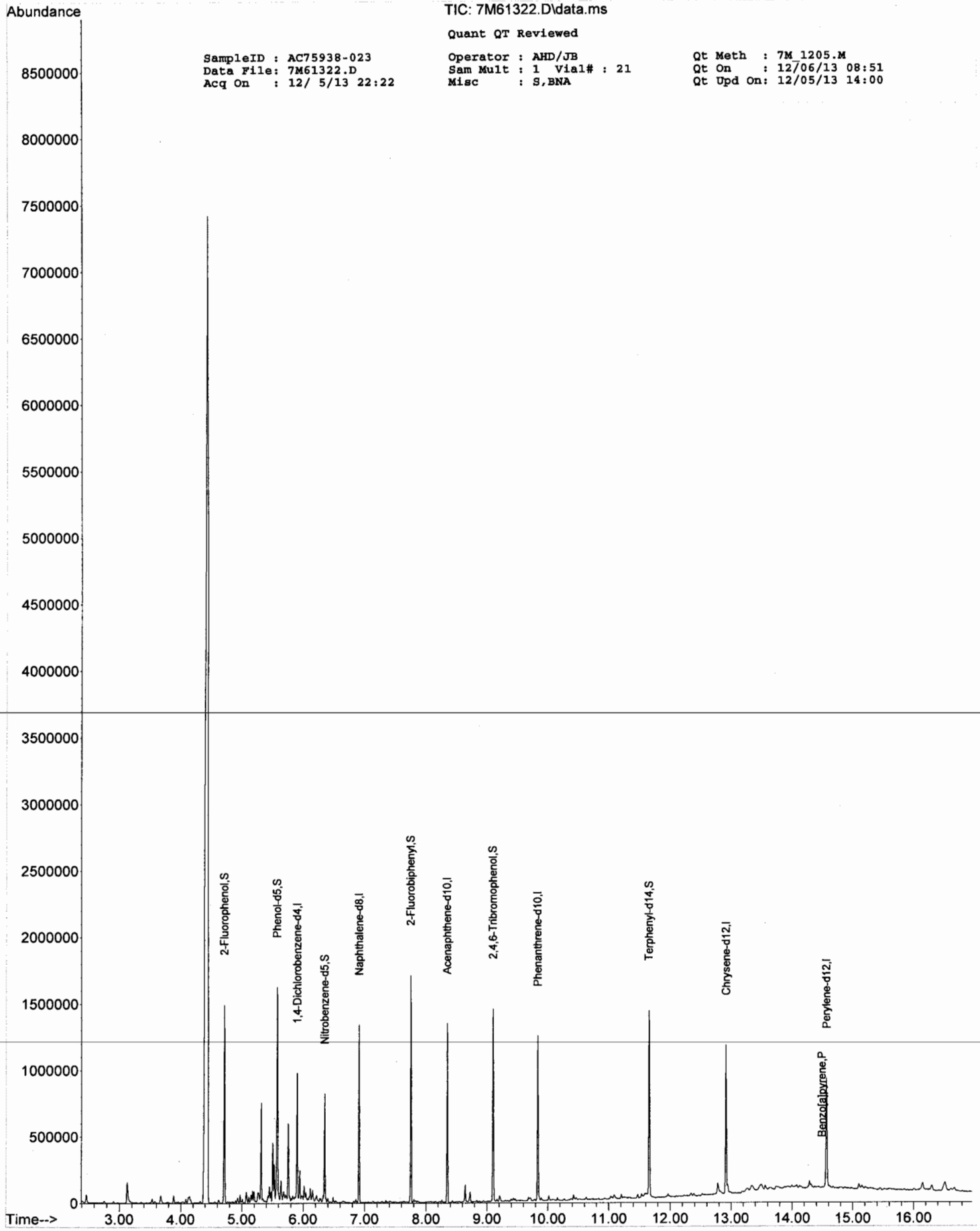
Quantitation Report (QT Reviewed)

SampleID : AC75938-023 Operator : AHD/JB Qt Meth : 7M_1205.M
Data File: 7M61322.D Sam Mult : 1 Vial# : 21 Qt On : 12/06/13 08:51
Acq On : 12/ 5/13 22:22 Misc : S,BNA Qt Upd On: 12/05/13 14:00

Data Path : G:\GcMsData\2013\GCMS_7\Data\12-0513\
Qt Path : G:\GCMSDATA\2013\GCMS_7\METHODQT\
Qt Resp Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
7) 1,4-Dichlorobenzene-d4	5.902	152	127963	40.00	ng	0.00
29) Naphthalene-d8	6.907	136	492204	40.00	ng	0.00
47) Acenaphthene-d10	8.349	164	273431	40.00	ng	-0.02
74) Phenanthrene-d10	9.834	188	458430	40.00	ng	-0.01
88) Chrysene-d12	12.917	240	432519	40.00	ng	0.00
100) Perylene-d12	14.568	264	369279	40.00	ng	-0.02
System Monitoring Compounds						
10) 2-Fluorophenol	4.711	112	371142	90.28	ng	0.01
Spiked Amount 100.000			Recovery = 90.28%			
15) Phenol-d5	5.577	99	543935	93.87	ng	0.00
Spiked Amount 100.000			Recovery = 93.87%			
30) Nitrobenzene-d5	6.346	128	95316	43.78	ng	0.00
Spiked Amount 50.000			Recovery = 87.56%			
52) 2-Fluorobiphenyl	7.751	172	455492	45.85	ng	-0.01
Spiked Amount 50.000			Recovery = 91.70%			
77) 2,4,6-Tribromophenol	9.102	330	159163	104.70	ng	-0.01
Spiked Amount 100.000			Recovery = 104.70%			
91) Terphenyl-d14	11.656	244	482867	58.92	ng	0.00
Spiked Amount 50.000			Recovery = 117.84%			
Target Compounds						Qvalue
104) Benzo[a]pyrene	14.493	252	3668	0.3442	ng	86

(#) = qualifier out of range (m) = manual integration (+) = signals summed


Abundance
TIC: 7M61322.D\data.ms
Quant QT Reviewed
SampleID : AC75938-023
Data File: 7M61322.D
Acq On : 12/ 5/13 22:22
Operator : AHD/JB
Sam Mult : 1 Vial# : 21
Misc : S,BNA
Qt Meth : 7M_1205.M
Qt On : 12/06/13 08:51
Qt Upd On: 12/05/13 14:00
8500000
8000000
7500000
7000000
6500000
6000000
5500000
5000000
4500000
4000000
3500000
3000000
2500000
2000000
1500000
1000000
500000
0
2-Fluorophenol,S
Phenol-d5,S
1,4-Dichlorobenzene-d4,I
Nitrobenzene-d5,S
Naphthalene-d8,I
2-Fluorobiphenyl,S
Acenaphthene-d10,I
2,4,6-Tribromophenol,S
Phenanthrene-d10,I
Terphenyl-d14,S
Chrysene-d12,I
Perylene-d12,I
Benzo(a)pyrene,P
Time-->
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
11.00
12.00
13.00
14.00
15.00
16.00

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AC75938-023
Client Id: IA-22 (5.5-6.0)
Data File: 12M17607.D
Analysis Date: 12/09/13 10:44
Date Rec/Extracted: 11/27/13-12/05/13
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA8270D SIM
Matrix: Soil
Initial Vol: 30g
Final Vol: 0.5ml
Dilution: 1
Solids: 84

Units: mg/Kg

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
50-32-8	**Benzo[a]pyrene**	**0.00040**	**0.0055**				

Worksheet #: 286671

Total Target Concentration 0.0055

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used

Quantitation Report (QT Reviewed)

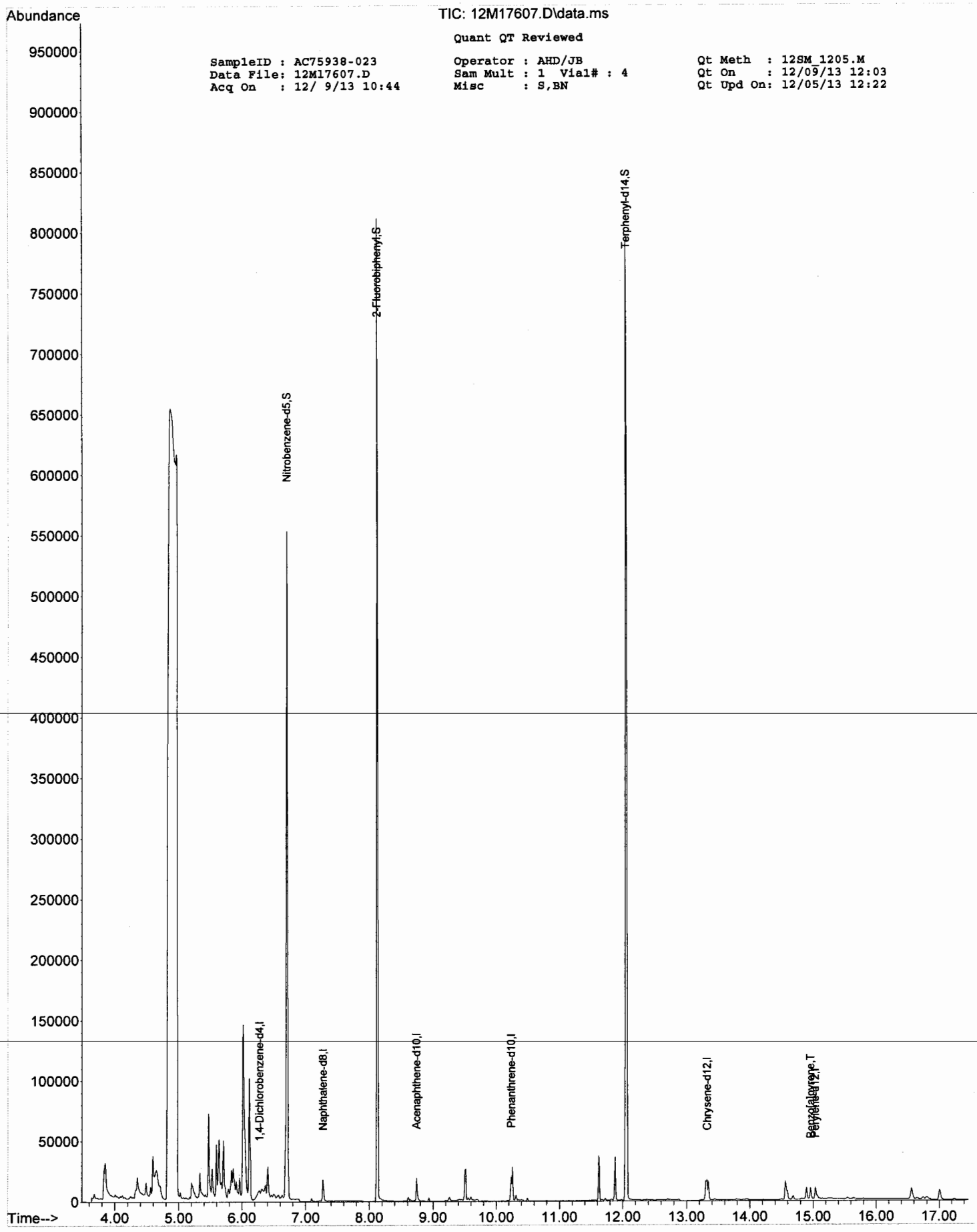
3112730 0078

SampleID : AC75938-023 Operator : AHD/JB Qt Meth : 12SM_1205.M
Data File: 12M17607.D Sam Mult : 1 Vial# : 4 Qt On : 12/09/13 12:03
Acq On : 12/ 9/13 10:44 Misc : S,BN Qt Upd On: 12/05/13 12:22

Data Path : G:\GcMsData\2013\GCMS_12SM\Data\12-09-13\
Qt Path : G:\GCMSDATA\2013\GCMS_12SM\METHODQT\
Qt Resp Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	6.271	152	6262	0.40	ng	0.02
7) Naphthalene-d8	7.271	136	16463	0.40	ng	0.00
11) Acenaphthene-d10	8.740	164	8810	0.40	ng	-0.01
21) Phenanthrene-d10	10.239	188	16256	0.40	ng	-0.01
28) Chrysene-d12	13.321	240	11413	0.40	ng	0.00
33) Perylene-d12	15.034	264	9490	0.40	ng	-0.01
System Monitoring Compounds						
8) Nitrobenzene-d5	6.704	82	390208	51.81	ng	0.02
Spiked Amount 50.000			Recovery = 103.62%			
14) 2-Fluorobiphenyl	8.130	172	653377	35.61	ng	0.00
Spiked Amount 50.000			Recovery = 71.22%			
30) Terphenyl-d14	12.065	244	948953	47.87	ng	0.00
Spiked Amount 50.000			Recovery = 95.74%			
Target Compounds						Qvalue
36) Benzo[a]pyrene	14.961	252	9136	0.2797	ng	93

(#) = qualifier out of range (m) = manual integration (+) = signals summed


Abundance
TIC: 12M17607.D\data.ms
Quant QT Reviewed
SampleID : AC75938-023
Data File: 12M17607.D
Acq On : 12/ 9/13 10:44
Operator : AHD/JB
Sam Mult : 1 Vial# : 4
Misc : S,BN
Qt Meth : 12SM_1205.M
Qt On : 12/09/13 12:03
Qt Upd On: 12/05/13 12:22
950000
900000
850000
800000
750000
700000
650000
600000
550000
500000
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
Nitrobenzene-d5,S
2-Fluorobiphenyl,S
Terphenyl-d14,S
1,4-Dichlorobenzene-d4,I
Naphthalene-d8,I
Acenaphthene-d10,I
Phenanthrene-d10,I
Chrysene-d12,I
Time-->
4.00
5.00
6.00
7.00
8.00
9.00
10.00
11.00
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13.00
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Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AC75938-027
Client Id: FB-112613
Data File: 5M83267.D
Analysis Date: 12/04/13 12:07
Date Rec/Extracted: 11/27/13-12/03/13
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270D
Matrix: Aqueous
Initial Vol: 980ml
Final Vol: 1ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	MDL	RL	Conc	Cas #	Compound	MDL	RL	Conc
50-32-8	Benzo[a]pyrene	0.23	2.0	U					

Worksheet #: 286673

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used.

Quantitation Report (QT Reviewed)

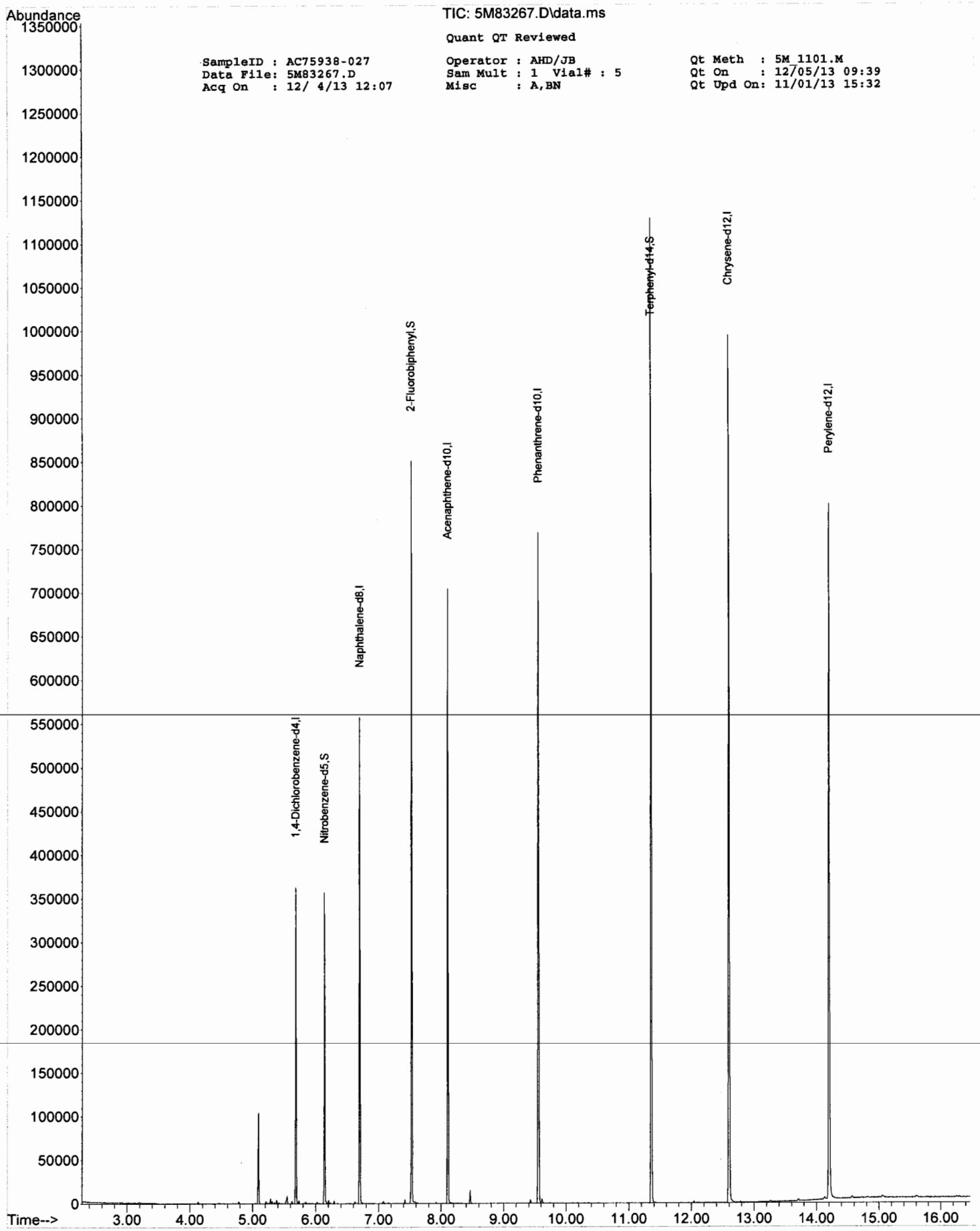
3112730 0081

SampleID : AC75938-027 Operator : AHD/JB Qt Meth : 5M_1101.M
Data File: 5M83267.D Sam Mult : 1 Vial# : 5 Qt On : 12/05/13 09:39
Acq On : 12/ 4/13 12:07 Misc : A,BN Qt Upd On: 11/01/13 15:32

Data Path : G:\GcMsData\2013\GCMS_5\Data\12-04-13\
Qt Path : G:\GCMSDATA\2013\GCMS_5\METHODQT\
Qt Resp Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
7) 1,4-Dichlorobenzene-d4	5.685	152	48305	40.00	ng	-0.02
29) Naphthalene-d8	6.700	136	203844	40.00	ng	-0.01
47) Acenaphthene-d10	8.111	164	141538	40.00	ng	-0.02
74) Phenanthrene-d10	9.558	188	292353	40.00	ng	-0.02
88) Chrysene-d12	12.598	240	393891	40.00	ng	-0.03
100) Perylene-d12	14.206	264	353636	40.00	ng	-0.02
System Monitoring Compounds						
10) 2-Fluorophenol	0.000	112	0	0.00	ng	
Spiked Amount 100.000			Recovery =	0.00%		
15) Phenol-d5	0.000	99	0	0.00	ng	
Spiked Amount 100.000			Recovery =	0.00%		
30) Nitrobenzene-d5	6.139	128	43892	51.14	ng	-0.02
Spiked Amount 50.000			Recovery =	102.28%		
52) 2-Fluorobiphenyl	7.528	172	232807	46.42	ng	-0.02
Spiked Amount 50.000			Recovery =	92.84%		
77) 2,4,6-Tribromophenol	0.000	330	0	0.00	ng	
Spiked Amount 100.000			Recovery =	0.00%		
91) Terphenyl-d14	11.359	244	377850	52.33	ng	-0.02
Spiked Amount 50.000			Recovery =	104.66%		
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed


Abundance
TIC: 5M83267.D\data.ms
Quant QT Reviewed
SampleID : AC75938-027
Data File: 5M83267.D
Acq On : 12/ 4/13 12:07
Operator : AHD/JB
Sam Mult : 1 Vial# : 5
Misc : A,BN
Qt Meth : 5M_1101.M
Qt On : 12/05/13 09:39
Qt Upd On: 11/01/13 15:32
1,4-Dichlorobenzene-d4,I
Nitrobenzene-d5,S
Naphthalene-d8,I
2-Fluorobiphenyl,S
Acenaphthene-d10,I
Phenanthrene-d10,I
Terphenyl-d14,S
Chrysene-d12,I
Perylene-d12,I
Time-->

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AC75938-027
Client Id: FB-112613
Data File: 12M17506.D
Analysis Date: 12/03/13 18:58
Date Rec/Extracted: 11/27/13-12/03/13
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA8270D SIM
Matrix: Aqueous
Initial Vol: 980ml
Final Vol: 1ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
50-32-8	Benzo[a]pyrene	0.020	U				

Worksheet #: 286671

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used

Quantitation Report (QT Reviewed)

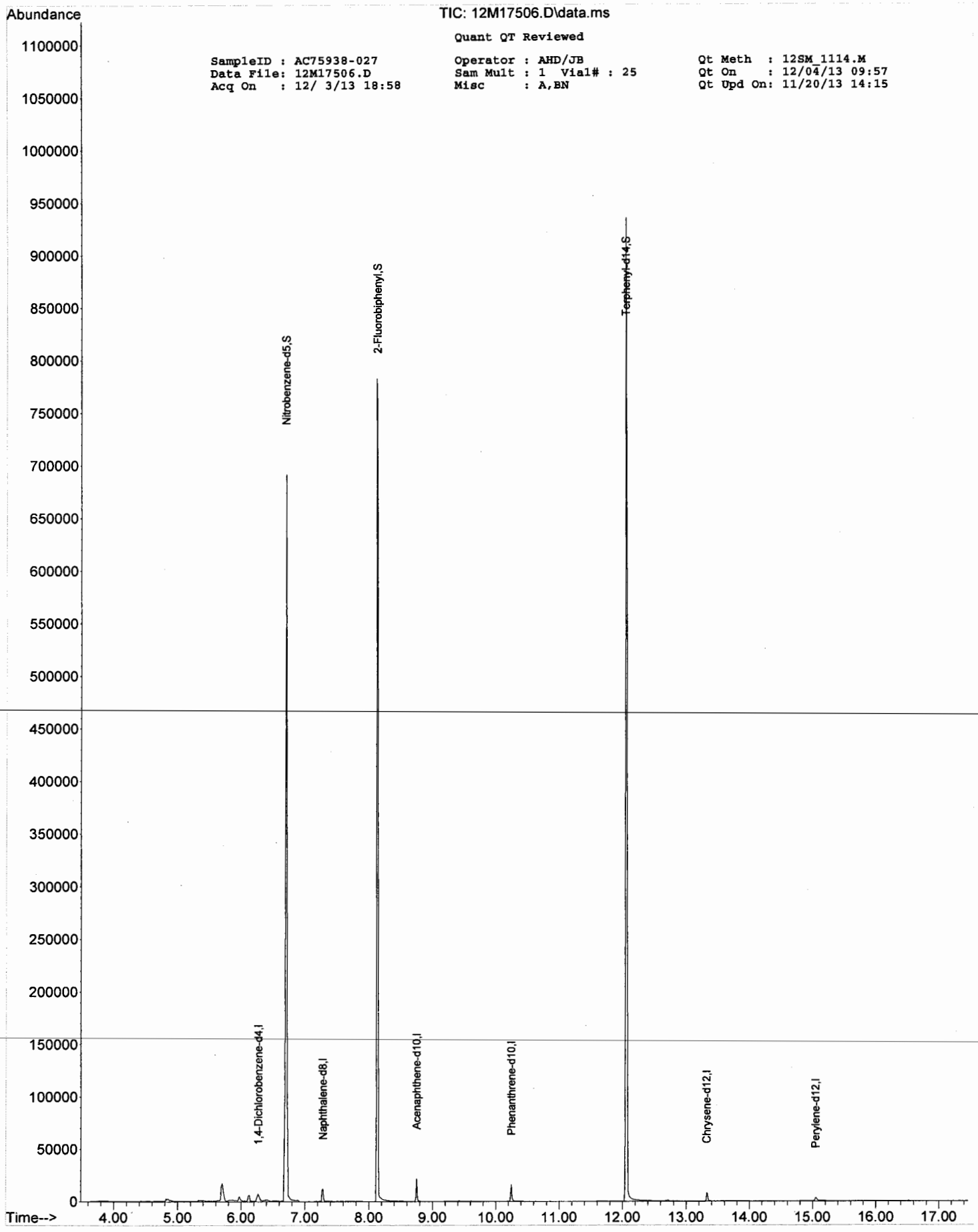
3112730 0084

SampleID : AC75938-027 Operator : AHD/JB Qt Meth : 12SM_1114.M
Data File: 12M17506.D Sam Mult : 1 Vial# : 25 Qt On : 12/04/13 09:57
Acq On : 12/ 3/13 18:58 Misc : A,BN Qt Upd On: 11/20/13 14:15

Data Path : G:\GcMsData\2013\GCMS_12SM\Data\12-03-13\
Qt Path : G:\GCMSDATA\2013\GCMS_12SM\METHODQT\
Qt Resp Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	6.271	152	5844	0.40	ng	0.00
7) Naphthalene-d8	7.283	136	16926	0.40	ng	0.00
11) Acenaphthene-d10	8.752	164	9182	0.40	ng	-0.01
21) Phenanthrene-d10	10.250	188	16150	0.40	ng	-0.01
28) Chrysene-d12	13.323	240	8871	0.40	ng	-0.02
33) Perylene-d12	15.046	264	5223	0.40	ng	-0.01
System Monitoring Compounds						
8) Nitrobenzene-d5	6.704	82	482816	53.27	ng	0.00
Spiked Amount 50.000			Recovery = 106.54%			
14) 2-Fluorobiphenyl	8.140	172	802807	42.52	ng	0.00
Spiked Amount 50.000			Recovery = 85.04%			
30) Terphenyl-d14	12.065	244	1077517	72.42	ng	0.00
Spiked Amount 50.000			Recovery = 144.84%			
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed


Abundance
TIC: 12M17506.D\data.ms
Quant QT Reviewed
SampleID : AC75938-027
Data File: 12M17506.D
Acq On : 12/ 3/13 18:58
Operator : AHD/JB
Sam Mult : 1 Vial# : 25
Misc : A,BN
Qt Meth : 12SM_1114.M
Qt On : 12/04/13 09:57
Qt Upd On: 11/20/13 14:15
Nitrobenzene-d5,S
2-Fluorobiphenyl,S
Terphenyl-d14,S
1,4-Dichlorobenzene-d4,I
Naphthalene-d8,I
Acenaphthene-d10,I
Phenanthrene-d10,I
Chrysene-d12,I
Perylene-d12,I
Time-->

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: WMB29382
Client Id:
Data File: 5M83234.D
Analysis Date: 12/03/13 16:34
Date Rec/Extracted: NA-12/03/13
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270D
Matrix: Aqueous
Initial Vol: 1000ml
Final Vol: 1ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	MDL	RL	Conc	Cas #	Compound	MDL	RL	Conc
50-32-8	Benzo[a]pyrene	0.22	2.0	U					

Worksheet #: 286673

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used.

Quantitation Report (QT Reviewed)

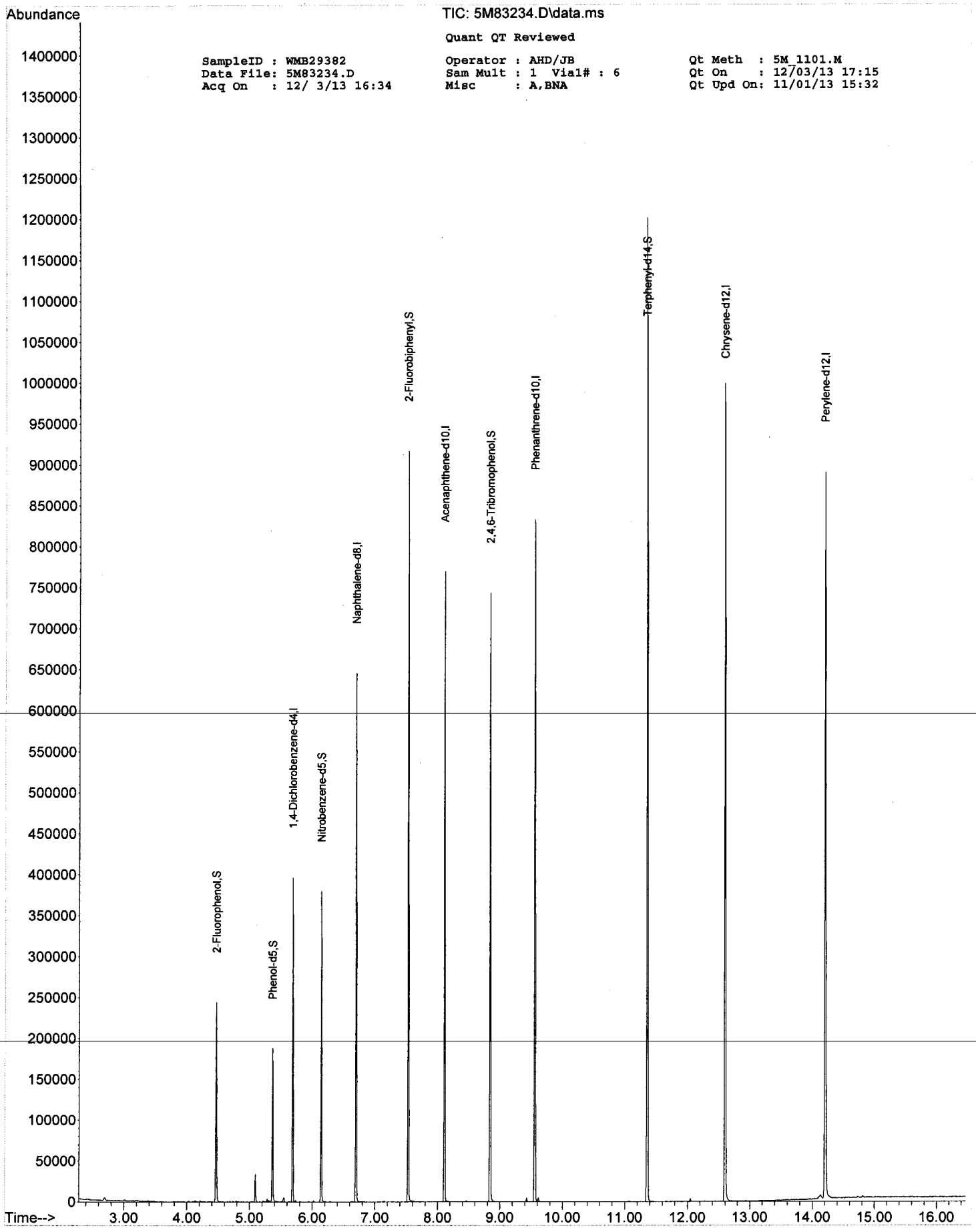
3112730 0087

SampleID : WMB29382 Operator : AHD/JB Qt Meth : 5M_1101.M
Data File: 5M83234.D Sam Mult : 1 Vial# : 6 Qt On : 12/03/13 17:15
Acq On : 12/ 3/13 16:34 Misc : A,BNA Qt Upd On: 11/01/13 15:32

Data Path : G:\GcMsData\2013\GCMS_5\Data\12-03-13\
Qt Path : G:\GCMSDATA\2013\GCMS_5\METHODQT\
Qt Resp Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
7) 1,4-Dichlorobenzene-d4	5.685	152	54780	40.00	ng	-0.02
29) Naphthalene-d8	6.700	136	234251	40.00	ng	-0.01
47) Acenaphthene-d10	8.110	164	149516	40.00	ng	-0.02
74) Phenanthrene-d10	9.558	188	308062	40.00	ng	-0.02
88) Chrysene-d12	12.603	240	413432	40.00	ng	-0.02
100) Perylene-d12	14.206	264	381805	40.00	ng	-0.02
System Monitoring Compounds						
10) 2-Fluorophenol	4.467	112	74122	39.53	ng	-0.01
Spiked Amount 100.000			Recovery = 39.53%			
15) Phenol-d5	5.365	99	65532	23.93	ng	-0.02
Spiked Amount 100.000			Recovery = 23.93%			
30) Nitrobenzene-d5	6.139	128	47947	48.61	ng	-0.02
Spiked Amount 50.000			Recovery = 97.22%			
52) 2-Fluorobiphenyl	7.528	172	265625	50.14	ng	-0.02
Spiked Amount 50.000			Recovery = 100.28%			
77) 2,4,6-Tribromophenol	8.842	330	84338	99.28	ng	-0.02
Spiked Amount 100.000			Recovery = 99.28%			
91) Terphenyl-d14	11.359	244	399127	52.66	ng	-0.02
Spiked Amount 50.000			Recovery = 105.32%			
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed


Abundance
TIC: 5M83234.D\data.ms
Quant QT Reviewed
SampleID : WMB29382
Data File: 5M83234.D
Acq On : 12/ 3/13 16:34
Operator : AHD/JB
Sam Mult : 1 Vial# : 6
Misc : A,BNA
Qt Meth : 5M_1101.M
Qt On : 12/03/13 17:15
Qt Upd On: 11/01/13 15:32
2-Fluorophenol,S
Phenol-d5,S
1,4-Dichlorobenzene-d4,I
Nitrobenzene-d5,S
Naphthalene-d8,I
2-Fluorobiphenyl,S
Acenaphthene-d10,I
2,4,6-Tribromophenol,S
Phenanthrene-d10,I
Terphenyl-d14,S
Chrysene-d12,I
Perylene-d12,I
Time-->

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: SMB29402
Client Id:
Data File: 9M54195.D
Analysis Date: 12/05/13 16:33
Date Rec/Extracted: NA-12/05/13
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270D
Matrix: Soil
Initial Vol: 30g
Final Vol: 0.5ml
Dilution: 1
Solids: 100

Units: mg/Kg

Cas #	Compound	MDL	RL	Conc	Cas #	Compound	MDL	RL	Conc
50-32-8	Benzo[a]pyrene	0.0036	0.033	U					

Worksheet #: 286673

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used.

Quantitation Report (QT Reviewed)

3112730 0090

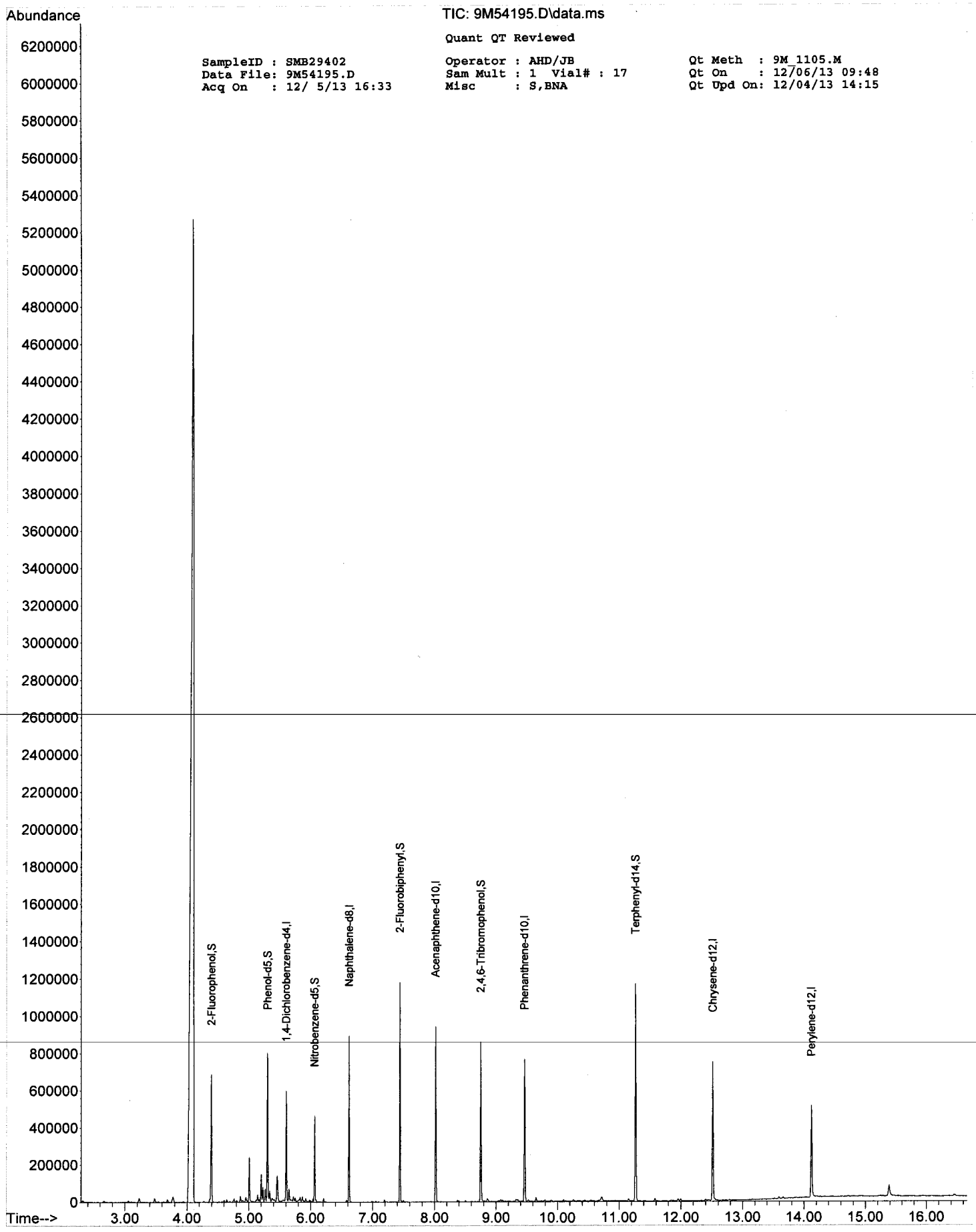
SampleID : SMB29402 Operator : AHD/JB Qt Meth : 9M_1105.M
Data File: 9M54195.D Sam Mult : 1 Vial# : 17 Qt On : 12/06/13 09:48
Acq On : 12/ 5/13 16:33 Misc : S,BNA Qt Upd On: 12/04/13 14:15

Data Path : G:\GcMsData\2013\GCMS_9\Data\12-05-13\
Qt Path : G:\GCMSDATA\2013\GCMS_9\METHODQT\
Qt Resp Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
7) 1,4-Dichlorobenzene-d4	5.603	152	77362	40.00	ng	-0.12
29) Naphthalene-d8	6.619	136	301404	40.00	ng	-0.11
47) Acenaphthene-d10	8.021	164	183766	40.00	ng	-0.13
74) Phenanthrene-d10	9.465	188	308087	40.00	ng	-0.14
88) Chrysene-d12	12.513	240	294937	40.00	ng	-0.16
100) Perylene-d12	14.118	264	227476	40.00	ng	-0.16
System Monitoring Compounds						
10) 2-Fluorophenol	4.394	112	167216	68.41	ng	-0.12
Spiked Amount 100.000			Recovery = 68.41%			
15) Phenol-d5	5.304	99	233443	69.13	ng	-0.11
Spiked Amount 100.000			Recovery = 69.13%			
30) Nitrobenzene-d5	6.063	128	52449	39.61	ng	-0.11
Spiked Amount 50.000			Recovery = 79.22%			
52) 2-Fluorobiphenyl	7.443	172	290845	42.84	ng	-0.12
Spiked Amount 50.000			Recovery = 85.68%			
77) 2,4,6-Tribromophenol	8.753	330	89648	95.12	ng	-0.14
Spiked Amount 100.000			Recovery = 95.12%			
91) Terphenyl-d14	11.267	244	378115	65.93	ng	-0.14
Spiked Amount 50.000			Recovery = 131.86%			

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed


Abundance
TIC: 9M54195.D\data.ms
Quant QT Reviewed
SampleID : SMB29402
Data File: 9M54195.D
Acq On : 12/ 5/13 16:33
Operator : AHD/JB
Sam Mult : 1 Vial# : 17
Misc : S,BNA
Qt Meth : 9M_1105.M
Qt On : 12/06/13 09:48
Qt Upd On: 12/04/13 14:15
6200000
6000000
5800000
5600000
5400000
5200000
5000000
4800000
4600000
4400000
4200000
4000000
3800000
3600000
3400000
3200000
3000000
2800000
2600000
2400000
2200000
2000000
1800000
1600000
1400000
1200000
1000000
800000
600000
400000
200000
0
2-Fluorophenol,S
Phenol-d5,S
1,4-Dichlorobenzene-d4,I
Nitrobenzene-d5,S
Naphthalene-d8,I
2-Fluorobiphenyl,S
Acenaphthene-d10,I
2,4,6-Tribromophenol,S
Phenanthrene-d10,I
Terphenyl-d14,S
Chrysene-d12,I
Perylene-d12,I
Time-->
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
11.00
12.00
13.00
14.00
15.00
16.00

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: WMB29382
Client Id:
Data File: 12M17500.D
Analysis Date: 12/03/13 16:39
Date Rec/Extracted: NA-12/03/13
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA8270D SIM
Matrix: Aqueous
Initial Vol: 1000ml
Final Vol: 1ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
50-32-8	Benzo[a]pyrene	0.020	U				

Worksheet #: 286671

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration usea

Quantitation Report (QT Reviewed)

3112730 0093

SampleID : WMB29382 Operator : AHD/JB Qt Meth : 12SM_1114.M
Data File: 12M17500.D Sam Mult : 1 Vial# : 19 Qt On : 12/03/13 17:11
Acq On : 12/ 3/13 16:39 Misc : A,BN Qt Upd On: 11/20/13 14:15

Data Path : G:\GcMsData\2013\GCMS_12SM\Data\12-03-13\
Qt Path : G:\GCMSDATA\2013\GCMS_12SM\METHODQT\
Qt Resp Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	6.271	152	6880	0.40	ng	0.00
7) Naphthalene-d8	7.283	136	21606	0.40	ng	0.00
11) Acenaphthene-d10	8.752	164	11175	0.40	ng	-0.01
21) Phenanthrene-d10	10.250	188	20024	0.40	ng	-0.01
28) Chrysene-d12	13.334	240	11215	0.40	ng	-0.01
33) Perylene-d12	15.057	264	6401	0.40	ng	0.00
System Monitoring Compounds						
8) Nitrobenzene-d5	6.704	82	608832	52.62	ng	0.00
Spiked Amount 50.000			Recovery = 105.24%			
14) 2-Fluorobiphenyl	8.140	172	946471	40.72	ng	0.00
Spiked Amount 50.000			Recovery = 81.44%			
30) Terphenyl-d14	12.073	244	1233000	62.61	ng	0.00
Spiked Amount 50.000			Recovery = 125.22%			
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

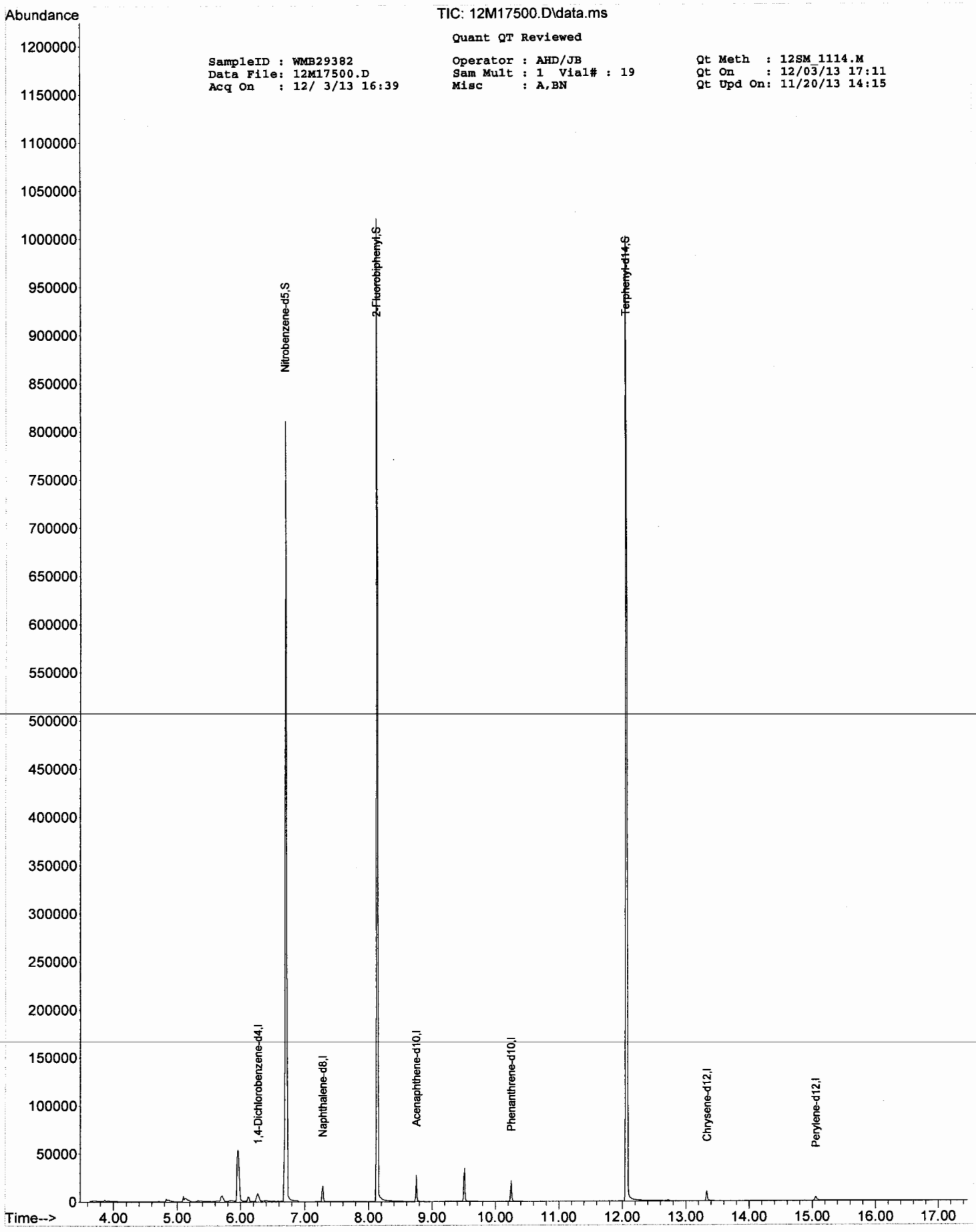
TIC: 12M17500.D\data.ms

Quant QT Reviewed

SampleID : WMB29382
Data File: 12M17500.D
Acq On : 12/ 3/13 16:39

Operator : AHD/JB
Sam Mult : 1 Vial# : 19
Misc : A,BN

Qt Meth : 12SM_1114.M
Qt On : 12/03/13 17:11
Qt Upd On: 11/20/13 14:15



Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: SMB29402
Client Id:
Data File: 9M54195.D
Analysis Date: 12/05/13 16:33
Date Rec/Extracted: NA-12/05/13
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270D
Matrix: Soil
Initial Vol: 30g
Final Vol: 0.5ml
Dilution: 1
Solids: 100

Units: mg/Kg

Cas #	Compound	MDL	RL	Conc	Cas #	Compound	MDL	RL	Conc
50-32-8	Benzo[a]pyrene	0.0036	0.033	U					

Worksheet #: 288873

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used.

Quantitation Report (QT Reviewed)

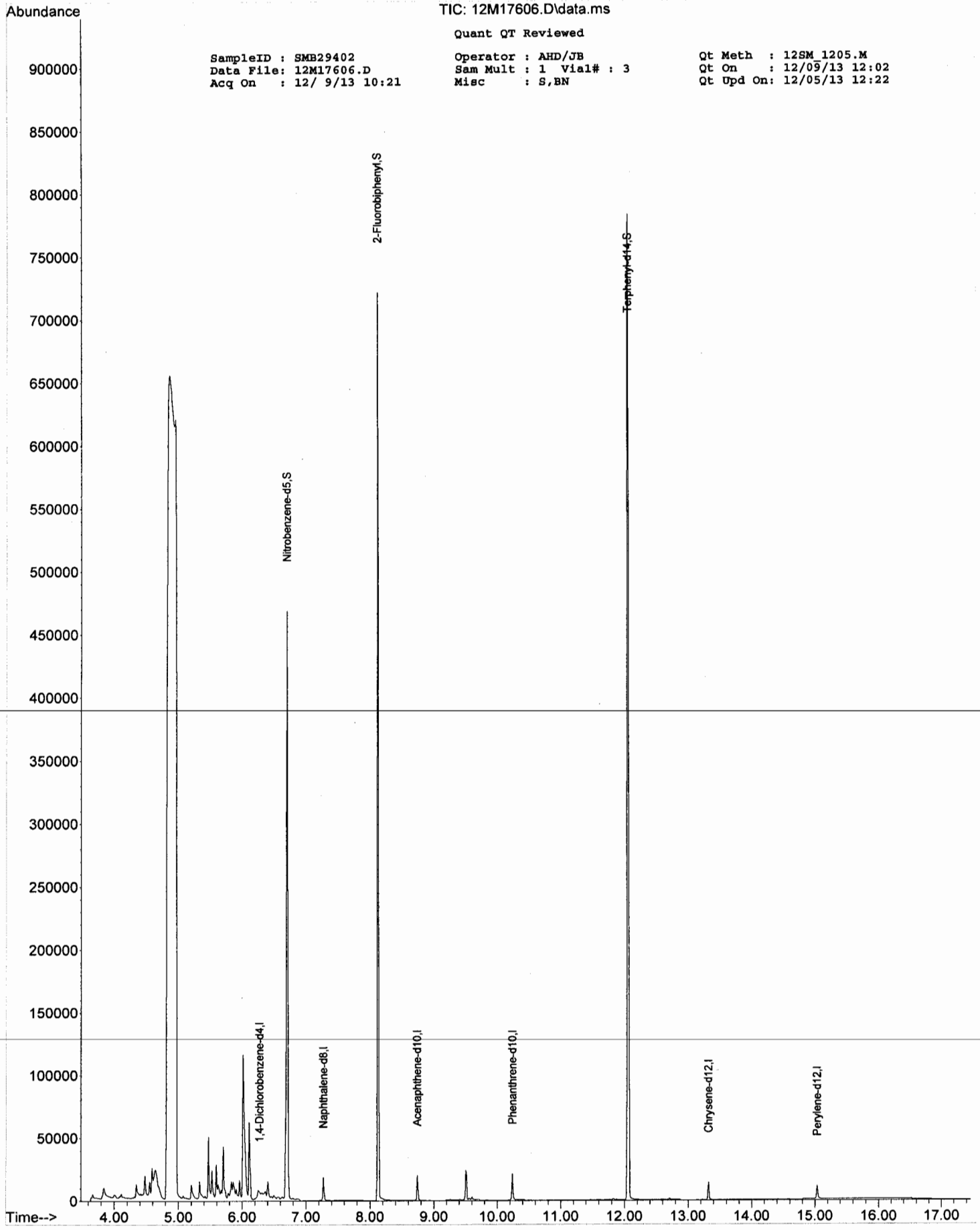
3112730 0096

SampleID : SMB29402 Operator : AHD/JB Qt Meth : 12SM_1205.M
Data File: 12M17606.D Sam Mult : 1 Vial# : 3 Qt On : 12/09/13 12:02
Acq On : 12/ 9/13 10:21 Misc : S,BN Qt Upd On: 12/05/13 12:22

Data Path : G:\GcMsData\2013\GCMS_12SM\Data\12-09-13\
Qt Path : G:\GCMSDATA\2013\GCMS_12SM\METHODQT\
Qt Resp Via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	6.271	152	5718	0.40	ng	0.02
7) Naphthalene-d8	7.271	136	17321	0.40	ng	0.00
11) Acenaphthene-d10	8.740	164	9304	0.40	ng	-0.01
21) Phenanthrene-d10	10.240	188	17331	0.40	ng	-0.01
28) Chrysene-d12	13.323	240	11829	0.40	ng	0.00
33) Perylene-d12	15.036	264	10197	0.40	ng	-0.01
System Monitoring Compounds						
8) Nitrobenzene-d5	6.705	82	299264	37.90	ng	0.02
Spiked Amount 50.000			Recovery = 75.80%			
14) 2-Fluorobiphenyl	8.130	172	589805	29.39	ng	0.00
Spiked Amount 50.000			Recovery = 58.78%			
30) Terphenyl-d14	12.065	244	925571	44.57	ng	0.00
Spiked Amount 50.000			Recovery = 89.14%			
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed


Abundance
TIC: 12M17606.D\data.ms
Quant QT Reviewed
SampleID : SMB29402
Data File: 12M17606.D
Acq On : 12/ 9/13 10:21
Operator : AHD/JB
Sam Mult : 1 Vial# : 3
Misc : S,BN
Qt Meth : 12SM_1205.M
Qt On : 12/09/13 12:02
Qt Upd On: 12/05/13 12:22
900000
850000
800000
750000
700000
650000
600000
550000
500000
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
Time-->
4.00
5.00
6.00
7.00
8.00
9.00
10.00
11.00
12.00
13.00
14.00
15.00
16.00
17.00
1,4-Dichlorobenzene-d4,I
Nitrobenzene-d5,S
Naphthalene-d8,I
2-Fluorobiphenyl,S
Acenaphthene-d10,I
Phenanthrene-d10,I
Terphenyl-d14,S
Chrysene-d12,I
Perylene-d12,I

FORM2

Surrogate Recovery

Method: EPA 8270D

Dfile	Sample#	Matrix	Date/Time	Surr Dil	Dilute Out Flag	Column1 S1 Recov	Column1 S2 Recov	Column1 S3 Recov	Column1 S4 Recov	Column1 S5 Recov	Column1 S6 Recov
5M83234.D	WMB29382	Aqueous	12/03/13 16:34	1		NA	NA	97	100	NA	105
9M54195.D	SMB29402	Soil	12/05/13 16:33	1		NA	NA	79	86	NA	132
9M54226.D	AC75938-013(	Soil	12/06/13 16:07	80	SD	NA	NA	0*	0*	NA	0*
9M54208.D	AC75938-014(	Soil	12/05/13 21:32	40	SD	NA	NA	0*	0*	NA	0*
9M54227.D	AC75938-015(	Soil	12/06/13 16:30	80	SD	NA	NA	0*	0*	NA	0*
9M54228.D	AC75938-016(	Soil	12/06/13 16:53	80	SD	NA	NA	0*	0*	NA	0*
7M61320.D	AC75938-017	Soil	12/05/13 21:34	1		NA	NA	85	95	NA	109
7M61321.D	AC75938-020	Soil	12/05/13 21:58	1		NA	NA	83	94	NA	109
7M61322.D	AC75938-023	Soil	12/05/13 22:22	1		NA	NA	88	92	NA	118
5M83267.D	AC75938-027	Aqueous	12/04/13 12:07	1		NA	NA	102	93	NA	105
5M83233.D	WMB29382(M	Aqueous	12/03/13 16:11	1		NA	NA	115	103	NA	110
9M54194.D	SMB29402(M	Soil	12/05/13 16:10	1		NA	NA	88	100	NA	136

Flags: SD=Surrogate diluted out
*=Surrogate out

Method: EPA 8270D

Soil Limits

Compound	Spike Amt	Limits
S1=2-Fluorophenol	100	43-128
S2=Phenol-d5	100	49-129
S3=Nitrobenzene-d5	50	52-129
S4=2-Fluorobiphenyl	50	58-125
S5=2,4,6-Tribromophenol	100	54-145
S6=Terphenyl-d14	50	58-148

Aqueous Limits

Compound	Spike Amt	Limits
S1=2-Fluorophenol	100	29-113
S2=Phenol-d5	100	27-115
S3=Nitrobenzene-d5	50	51-139
S4=2-Fluorobiphenyl	50	53-129
S5=2,4,6-Tribromophenol	100	54-149
S6=Terphenyl-d14	50	55-146

Form3
Recovery Data
QC Batch: WMB29382

	Data File	Sample ID:	Analysis Date
Spike or Dup:	5M83233.D	WMB29382(MS)	12/3/2013 4:11:00 PM
Non Spike(If applicable):			
Inst Blank(If applicable):			

Method: 8270D Matrix: Aqueous QC Type: MBS

Analyte:	Col	Spike Conc	Sample Conc	Expected Conc	Recovery	Lower Limit	Upper Limit
Pyridine	1	78.7918	0	100	79	10	130
1,4-Dichlorobenzene	1	89.2705	0	100	89	50	130
Hexachloroethane	1	92.2291	0	100	92	50	130
N-Nitroso-di-n-propylamine	1	101.2371	0	100	101	20	130
Nitrobenzene	1	99.5126	0	100	100	50	130
1,2,4-Trichlorobenzene	1	85.8369	0	100	86	50	130
Naphthalene	1	89.385	0	100	89	50	130
Hexachlorobutadiene	1	86.9574	0	100	87	50	130
Acenaphthene	1	92.4174	0	100	92	50	130
2,4-Dinitrotoluene	1	101.3407	0	100	101	50	130
Fluorene	1	93.2407	0	100	93	50	130
Hexachlorobenzene	1	90.9696	0	100	91	50	130
Pyrene	1	89.7573	0	100	90	50	130
Butylbenzylphthalate	1	94.3427	0	100	94	50	130

* - Indicates outside of limits # - Indicates outside of standard limits but within method exceedance limits

Form3
Recovery Data
QC Batch: SMB29402

	Data File	Sample ID:	Analysis Date
Spike or Dup:	9M54194.D	SMB29402(MS)	12/5/2013 4:10:00 PM
Non Spike(If applicable):			
Inst Blank(If applicable):			

Method: 8270D Matrix: Soil QC Type: MBS

Analyte:	Col	Spike Conc	Sample Conc	Expected Conc	Recovery	Lower Limit	Upper Limit
1,4-Dichlorobenzene	1	30.4311	0	50	61	50	130
N-Nitroso-di-n-propylamine	1	26.3593	0	50	53	20	130
1,2,4-Trichlorobenzene	1	30.2758	0	50	61	50	130
Naphthalene	1	28.408	0	50	57	50	130
Acenaphthene	1	30.5701	0	50	61	50	130
2,4-Dinitrotoluene	1	30.2753	0	50	61	50	130
Fluorene	1	30.2515	0	50	61	50	130
Pyrene	1	40.7989	0	50	82	50	130
Butylbenzylphthalate	1	39.9364	0	50	80	50	130

* - Indicates outside of limits # - Indicates outside of standard limits but within method exceedance limits

Form3
Recovery Data
QC Batch: SMB29402

	Data File	Sample ID:	Analysis Date
Spike or Dup:	9M54227.D	AC75938-015(40X)(MS:AC7593	12/6/2013 4:30:00 PM
Non Spike(If applicable):	9M54226.D	AC75938-013(40X)	12/6/2013 4:07:00 PM
Inst Blank(If applicable):			

Method: 8270D Matrix: Soil QC Type: MS

Analyte:	Col	Spike Conc	Sample Conc	Expected Conc	Recovery	Lower Limit	Upper Limit
1,4-Dichlorobenzene	1	0	0	50	0*	50	130
N-Nitroso-di-n-propylamine	1	0	0	50	0*	20	130
1,2,4-Trichlorobenzene	1	0	0	50	0*	50	130
Naphthalene	1	646.44	0	50	1290*	50	130
Acenaphthene	1	1345.568	0	50	2690*	50	130
2,4-Dinitrotoluene	1	0	0	50	0*	50	130
Fluorene	1	1052.984	0	50	2110*	50	130
Pyrene	1	7880.032	0	50	15800*	50	130
Butylbenzylphthalate	1	0	0	50	0*	50	130

	Data File	Sample ID:	Analysis Date
Spike or Dup:	9M54228.D	AC75938-016(40X)(MSD:AC75	12/6/2013 4:53:00 PM
Non Spike(If applicable):	9M54226.D	AC75938-013(40X)	12/6/2013 4:07:00 PM
Inst Blank(If applicable):			

Method: 8270D Matrix: Soil QC Type: MSD

Analyte:	Col	Spike Conc	Sample Conc	Expected Conc	Recovery	Lower Limit	Upper Limit
1,4-Dichlorobenzene	1	0	0	50	0*	50	130
N-Nitroso-di-n-propylamine	1	0	0	50	0*	20	130
1,2,4-Trichlorobenzene	1	0	0	50	0*	50	130
Naphthalene	1	278.328	0	50	557*	50	130
Acenaphthene	1	749.184	0	50	1500*	50	130
2,4-Dinitrotoluene	1	0	0	50	0*	50	130
Fluorene	1	591.152	0	50	1180*	50	130
Pyrene	1	5537.288	0	50	11100*	50	130
Butylbenzylphthalate	1	0	0	50	0*	50	130

* - Indicates outside of limits # - Indicates outside of standard limits but within method exceedance limits

Form3
RPD DATA
QC Batch: SMB29402

	Data File	Sample ID:	Analysis Date
Spike or Dup:	9M54228.D	AC75938-016(40X)(MSD:AC75	12/6/2013 4:53:00 PM
Duplicate(If applicable):	9M54227.D	AC75938-015(40X)(MS:AC7593	12/6/2013 4:30:00 PM
Inst Blank(If applicable):			

Method: 8270D Matrix: Soil QC Type: MSD

Analyte:	Column	Dup/MSD/MBSD Conc	Sample/MS/MBS Conc	RPD	Limit
1,4-Dichlorobenzene	1	0	0	NA	40
N-Nitroso-di-n-propylamine	1	0	0	NA	40
1,2,4-Trichlorobenzene	1	0	0	NA	40
Naphthalene	1	278.328	646.44	80 *	40
Acenaphthene	1	749.184	1345.568	57 *	40
2,4-Dinitrotoluene	1	0	0	NA	40
Fluorene	1	591.152	1052.984	56 *	40
Pyrene	1	5537.288	7880.032	35	40
Butylbenzylphthalate	1	0	0	NA	40

* - Indicates outside of limits NA - Both concentrations=0... no result can be calculated

FORM 4
Blank Summary

Blank Number: WMB29382
Blank Data File: 5M83234.D
Matrix: Aqueous

Blank Analysis Date: 12/03/13 16:34
Blank Extraction Date: 12/03/13
(If Applicable)
Method: EPA 8270D

Sample Number	Data File	Analysis Date
AC75938-027	5M83267.D	12/04/13 12:07
WMB29382(MS)	5M83233.D	12/03/13 16:11

FORM 4
Blank Summary

Blank Number: SMB29402
Blank Data File: 9M54195.D
Matrix: Soil

Blank Analysis Date: 12/05/13 16:33
Blank Extraction Date: 12/05/13
(If Applicable)
Method: EPA 8270D

Sample Number	Data File	Analysis Date
AC75938-013(40X)	9M54226.D	12/06/13 16:07
AC75938-014(20X)	9M54208.D	12/05/13 21:32
AC75938-015(40X)	9M54227.D	12/06/13 16:30
AC75938-016(40X)	9M54228.D	12/06/13 16:53
AC75938-017	7M61320.D	12/05/13 21:34
AC75938-020	7M61321.D	12/05/13 21:58
AC75938-023	7M61322.D	12/05/13 22:22
SMB29402(MS)	9M54194.D	12/05/13 16:10

FORM 4
Blank Summary

Blank Number: WMB29382
Blank Data File: 12M17500.D
Matrix: Aqueous

Blank Analysis Date: 12/03/13 16:39
Blank Extraction Date: 12/03/13
(If Applicable)
Method: EPA8270D SIM

Sample Number	Data File	Analysis Date
AC75938-027	12M17506.D	12/03/13 18:58

FORM 4
Blank Summary

Blank Number: SMB29402
Blank Data File: 12M17606.D
Matrix: Soil

Blank Analysis Date: 12/09/13 10:21
Blank Extraction Date: 12/05/13
(If Applicable)
Method: EPA8270D SIM

Sample Number	Data File	Analysis Date
AC75938-013(40X)	12M17610.D	12/09/13 11:53
AC75938-014(20X)	12M17611.D	12/09/13 12:16
AC75938-017	12M17609.D	12/09/13 11:29
AC75938-020	12M17608.D	12/09/13 11:07
AC75938-023	12M17607.D	12/09/13 10:44

Form 5

Tune Name: CAL DFTPP
Instrument: GCMS 5
Data File: 5M82738.D
Analysis Date: 11/01/13 08:32
Method: EPA 8270D

Tune Scan/Time Range: Average of 9.852 to 9.868 min

Tgt Mass	Rel Mass	Lo Lim	Hi Lim	Rel Abund	Raw Abund	Pass/ Fail
51	198	30	60	30.7	11548	PASS
68	69	0.00	2	1.0	136	PASS
69	198	0.00	100	36.2	13633	PASS
70	69	0.00	2	0.3	39	PASS
127	198	40	60	47.1	17703	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	37623	PASS
199	198	5	9	7.0	2649	PASS
275	198	10	30	23.1	8685	PASS
365	198	1	100	2.6	978	PASS
441	443	0.01	100	77.4	4377	PASS
442	198	40	100	76.1	28647	PASS
443	442	17	23	19.7	5652	PASS

Data File	Sample Number	Analysis Date:
5M82739.D	CAL BNA@50PPM	11/01/13 09:23
5M82740.D	CAL BNA@10PPM	11/01/13 09:46
5M82741.D	CAL BNA@20PPM	11/01/13 10:09
5M82742.D	CAL BNA@2PPM	11/01/13 10:32
5M82743.D	CAL BNA@.5PPM	11/01/13 10:55
5M82744.D	CAL BNA@196PP	11/01/13 11:18
5M82745.D	CAL BNA@160PP	11/01/13 11:41
5M82746.D	CAL BNA@120PP	11/01/13 12:04
5M82747.D	CAL BNA@80PPM	11/01/13 12:27
5M82748.D	CAL BNA@50PPM	11/01/13 12:50
5M82749.D	ICV BNA@50PPM	11/01/13 13:32

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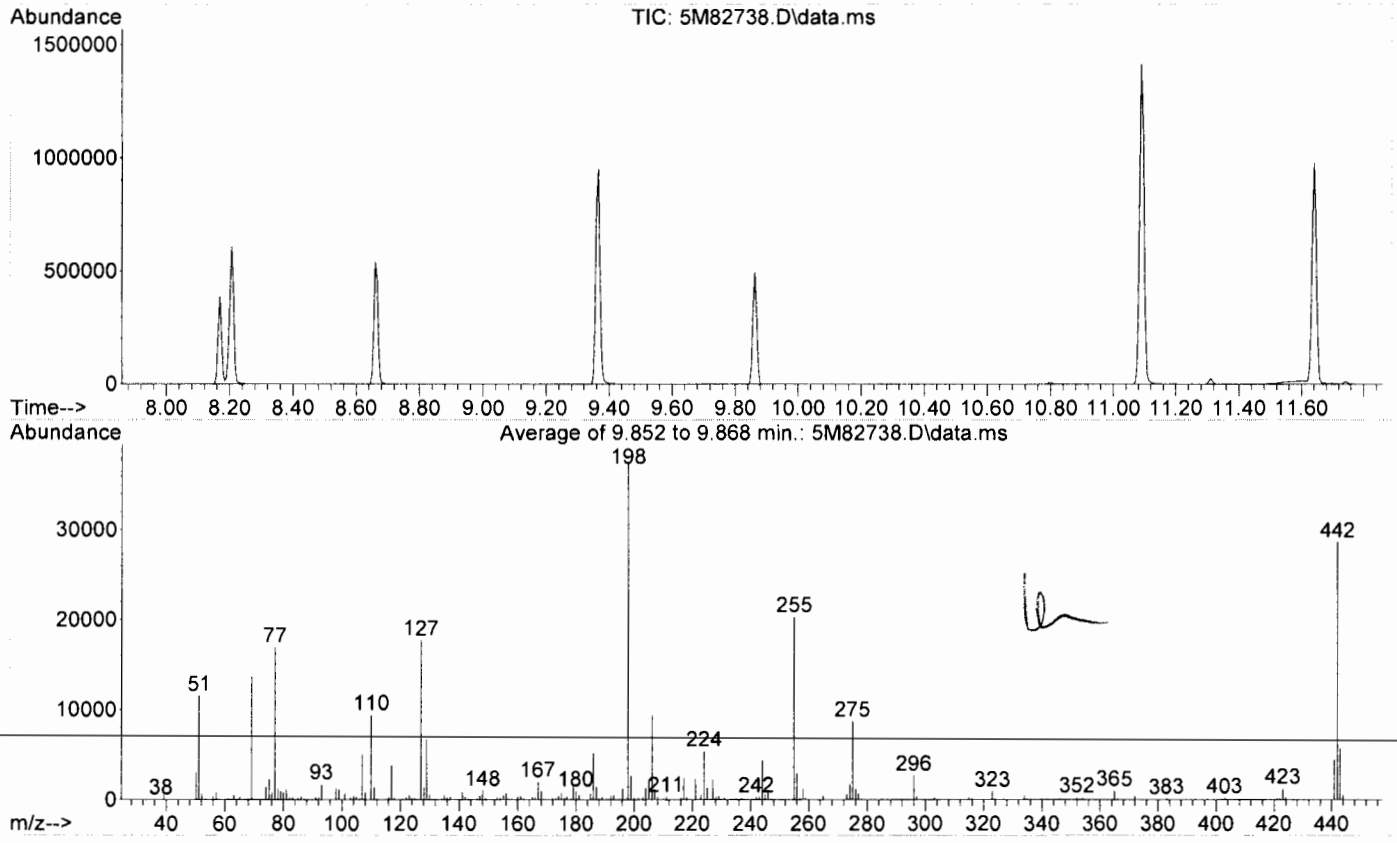
Data Path : G:\GcMsData\2013\GCMS_5\Data\11-01-13\
Data File : 5M82738.D
Acq On : 1 Nov 2013 8:32
Operator : AHD/JB
Sample : CAL DFTPP
Misc : A,BNA
ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : G:\GCMSDATA\2013\GCMS_5\METHODQT\5M_1017.M
Title : @GCMS_5,mg,625,8270D
Last Update : Thu Oct 17 12:17:31 2013



Spectrum Information: Average of 9.852 to 9.868 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	30.7	11548	PASS
68	69	0.00	2	1.0	136	PASS
69	198	0.00	100	36.2	13633	PASS
70	69	0.00	2	0.3	39	PASS
127	198	40	60	47.1	17703	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	37623	PASS
199	198	5	9	7.0	2649	PASS
275	198	10	30	23.1	8685	PASS
365	198	1	100	2.6	978	PASS
441	443	0.01	100	77.4	4377	PASS
442	198	40	100	76.1	28647	PASS
443	442	17	23	19.7	5652	PASS

Form 5

Tune Name: CAL DFTPP
Instrument: GCMS 9
Data File: 9M53689.D
Analysis Date: 11/05/13 09:21
Method: EPA 8270D

Tune Scan/Time Range: Average of 9.893 to 9.898 min

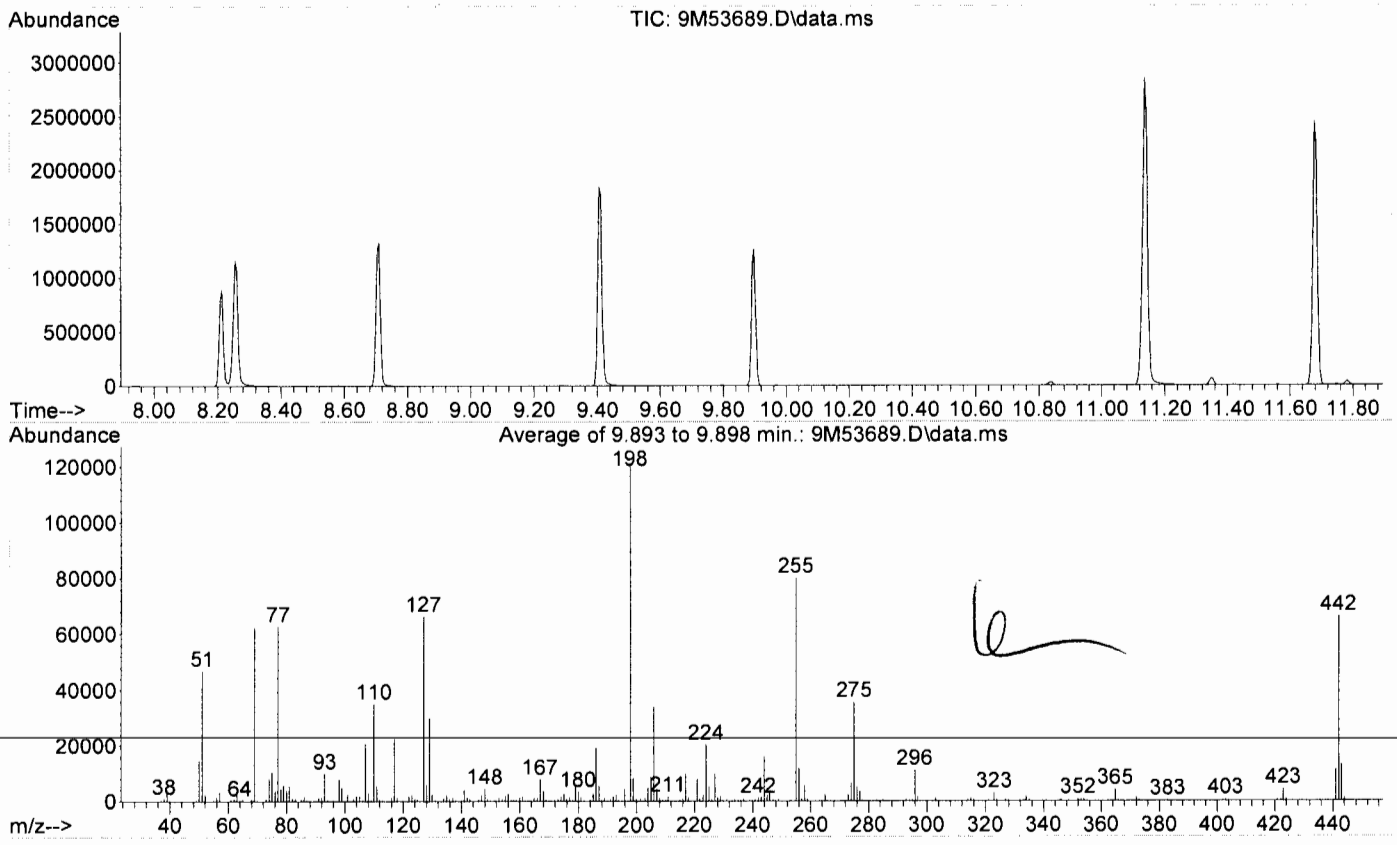
Tgt Mass	Rel Mass	Lo Lim	Hi Lim	Rel Abund	Raw Abund	Pass/ Fail
51	198	30	60	38.7	46876	PASS
68	69	0.00	2	1.4	864	PASS
69	198	0.00	100	51.5	62388	PASS
70	69	0.00	2	0.6	394	PASS
127	198	40	60	54.8	66384	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	121240	PASS
199	198	5	9	6.9	8340	PASS
275	198	10	30	29.3	35548	PASS
365	198	1	100	3.4	4141	PASS
441	443	0.01	100	84.7	11261	PASS
442	198	40	100	54.7	66308	PASS
443	442	17	23	20.0	13287	PASS

Data File	Sample Number	Analysis Date:
9M53690.D	CAL BNA@50PPM	11/05/13 09:46
9M53691.D	CAL BNA@10PPM	11/05/13 10:09
9M53692.D	CAL BNA@2PPM	11/05/13 10:32
9M53693.D	CAL BNA@.5PPM	11/05/13 10:54
9M53694.D	CAL BNA@20PPM	11/05/13 11:17
9M53695.D	CAL BNA@196PP	11/05/13 11:40
9M53696.D	CAL BNA@160PP	11/05/13 12:02
9M53697.D	CAL BNA@120PP	11/05/13 12:25
9M53698.D	CAL BNA@80PPM	11/05/13 12:47
9M53699.D	CAL BNA@50PPM	11/05/13 13:10
9M53700.D	ICV BNA@50PPM	11/05/13 13:33

Data Path : G:\GcMsData\2013\GCMS_9\Data\11-05-13\
Data File : 9M53689.D
Acq On : 5 Nov 2013 9:21
Operator : AHD/JB
Sample : CAL DFTPP
Misc : A,BNA
ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : G:\GCMSDATA\2013\GCMS_9\METHODQT\9M_1022.M
Title : @GCMS_9,mg,625,8270
Last Update : Tue Oct 22 14:26:07 2013



Spectrum Information: Average of 9.893 to 9.898 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	38.7	46876	PASS
68	69	0.00	2	1.4	864	PASS
69	198	0.00	100	51.5	62388	PASS
70	69	0.00	2	0.6	394	PASS
127	198	40	60	54.8	66384	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	121240	PASS
199	198	5	9	6.9	8340	PASS
275	198	10	30	29.3	35548	PASS
365	198	1	100	3.4	4141	PASS
441	443	0.01	100	84.7	11261	PASS
442	198	40	100	54.7	66308	PASS
443	442	17	23	20.0	13287	PASS

Form 5

Tune Name: CAL DFTPP **Data File:** 5M83229.D
Instrument: GCMS 5 **Analysis Date:** 12/03/13 10:55
Method: EPA 8270D
Tune Scan/Time Range: Average of 9.841 to 9.847 min

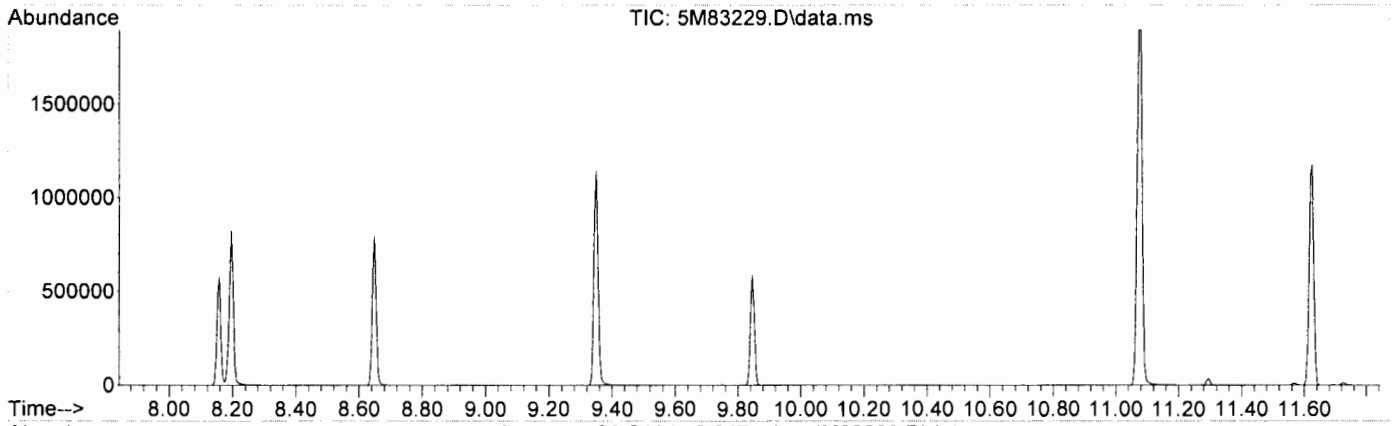
Tgt Mass	Rel Mass	Lo Lim	Hi Lim	Rel Abund	Raw Abund	Pass/ Fail
51	198	30	60	33.5	20648	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	39.1	24128	PASS
70	69	0.00	2	0.3	79	PASS
127	198	40	60	47.6	29356	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	61648	PASS
199	198	5	9	6.8	4214	PASS
275	198	10	30	21.8	13461	PASS
365	198	1	100	2.3	1433	PASS
441	443	0.01	100	75.5	6115	PASS
442	198	40	100	66.0	40712	PASS
443	442	17	23	19.9	8103	PASS

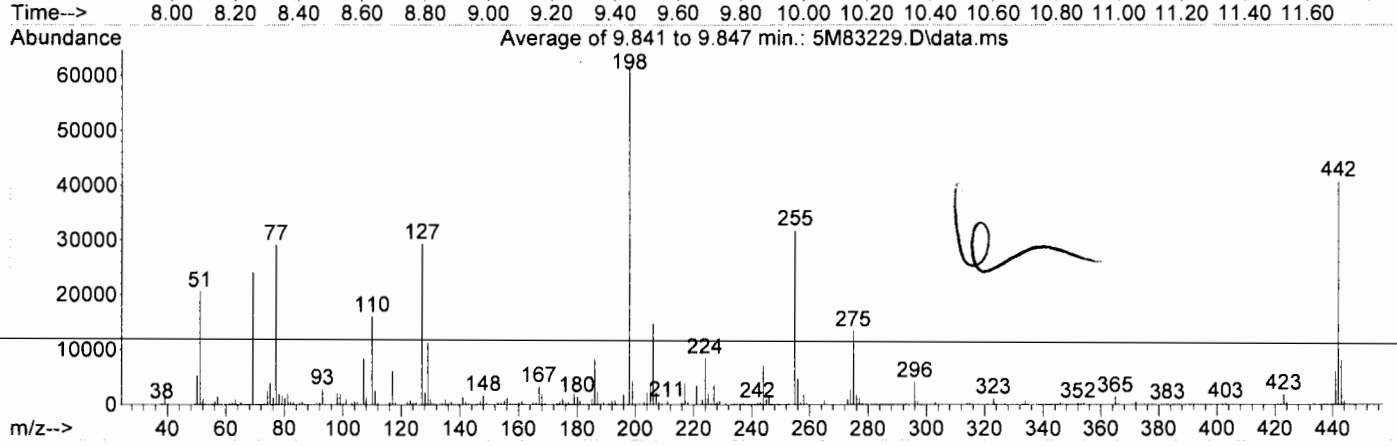
Data File	Sample Number	Analysis Date:
5M83230.D	CAL BNA@50PPM	12/03/13 14:55
5M83231.D	TEST-A	12/03/13 15:24
5M83232.D	TEST-B	12/03/13 15:47
5M83233.D	WMB29382(MS)	12/03/13 16:11
5M83234.D	WMB29382	12/03/13 16:34
5M83235.D	WMB29386	12/03/13 16:57
5M83236.D	WMB29386(MS)	12/03/13 17:21
5M83237.D	AC75762-001(R)	12/03/13 17:44
5M83238.D	AC75937-020	12/03/13 18:08
5M83239.D	AC75937-020(MS)	12/03/13 18:31
5M83240.D	AC75937-020(MSD	12/03/13 18:54
5M83241.D	AC75916-001(T)	12/03/13 19:18
5M83242.D	EF-1 V-177038(12/	12/03/13 19:41
5M83243.D	AC75940-001	12/03/13 20:04
5M83244.D	AC75960-033	12/03/13 20:27
5M83245.D	AC75958-001	12/03/13 20:50
5M83246.D	AC75529-001(T)	12/03/13 21:13
5M83247.D	AC75937-021	12/03/13 21:36
5M83248.D	AC75908-001	12/03/13 21:59
5M83249.D	AC75908-002	12/03/13 22:23
5M83250.D	75908-002	12/03/13 22:46
5M83251.D	AC75948-001	12/03/13 23:09
5M83252.D	AC75948-006	12/03/13 23:32
5M83253.D	AC75948-011	12/03/13 23:55
5M83254.D	AC75948-014	12/04/13 00:19
5M83255.D	AC75948-024	12/04/13 00:42
5M83256.D	AC75948-025	12/04/13 01:05
5M83257.D	AC75944-001	12/04/13 01:28
5M83258.D	AC75938-027	12/04/13 01:51
5M83259.D	AC75946-001	12/04/13 02:14
5M83260.D	AC75946-002	12/04/13 02:38
5M83261.D	AC75946-003	12/04/13 03:01
5M83262.D	AC75923-005(R)	12/04/13 03:24

Data Path : G:\GcMsData\2013\GCMS_5\Data\12-03-13\
Data File : 5M83229.D
Acq On : 3 Dec 2013 10:55
Operator : AHD/JB
Sample : CAL DFTPP
Misc : A,BNA
ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : G:\GCMSDATA\2013\GCMS_5\METHODQT\5M_1101.M
Title : @GCMS_5,mg,625,8270D
Last Update : Fri Nov 01 14:28:33 2013





Spectrum Information: Average of 9.841 to 9.847 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	33.5	20648	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	39.1	24128	PASS
70	69	0.00	2	0.3	79	PASS
127	198	40	60	47.6	29356	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	61648	PASS
199	198	5	9	6.8	4214	PASS
275	198	10	30	21.8	13461	PASS
365	198	1	100	2.3	1433	PASS
441	443	0.01	100	75.5	6115	PASS
442	198	40	100	66.0	40712	PASS
443	442	17	23	19.9	8103	PASS

Form 5

Tune Name: CAL DFTPP
Instrument: GCMS 5
Data File: 5M83263.D
Analysis Date: 12/04/13 07:52
Method: EPA 8270D

Tune Scan/Time Range: Scan 1415

Tgt Mass	Rel Mass	Lo Lim	Hi Lim	Rel Abund	Raw Abund	Pass/ Fail
51	198	30	60	36.9	24208	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	43.6	28600	PASS
70	69	0.00	2	0.7	187	PASS
127	198	40	60	50.6	33208	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	65568	PASS
199	198	5	9	6.8	4474	PASS
275	198	10	30	20.9	13726	PASS
365	198	1	100	2.1	1374	PASS
441	443	0.01	100	74.6	5140	PASS
442	198	40	100	49.1	32168	PASS
443	442	17	23	21.4	6894	PASS

Data File	Sample Number	Analysis Date:
5M83264.D	CAL BNA@50PPM	12/04/13 08:16
5M83265.D	WMB29388(MS)	12/04/13 11:20
5M83266.D	WMB29388	12/04/13 11:43
5M83267.D	AC75938-027	12/04/13 12:07
5M83268.D	EF-1 V-177068(12/	12/04/13 12:30
5M83269.D	AC75892-001(T)	12/04/13 12:53
5M83270.D	AC75892-002(T)	12/04/13 13:16
5M83271.D	AC75892-003(T)	12/04/13 13:39
5M83272.D	AC75892-001(T)(M	12/04/13 14:03
5M83273.D	AC75892-001(T)(M	12/04/13 14:26
5M83274.D	AC75941-001(T)	12/04/13 14:49
5M83275.D	AC75941-002(T)	12/04/13 15:12
5M83276.D	AC75948-014	12/04/13 15:35
5M83277.D	AC75948-011	12/04/13 15:58
5M83278.D	AC75948-006	12/04/13 16:21
5M83279.D	AC75948-028	12/04/13 16:44
5M83280.D	MBS-1	12/04/13 17:08
5M83281.D	MBS-2	12/04/13 17:31
5M83282.D	MBS-3	12/04/13 17:54
5M83283.D	MBS-4	12/04/13 18:17
5M83284.D	MBS-5	12/04/13 18:40
5M83285.D	MB	12/04/13 19:03

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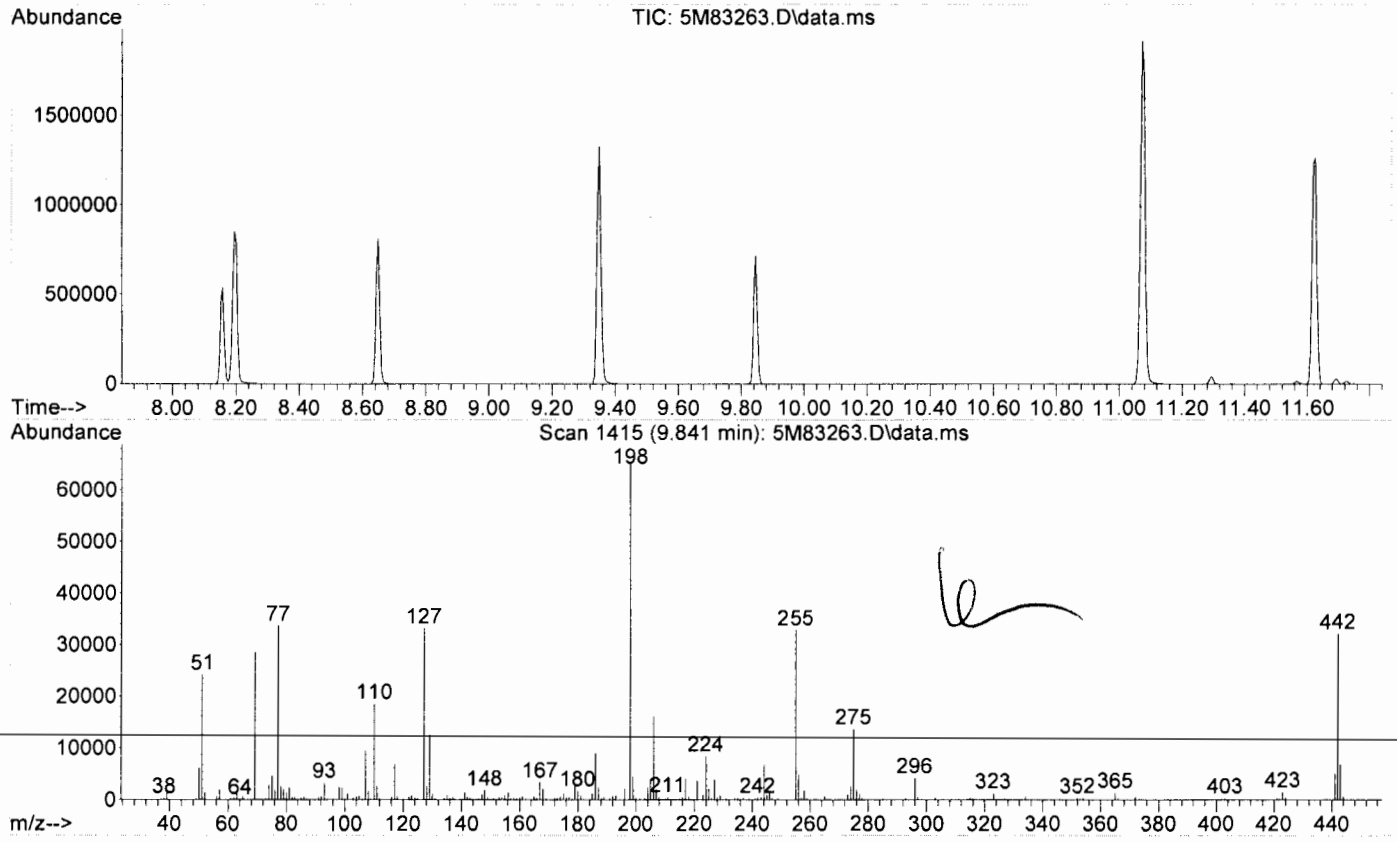
Data Path : G:\GcMsData\2013\GCMS_5\Data\12-04-13\
Data File : 5M83263.D
Acq On : 4 Dec 2013 7:52
Operator : AHD/JB
Sample : CAL DFTPP
Misc : A,BNA
ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : G:\GCMSDATA\2013\GCMS_5\METHODQT\5M_1101.M
Title : @GCMS_5,mg,625,8270D
Last Update : Fri Nov 01 14:28:33 2013



Spectrum Information: Scan 1415

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	36.9	24208	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	43.6	28600	PASS
70	69	0.00	2	0.7	187	PASS
127	198	40	60	50.6	33208	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	65568	PASS
199	198	5	9	6.8	4474	PASS
275	198	10	30	20.9	13726	PASS
365	198	1	100	2.1	1374	PASS
441	443	0.01	100	74.6	5140	PASS
442	198	40	100	49.1	32168	PASS
443	442	17	23	21.4	6894	PASS

Form 5

Tune Name: CALDFTPP
Instrument: GCMS 7
Data File: 7M61290.D
Analysis Date: 12/05/13 08:51
Method: EPA 8270D

Tune Scan/Time Range: Scan 1449

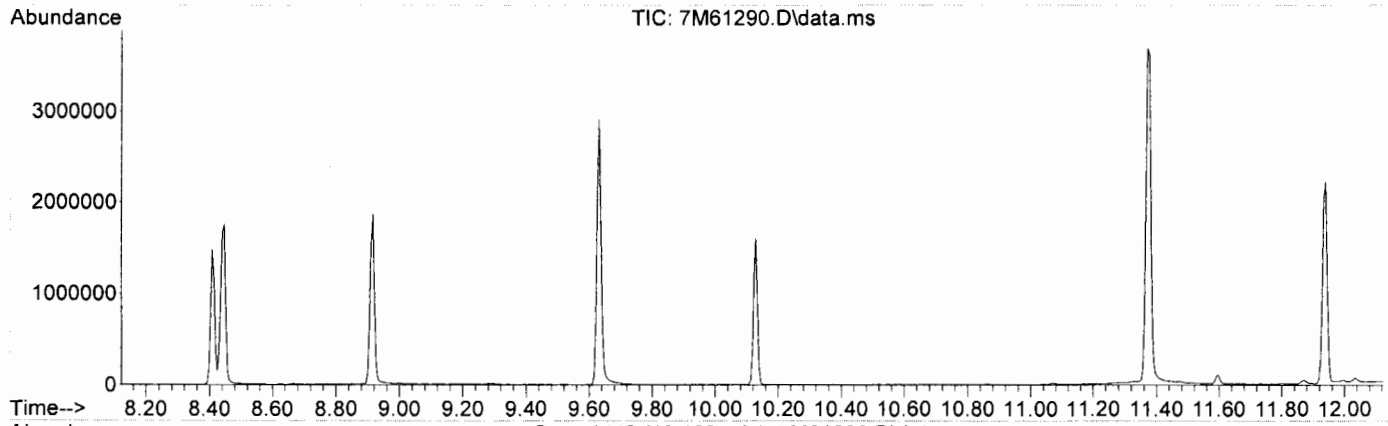
Tgt Mass	Rel Mass	Lo Lim	Hi Lim	Rel Abund	Raw Abund	Pass/ Fail
51	198	30	60	41.5	53160	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	49.9	63920	PASS
70	69	0.00	2	0.3	210	PASS
127	198	40	60	56.1	71872	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	128200	PASS
199	198	5	9	6.8	8672	PASS
275	198	10	30	26.5	34032	PASS
365	198	1	100	2.7	3412	PASS
441	443	0.01	100	73.0	12189	PASS
442	198	40	100	62.0	79528	PASS
443	442	17	23	21.0	16688	PASS

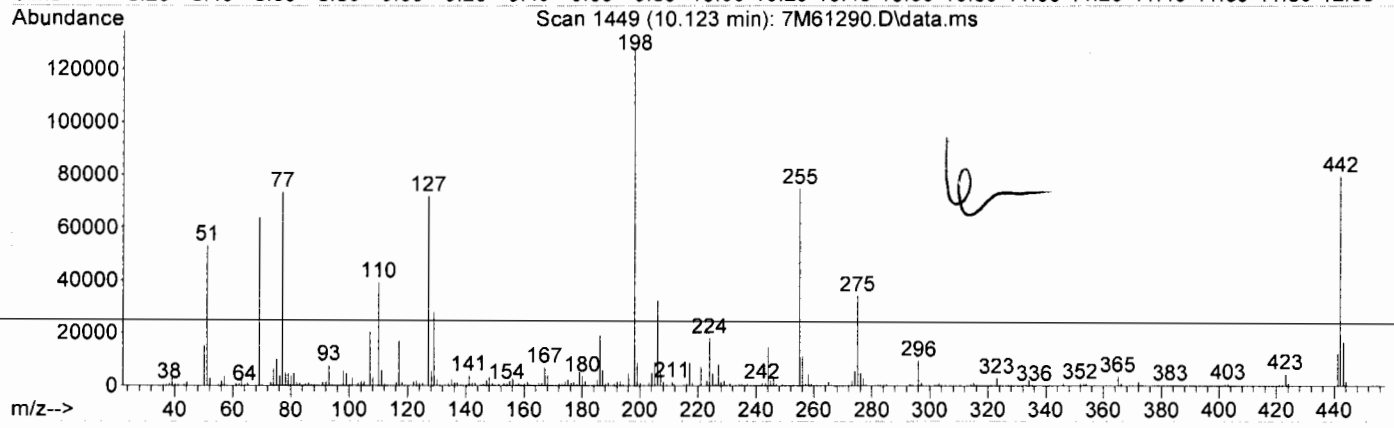
Data File	Sample Number	Analysis Date:
7M61291.D	CAL BNA@50PPM	12/05/13 09:34
7M61292.D	CAL BNA@10PPM	12/05/13 10:04
7M61293.D	CAL BNA@2PPM	12/05/13 10:27
7M61294.D	CAL BNA@.5PPM	12/05/13 10:51
7M61295.D	CAL BNA@20PPM	12/05/13 11:15
7M61296.D	CAL BNA@196PP	12/05/13 11:39
7M61297.D	CAL BNA@160PP	12/05/13 12:03
7M61298.D	CAL BNA@120PP	12/05/13 12:27
7M61299.D	CAL BNA@80PPM	12/05/13 12:50
7M61300.D	CAL BNA@50PPM	12/05/13 13:14
7M61301.D	ICV BNA@50PPM	12/05/13 13:39

Data Path : G:\GcMsData\2013\GCMS_7\Data\12-05-13\
Data File : 7M61290.D
Acq On : 5 Dec 2013 8:51
Operator : AHD/JB
Sample : CALDFTPP
Misc : A,BNA
ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : G:\GCMSDATA\2013\GCMS_7\METHODQT\7M_1205.M
Title : @GCMS_7,mg,625,8270D
Last Update : Thu Dec 05 13:35:22 2013





Spectrum Information: Scan 1449

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	41.5	53160	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	49.9	63920	PASS
70	69	0.00	2	0.3	210	PASS
127	198	40	60	56.1	71872	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	128200	PASS
199	198	5	9	6.8	8672	PASS
275	198	10	30	26.5	34032	PASS
365	198	1	100	2.7	3412	PASS
441	443	0.01	100	73.0	12189	PASS
442	198	40	100	62.0	79528	PASS
443	442	17	23	21.0	16688	PASS

Form 5

Tune Name: CAL DFTPP
Instrument: GCMS 9
Data File: 9M54179.D
Analysis Date: 12/05/13 10:17
Method: EPA 8270D

Tune Scan/Time Range: Scan 1395

Tgt Mass	Rel Mass	Lo Lim	Hi Lim	Rel Abund	Raw Abund	Pass/ Fail
51	198	30	60	39.9	33760	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	54.5	46128	PASS
70	69	0.00	2	0.6	294	PASS
127	198	40	60	55.8	47192	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	84584	PASS
199	198	5	9	7.0	5940	PASS
275	198	10	30	26.6	22496	PASS
365	198	1	100	3.3	2820	PASS
441	443	0.01	100	78.8	6149	PASS
442	198	40	100	47.2	39952	PASS
443	442	17	23	19.5	7806	PASS

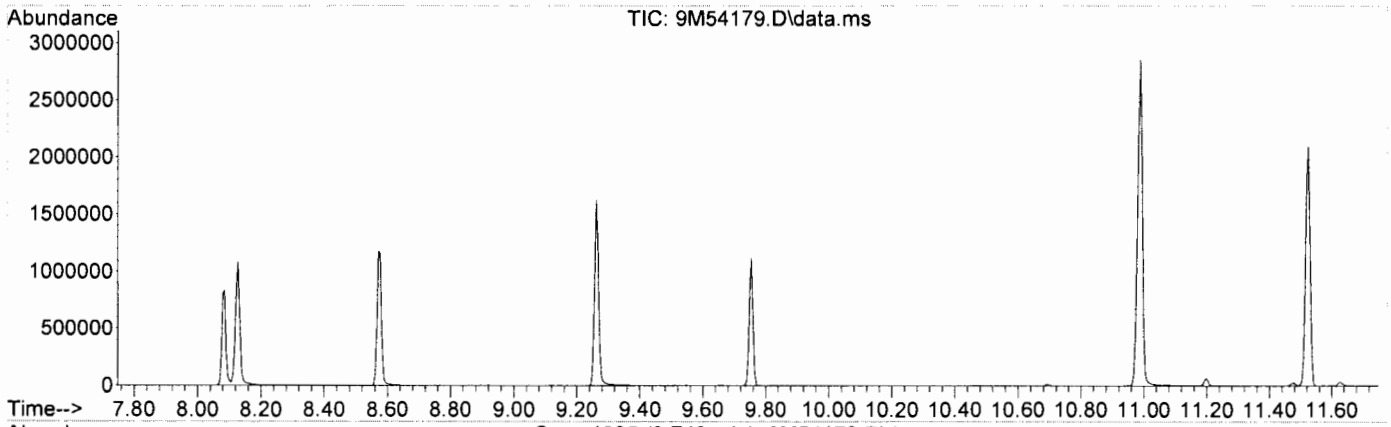
Data File	Sample Number	Analysis Date:
9M54180.D	CAL BNA@50PPM	12/05/13 10:45
9M54181.D	SMB29395(MS)	12/05/13 11:11
9M54182.D	SMB29395	12/05/13 11:34
9M54183.D	AC75875-001(R)	12/05/13 11:57
9M54184.D	AC75937-001	12/05/13 12:20
9M54185.D	AC75937-001(MS)	12/05/13 12:43
9M54186.D	AC75937-001(MSD	12/05/13 13:06
9M54187.D	AC75937-002	12/05/13 13:29
9M54188.D	AC75937-003	12/05/13 13:52
9M54189.D	AC75937-004	12/05/13 14:15
9M54190.D	AC75937-015	12/05/13 14:38
9M54191.D	AC75937-016	12/05/13 15:01
9M54192.D	AC75816-003	12/05/13 15:24
9M54193.D	AC75785-003(5X)	12/05/13 15:47
9M54194.D	SMB29402(MS)	12/05/13 16:10
9M54195.D	SMB29402	12/05/13 16:33
9M54196.D	AC75785-005(10X)	12/05/13 16:56
9M54197.D	AC75785-006(10X)	12/05/13 17:19
9M54198.D	AC75877-001(5X)(	12/05/13 17:42
9M54199.D	AC75877-002(5X)(	12/05/13 18:05
9M54200.D	AC75905-001	12/05/13 18:28
9M54201.D	AC75905-002	12/05/13 18:51
9M54202.D	AC75905-003(3X)	12/05/13 19:14
9M54203.D	AC75905-004	12/05/13 19:37
9M54204.D	AC75905-005	12/05/13 20:00
9M54205.D	AC75938-013(20X)	12/05/13 20:23
9M54206.D	AC75938-015(20X)	12/05/13 20:46
9M54207.D	AC75938-016(20X)	12/05/13 21:09
9M54208.D	AC75938-014(20X)	12/05/13 21:32
9M54209.D	AC75955-001	12/05/13 21:55

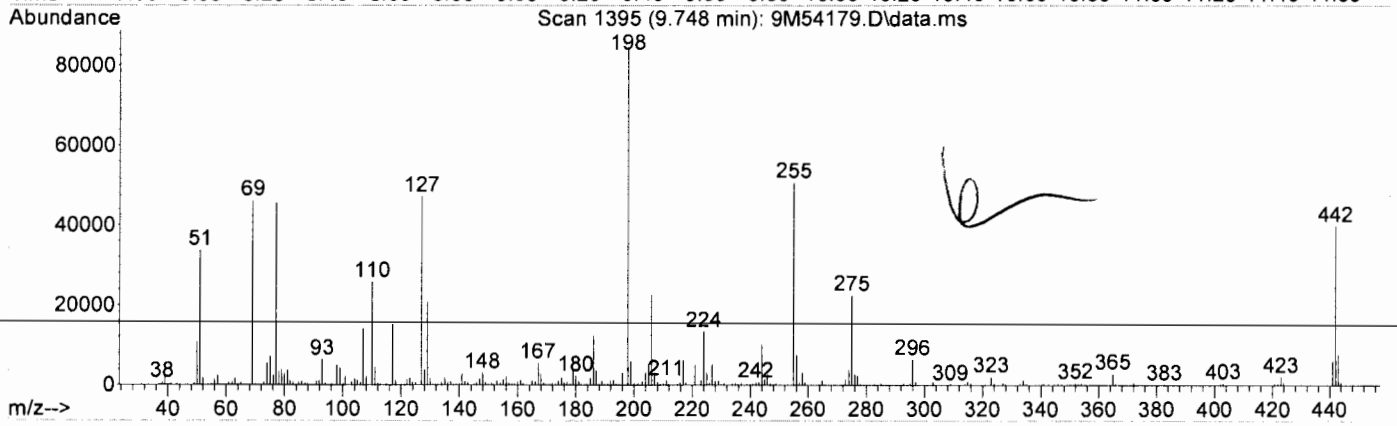
3112730 0118

Data Path : G:\GcMsData\2013\GCMS_9\Data\12-05-13\
Data File : 9M54179.D
Acq On : 5 Dec 2013 10:17
Operator : AHD/JB
Sample : CAL DFTPP
Misc : A,BNA
ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : G:\GCMSDATA\2013\GCMS_9\METHODQT\9M_1105.M
Title : @GCMS_9,mg,625,8270
Last Update : Tue Nov 05 13:39:19 2013





Spectrum Information: Scan 1395

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	39.9	33760	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	54.5	46128	PASS
70	69	0.00	2	0.6	294	PASS
127	198	40	60	55.8	47192	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	84584	PASS
199	198	5	9	7.0	5940	PASS
275	198	10	30	26.6	22496	PASS
365	198	1	100	3.3	2820	PASS
441	443	0.01	100	78.8	6149	PASS
442	198	40	100	47.2	39952	PASS
443	442	17	23	19.5	7806	PASS

Form 5

Tune Name: CALDFTPP
Instrument: GCMS 7
Data File: 7M61302.D
Analysis Date: 12/05/13 14:07
Method: EPA 8270D

Tune Scan/Time Range: Average of 10.123 to 10.128 min

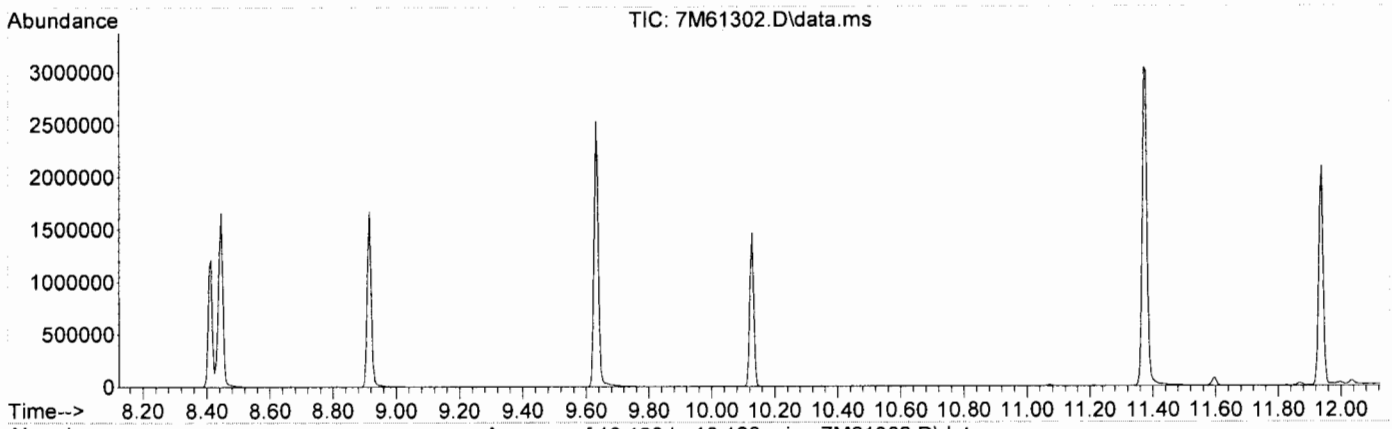
Tgt Mass	Rel Mass	Lo Lim	Hi Lim	Rel Abund	Raw Abund	Pass/ Fail
51	198	30	60	39.2	50584	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	48.1	62148	PASS
70	69	0.00	2	0.6	356	PASS
127	198	40	60	53.2	68752	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	129200	PASS
199	198	5	9	7.3	9380	PASS
275	198	10	30	29.1	37560	PASS
365	198	1	100	3.8	4900	PASS
441	443	0.01	100	82.8	18175	PASS
442	198	40	100	86.8	112112	PASS
443	442	17	23	19.6	21953	PASS

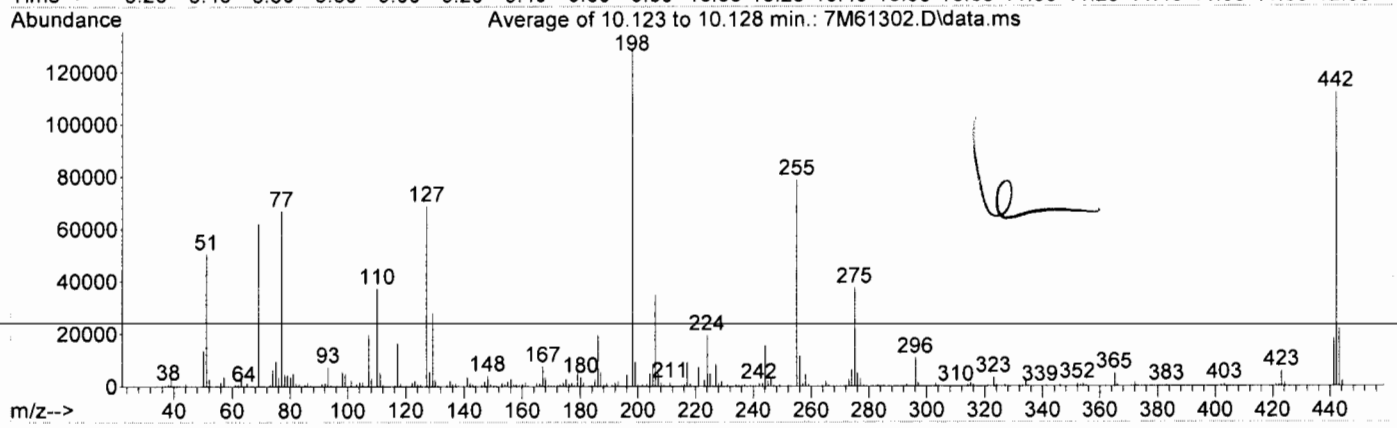
Data File	Sample Number	Analysis Date:
7M61303.D	CAL BNA@50PPM	12/05/13 14:31
7M61304.D	MBS-A	12/05/13 15:15
7M61305.D	MBS-B	12/05/13 15:38
7M61306.D	SMB29402	12/05/13 16:02
7M61307.D	MBS-C	12/05/13 16:25
7M61308.D	MBS-D	12/05/13 16:49
7M61309.D	MBS-E	12/05/13 17:13
7M61310.D	SMB29395	12/05/13 17:36
7M61311.D	AC75937-005	12/05/13 18:00
7M61312.D	AC75937-006	12/05/13 18:24
7M61313.D	AC75937-013	12/05/13 18:48
7M61314.D	AC75937-014	12/05/13 19:11
7M61315.D	AC75937-017	12/05/13 19:35
7M61316.D	AC75937-018	12/05/13 19:59
7M61317.D	AC75937-019	12/05/13 20:23
7M61318.D	AC75887-001	12/05/13 20:46
7M61319.D	AC75887-002	12/05/13 21:10
7M61320.D	AC75938-017	12/05/13 21:34
7M61321.D	AC75938-020	12/05/13 21:58
7M61322.D	AC75938-023	12/05/13 22:22

Data Path : G:\GcMsData\2013\GCMS_7\Data\12-0513\
Data File : 7M61302.D
Acq On : 5 Dec 2013 14:07
Operator : AHD/JB
Sample : CALDFTPP
Misc : A,BNA
ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : G:\GCMSDATA\2013\GCMS_7\METHODQT\7M_1205.M
Title : @GCMS_7,mg,625,8270D
Last Update : Thu Dec 05 13:35:22 2013





Spectrum Information: Average of 10.123 to 10.128 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	39.2	50584	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	48.1	62148	PASS
70	69	0.00	2	0.6	356	PASS
127	198	40	60	53.2	68752	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	129200	PASS
199	198	5	9	7.3	9380	PASS
275	198	10	30	29.1	37560	PASS
365	198	1	100	3.8	4900	PASS
441	443	0.01	100	82.8	18175	PASS
442	198	40	100	86.8	112112	PASS
443	442	17	23	19.6	21953	PASS

Form 5

Tune Name: CAL DFTPP **Data File:** 9M54210.D
Instrument: GCMS 9 **Analysis Date:** 12/06/13 08:59
Method: EPA 8270D

Tune Scan/Time Range: Average of 9.732 to 9.743 min

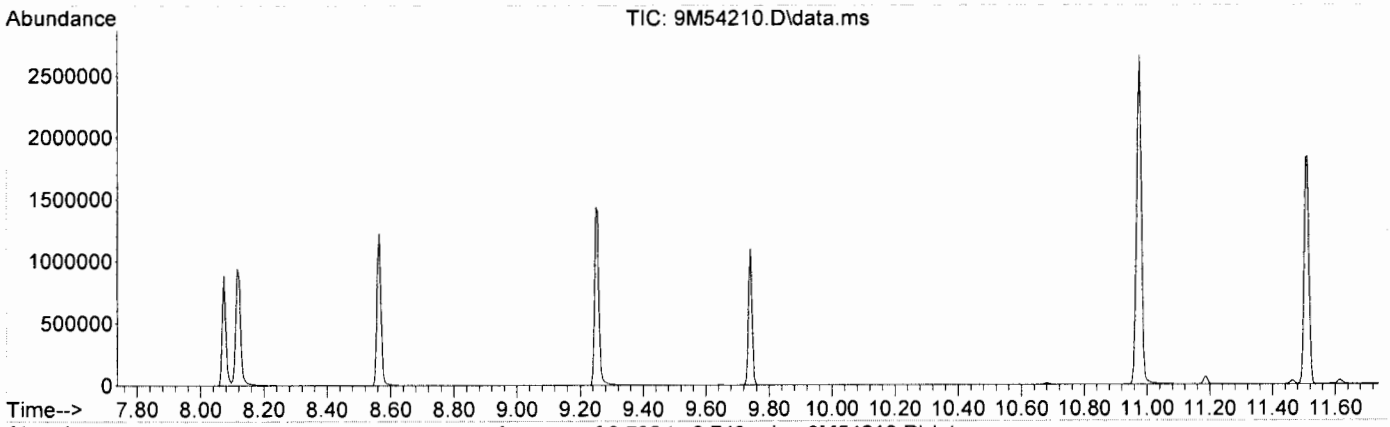
Tgt Mass	Rel Mass	Lo Lim	Hi Lim	Rel Abund	Raw Abund	Pass/ Fail
51	198	30	60	36.5	27286	PASS
68	69	0.00	2	1.6	591	PASS
69	198	0.00	100	50.1	37429	PASS
70	69	0.00	2	0.6	216	PASS
127	198	40	60	54.8	40966	PASS
197	198	0.00	1	0.1	104	PASS
198	198	100	100	100.0	74723	PASS
199	198	5	9	6.7	5028	PASS
275	198	10	30	28.9	21577	PASS
365	198	1	100	3.8	2803	PASS
441	443	0.01	100	77.4	6479	PASS
442	198	40	100	58.4	43669	PASS
443	442	17	23	19.2	8368	PASS

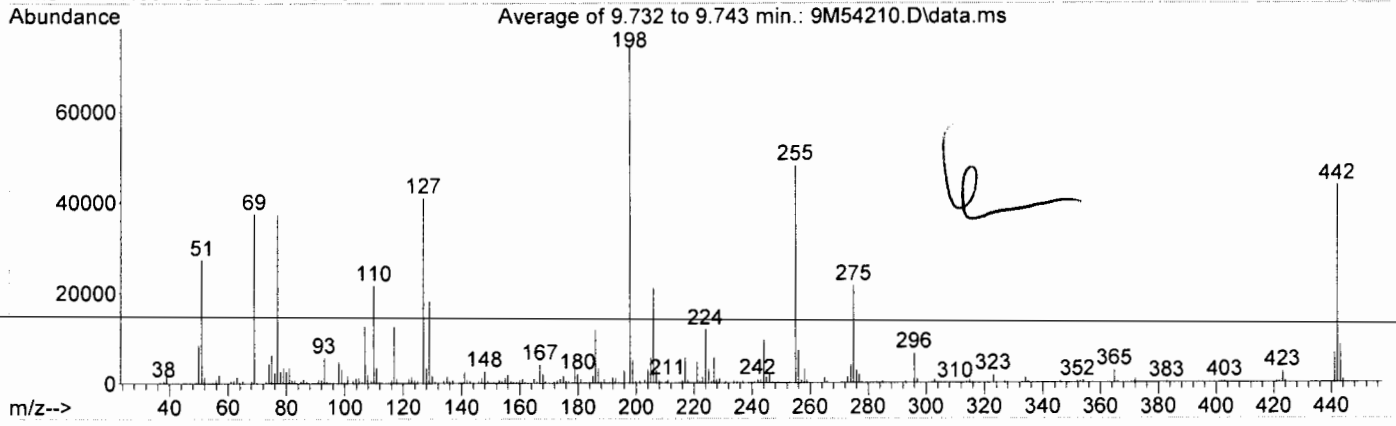
Data File	Sample Number	Analysis Date:
9M54211.D	50PPM	12/06/13 09:33
9M54212.D	CAL BNA@50PPM	12/06/13 10:01
9M54213.D	SMB29409	12/06/13 10:52
9M54214.D	SMB29407	12/06/13 11:15
9M54215.D	OMB29408	12/06/13 11:38
9M54216.D	AC76036-001	12/06/13 12:01
9M54217.D	AC76036-002	12/06/13 12:24
9M54218.D	AC76033-001	12/06/13 12:47
9M54219.D	AC76033-002	12/06/13 13:10
9M54220.D	AC76034-001	12/06/13 13:33
9M54221.D	AC76034-002	12/06/13 13:56
9M54222.D	AC75984-006	12/06/13 14:19
9M54223.D	AC76023-007	12/06/13 14:42
9M54224.D	AC76000-003	12/06/13 15:05
9M54225.D	AC75877-002(15X)	12/06/13 15:31
9M54226.D	AC75938-013(40X)	12/06/13 16:07
9M54227.D	AC75938-015(40X)	12/06/13 16:30
9M54228.D	AC75938-016(40X)	12/06/13 16:53
9M54229.D	AC75785-005(30X)	12/06/13 17:16
9M54230.D	AC76033-001(5X)	12/06/13 17:38
9M54231.D	AC75984-006(10X)	12/06/13 18:01
9M54232.D	AC75955-002	12/06/13 18:24
9M54233.D	AC75955-003	12/06/13 18:47
9M54234.D	AC75955-004	12/06/13 19:09
9M54235.D	AC75955-005	12/06/13 19:32
9M54236.D	AC75955-006	12/06/13 19:55
9M54237.D	AC75979-005	12/06/13 20:17
9M54238.D	AC75979-007	12/06/13 20:40
9M54239.D	AC75977-001(5X)	12/06/13 21:03
9M54240.D	AC75948-009(5X)	12/06/13 21:26
9M54241.D	AC75948-007(3X)	12/06/13 21:49
9M54242.D	AC75948-017(20X)	12/06/13 22:12
9M54243.D	AC75960-002(20X)	12/06/13 22:34

Data Path : G:\GcMsData\2013\GCMS_9\Data\12-06-13\
Data File : 9M54210.D
Acq On : 6 Dec 2013 8:59
Operator : AHD/JB
Sample : CAL DFTPP
Misc : A,BNA
ALS Vial : 1 Sample Multiplier: 1

Integration File: LSCINT.P

Method : G:\GCMSDATA\2013\GCMS_9\METHODQT\9M_1105.M
Title : @GCMS_9,mg,625,8270
Last Update : Tue Nov 05 13:39:19 2013





Spectrum Information: Average of 9.732 to 9.743 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	36.5	27286	PASS
68	69	0.00	2	1.6	591	PASS
69	198	0.00	100	50.1	37429	PASS
70	69	0.00	2	0.6	216	PASS
127	198	40	60	54.8	40966	PASS
197	198	0.00	1	0.1	104	PASS
198	198	100	100	100.0	74723	PASS
199	198	5	9	6.7	5028	PASS
275	198	10	30	28.9	21577	PASS
365	198	1	100	3.8	2803	PASS
441	443	0.01	100	77.4	6479	PASS
442	198	40	100	58.4	43669	PASS
443	442	17	23	19.2	8368	PASS

Form 5

Tune Name: CAL DFTPP
Instrument: GCMS 12Sm
Data File: 12M17222.D
Analysis Date: 11/14/13 08:34
Method: EPA8270D SIM

Tune Scan/Time Range: Average of 10.513 to 10.519 min

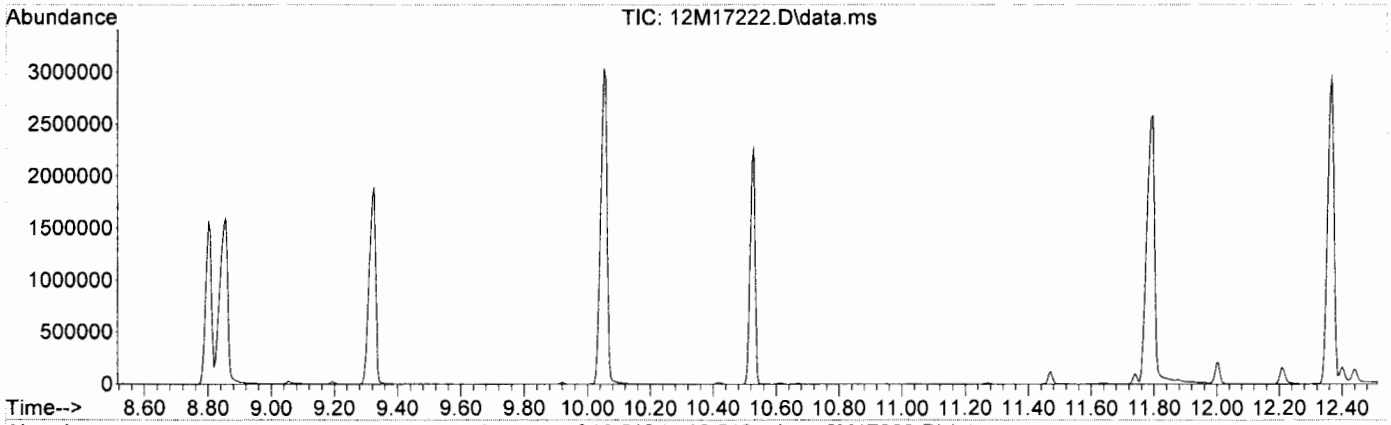
Tgt Mass	Rel Mass	Lo Lim	Hi Lim	Rel Abund	Raw Abund	Pass/ Fail
51	198	30	60	32.8	41392	PASS
68	69	0.00	2	1.8	885	PASS
69	198	0.00	100	38.7	48876	PASS
70	69	0.00	2	0.6	307	PASS
127	198	40	60	49.1	61956	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	126308	PASS
199	198	5	9	7.2	9053	PASS
275	198	10	30	25.2	31860	PASS
365	198	1	100	2.5	3176	PASS
441	443	0.01	100	73.6	10481	PASS
442	198	40	100	55.4	70012	PASS
443	442	17	23	20.3	14241	PASS

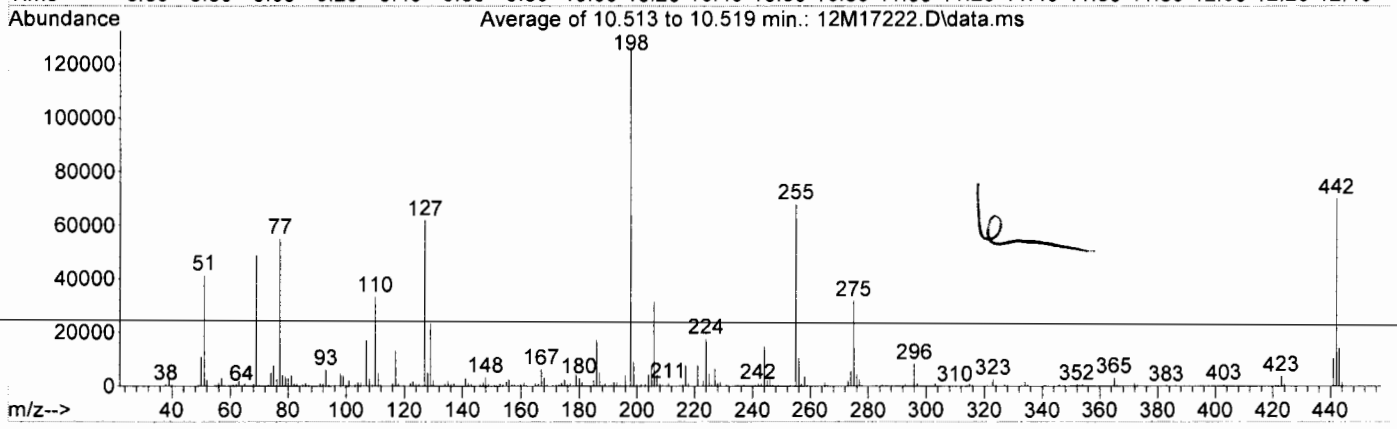
Data File	Sample Number	Analysis Date:
12M17223.D	CAL SIM@5PPM	11/14/13 08:57
12M17224.D	CAL SIM@.2PPM	11/14/13 09:27
12M17225.D	CAL SIM@.02PPM	11/14/13 09:58
12M17226.D	CAL SIM@1PPM	11/14/13 10:20
12M17227.D	CAL SIM@10PPM	11/14/13 10:44
12M17228.D	CAL SIM@19.6PP	11/14/13 11:07
12M17229.D	CAL SIM@.5PPM	11/14/13 11:30
12M17230.D	CAL SIM@5PPM	11/14/13 11:53
12M17231.D	ICV SIM@5PPM	11/14/13 12:16

Data Path : G:\GcMsData\2013\GCMS_12SM\Data\11-14-13\
Data File : 12M17222.D
Acq On : 14 Nov 2013 8:34
Operator : AHD/JB
Sample : CAL DFTPP
Misc : A,BN
ALS Vial : 1 Sample Multiplier: 1

Integration File: RTEINT.P

Method : G:\GCMSDATA\2013\GCMS_12SM\METHODQT\12SM_1029.M
Title : @GCMS_12Sm,M:8270SIM
Last Update : Wed Oct 30 07:05:22 2013





Spectrum Information: Average of 10.513 to 10.519 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	32.8	41392	PASS
68	69	0.00	2	1.8	885	PASS
69	198	0.00	100	38.7	48876	PASS
70	69	0.00	2	0.6	307	PASS
127	198	40	60	49.1	61956	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	126308	PASS
199	198	5	9	7.2	9053	PASS
275	198	10	30	25.2	31860	PASS
365	198	1	100	2.5	3176	PASS
441	443	0.01	100	73.6	10481	PASS
442	198	40	100	55.4	70012	PASS
443	442	17	23	20.3	14241	PASS

Form 5

Tune Name: CAL DFTPP
Instrument: GCMS 12Sm
Data File: 12M17481.D
Analysis Date: 12/03/13 08:52
Method: EPA8270D SIM

Tune Scan/Time Range: Scan 1481

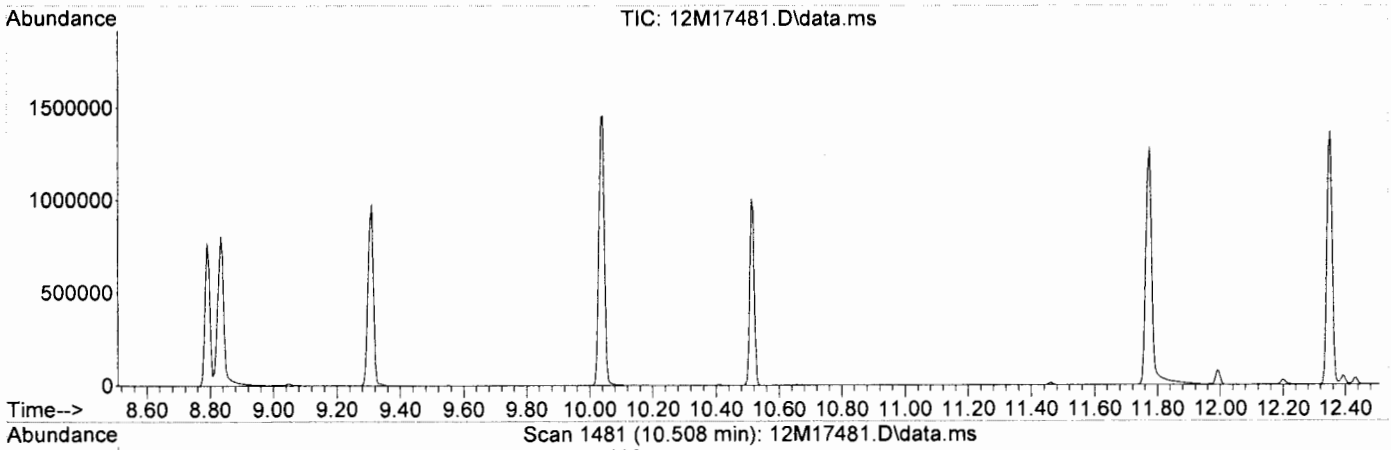
Tgt Mass	Rel Mass	Lo Lim	Hi Lim	Rel Abund	Raw Abund	Pass/ Fail
51	198	30	60	38.4	28288	PASS
68	69	0.00	2	1.6	536	PASS
69	198	0.00	100	44.5	32808	PASS
70	69	0.00	2	0.6	182	PASS
127	198	40	60	52.1	38416	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	73712	PASS
199	198	5	9	7.1	5200	PASS
275	198	10	30	22.6	16648	PASS
365	198	1	100	2.3	1715	PASS
441	443	0.01	100	73.9	5070	PASS
442	198	40	100	45.2	33312	PASS
443	442	17	23	20.6	6857	PASS

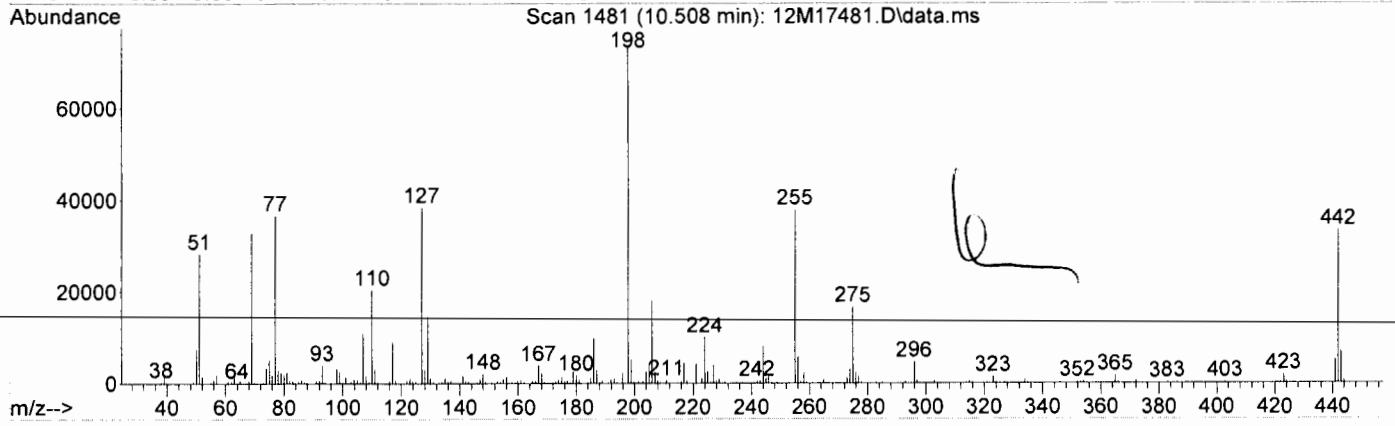
Data File	Sample Number	Analysis Date:
12M17482.D	SIM@5PPM	12/03/13 09:26
12M17483.D	CAL SIM@5PPM	12/03/13 09:51
12M17484.D	AC75782-004(T)	12/03/13 10:31
12M17485.D	AC75782-005(T)	12/03/13 10:54
12M17486.D	AC75782-006(T)	12/03/13 11:17
12M17487.D	AC75782-007(T)	12/03/13 11:40
12M17488.D	AC75782-008(T)	12/03/13 12:02
12M17489.D	AC75782-009(T)	12/03/13 12:25
12M17490.D	AC75903-014	12/03/13 12:48
12M17491.D	AC75903-015	12/03/13 13:11
12M17492.D	AC75903-017	12/03/13 13:34
12M17493.D	AC75923-001	12/03/13 13:57
12M17494.D	AC75923-002	12/03/13 14:20
12M17495.D	AC75923-003	12/03/13 14:44
12M17496.D	AC75923-004	12/03/13 15:07
12M17497.D	AC75923-005	12/03/13 15:30
12M17498.D	AC75923-006	12/03/13 15:53
12M17499.D	AC75529-001(T)	12/03/13 16:16
12M17500.D	WMB29382	12/03/13 16:39
12M17501.D	AC75762-001(R)	12/03/13 17:03
12M17502.D	WMB29386	12/03/13 17:25
12M17503.D	AC75923-007	12/03/13 17:48
12M17504.D	AC75923-008	12/03/13 18:11
12M17505.D	AC75944-001	12/03/13 18:35
12M17506.D	AC75938-027	12/03/13 18:58
12M17507.D	AC75948-006	12/03/13 19:21
12M17508.D	AC75948-014	12/03/13 19:44
12M17509.D	AC75948-025	12/03/13 20:07
12M17510.D	AC75923-005(R)	12/03/13 20:29

Data Path : G:\GcMsData\2013\GCMS_12SM\Data\12-03-13\
Data File : 12M17481.D
Acq On : 3 Dec 2013 8:52
Operator : AHD/JB
Sample : CAL DFTPP
Misc : A,BN
ALS Vial : 1 Sample Multiplier: 1

Integration File: RTEINT.P

Method : G:\GCMSDATA\2013\GCMS_12SM\METHODQT\12SM_1114.M
Title : @GCMS_12Sm,M:8270SIM
Last Update : Thu Nov 14 12:22:35 2013





Spectrum Information: Scan 1481

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	38.4	28288	PASS
68	69	0.00	2	1.6	536	PASS
69	198	0.00	100	44.5	32808	PASS
70	69	0.00	2	0.6	182	PASS
127	198	40	60	52.1	38416	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	73712	PASS
199	198	5	9	7.1	5200	PASS
275	198	10	30	22.6	16648	PASS
365	198	1	100	2.3	1715	PASS
441	443	0.01	100	73.9	5070	PASS
442	198	40	100	45.2	33312	PASS
443	442	17	23	20.6	6857	PASS

Form 5

Tune Name: CAL DFTPP
Instrument: GCMS 12Sm
Data File: 12M17539.D
Analysis Date: 12/05/13 07:49
Method: EPA8270D SIM

Tune Scan/Time Range: Scan 1480

Tgt Mass	Rel Mass	Lo Lim	Hi Lim	Rel Abund	Raw Abund	Pass/ Fail
51	198	30	60	40.1	26064	PASS
68	69	0.00	2	1.6	474	PASS
69	198	0.00	100	45.6	29632	PASS
70	69	0.00	2	0.6	172	PASS
127	198	40	60	53.8	34960	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	65000	PASS
199	198	5	9	7.3	4723	PASS
275	198	10	30	22.8	14810	PASS
365	198	1	100	2.3	1481	PASS
441	443	0.01	100	73.2	4326	PASS
442	198	40	100	45.2	29392	PASS
443	442	17	23	20.1	5908	PASS

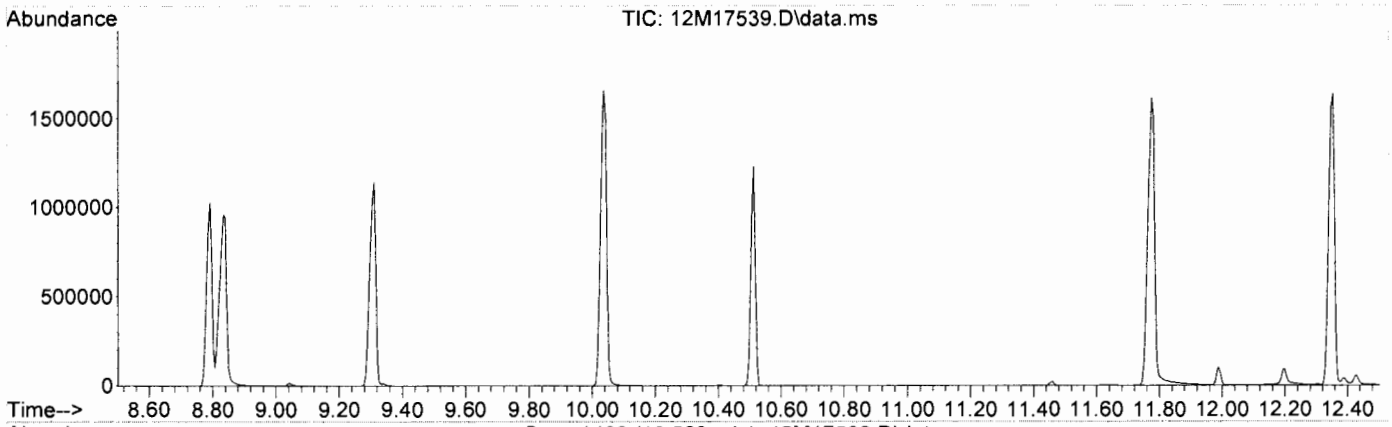
Data File	Sample Number	Analysis Date:
12M17540.D	CAL SIM@5PPM	12/05/13 08:20
12M17541.D	CAL SIM@.2PPM	12/05/13 08:52
12M17542.D	CAL SIM@.02PPM	12/05/13 09:16
12M17543.D	CAL SIM@.5PPM	12/05/13 09:39
12M17544.D	CAL SIM@1PPM	12/05/13 10:02
12M17545.D	CAL SIM@10PPM	12/05/13 10:25
12M17546.D	CAL SIM@19.6PP	12/05/13 10:48
12M17547.D	CAL SIM@5PPM	12/05/13 11:11
12M17548.D	ICV SIM@5PPM	12/05/13 11:34

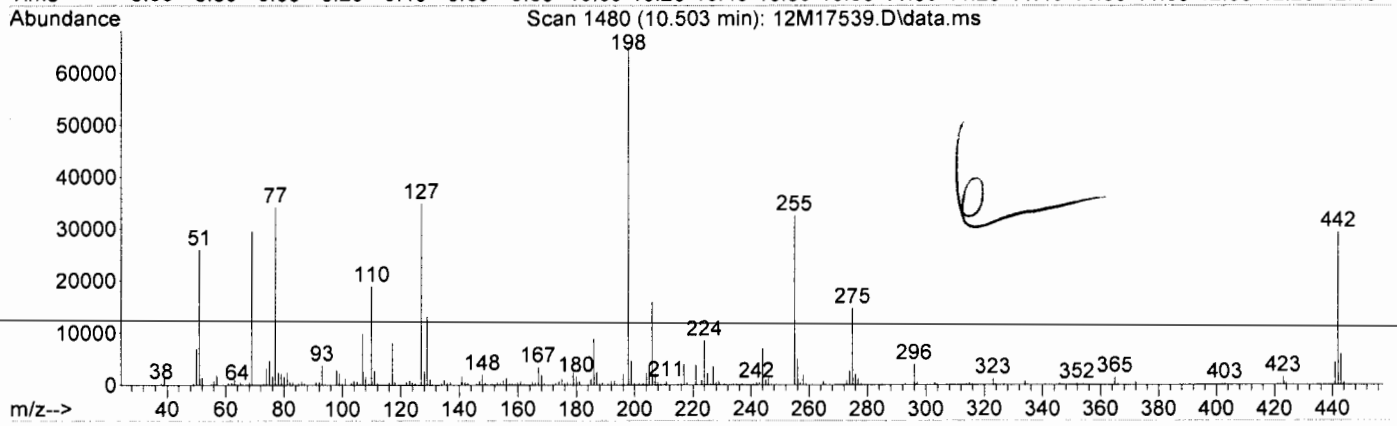
3112730 0128

Data Path : G:\GcMsData\2013\GCMS_12SM\Data\12-05-13\
Data File : 12M17539.D
Acq On : 5 Dec 2013 7:49
Operator : AHD/JB
Sample : CAL DFTPP
Misc : A,BN
ALS Vial : 1 Sample Multiplier: 1

Integration File: RTEINT.P

Method : G:\GCMSDATA\2013\GCMS_12SM\METHODQT\12SM_1204.M
Title : @GCMS_12Sm,M:8270SIM
Last Update : Wed Dec 04 13:44:10 2013





Spectrum Information: Scan 1480

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	40.1	26064	PASS
68	69	0.00	2	1.6	474	PASS
69	198	0.00	100	45.6	29632	PASS
70	69	0.00	2	0.6	172	PASS
127	198	40	60	53.8	34960	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	65000	PASS
199	198	5	9	7.3	4723	PASS
275	198	10	30	22.8	14810	PASS
365	198	1	100	2.3	1481	PASS
441	443	0.01	100	73.2	4326	PASS
442	198	40	100	45.2	29392	PASS
443	442	17	23	20.1	5908	PASS

Form 5

Tune Name: CAL DFTPP
Instrument: GCMS 12Sm
Data File: 12M17604.D
Analysis Date: 12/09/13 08:40
Method: EPA8270D SIM

Tune Scan/Time Range: Average of 10.503 to 10.508 min

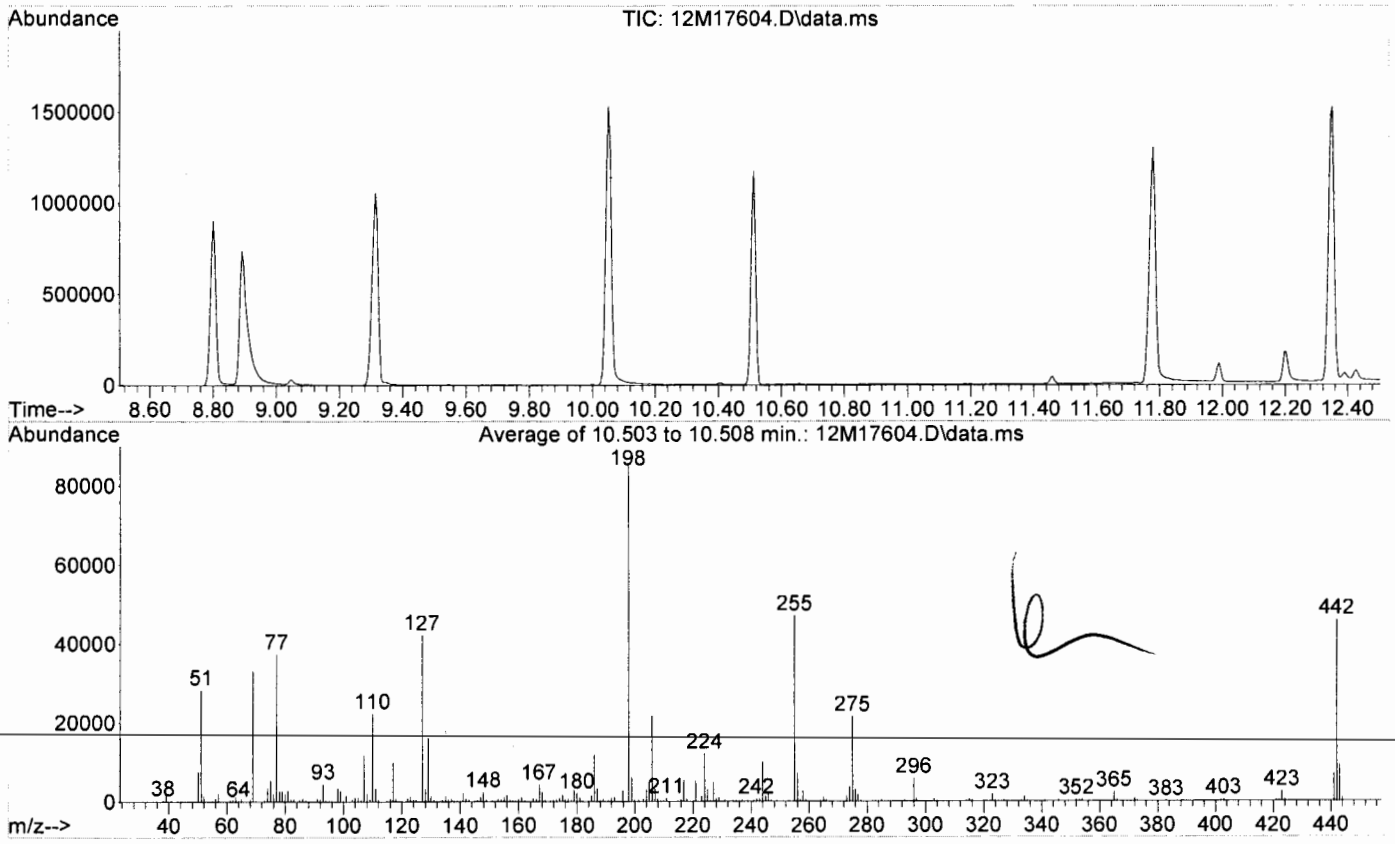
Tgt Mass	Rel Mass	Lo Lim	Hi Lim	Rel Abund	Raw Abund	Pass/ Fail
51	198	30	60	33.1	28344	PASS
68	69	0.00	2	2.0	654	PASS
69	198	0.00	100	38.7	33168	PASS
70	69	0.00	2	0.6	195	PASS
127	198	40	60	49.3	42272	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	85732	PASS
199	198	5	9	7.2	6164	PASS
275	198	10	30	25.1	21534	PASS
365	198	1	100	2.8	2397	PASS
441	443	0.01	100	75.7	6897	PASS
442	198	40	100	53.5	45880	PASS
443	442	17	23	19.9	9114	PASS

Data File	Sample Number	Analysis Date:
12M17605.D	CAL SIM@5PPM	12/09/13 09:39
12M17606.D	SMB29402	12/09/13 10:21
12M17607.D	AC75938-023	12/09/13 10:44
12M17608.D	AC75938-020	12/09/13 11:07
12M17609.D	AC75938-017	12/09/13 11:29
12M17610.D	AC75938-013(40X)	12/09/13 11:53
12M17611.D	AC75938-014(20X)	12/09/13 12:16
12M17612.D	AC75938-014(20X)	12/09/13 12:41
12M17613.D	AC75938-013(40X)	12/09/13 13:03
12M17614.D	WMB29424	12/09/13 13:45
12M17615.D	AC76075-001	12/09/13 14:08
12M17616.D	AC76075-002	12/09/13 14:30
12M17617.D	AC76075-003	12/09/13 14:53
12M17618.D	AC76075-004	12/09/13 15:16
12M17619.D	AC76080-001	12/09/13 15:39
12M17620.D	AC76040-001	12/09/13 16:02
12M17621.D	AC76040-002(10X)	12/09/13 16:25
12M17622.D	AC76040-003	12/09/13 16:48
12M17623.D	AC76040-004	12/09/13 17:11
12M17624.D	AC76019-009	12/09/13 17:33
12M17625.D	AC76019-011	12/09/13 17:56
12M17626.D	AC76019-012	12/09/13 18:19
12M17627.D	AC76019-013	12/09/13 18:42
12M17628.D	AC76040-001	12/09/13 19:05
12M17629.D	AC76019-014(40X)	12/09/13 19:27
12M17630.D	AC76019-015(50X)	12/09/13 19:50
12M17631.D	AC75785-001(T)	12/09/13 20:14
12M17632.D	AC75785-009(T)	12/09/13 20:36

Data Path : G:\GcMsData\2013\GCMS_12SM\Data\12-09-13\
Data File : 12M17604.D
Acq On : 9 Dec 2013 8:40
Operator : AHD/JB
Sample : CAL DFTPP
Misc : A,BN
ALS Vial : 1 Sample Multiplier: 1

Integration File: RTEINT.P

Method : G:\GCMSDATA\2013\GCMS_12SM\METHODQT\12SM_1205.M
Title : @GCMS_12Sm,M:8270SIM
Last Update : Thu Dec 05 12:05:25 2013



Spectrum Information: Average of 10.503 to 10.508 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	33.1	28344	PASS
68	69	0.00	2	2.0	654	PASS
69	198	0.00	100	38.7	33168	PASS
70	69	0.00	2	0.6	195	PASS
127	198	40	60	49.3	42272	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	85732	PASS
199	198	5	9	7.2	6164	PASS
275	198	10	30	25.1	21534	PASS
365	198	1	100	2.8	2397	PASS
441	443	0.01	100	75.7	6897	PASS
442	198	40	100	53.5	45880	PASS
443	442	17	23	19.9	9114	PASS

Form 6
Initial Calibration

Method: EPA 8270D

Instrument: GCMS_5

3112730 0131

Level #:	Data File:	Cal Identifier:	Analysis Date/Time	Level #:	Data File:	Cal Identifier:	Analysis Date/Time
1	5M82748.	CAL BNA@50PPM	11/01/13 12:50	2	5M82742.	CAL BNA@2PPM	11/01/13 10:32
3	5M82740.	CAL BNA@10PPM	11/01/13 09:46	4	5M82741.	CAL BNA@20PPM	11/01/13 10:09
5	5M82747.	CAL BNA@80PPM	11/01/13 12:27	6	5M82746.	CAL BNA@120PPM	11/01/13 12:04
7	5M82745.	CAL BNA@160PPM	11/01/13 11:41	8	5M82744.	CAL BNA@196PPM	11/01/13 11:18
9	5M82743.	CAL BNA@.5PPM	11/01/13 10:55				

Compound	Col	Mr	Fit:	RF1	RF2	RF3	RF4	RF5	RF6	RF7	RF8	RF9	AvgRf	RT	Corr1	Corr2	%Rsd		Calibration Level Concentrations Lvl1	Lvl2	Lvl3	Lvl4	Lvl5	Lvl6	Lvl7	Lvl8	Lvl9
Pyridine	1	0	Avg	1.7594	1.3412	1.7014	1.5801	1.7441	1.7875	1.8435	1.8865	-----	1.71	2.86	0.999	1.00	10		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
N-Nitrosodimethylamin	1	0	Avg	1.0329	0.8232	1.0034	0.9187	1.0263	1.0405	1.0711	1.0673	-----	0.998	2.79	1.00	1.00	8.5		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Fluorophenol	1	0	Avg	1.4113	1.1478	1.2986	1.2446	1.4150	1.4549	1.4729	1.5074	-----	1.37	4.48	0.999	1.00	9.2		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzaldehyde	1	0	Qua	0.7255	0.7010	0.6477	0.7598	0.6249	0.5055	0.4080	0.3413	-----	0.589	5.32	0.888	0.997	26	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Aniline	1	0	Avg	2.5242	2.0130	2.3651	2.3892	2.4764	2.4410	2.4230	2.4116	1.8396	2.32	5.42	1.00	1.00	10		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Pentachloroethane	1	0	Avg	0.4945	0.4747	0.5001	0.4675	0.4975	0.5015	0.5093	0.5019	-----	0.493	5.46	1.00	1.00	2.9	0.05	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
bis(2-Chloroethyl)ether	1	0	Avg	1.6046	1.5322	1.6311	1.5743	1.6106	1.6190	1.5361	1.5425	1.5788	1.58	5.48	0.999	1.00	2.4	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Phenol-d5	1	0	Avg	2.0652	1.7594	1.9596	1.8946	2.0403	2.0789	2.0936	2.1019	-----	2.00	5.38	1.00	1.00	6.0		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Phenol	1	0	Avg	2.3216	2.0731	2.2469	2.1668	2.3141	2.3167	2.3569	2.3537	-----	2.27	5.39	1.00	1.00	4.4	0.80	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Chlorophenol	1	0	Avg	1.5647	1.3874	1.4917	1.4377	1.5444	1.5571	1.5695	1.5725	-----	1.52	5.51	1.00	1.00	4.6	0.80	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
N-Decane	1	0	Avg	1.3349	1.3482	1.4240	1.3206	1.3179	1.2911	1.2699	1.2224	-----	1.32	5.56	0.999	1.00	4.5	0.05	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1,3-Dichlorobenzene	1	0	Avg	1.6751	1.7263	1.7400	1.6085	1.6161	1.6333	1.5954	1.6201	-----	1.65	5.65	1.00	1.00	3.4		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1,4-Dichlorobenzene	1	0	Avg	1.6708	1.7756	1.7515	1.6380	1.6314	1.6460	1.6481	1.6381	-----	1.67	5.72	1.00	1.00	3.4		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1,2-Dichlorobenzene	1	0	Avg	1.5941	1.6521	1.7016	1.5634	1.5682	1.5686	1.5547	1.5373	-----	1.59	5.84	1.00	1.00	3.5		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzyl alcohol	1	0	Avg	1.1190	0.9193	1.0746	1.0125	1.0895	1.0890	1.1053	1.0812	-----	1.06	5.82	1.00	1.00	6.2		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
bis(2-chloroisopropyl)et	1	0	Avg	1.6709	1.6706	1.7896	1.6067	1.6216	1.6158	1.5709	1.5755	-----	1.64	5.93	1.00	1.00	4.3	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Methylphenol	1	0	Avg	1.5177	1.3161	1.5141	1.4145	1.5144	1.4953	1.5094	1.5011	1.2871	1.45	5.90	1.00	1.00	6.3	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Acetophenone	1	0	Avg	2.2453	2.1362	2.3408	2.1641	2.0887	2.0167	1.9040	1.8456	-----	2.09	6.03	0.993	0.999	8.0	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Hexachloroethane	1	0	Avg	0.6182	0.5845	0.6315	0.5824	0.6088	0.6046	0.6173	0.6165	-----	0.608	6.12	1.00	1.00	2.8	0.30	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
N-Nitroso-di-n-propylan	1	0	Avg	1.1284	0.9852	1.1430	1.0804	1.0460	1.0036	0.9545	0.9328	0.9191	1.02	6.03	0.996	1.00	8.1	0.50	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
3&4-Methylphenol	1	0	Avg	1.6057	1.4097	1.6214	1.5323	1.5031	1.4555	1.3573	1.3014	1.4626	1.47	6.03	0.994	1.00	7.3		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Nitrobenzene-d5	1	0	Avg	0.1730	0.1366	0.1541	0.1580	0.1759	0.1818	0.1845	0.1830	-----	0.168	6.16	1.00	1.00	10		25.00	1.00	5.00	10.00	40.00	60.00	80.00	98.00	
Nitrobenzene	1	0	Avg	0.3945	0.3583	0.3880	0.3807	0.3949	0.3991	0.4000	0.3964	-----	0.389	6.17	1.00	1.00	3.6	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Isophorone	1	0	Avg	0.7325	0.6362	0.7017	0.7060	0.7145	0.7468	0.7382	0.7471	-----	0.715	6.36	1.00	1.00	5.1	0.40	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Nitrophenol	1	0	Qua	0.2064	0.1268	0.1711	0.1779	0.2087	0.2165	0.2174	0.2156	-----	0.193	6.42	0.999	0.999	17	0.10	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2,4-Dimethylphenol	1	0	Avg	0.4004	0.3564	0.3940	0.3859	0.3999	0.4135	0.4040	0.4054	0.3457	0.390	6.44	1.00	1.00	6.0	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Benzoic Acid	1	0	Qua	0.3336	-----	0.1402	0.2020	0.3538	0.3886	0.4032	0.3921	-----	0.316	6.53	0.998	0.998	33		50.00		10.00	20.00	80.00	120.0	160.0	196.0	
bis(2-Chloroethoxy)met	1	0	Avg	0.4781	0.4598	0.4801	0.4633	0.4709	0.4794	0.4811	0.4725	-----	0.473	6.52	1.00	1.00	1.7	0.30	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2,4-Dichlorophenol	1	0	Avg	0.3338	0.2790	0.3170	0.3160	0.3285	0.3453	0.3408	0.3415	0.2547	0.317	6.60	1.00	1.00	9.8	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
1,2,4-Trichlorobenzene	1	0	Avg	0.3548	0.3627	0.3620	0.3421	0.3516	0.3597	0.3526	0.3576	-----	0.355	6.67	1.00	1.00	1.9		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Naphthalene	1	0	Avg	1.1161	1.2289	1.1698	1.1051	1.0794	1.0897	1.0605	1.0602	1.2586	1.13	6.73	1.00	1.00	6.5	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
4-Chloroaniline	1	0	Qua	0.4674	0.4026	0.4307	0.4743	0.4361	0.4092	0.3637	0.3234	0.3832	0.410	6.76	0.982	0.999	12	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Hexachlorobutadiene	1	0	Avg	0.1926	0.1934	0.1986	0.1907	0.1918	0.1976	0.1949	0.1950	-----	0.194	6.82	1.00	1.00	1.4	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Caprolactam	1	0	Qua	0.1299	0.0831	0.1178	0.1204	0.1288	0.1465	0.1473	0.1479	-----	0.128	7.04	0.998	0.999	17	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4-Chloro-3-methylphen	1	0	Avg	0.3506	0.2823	0.3334	0.3223	0.3445	0.3659	0.3599	0.3678	-----	0.341	7.13	0.999	1.00	8.3	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Methylnaphthalene	1	0	Avg	0.7857	0.7956	0.8136	0.7766	0.7804	0.7850	0.7573	0.7527	-----	0.781	7.26	0.999	1.00	2.5	0.40	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Methylnaphthalenes (T	1	0	Avg	1.5210	1.5465	1.5717	1.4956	1.4933	1.5125	1.4672	1.4500	-----	1.51	7.26	0.999	1.00	2.6		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1,1'-Biphenyl	1	0	Avg	0.9856	1.0623	1.0395	1.0077	0.9743	0.9904	0.9718	0.9515	-----	0.998	7.63	1.00	1.00	3.7	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1,2,4,5-Tetrachloroben	1	0	Avg	0.5977	0.6133	0.6038	0.5801	0.5839	0.5731	0.5518	0.5593	-----	0.583	7.39	0.999	1.00	3.7	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Hexachlorocyclopentac	1	0	Avg	0.3436	0.2356	0.2901	0.3007	0.3502	0.3538	0.3532	0.3526	-----	0.323	7.38	0.999	1.00	13	0.05	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2,4,6-Trichlorophenol	1	0	Avg	0.4155	0.3280	0.3645	0.3783	0.4024	0.4144	0.4074	0.4048	-----	0.389	7.47	1.00	1.00	7.9	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	

Avg Rsd: 7.47

Flags

a - failed the min rf criteria

c - failed the minimum correlation coeff criteria(if applicable)

Note:

Corr 1 = Correlation Coefficient for linear Eq.

Corr 2 = Correlation Coefficient for quad Eq.

Fit = Indicates whether Avg RF, Linear, or Quadratic Curve was used for compound.

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Form 6
Initial Calibration

Method: EPA 8270D

Instrument: GCMS_5

Level #:	Data File:	Cal Identifier:	Analysis Date/Time	Level #:	Data File:	Cal Identifier:	Analysis Date/Time
1	5M82748.	CAL BNA@50PPM	11/01/13 12:50	2	5M82742.	CAL BNA@2PPM	11/01/13 10:32
3	5M82740.	CAL BNA@10PPM	11/01/13 09:46	4	5M82741.	CAL BNA@20PPM	11/01/13 10:09
5	5M82747.	CAL BNA@80PPM	11/01/13 12:27	6	5M82746.	CAL BNA@120PPM	11/01/13 12:04
7	5M82745.	CAL BNA@160PPM	11/01/13 11:41	8	5M82744.	CAL BNA@196PPM	11/01/13 11:18
9	5M82743.	CAL BNA@.5PPM	11/01/13 10:55				

Compound	Col	Mr	Fit:	RF1	RF2	RF3	RF4	RF5	RF6	RF7	RF8	RF9	AvgRf	RT	Corr1	Corr2	%Rsd		Calibration Level Concentrations Lvl1	Lvl2	Lvl3	Lvl4	Lvl5	Lvl6	Lvl7	Lvl8	Lvl9
2.4.5-Trichlorophenol	1	0	Avg	0.4389	0.3359	0.4024	0.3953	0.4270	0.4283	0.4352	0.4356	-----	0.412	7.51	1.00	1.00	8.4	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Fluorobiphenyl	1	0	Avg	1.4286	1.4840	1.4512	1.3520	1.3985	1.4151	1.3975	1.4114	-----	1.42	7.54	1.00	1.00	2.8		25.00	1.00	5.00	10.00	40.00	60.00	80.00	98.00	
2-Chloronaphthalene	1	0	Avg	1.2154	1.2077	1.2463	1.1671	1.1892	1.1705	1.1545	1.1709	-----	1.19	7.65	1.00	1.00	2.6	0.80	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1.4-Dimethylnaphthalei	1	0	Avg	0.9506	0.9880	0.9954	0.9537	0.9356	0.8981	0.8191	0.8147	-----	0.919	7.93	0.996	1.00	7.6		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Dimethylnaphthalenes	1	0	Avg	0.9506	0.9880	0.9954	0.9537	0.9356	0.8981	0.8191	0.8147	-----	0.919	7.93	0.996	1.00	7.6		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Diphenyl Ether	1	0	Avg	0.8499	0.8534	0.8655	0.8163	0.8304	0.8299	0.7915	0.7790	-----	0.827	7.72	0.999	1.00	3.7		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Nitroaniline	1	0	Avg	0.4002	0.2920	0.3690	0.3652	0.3904	0.3872	0.3843	0.3838	-----	0.372	7.73	1.00	1.00	9.2	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Coumarin	1	0	Avg	0.4906	0.4896	0.5072	0.4738	0.4801	0.4728	0.4302	0.4188	-----	0.470	7.91	0.994	0.999	6.5		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Acenaphthylene	1	0	Avg	1.9241	1.8536	1.9824	1.8350	1.9116	1.8797	1.8066	1.8389	-----	1.88	8.00	0.999	1.00	3.1	0.90	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Dimethylphthalate	1	0	Avg	1.4048	1.3844	1.4189	1.3365	1.3858	1.3748	1.3352	1.3589	-----	1.37	7.88	1.00	1.00	2.2	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2.6-Dinitrotoluene	1	0	Avg	0.3158	0.2405	0.3091	0.3071	0.3145	0.3005	0.2862	0.2902	-----	0.296	7.93	0.998	0.999	8.3	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Acenaphthene	1	0	Avg	1.2484	1.3141	1.2873	1.2134	1.2201	1.1879	1.1586	1.1712	-----	1.23	8.16	1.00	1.00	4.5	0.90	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
3-Nitroaniline	1	0	Qua	0.3795	0.2799	0.3467	0.3548	0.3582	0.3347	0.3093	0.3020	-----	0.333	8.08	0.993	0.999	10	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2.4-Dinitrophenol	1	0	Qua	0.1796	-----	0.0906	0.1193	0.1977	0.2064	0.2145	0.2176	-----	0.175	8.17	0.998	0.999	29	0.01	50.00		10.00	20.00	80.00	120.0	160.0	196.0	
Dibenzofuran	1	0	Avg	1.7568	1.8469	1.7897	1.6663	1.7236	1.7101	1.6406	1.6520	1.9955	1.75	8.31	0.999	1.00	6.4	0.80	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
2.4-Dinitrotoluene	1	0	Qua	0.4322	0.2756	0.3858	0.3837	0.4246	0.4398	0.4344	0.4369	-----	0.402	8.29	1.00	1.00	14	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4-Nitrophenol	1	0	Qua	0.2527	0.1285	0.2369	0.2297	0.2460	0.2598	0.2611	0.2667	-----	0.235	8.21	0.999	1.00	19	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2.3.4.6-Tetrachlorophe	1	0	Avg	0.3742	0.2753	0.3551	0.3543	0.3737	0.3773	0.3689	0.3736	-----	0.357	8.41	1.00	1.00	9.5	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Fluorene	1	0	Avg	1.4899	1.4746	1.4916	1.4265	1.4125	1.3971	1.3346	1.3258	-----	1.42	8.63	0.999	1.00	4.6	0.90	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4-Chlorophenyl-phenyle	1	0	Avg	0.6978	0.6947	0.6991	0.6647	0.6652	0.6715	0.6316	0.6380	-----	0.670	8.62	0.999	0.999	3.9	0.40	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Diethylphthalate	1	0	Avg	1.4081	1.2547	1.3599	1.3064	1.3456	1.3659	1.3339	1.3570	-----	1.34	8.50	1.00	1.00	3.4	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4-Nitroaniline	1	0	Qua	0.3806	0.2616	0.3467	0.3483	0.3692	0.3788	0.3731	0.3699	-----	0.354	8.64	1.00	1.00	11	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Atrazine	1	0	Avg	0.3550	0.2775	0.3387	0.3269	0.3516	0.3587	0.3489	0.3622	-----	0.340	9.26	0.999	1.00	8.1	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4.6-Dinitro-2-methylphe	1	0	Qua	0.1350	-----	0.0841	0.1010	0.1367	0.1488	0.1504	0.1512	-----	0.130	8.67	0.999	0.999	20	0.01	50.00		10.00	20.00	80.00	120.0	160.0	196.0	
n-Nitrosodiphenylamine	1	0	Avg	0.6833	0.6519	0.6750	0.6444	0.6470	0.6707	0.6398	0.6494	-----	0.658	8.73	0.999	1.00	2.5	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2.4.6-Tribromophenol	1	0	Avg	0.1186	0.0832	0.1036	0.1081	0.1168	0.1191	0.1158	0.1168	-----	0.110	8.86	1.00	1.00	11		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1.2-Diphenylhydrazine	1	0	Avg	0.7727	0.7077	0.7710	0.7426	0.8146	0.8294	0.7900	0.8000	-----	0.779	8.77	0.999	0.999	5.1		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4-Bromophenyl-phenyle	1	0	Avg	0.2258	0.2007	0.2172	0.2067	0.2095	0.2222	0.2133	0.2198	-----	0.214	9.10	0.999	0.999	3.9	0.10	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Hexachlorobenzene	1	0	Avg	0.2433	0.2534	0.2495	0.2350	0.2318	0.2407	0.2296	0.2304	-----	0.239	9.16	0.999	1.00	3.8	0.10	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
N-Octadecane	1	0	Avg	0.4270	0.3406	0.4038	0.4003	0.4055	0.4055	0.3715	0.3649	-----	0.390	9.44	0.995	0.999	7.2	0.05	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Pentachlorophenol	1	0	Qua	0.1701	-----	0.1286	0.1386	0.1681	0.1820	0.1777	0.1788	-----	0.163	9.37	0.999	0.999	13	0.05	50.00		10.00	20.00	80.00	120.0	160.0	196.0	
Phenanthrene	1	0	Avg	1.1692	1.2102	1.2220	1.1151	1.1191	1.1302	1.0587	1.0965	-----	1.14	9.60	0.999	0.999	4.9	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Anthracene	1	0	Avg	1.1919	1.1406	1.1730	1.1474	1.1463	1.1552	1.0972	1.1095	-----	1.15	9.65	0.999	1.00	2.7	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Carbazole	1	0	Avg	1.1655	1.0791	1.1574	1.0858	1.1041	1.1393	1.0721	1.1017	-----	1.11	9.83	0.999	0.999	3.3	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Di-n-butylphthalate	1	0	Qua	1.3454	0.9376	1.1930	1.2073	1.3067	1.3245	1.2754	1.2915	0.7447	1.18	10.21	0.999	0.999	17	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Fluoranthene	1	0	Avg	1.3224	1.1288	1.2767	1.2636	1.2680	1.3075	1.2217	1.2581	-----	1.26	10.93	0.999	0.999	4.8	0.60	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Pyrene	1	0	Avg	1.0808	0.9814	1.0870	1.0379	1.0544	1.0781	1.0496	1.1143	-----	1.06	11.19	0.998	0.999	3.8	0.60	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzidine	1	0	Qua	0.4909	0.2267	0.3533	0.4824	0.4386	0.3831	0.3384	0.3133	-----	0.378	11.09	0.971	0.998	24		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Terphenyl-d14	1	0	Avg	0.7455	0.6833	0.7308	0.7011	0.7272	0.7647	0.7694	0.8193	0.6579	0.733	11.37	0.998	1.00	6.7		25.00	1.00	5.00	10.00	40.00	60.00	80.00	96.00	0.25
4.4'-DDE	1	0	Avg	0.2280	0.2065	0.2237	0.2166	0.2256	0.2360	0.2271	0.2443	-----	0.226	11.31	0.998	0.999	5.1		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4.4'-DDD	1	0	Avg	0.3810	0.3037	0.3501	0.3399	0.3759	0.3887	0.3777	0.3993	-----	0.365	11.71	0.999	0.999	8.6		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	

Avg Rsd: 7.47

Flags

a - failed the min rf criteria

c - failed the minimum correlation coeff criteria(if applicable)

Note:

Corr 1 = Correlation Coefficient for linear Eq.

Corr 2 = Correlation Coefficient for quad Eq.

Fit = Indicates whether Avg RF, Linear, or Quadratic Curve was used for compound.

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Form 6
Initial Calibration

Method: EPA 8270D

Instrument: GCMS_5

Level #:	Data File:	Cal Identifier:	Analysis Date/Time	Level #:	Data File:	Cal Identifier:	Analysis Date/Time
1	5M82748.	CAL BNA@50PPM	11/01/13 12:50	2	5M82742.	CAL BNA@2PPM	11/01/13 10:32
3	5M82740.	CAL BNA@10PPM	11/01/13 09:46	4	5M82741.	CAL BNA@20PPM	11/01/13 10:09
5	5M82747.	CAL BNA@80PPM	11/01/13 12:27	6	5M82746.	CAL BNA@120PPM	11/01/13 12:04
7	5M82745.	CAL BNA@160PPM	11/01/13 11:41	8	5M82744.	CAL BNA@196PPM	11/01/13 11:18
9	5M82743.	CAL BNA@.5PPM	11/01/13 10:55				

Compound	Col	Mr	Fit:	RF1	RF2	RF3	RF4	RF5	RF6	RF7	RF8	RF9	AvgRf	RT	Corr1	Corr2	%Rsd		Calibration Level Concentrations Lvl1	Lvl2	Lvl3	Lvl4	Lvl5	Lvl6	Lvl7	Lvl8	Lvl9
Butylbenzylphthalate	1	0	Qua	0.4818	0.2915	0.3917	0.4125	0.4818	0.5044	0.5021	0.5250	-----	0.449	11.97	0.998	1.00	18	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4,4'-DDT	1	0	Avg	0.3385	0.2064	0.2963	0.3032	0.3291	0.3312	0.3281	0.3346	-----	0.308	12.06	1.00	1.00	14		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
3,3'-Dichlorobenzidine	1	0	Qua	0.3369	0.2421	0.3099	0.3255	0.3111	0.2989	0.2722	0.2701	-----	0.296	12.59	0.993	0.999	11	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzo[a]anthracene	1	0	Avg	1.0682	1.0649	1.0762	1.0178	1.0241	1.0603	1.0387	1.0982	-----	1.06	12.61	0.998	0.999	2.6	0.80	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Chrysene	1	0	Avg	0.9495	0.9947	0.9919	0.9313	0.9071	0.8924	0.8619	0.8693	-----	0.925	12.65	0.999	1.00	5.5	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
bis(2-Ethylhexyl)phthal	1	0	Qua	0.6815	0.4072	0.5650	0.5861	0.6615	0.6572	0.6202	0.6183	-----	0.600	12.66	0.998	0.999	15	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Di-n-octylphthalate	1	0	Qua	1.3415	0.6556	0.9999	1.0718	1.3269	1.4254	1.3683	1.4213	-----	1.20	13.41	0.999	0.999	23	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzo[b]fluoranthene	1	0	Avg	1.2072	1.0126	1.1018	1.0953	1.1350	1.1999	1.1980	1.2179	-----	1.15	13.82	0.999	1.00	6.3	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzo[k]fluoranthene	1	0	Avg	1.1259	1.1432	1.1985	1.0876	1.1207	1.1161	1.0396	1.1180	-----	1.12	13.85	0.997	0.997	4.0	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzo[a]pyrene	1	0	Avg	1.1288	1.0198	1.0621	1.0339	1.0935	1.1182	1.0722	1.1073	-----	1.08	14.17	0.999	0.999	3.7	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Indeno[1,2,3-cd]pyrene	1	0	Avg	1.2371	1.1067	1.2096	1.1734	1.1974	1.2487	1.1678	1.2319	-----	1.20	15.49	0.999	0.999	3.9	0.50	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Dibenzo[a,h]anthracene	1	0	Avg	1.0377	0.9375	1.0014	0.9926	0.9981	1.0475	0.9723	1.0274	-----	1.00	15.51	0.998	0.998	3.6	0.40	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzo[g,h,i]perylene	1	0	Avg	1.0404	0.9870	1.0521	0.9813	1.0108	1.0496	0.9670	1.0187	-----	1.01	15.85	0.998	0.998	3.2	0.50	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	

Avg Rsd: 7.47

Flags
a - failed the min rf criteria

c - failed the minimum correlation coeff criteria(if applicable)

Note:
Corr 1 = Correlation Coefficient for linear Eq.
Corr 2 = Correlation Coefficient for quad Eq.
Fit = Indicates whether Avg RF, Linear, or Quadratic Curve was used for compound.

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Form 6
Initial Calibration

Method: EPA 8270D

Instrument: GCMS_9

Level #:	Data File:	Cal Identifier:	Analysis Date/Time	Level #:	Data File:	Cal Identifier:	Analysis Date/Time
1	9M53699.	CAL BNA@50PPM	11/05/13 13:10	2	9M53692.	CAL BNA@2PPM	11/05/13 10:32
3	9M53691.	CAL BNA@10PPM	11/05/13 10:09	4	9M53694.	CAL BNA@20PPM	11/05/13 11:17
5	9M53698.	CAL BNA@80PPM	11/05/13 12:47	6	9M53697.	CAL BNA@120PPM	11/05/13 12:25
7	9M53696.	CAL BNA@160PPM	11/05/13 12:02	8	9M53695.	CAL BNA@196PPM	11/05/13 11:40
9	9M53693.	CAL BNA@.5PPM	11/05/13 10:54				

Compound	Col	Mr	Fit:	RF1	RF2	RF3	RF4	RF5	RF6	RF7	RF8	RF9	AvgRf	RT	Corr1	Corr2	%Rsd		Calibration Level Concentrations Lvl1	Lvl2	Lvl3	Lvl4	Lvl5	Lvl6	Lvl7	Lvl8	Lvl9
Pyridine	1	0	Avg	1.0871	0.9389	1.0542	1.0531	1.0914	1.1995	1.1917	1.2306	-----	1.11	2.89	0.998	1.00	8.8		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
N-Nitrosodimethylamin	1	0	Avg	0.6439	0.5516	0.6416	0.5978	0.6647	0.7163	0.7258	0.7528	-----	0.662	2.83	0.998	1.00	10		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Fluorophenol	1	0	Avg	1.2132	1.1022	1.1233	1.0953	1.2586	1.3877	1.4240	1.5058	-----	1.26	4.51	0.994	1.00	13		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzaldehyde	1	0	Qua	0.6156	0.6368	0.6766	0.6823	0.5059	0.2989	0.1417	-----	-----	0.508	5.35	0.722	0.997	41	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0		
Aniline	1	0	Avg	1.8903	1.6218	1.8126	1.7497	1.8787	1.9324	1.8783	1.9898	1.6437	1.82	5.44	0.999	1.00	7.0		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Pentachloroethane	1	0	Avg	0.4919	0.4536	0.4834	0.4524	0.4822	0.5200	0.5087	0.5325	-----	0.491	5.48	0.998	0.999	5.9	0.05	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
bis(2-Chloroethyl)ether	1	0	Avg	1.1785	1.1227	1.1609	1.0958	1.1691	1.2725	1.2548	1.3060	1.3559	1.21	5.50	0.998	1.00	7.3	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Phenol-d5	1	0	Avg	1.6949	1.4873	1.5424	1.5010	1.7888	1.9259	1.9510	2.0757	-----	1.75	5.42	0.996	1.00	13		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Phenol	1	0	Qua	1.7873	1.6013	1.6626	1.5919	1.8729	2.0334	2.0684	2.2294	-----	1.86	5.43	0.995	1.00	13	0.80	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Chlorophenol	1	0	Avg	1.4946	1.3627	1.4424	1.3976	1.5080	1.5980	1.5861	1.6580	-----	1.51	5.54	0.999	1.00	6.8	0.80	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
N-Decane	1	0	Avg	0.9084	0.9077	0.9563	0.8829	0.9047	0.9902	1.0172	1.0805	-----	0.956	5.58	0.995	1.00	7.2	0.05	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1.3-Dichlorobenzene	1	0	Avg	1.6218	1.7026	1.6812	1.5778	1.6598	1.7877	1.8085	1.9052	-----	1.72	5.67	0.997	1.00	6.3		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1.4-Dichlorobenzene	1	0	Avg	1.6403	1.7500	1.6568	1.5701	1.6559	1.7715	1.8048	1.9244	-----	1.72	5.74	0.996	1.00	6.6		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1.2-Dichlorobenzene	1	0	Avg	1.5347	1.5309	1.5336	1.4748	1.5437	1.6740	1.7029	1.8186	-----	1.60	5.86	0.996	1.00	7.3		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzyl alcohol	1	0	Qua	0.8834	0.7675	0.8307	0.8041	0.9186	0.9630	0.9809	1.0468	-----	0.899	5.84	0.996	1.00	11		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
bis(2-chloroisopropyl)e	1	0	Avg	0.8882	0.8781	0.9231	0.8533	0.8811	0.9250	0.9424	0.9953	-----	0.911	5.95	0.997	1.00	5.0	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Methylphenol	1	0	Avg	1.2131	1.1975	1.2012	1.1230	1.2645	1.3545	1.3673	1.4570	1.2990	1.28	5.93	0.997	1.00	8.2	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Acetophenone	1	0	Qua	2.2073	1.8401	1.9798	1.9540	2.3741	2.5587	2.5722	2.7461	-----	2.28	6.06	0.987	0.999	15	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Hexachloroethane	1	0	Avg	0.6229	0.6034	0.6124	0.5878	0.6342	0.6851	0.6849	0.7279	-----	0.645	6.13	0.997	1.00	7.6	0.30	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
N-Nitroso-di-n-propylan	1	0	Qua	1.1313	0.9573	1.0077	0.9604	1.2067	1.2592	1.2588	1.3440	0.8954	1.11	6.05	0.995	0.999	15	0.50	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
3&4-Methylphenol	1	0	Qua	1.4465	1.2266	1.2454	1.2363	1.5677	1.7080	1.7378	1.8710	1.1552	1.47	6.06	0.995	1.00	18		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Nitrobenzene-d5	1	0	Avg	0.1698	0.1705	0.1783	0.1571	0.1703	0.1828	0.1857	0.1911	-----	0.176	6.18	0.998	1.00	6.2		25.00	1.00	5.00	10.00	40.00	60.00	80.00	98.00	
Nitrobenzene	1	0	Avg	0.3841	0.3890	0.3909	0.3591	0.3834	0.4109	0.4218	0.4296	-----	0.396	6.19	0.998	1.00	5.8	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Isophorone	1	0	Avg	0.6485	0.5760	0.6201	0.5914	0.6714	0.7008	0.7073	0.7206	-----	0.655	6.38	0.999	1.00	8.4	0.40	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Nitrophenol	1	0	Qua	0.2149	0.1761	0.2060	0.1957	0.2238	0.2398	0.2475	0.2570	-----	0.220	6.44	0.996	1.00	12	0.10	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2.4-Dimethylphenol	1	0	Qua	0.4085	0.3683	0.3932	0.3713	0.4107	0.4365	0.4484	0.4601	0.4030	0.411	6.47	0.997	1.00	7.8	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Benzoic Acid	1	0	Qua	0.1560	-----	0.0394	0.0672	0.2301	0.2743	0.2981	0.3176	-----	0.198	6.57	0.981	0.997	57		50.00		10.00	20.00	80.00	120.0	160.0	196.0	
bis(2-Chloroethoxy)met	1	0	Avg	0.3726	0.3596	0.3613	0.3419	0.3871	0.4132	0.4265	0.4368	-----	0.387	6.54	0.998	1.00	8.9	0.30	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2.4-Dichlorophenol	1	0	Avg	0.3384	0.3270	0.3341	0.3135	0.3487	0.3742	0.3895	0.4165	0.2998	0.349	6.62	0.995	1.00	11	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
1.2.4-Trichlorobenzene	1	0	Avg	0.3776	0.3733	0.3726	0.3628	0.3911	0.4253	0.4396	0.4647	-----	0.401	6.69	0.996	1.00	9.3		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Naphthalene	1	0	Avg	1.1107	1.1056	1.1339	1.0574	1.1566	1.2503	1.3017	1.3809	1.2338	1.19	6.75	0.995	1.00	8.9	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
4-Chloroaniline	1	0	Avg	0.4320	0.4022	0.4382	0.4283	0.4378	0.4032	0.3888	0.3666	0.3846	0.409	6.79	0.996	1.00	6.4	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Hexachlorobutadiene	1	0	Avg	0.2346	0.2257	0.2390	0.2294	0.2483	0.2688	0.2826	0.2995	-----	0.254	6.83	0.994	1.00	11	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Caprolactam	1	0	Qua	0.1169	0.0924	0.1114	0.1067	0.1344	0.1373	0.1414	0.1465	-----	0.123	7.07	0.996	0.999	16	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4-Chloro-3-methylphen	1	0	Qua	0.3443	0.3224	0.3374	0.3163	0.3660	0.3860	0.4036	0.4231	-----	0.362	7.15	0.996	1.00	11	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Methylnaphthalene	1	0	Avg	0.8467	0.7550	0.8014	0.7702	0.8859	0.9547	0.9911	1.0384	-----	0.880	7.28	0.996	1.00	12	0.40	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Methylnaphthalenes (T	1	0	Avg	1.6044	1.4838	1.5527	1.4645	1.6756	1.8007	1.8758	1.9763	-----	1.68	7.28	0.996	1.00	11		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1.1'-Biphenyl	1	0	Avg	1.0488	1.0091	1.0140	0.9698	1.1122	1.1981	1.2538	1.3500	-----	1.12	7.65	0.994	1.00	12	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1.2.4.5-Tetrachloroben	1	0	Avg	0.6672	0.6684	0.6584	0.6203	0.6775	0.7375	0.7525	0.7849	-----	0.696	7.41	0.997	1.00	8.0	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Hexachlorocyclopentac	1	0	Qua	0.1938	-----	0.0758	0.1007	0.2233	0.2700	0.2922	0.3097	-----	0.209	7.39	0.987	0.999	44	0.05	50.00		10.00	20.00	80.00	120.0	160.0	196.0	
2.4.6-Trichlorophenol	1	0	Qua	0.4441	0.3739	0.4217	0.3923	0.4498	0.4951	0.5014	0.5298	-----	0.451	7.50	0.995	1.00	12	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	

Avg Rsd: 12.3

Flags

a - failed the min rf criteria

c - failed the minimum correlation coeff criteria(if applicable)

Note:

Corr 1 = Correlation Coefficient for linear Eq.

Corr 2 = Correlation Coefficient for quad Eq.

Fit = Indicates whether Avg RF, Linear, or Quadratic Curve was used for compound.

3112730 0135

Form 6
Initial Calibration

Method: EPA 8270D

Instrument: GCMS_9

Level #:	Data File:	Cal Identifier:	Analysis Date/Time	Level #:	Data File:	Cal Identifier:	Analysis Date/Time
1	9M53699.	CAL BNA@50PPM	11/05/13 13:10	2	9M53692.	CAL BNA@2PPM	11/05/13 10:32
3	9M53691.	CAL BNA@10PPM	11/05/13 10:09	4	9M53694.	CAL BNA@20PPM	11/05/13 11:17
5	9M53698.	CAL BNA@80PPM	11/05/13 12:47	6	9M53697.	CAL BNA@120PPM	11/05/13 12:25
7	9M53696.	CAL BNA@160PPM	11/05/13 12:02	8	9M53695.	CAL BNA@196PPM	11/05/13 11:40
9	9M53693.	CAL BNA@.5PPM	11/05/13 10:54				

Compound	Col	Mr	Fit:	RF1	RF2	RF3	RF4	RF5	RF6	RF7	RF8	RF9	AvgRf	RT	Corr1	Corr2	%Rsd		Calibration Level Concentrations Lvl1	Lvl2	Lvl3	Lvl4	Lvl5	Lvl6	Lvl7	Lvl8	Lvl9
2,4,5-Trichlorophenol	1	0	Avg	0.4388	0.3829	0.4178	0.3961	0.4490	0.4813	0.4820	0.4956	-----	0.443	7.53	0.999	1.00	9.4	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Fluorobiphenyl	1	0	Avg	1.4703	1.4662	1.4773	1.3258	1.4300	1.5342	1.5365	1.5816	-----	1.48	7.57	0.998	1.00	5.3		25.00	1.00	5.00	10.00	40.00	60.00	80.00	98.00	
2-Chloronaphthalene	1	0	Avg	1.2396	1.2072	1.2249	1.1532	1.2342	1.3530	1.3538	1.4298	-----	1.27	7.67	0.997	1.00	7.3	0.80	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1,4-Dimethylnaphthaler	1	0	Qua	1.0382	0.9240	0.9745	0.9102	1.1302	1.2818	1.3105	1.3933	-----	1.12	7.96	0.990	0.999	17		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Dimethylnaphthalenes	1	0	Qua	1.0382	0.9240	0.9745	0.9102	1.1302	1.2818	1.3105	1.3933	-----	1.12	7.96	0.990	0.999	17		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Diphenyl Ether	1	0	Avg	0.9038	0.8455	0.8565	0.7995	0.9517	1.0853	1.1111	1.1588	-----	0.964	7.74	0.995	0.999	14		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Nitroaniline	1	0	Avg	0.4735	0.4593	0.4851	0.4380	0.4616	0.4870	0.4858	0.4974	-----	0.473	7.76	0.999	1.00	4.1	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Coumarin	1	0	Avg	0.5028	0.4719	0.4671	0.4517	0.5472	0.6025	0.6110	0.6456	-----	0.538	7.95	0.996	1.00	14		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Acenaphthylene	1	0	Avg	1.9299	1.8447	1.9017	1.7850	1.9619	2.1343	2.2158	2.3729	-----	2.02	8.03	0.994	1.00	10	0.90	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Dimethylphthalate	1	0	Avg	1.5271	1.5239	1.4694	1.3891	1.5501	1.6495	1.6629	1.7614	-----	1.57	7.90	0.997	1.00	7.6	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2,6-Dinitrotoluene	1	0	Avg	0.3503	0.3266	0.3553	0.3219	0.3599	0.3817	0.3839	0.4150	-----	0.362	7.96	0.996	1.00	8.6	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Acenaphthene	1	0	Avg	1.3017	1.2004	1.2482	1.1607	1.3301	1.4307	1.4989	1.5892	-----	1.35	8.18	0.995	1.00	11	0.90	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
3-Nitroaniline	1	0	Avg	0.3514	0.3105	0.3577	0.3304	0.3398	0.3330	0.3179	0.3355	-----	0.335	8.11	0.998	0.998	4.7	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2,4-Dinitrophenol	1	0	Qua	0.1481	-----	0.0377	0.0754	0.1731	0.1961	0.2077	0.2181	-----	0.151	8.21	0.994	0.999	46	0.01	50.00		10.00	20.00	80.00	120.0	160.0	196.0	
Dibenzofuran	1	0	Qua	1.8290	1.7800	1.7642	1.6431	1.8722	2.0345	2.0945	2.2989	1.7930	1.90	8.34	0.993	0.999	11	0.80	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
2,4-Dinitrotoluene	1	0	Qua	0.4677	0.3674	0.4279	0.4179	0.4924	0.5259	0.5559	0.6086	-----	0.483	8.32	0.992	1.00	16	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4-Nitrophenol	1	0	Qua	0.2401	0.1699	0.2153	0.2053	0.2777	0.2785	0.3010	0.3115	-----	0.250	8.25	0.993	0.999	20	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2,3,4,6-Tetrachlorophe	1	0	Qua	0.3912	0.2702	0.3500	0.3422	0.4143	0.4373	0.4537	0.4993	-----	0.395	8.44	0.993	1.00	18	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Fluorene	1	0	Avg	1.5653	1.4631	1.5074	1.4236	1.6228	1.7311	1.7688	1.8965	-----	1.62	8.66	0.996	1.00	10	0.90	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4-Chlorophenyl-phenyl	1	0	Qua	0.8263	0.7412	0.7802	0.7394	0.8899	0.9681	1.0040	1.0821	-----	0.879	8.65	0.994	1.00	15	0.40	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Diethylphthalate	1	0	Avg	1.5195	1.4056	1.4479	1.3932	1.6010	1.6972	1.7165	1.8350	-----	1.58	8.53	0.996	1.00	10	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4-Nitroaniline	1	0	Avg	0.3440	0.2931	0.3421	0.3218	0.3502	0.3536	0.3544	0.3813	-----	0.343	8.68	0.998	0.999	7.6	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Atrazine	1	0	Avg	0.4254	0.3719	0.4011	0.3859	0.4308	0.4329	0.4391	0.4741	-----	0.420	9.29	0.997	0.999	7.8	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4,6-Dinitro-2-methylphe	1	0	Qua	0.1233	-----	0.0676	0.0928	0.1303	0.1463	0.1520	0.1658	-----	0.125	8.71	0.994	1.00	28	0.01	50.00		10.00	20.00	80.00	120.0	160.0	196.0	
n-Nitrosodiphenylamine	1	0	Avg	0.6892	0.6414	0.6601	0.6056	0.6837	0.7520	0.7737	0.8192	-----	0.703	8.76	0.995	1.00	10	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2,4,6-Tribromophenol	1	0	Qua	0.1123	0.0816	0.1049	0.0989	0.1167	0.1318	0.1376	0.1472	-----	0.116	8.89	0.991	1.00	19		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1,2-Diphenylhydrazine	1	0	Avg	0.8513	0.6856	0.7247	0.6892	0.8194	0.8980	0.8983	0.9286	-----	0.812	8.80	0.997	0.999	12		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4-Bromophenyl-phenyl	1	0	Avg	0.2698	0.2420	0.2597	0.2350	0.2747	0.3055	0.3142	0.3306	-----	0.279	9.13	0.996	1.00	12	0.10	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Hexachlorobenzene	1	0	Avg	0.2781	0.2739	0.2690	0.2498	0.2861	0.3122	0.3200	0.3346	-----	0.290	9.20	0.991	0.999	10	0.10	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
N-Octadecane	1	0	Avg	0.3517	0.2830	0.3168	0.3022	0.3542	0.3987	0.4124	0.4419	-----	0.358	9.46	0.994	1.00	16	0.05	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Pentachlorophenol	1	0	Qua	0.1351	-----	0.0522	0.0839	0.1529	0.1744	0.1871	0.2018	-----	0.141	9.40	0.991	1.00	39	0.05	50.00		10.00	20.00	80.00	120.0	160.0	196.0	
Phenanthrene	1	0	Avg	1.1292	1.1309	1.1023	1.0242	1.1644	1.2595	1.2924	1.3729	-----	1.18	9.64	0.996	1.00	9.7	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Anthracene	1	0	Avg	1.1526	1.0691	1.1106	1.0466	1.1788	1.2730	1.3114	1.3866	-----	1.19	9.69	0.996	1.00	10	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Carbazole	1	0	Avg	1.0894	0.9901	1.0662	0.9759	1.1248	1.1956	1.2330	1.2898	-----	1.12	9.87	0.997	1.00	10	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Di-n-butylphthalate	1	0	Qua	1.4269	1.1389	1.2674	1.2326	1.5049	1.5952	1.6363	1.7297	1.1019	1.40	10.24	0.994	1.00	16	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Fluoranthene	1	0	Avg	1.4435	1.2648	1.3364	1.2776	1.5138	1.5634	1.6015	1.6794	-----	1.46	10.97	0.998	1.00	11	0.60	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Pyrene	1	0	Avg	1.1493	1.0475	1.0717	1.0345	1.1143	1.2446	1.1873	1.2159	-----	1.13	11.23	0.998	0.999	7.0	0.60	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzidine	1	0	Qua	0.3948	0.2901	0.3931	0.4279	0.3378	0.2908	0.2628	0.2478	-----	0.331	11.13	0.967	0.997	21		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Terphenyl-d14	1	0	Avg	0.7908	0.6983	0.7637	0.7293	0.7496	0.8277	0.8059	0.8564	-----	0.778	11.41	0.998	0.999	6.7		25.00	1.00	5.00	10.00	40.00	60.00	80.00	96.00	
4,4'-DDE	1	0	Avg	0.2690	0.2361	0.2414	0.2350	0.2678	0.3051	0.2962	0.3070	-----	0.270	11.35	0.998	0.999	11		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4,4'-DDD	1	0	Qua	0.4462	0.3527	0.3891	0.3814	0.4416	0.5025	0.4835	0.5033	-----	0.438	11.75	0.996	0.999	13		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	

Avg Rsd: 12.3

Flags

a - failed the min rf criteria

c - failed the minimum correlation coeff criteria(if applicable)

Note:

Corr 1 = Correlation Coefficient for linear Eq.

Corr 2 = Correlation Coefficient for quad Eq.

Fit = Indicates whether Avg RF, Linear, or Quadratic Curve was used for compound.

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Form 6
Initial Calibration

Method: EPA 8270D

Instrument: GCMS_9

Level #:	Data File:	Cal Identifier:	Analysis Date/Time	Level #:	Data File:	Cal Identifier:	Analysis Date/Time
1	9M53699.	CAL BNA@50PPM	11/05/13 13:10	2	9M53692.	CAL BNA@2PPM	11/05/13 10:32
3	9M53691.	CAL BNA@10PPM	11/05/13 10:09	4	9M53694.	CAL BNA@20PPM	11/05/13 11:17
5	9M53698.	CAL BNA@80PPM	11/05/13 12:47	6	9M53697.	CAL BNA@120PPM	11/05/13 12:25
7	9M53696.	CAL BNA@160PPM	11/05/13 12:02	8	9M53695.	CAL BNA@196PPM	11/05/13 11:40
9	9M53693.	CAL BNA@.5PPM	11/05/13 10:54				

Compound	Col	Mr	Fit:	RF1	RF2	RF3	RF4	RF5	RF6	RF7	RF8	RF9	AvgRf	RT	Corr1	Corr2	%Rsd		Calibration Level Concentrations Lvl1	Lvl2	Lvl3	Lvl4	Lvl5	Lvl6	Lvl7	Lvl8	Lvl9
Butylbenzylphthalate	1	0	Avg	0.5051	0.3844	0.4365	0.4323	0.5060	0.5535	0.5438	0.5609	-----	0.490	12.01	0.997	0.999	13	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4,4'-DDT	1	0	Qua	0.4093	-----	0.3276	0.3412	0.4347	0.4918	0.4755	0.4929	-----	0.425	12.10	0.997	0.999	16		50.00		10.00	20.00	80.00	120.0	160.0	196.0	
3,3'-Dichlorobenzidine	1	0	Qua	0.3606	0.2872	0.3450	0.3341	0.3524	0.3686	0.3514	0.3499	-----	0.344	12.63	0.999	0.999	7.3	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzo[a]anthracene	1	0	Avg	1.0969	1.1143	1.0556	1.0163	1.0732	1.1462	1.1127	1.1551	-----	1.10	12.66	0.999	0.999	4.2	0.80	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Chrysene	1	0	Avg	1.0033	0.9415	0.9362	0.8713	1.0167	1.1003	1.0443	1.1056	-----	1.00	12.70	0.998	0.999	8.2	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
bis(2-Ethylhexyl)phthal	1	0	Qua	0.7140	0.5062	0.5818	0.5874	0.7414	0.8172	0.7878	0.8103	-----	0.693	12.70	0.996	0.998	17	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Di-n-octylphthalate	1	0	Qua	1.5249	1.0375	1.1826	1.2252	1.6257	1.8074	1.8657	2.0180	-----	1.54	13.44	0.990	0.999	23	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzo[b]fluoranthene	1	0	Qua	1.3288	1.0636	1.0758	1.1187	1.3634	1.5027	1.5164	1.6170	-----	1.32	13.87	0.994	0.999	16	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzo[k]fluoranthene	1	0	Avg	1.3061	1.3441	1.2957	1.1952	1.3258	1.4758	1.4593	1.6007	-----	1.38	13.90	0.994	0.999	9.3	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzo[a]pyrene	1	0	Qua	1.2027	0.9865	1.1385	1.0502	1.2227	1.3720	1.4176	1.5141	-----	1.24	14.22	0.994	1.00	15	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Indeno[1,2,3-cd]pyrene	1	0	Qua	1.2005	1.0076	1.1011	1.0504	1.1571	1.4100	1.4536	1.5755	-----	1.24	15.57	0.988	0.999	17	0.50	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Dibenzo[a,h]anthracene	1	0	Qua	0.9841	0.8205	0.8711	0.8393	0.9594	1.1745	1.2037	1.3217	-----	1.02	15.58	0.989	0.999	18	0.40	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzo[g,h,i]perylene	1	0	Avg	0.9402	0.9328	0.9311	0.8294	0.8879	1.0827	1.1106	1.1897	-----	0.988	15.94	0.991	0.999	13	0.50	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	

Avg Rsd: 12.3

Flags
a - failed the min rf criteria

c - failed the minimum correlation coeff criteria(if applicable)

Note:
Corr 1 = Correlation Coefficient for linear Eq.
Corr 2 = Correlation Coefficient for quad Eq.
Fit = Indicates whether Avg RF, Linear, or Quadratic Curve was used for compound.

3112730 0137

Form 6
Initial Calibration

Method: EPA 8270D

Instrument: GCMS_7

Level #:	Data File:	Cal Identifier:	Analysis Date/Time	Level #:	Data File:	Cal Identifier:	Analysis Date/Time
1	7M61300.	CAL BNA@50PPM	12/05/13 13:14	2	7M61293.	CAL BNA@2PPM	12/05/13 10:27
3	7M61292.	CAL BNA@10PPM	12/05/13 10:04	4	7M61295.	CAL BNA@20PPM	12/05/13 11:15
5	7M61299.	CAL BNA@80PPM	12/05/13 12:50	6	7M61298.	CAL BNA@120PPM	12/05/13 12:27
7	7M61297.	CAL BNA@160PPM	12/05/13 12:03	8	7M61296.	CAL BNA@196PPM	12/05/13 11:39
9	7M61294.	CAL BNA@.5PPM	12/05/13 10:51				

Compound	Col	Mr	Fit:	RF1	RF2	RF3	RF4	RF5	RF6	RF7	RF8	RF9	AvgRf	RT	Corr1	Corr2	%Rsd		Calibration Level Concentrations Lvl1	Lvl2	Lvl3	Lvl4	Lvl5	Lvl6	Lvl7	Lvl8	Lvl9
Pyridine	1	0	Avg	1.5583	1.2156	1.2651	1.5902	1.5729	1.6322	1.6386	1.6417	-----	1.51	3.19	0.999	1.00	11		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
N-Nitrosodimethylamin	1	0	Avg	0.9027	0.6854	0.7435	0.9582	0.9255	0.9676	0.9643	0.9796	-----	0.891	3.13	1.00	1.00	13		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Fluorophenol	1	0	Avg	1.3190	1.0525	1.0678	1.3218	1.3369	1.3872	1.3987	1.3962	-----	1.29	4.70	0.999	1.00	11		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzaldehyde	1	0	Qua	0.7685	0.8815	0.8491	1.0605	0.6562	0.5562	0.4633	0.3818	-----	0.702	5.53	0.914	0.993	33	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Aniline	1	0	Qua	2.1129	1.3340	1.5751	2.1284	2.0784	2.1237	2.1087	2.0673	1.3034	1.87	5.62	1.00	1.00	19		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Pentachloroethane	1	0	Avg	0.5501	0.4805	0.4725	0.5754	0.5543	0.5659	0.5798	0.5735	-----	0.544	5.66	1.00	1.00	7.9	0.05	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
bis(2-Chloroethyl)ether	1	0	Avg	1.4539	1.3669	1.2958	1.5252	1.4320	1.4696	1.4796	1.4498	1.4558	1.44	5.68	1.00	1.00	4.7	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Phenol-d5	1	0	Avg	1.8551	1.4733	1.5581	1.9351	1.8659	1.9110	1.9567	1.9348	-----	1.81	5.58	1.00	1.00	10		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Phenol	1	0	Avg	2.0308	1.8187	1.7049	2.1300	2.0392	2.0737	2.0882	2.0657	-----	1.99	5.59	1.00	1.00	7.5	0.80	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Chlorophenol	1	0	Avg	1.4881	1.2263	1.4788	1.5181	1.5007	1.5389	1.5701	1.5354	-----	1.48	5.72	1.00	1.00	7.3	0.80	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
N-Decane	1	0	Avg	1.3936	1.4358	1.4125	1.4887	1.3548	1.3734	1.3585	1.3260	-----	1.39	5.76	1.00	1.00	3.7	0.05	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1.3-Dichlorobenzene	1	0	Avg	1.5432	1.6023	1.5667	1.6021	1.5484	1.5828	1.6009	1.5725	-----	1.58	5.85	1.00	1.00	1.5		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1.4-Dichlorobenzene	1	0	Avg	1.5766	1.5883	1.5660	1.6323	1.5768	1.6127	1.6439	1.6322	-----	1.60	5.91	1.00	1.00	1.9		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1.2-Dichlorobenzene	1	0	Avg	1.4765	1.5187	1.4474	1.5117	1.4815	1.4990	1.5232	1.4935	-----	1.49	6.04	1.00	1.00	1.7		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzyl alcohol	1	0	Avg	0.9865	0.8765	0.9189	0.9898	0.9807	1.0102	1.0202	0.9977	-----	0.973	6.01	1.00	1.00	5.1		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
bis(2-chloroisopropyl)et	1	0	Avg	1.6061	1.7472	1.6306	1.7557	1.5939	1.6136	1.6334	1.5960	-----	1.65	6.12	1.00	1.00	4.0	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Methylphenol	1	0	Avg	1.3417	1.3406	1.3171	1.3863	1.3362	1.3629	1.3709	1.3476	1.2424	1.34	6.09	1.00	1.00	3.1	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Acetophenone	1	0	Avg	1.9840	2.0461	1.9704	2.1138	1.9515	1.9512	1.9462	1.8775	-----	1.98	6.23	0.999	0.999	3.6	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Hexachloroethane	1	0	Avg	0.6262	0.6173	0.6039	0.6550	0.6318	0.6423	0.6513	0.6477	-----	0.634	6.31	1.00	1.00	2.8	0.30	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
N-Nitroso-di-n-propylan	1	0	Avg	1.1303	1.1085	1.1255	1.1979	1.1063	1.0815	1.0746	1.0492	0.9741	1.09	6.22	0.999	1.00	5.6	0.50	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
3&4-Methylphenol	1	0	Avg	1.4061	1.3725	1.3782	1.4414	1.4014	1.3996	1.3954	1.3537	1.2984	1.38	6.22	1.00	1.00	2.9		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Nitrobenzene-d5	1	0	Avg	0.1752	0.1694	0.1664	0.1696	0.1814	0.1832	0.1865	0.1834	-----	0.177	6.35	1.00	1.00	4.4		25.00	1.00	5.00	10.00	40.00	60.00	80.00	98.00	
Nitrobenzene	1	0	Avg	0.4197	0.4102	0.4184	0.4421	0.4242	0.4269	0.4288	0.4290	-----	0.425	6.36	1.00	1.00	2.2	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Isophorone	1	0	Avg	0.6993	0.6567	0.6905	0.7222	0.7171	0.7172	0.7216	0.7217	-----	0.706	6.55	1.00	1.00	3.3	0.40	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Nitrophenol	1	0	Avg	0.2074	0.1698	0.1894	0.1979	0.2117	0.2162	0.2163	0.2153	-----	0.203	6.61	1.00	1.00	8.2	0.10	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2.4-Dimethylphenol	1	0	Avg	0.3939	0.3801	0.3938	0.4053	0.4046	0.4058	0.4046	0.4040	0.3322	0.392	6.63	1.00	1.00	6.1	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Benzoic Acid	1	0	Qua	0.3357	-----	0.1800	0.2381	0.3434	0.3659	0.3827	0.3761	-----	0.317	6.71	0.999	0.999	24		50.00		10.00	20.00	80.00	120.0	160.0	196.0	
bis(2-Chloroethoxy)met	1	0	Avg	0.4422	0.4737	0.4518	0.4676	0.4481	0.4500	0.4457	0.4430	-----	0.453	6.71	1.00	1.00	2.6	0.30	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2.4-Dichlorophenol	1	0	Avg	0.3032	0.2748	0.2979	0.3003	0.3092	0.3142	0.3156	0.3130	0.2385	0.296	6.79	1.00	1.00	8.4	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
1.2.4-Trichlorobenzene	1	0	Avg	0.3346	0.3344	0.3393	0.3395	0.3460	0.3489	0.3501	0.3475	-----	0.343	6.86	1.00	1.00	1.9		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Naphthalene	1	0	Avg	1.0978	1.1727	1.1200	1.1232	1.1175	1.1256	1.1264	1.1107	1.1387	1.13	6.93	1.00	1.00	1.9	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
4-Chloroaniline	1	0	Qua	0.4257	0.3284	0.3742	0.4338	0.4086	0.3571	0.3177	0.2801	0.2919	0.358	6.97	0.976	0.999	16	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Hexachlorobutadiene	1	0	Avg	0.1995	0.2009	0.1920	0.1990	0.2065	0.2100	0.2117	0.2138	-----	0.204	7.02	1.00	1.00	3.7	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Caprolactam	1	0	Avg	0.1214	0.0917	0.1136	0.1172	0.1249	0.1389	0.1392	0.1359	-----	0.123	7.24	0.998	0.998	13	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4-Chloro-3-methylphen	1	0	Avg	0.3460	0.3070	0.3380	0.3511	0.3523	0.3542	0.3593	0.3566	-----	0.346	7.33	1.00	1.00	4.9	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Methylnaphthalene	1	0	Avg	0.7436	0.7734	0.7581	0.7806	0.7677	0.7696	0.7660	0.7619	-----	0.765	7.47	1.00	1.00	1.4	0.40	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Methylnaphthalenes (T	1	0	Avg	1.4228	1.4776	1.4541	1.4946	1.4662	1.4634	1.4673	1.4556	-----	1.46	7.47	1.00	1.00	1.4		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1.1'-Biphenyl	1	0	Avg	0.9095	0.9497	0.9196	0.9416	0.9256	0.9281	0.9281	0.9226	-----	0.928	7.85	1.00	1.00	1.4	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1.2.4.5-Tetrachloroben	1	0	Avg	0.5952	0.6005	0.5983	0.5872	0.6154	0.6253	0.6303	0.6595	-----	0.614	7.61	0.999	1.00	3.9	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Hexachlorocyclopentac	1	0	Qua	0.3629	0.2187	0.2859	0.3219	0.3861	0.3982	0.4113	0.4237	-----	0.351	7.59	0.997	1.00	20	0.05	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2.4.6-Trichlorophenol	1	0	Avg	0.4166	0.3540	0.3967	0.4003	0.4223	0.4340	0.4374	0.4606	-----	0.415	7.69	0.998	1.00	7.8	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	

Avg Rsd: 7.55

Flags

a - failed the min rf criteria

c - failed the minimum correlation coeff criteria(if applicable)

Note:

Corr 1 = Correlation Coefficient for linear Eq.

Corr 2 = Correlation Coefficient for quad Eq.

Fit = Indicates whether Avg RF, Linear, or Quadratic Curve was used for compound.

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Form 6
Initial Calibration

Method: EPA 8270D

Instrument: GCMS_7

Level #:	Data File:	Cal Identifier:	Analysis Date/Time	Level #:	Data File:	Cal Identifier:	Analysis Date/Time
1	7M61300.	CAL BNA@50PPM	12/05/13 13:14	2	7M61293.	CAL BNA@2PPM	12/05/13 10:27
3	7M61292.	CAL BNA@10PPM	12/05/13 10:04	4	7M61295.	CAL BNA@20PPM	12/05/13 11:15
5	7M61299.	CAL BNA@80PPM	12/05/13 12:50	6	7M61298.	CAL BNA@120PPM	12/05/13 12:27
7	7M61297.	CAL BNA@160PPM	12/05/13 12:03	8	7M61296.	CAL BNA@196PPM	12/05/13 11:39
9	7M61294.	CAL BNA@.5PPM	12/05/13 10:51				

Compound	Col	Mr	Fit:	RF1	RF2	RF3	RF4	RF5	RF6	RF7	RF8	RF9	AvgRf	RT	Corr1	Corr2	%Rsd		Calibration Level Concentrations Lvl1	Lvl2	Lvl3	Lvl4	Lvl5	Lvl6	Lvl7	Lvl8	Lvl9
2.4.5-Trichlorophenol	1	0	Avg	0.4166	0.3614	0.3967	0.4149	0.4302	0.4387	0.4353	0.4367	-----	0.416	7.72	1.00	1.00	6.3	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Fluorobiphenyl	1	0	Avg	1.4191	1.4575	1.4292	1.4674	1.4489	1.4532	1.4647	1.4867	-----	1.45	7.76	1.00	1.00	1.5		25.00	1.00	5.00	10.00	40.00	60.00	80.00	98.00	
2-Chloronaphthalene	1	0	Avg	1.2132	1.1989	1.2538	1.2452	1.3313	1.2301	1.2419	1.3009	-----	1.25	7.88	0.998	0.998	3.5	0.80	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1.4-Dimethylnaphthalei	1	0	Avg	0.9963	0.9838	0.9944	1.0210	1.0184	1.0189	1.0267	1.0540	-----	1.01	8.16	1.00	1.00	2.2		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Dimethylnaphthalenes	1	0	Avg	0.9963	0.9838	0.9944	1.0210	1.0184	1.0189	1.0267	1.0540	-----	1.01	8.16	1.00	1.00	2.2		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Diphenyl Ether	1	0	Avg	0.8718	0.8709	0.8694	0.8986	0.8771	0.8838	0.8887	0.9160	-----	0.885	7.94	0.999	1.00	1.8		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2-Nitroaniline	1	0	Avg	0.4877	0.4235	0.4590	0.5107	0.4919	0.4925	0.4896	0.4946	-----	0.481	7.95	1.00	1.00	5.7	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Coumarin	1	0	Avg	0.5127	0.5203	0.5241	0.5181	0.5189	0.5193	0.5233	0.5295	-----	0.521	8.15	1.00	1.00	0.95		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Acenaphthylene	1	0	Avg	1.9034	1.8719	1.8807	1.9597	1.9430	1.9373	1.9734	1.9938	-----	1.93	8.24	1.00	1.00	2.3	0.90	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Dimethylphthalate	1	0	Avg	1.4156	1.3584	1.3826	1.4479	1.4203	1.4407	1.4401	1.4649	-----	1.42	8.10	1.00	1.00	2.5	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2.6-Dinitrotoluene	1	0	Avg	0.3325	0.2784	0.3187	0.3275	0.3415	0.3399	0.3440	0.3503	-----	0.329	8.16	1.00	1.00	6.9	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Acenaphthene	1	0	Avg	1.2485	1.2799	1.2520	1.2840	1.2634	1.2809	1.2955	1.3127	-----	1.28	8.40	1.00	1.00	1.7	0.90	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
3-Nitroaniline	1	0	Qua	0.3558	0.2649	0.3255	0.3525	0.3421	0.3202	0.3050	0.2962	-----	0.320	8.31	0.995	1.00	9.6	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2.4-Dinitrophenol	1	0	Qua	0.2109	-----	0.1133	0.1517	0.2309	0.2426	0.2531	0.2585	-----	0.209	8.40	0.998	1.00	27	0.01	50.00		10.00	20.00	80.00	120.0	160.0	196.0	
Dibenzofuran	1	0	Avg	1.7695	1.7912	1.7470	1.8012	1.7741	1.8027	1.8463	1.8569	1.7462	1.79	8.55	1.00	1.00	2.2	0.80	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
2.4-Dinitrotoluene	1	0	Qua	0.4459	0.3102	0.4004	0.4296	0.4543	0.4577	0.4697	0.4732	-----	0.430	8.52	1.00	1.00	13	0.20	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4-Nitrophenol	1	0	Qua	0.3206	0.2178	0.2803	0.3182	0.3296	0.3334	0.3415	0.3416	-----	0.310	8.43	1.00	1.00	14	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2.3.4.6-Tetrachlorophe	1	0	Avg	0.3810	0.3113	0.3624	0.3708	0.3985	0.3988	0.4402	0.4170	-----	0.385	8.65	0.998	0.999	10	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Fluorene	1	0	Avg	1.5031	1.4461	1.4630	1.5396	1.5230	1.5341	1.7545	1.5697	-----	1.54	8.88	0.993	0.993	6.2	0.90	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4-Chlorophenyl-phenyl	1	0	Avg	0.7293	0.7124	0.6815	0.7312	0.7308	0.7511	0.8748	0.7958	-----	0.751	8.87	0.992	0.993	7.9	0.40	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Diethylphthalate	1	0	Avg	1.4617	1.3274	1.3986	1.4974	1.4878	1.5061	1.6952	1.5338	-----	1.49	8.74	0.994	0.994	7.2	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4-Nitroaniline	1	0	Avg	0.3691	0.2668	0.3296	0.3585	0.3689	0.3688	0.4338	0.3727	-----	0.359	8.88	0.994	0.995	13	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Atrazine	1	0	Avg	0.3848	0.2973	0.3547	0.4365	0.3960	0.4005	0.4645	0.4101	-----	0.393	9.51	0.994	0.995	13	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4.6-Dinitro-2-methylphe	1	0	Qua	0.1440	-----	0.1031	0.1039	0.1542	0.1619	0.1650	0.1693	-----	0.143	8.91	0.998	0.999	20	0.01	50.00		10.00	20.00	80.00	120.0	160.0	196.0	
n-Nitrosodiphenylamine	1	0	Avg	0.6804	0.6442	0.6768	0.5926	0.6984	0.7116	0.7138	0.7355	-----	0.682	8.98	0.999	1.00	6.7	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
2.4.6-Tribromophenol	1	0	Qua	0.1263	0.1025	0.1104	0.0964	0.1318	0.1378	0.1421	0.1490	-----	0.125	9.11	0.995	0.999	16		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
1.2-Diphenylhydrazine	1	0	Avg	0.8304	0.7782	0.8288	0.7671	0.8484	0.9289	0.8224	0.9483	-----	0.844	9.02	0.995	0.997	7.7		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4-Bromophenyl-phenyl	1	0	Avg	0.2331	0.2111	0.2168	0.2104	0.2475	0.2525	0.2547	0.2674	-----	0.237	9.36	0.998	1.00	9.3	0.10	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Hexachlorobenzene	1	0	Avg	0.2580	0.2321	0.2461	0.2406	0.2674	0.2724	0.2746	0.2892	-----	0.260	9.42	0.997	1.00	7.4	0.10	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
N-Octadecane	1	0	Avg	0.4815	0.4303	0.4672	0.4980	0.4846	0.4806	0.4502	0.4751	-----	0.471	9.69	0.998	0.998	4.6	0.05	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Pentachlorophenol	1	0	Qua	0.1739	-----	0.1382	0.1542	0.1853	0.1963	0.1982	0.2070	-----	0.179	9.63	0.998	1.00	14	0.05	50.00		10.00	20.00	80.00	120.0	160.0	196.0	
Phenanthrene	1	0	Avg	1.1083	1.1517	1.1219	1.1430	1.1386	1.1508	1.1559	1.1872	-----	1.14	9.87	0.999	1.00	2.1	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Anthracene	1	0	Avg	1.1207	1.0921	1.1280	1.1578	1.1676	1.1801	1.1948	1.2338	-----	1.16	9.93	0.999	1.00	3.9	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Carbazole	1	0	Avg	1.0590	1.0065	1.0691	1.0747	1.0962	1.1023	1.1261	1.1370	-----	1.08	10.09	1.00	1.00	3.8	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Di-n-butylphthalate	1	0	Qua	1.3080	1.0311	1.2388	1.2760	1.3607	1.3825	1.3735	1.4305	0.8902	1.25	10.48	0.999	1.00	14	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	0.50
Fluoranthene	1	0	Avg	1.2902	1.1587	1.2355	1.2523	1.3428	1.3643	1.3529	1.5858	-----	1.32	11.21	0.988	0.995	9.6	0.60	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Pyrene	1	0	Avg	1.0935	0.9980	1.0292	1.1017	1.1027	1.1449	1.1180	1.1210	-----	1.09	11.48	1.00	1.00	4.6	0.60	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzidine	1	0	Qua	0.3676	0.1147	0.2766	0.3907	0.3373	0.2902	0.2454	0.2184	-----	0.280	11.37	0.956	0.998	32		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Terphenyl-d14	1	0	Avg	0.7508	0.6965	0.7015	0.7491	0.7645	0.7941	0.7924	0.8139	-----	0.758	11.66	0.999	1.00	5.6		25.00	1.00	5.00	10.00	40.00	60.00	80.00	96.00	
4.4'-DDE	1	0	Avg	0.2437	0.2258	0.2225	0.2345	0.2534	0.2684	0.2636	0.2696	-----	0.248	11.59	0.999	1.00	7.6		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4.4'-DDD	1	0	Avg	0.3838	0.2932	0.3320	0.3612	0.3998	0.4189	0.4111	0.4188	-----	0.377	11.99	0.999	1.00	12		50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	

Avg Rsd: 7.55

Flags

a - failed the min rf criteria

c - failed the minimum correlation coeff criteria(if applicable)

Note:

Corr 1 = Correlation Coefficient for linear Eq.

Corr 2 = Correlation Coefficient for quad Eq.

Fit = Indicates whether Avg RF, Linear, or Quadratic Curve was used for compound.

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Form 6
Initial Calibration

Method: EPA 8270D

Instrument: GCMS_7

Level #:	Data File:	Cal Identifier:	Analysis Date/Time	Level #:	Data File:	Cal Identifier:	Analysis Date/Time
1	7M61300.	CAL BNA@50PPM	12/05/13 13:14	2	7M61293.	CAL BNA@2PPM	12/05/13 10:27
3	7M61292.	CAL BNA@10PPM	12/05/13 10:04	4	7M61295.	CAL BNA@20PPM	12/05/13 11:15
5	7M61299.	CAL BNA@80PPM	12/05/13 12:50	6	7M61298.	CAL BNA@120PPM	12/05/13 12:27
7	7M61297.	CAL BNA@160PPM	12/05/13 12:03	8	7M61296.	CAL BNA@196PPM	12/05/13 11:39
9	7M61294.	CAL BNA@.5PPM	12/05/13 10:51				

Compound	Col	Mr	Fit:	RF1	RF2	RF3	RF4	RF5	RF6	RF7	RF8	RF9	AvgRf	RT	Corr1	Corr2	%Rsd		Calibration Level Concentrations Lvl1	Lvl2	Lvl3	Lvl4	Lvl5	Lvl6	Lvl7	Lvl8	Lvl9
Butylbenzylphthalate	1	0	Avg	0.4823	0.3584	0.4247	0.4547	0.4954	0.5154	0.4986	0.4997	-----	0.466	12.25	0.999	1.00	11	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
4,4'-DDT	1	0	Avg	0.3391	-----	0.2772	0.3223	0.3597	0.3903	0.3929	0.4039	-----	0.355	12.36	0.998	1.00	13		50.00		10.00	20.00	80.00	120.0	160.0	196.0	
3,3'-Dichlorobenzidine	1	0	Qua	0.3048	0.2079	0.2767	0.2692	0.2983	0.2843	0.2673	0.2574	-----	0.271	12.88	0.994	1.00	11	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzo[a]anthracene	1	0	Avg	1.0173	1.0106	0.9861	0.9972	1.0390	1.0771	1.0648	1.0657	-----	1.03	12.91	1.00	1.00	3.3	0.80	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Chrysene	1	0	Avg	0.9138	0.9317	0.9256	0.9541	0.9598	1.0181	1.0157	0.9951	-----	0.964	12.95	0.999	0.999	4.2	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
bis(2-Ethylhexyl)phthal	1	0	Qua	0.6555	0.4770	0.5982	0.6404	0.6875	0.7209	0.7034	0.7042	-----	0.648	12.95	0.999	1.00	12	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Di-n-octylphthalate	1	0	Qua	1.3069	0.7849	1.0319	1.1094	1.4207	1.4810	1.4411	1.4655	-----	1.26	13.71	0.998	0.999	20	0.01	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzo[b]fluoranthene	1	0	Avg	1.2158	1.1628	1.0904	1.1556	1.3674	1.3343	1.2950	1.3257	-----	1.24	14.15	0.998	0.999	8.1	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzo[k]fluoranthene	1	0	Avg	1.2430	1.1600	1.1735	1.1997	1.2258	1.3396	1.3134	1.3425	-----	1.25	14.18	0.999	0.999	5.9	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzo[a]pyrene	1	0	Avg	1.1504	0.9892	1.0359	1.0899	1.2247	1.2493	1.2345	1.2592	-----	1.15	14.52	1.00	1.00	9.1	0.70	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Indeno[1,2,3-cd]pyrene	1	0	Avg	1.2123	1.1072	1.1062	1.1524	1.3107	1.3475	1.3401	1.3899	-----	1.25	15.98	0.998	1.00	9.2	0.50	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Dibenzo[a,h]anthracene	1	0	Qua	0.9918	0.8648	0.9249	0.9541	1.0704	1.1064	1.1309	1.1692	-----	1.03	16.01	0.998	1.00	11	0.40	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	
Benzo[g,h,i]perylene	1	0	Avg	0.9935	0.9730	0.9567	0.9904	1.0656	1.0934	1.1034	1.1382	-----	1.04	16.39	0.999	1.00	6.6	0.50	50.00	2.00	10.00	20.00	80.00	120.0	160.0	196.0	

Avg Rsd: 7.55

Flags
a - failed the min rf criteria
c - failed the minimum correlation coeff criteria(if applicable)

Note:
Corr 1 = Correlation Coefficient for linear Eq.
Corr 2 = Correlation Coefficient for quad Eq.
Fit = Indicates whether Avg RF, Linear, or Quadratic Curve was used for compound.

Form 6
Initial Calibration

Method: EPA8270D SIM

Instrument: GCMS_12Sm

Level #	Data File	Cal Identifier	Analysis Date/Time	Level #	Data File	Cal Identifier	Analysis Date/Time
1	12M17223.	CAL SIM@5PPM	11/14/13 08:57	2	12M17225.	CAL SIM@.02PPM	11/14/13 09:58
3	12M17224.	CAL SIM@.2PPM	11/14/13 09:27	4	12M17229.	CAL SIM@.5PPM	11/14/13 11:30
5	12M17226.	CAL SIM@1PPM	11/14/13 10:20	6	12M17227.	CAL SIM@10PPM	11/14/13 10:44
7	12M17228.	CAL SIM@19.6PPM	11/14/13 11:07				

Compound	Col	Mr	Fit:	RF1	RF2	RF3	RF4	RF5	RF6	RF7	RF8	RF9	AvgRf	RT	Corr1	Corr2	%Rsd			Calibration Level Concentrations Lvl1	Lvl2	Lvl3	Lvl4	Lvl5	Lvl6	Lvl7	Lvl8	Lvl9
N-Nitrosodimethylamin	1	0	Avg	0.7740	-----	0.5961	0.5908	0.6088	0.7460	0.7415	-----	-----	0.676	3.77	1.00	1.00	13	0.01		5.00		0.20	0.50	1.00	10.00	19.60		
2-Methylphenol	1	0	Qua	0.8045	0.4334	0.5807	0.5908	0.5900	0.7781	0.7898	-----	-----	0.653	6.38	1.00	1.00	22			5.00	0.02	0.20	0.50	1.00	10.00	19.60		
3&4-Methylphenol	1	0	Qua	1.0454	0.7078	0.8338	0.8129	0.8642	1.0504	0.9882	-----	-----	0.900	6.46	0.998	0.998	14			5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Hexachloroethane	1	0	Avg	0.4544	0.4279	0.4297	0.3816	0.4000	0.4417	0.4213	-----	-----	0.422	6.69	0.999	1.00	5.8	0.30		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
2,4-Dimethylphenol	1	0	Qua	1.0170	0.6584	0.6418	0.6643	0.7081	1.0364	0.9996	-----	-----	0.818	7.00	0.999	1.00	23			5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Nitrobenzene-d5	1	0	Qua	0.2484	0.1300	0.2515	0.2621	0.2722	0.2045	0.1304	-----	-----	0.214	6.70	0.917	1.00	29			25.00	0.10	1.00	2.50	5.00	50.00	98.00		
Naphthalene	1	0	Avg	0.9840	1.0567	1.0461	1.0354	1.0420	0.9656	0.8692	-----	-----	1.00	7.30	0.997	1.00	6.7	0.70		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Hexachlorobutadiene	1	0	Avg	0.1648	0.1784	0.1729	0.1673	0.1720	0.1615	0.1538	-----	-----	0.167	7.39	0.999	1.00	4.9	0.01		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Hexachlorocyclopentac	1	0	Qua	0.1898	-----	0.0877	0.1062	0.1222	0.2067	0.2220	-----	-----	0.156	7.98	0.995	0.999	37			5.00		0.20	0.50	1.00	10.00	19.60		
2,4,5-Trichlorophenol	1	0	Qua	0.3256	0.1937	0.2139	0.2508	0.2526	0.3237	0.2837	-----	-----	0.263	8.11	0.995	1.00	19			5.00	0.02	0.20	0.50	1.00	10.00	19.60		
2-Fluorobiphenyl	1	0	Qua	0.8817	1.1681	1.2241	1.1765	1.1080	0.7681	0.5391	-----	-----	0.981	8.14	0.943	0.998	26			25.00	0.10	1.00	2.50	5.00	50.00	98.00		
Acenaphthylene	1	0	Avg	1.9254	1.6921	1.7486	1.8126	1.8310	1.8634	1.6225	-----	-----	1.79	8.63	0.994	1.00	5.8	0.90		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Acenaphthene	1	0	Avg	1.0839	1.2019	1.1663	1.1912	1.1110	1.0418	0.9020	-----	-----	1.10	8.79	0.993	1.00	9.5	0.90		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Dibenzofuran	1	0	Avg	1.5724	1.6422	1.6488	1.6964	1.6502	1.5144	1.3472	-----	-----	1.58	8.95	0.996	1.00	7.6			5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Fluorene	1	0	Avg	1.1567	0.8878	0.9408	0.9958	0.9866	0.8484	0.8419	-----	-----	0.951	9.27	0.991	0.994	12	0.90	a	5.00	0.02	0.20	0.50	1.00	10.00	19.60		
4,6-Dinitro-2-methylphe	1	0	Qua	0.1073	-----	0.0100	0.0223	0.0240	0.1352	0.1565	-----	-----	0.0759	9.31	0.977	0.994	85	0.01		5.00		0.20	0.50	1.00	10.00	19.60		
1,2-Diphenylhydrazine	1	0	Qua	1.2791	0.6912	0.8242	0.9595	0.9543	1.0326	0.9466	-----	-----	0.955	9.42	0.988	0.994	19			5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Hexachlorobenzene	1	0	Avg	0.2411	0.2121	0.1996	0.2090	0.2059	0.2014	0.1913	-----	-----	0.209	9.84	0.996	0.998	7.6	0.10		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Pentachlorophenol	1	0	Qua	0.1138	-----	0.0271	0.0348	0.0442	0.1041	0.1131	-----	-----	0.0729	10.04	0.992	0.993	57	0.05	a	5.00		0.20	0.50	1.00	10.00	19.60		
Phenanthrene	1	0	Avg	1.0561	1.0837	1.0579	1.1170	1.1043	1.0298	0.9549	-----	-----	1.06	10.28	0.998	1.00	5.1	0.70		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Anthracene	1	0	Avg	0.9618	0.9042	0.9150	1.0103	1.0210	0.9563	0.8699	-----	-----	0.948	10.33	0.998	1.00	5.9	0.70		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Carbazole	1	0	Avg	0.8790	0.6240	0.7141	0.8325	0.8438	0.8642	0.8030	-----	-----	0.794	10.50	0.998	1.00	12	0.01		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Fluoranthene	1	0	Avg	1.2070	1.0324	1.0973	1.1709	1.1696	1.1818	1.0751	-----	-----	1.13	11.63	0.997	1.00	5.7	0.60		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Pyrene	1	0	Avg	1.6733	1.7951	1.6884	1.7139	1.7170	1.5404	1.4255	-----	-----	1.65	11.90	0.997	1.00	7.6	0.60		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Terphenyl-d14	1	0	Qua	0.8662	1.2675	1.2036	1.1825	1.1128	0.7203	0.5911	-----	-----	0.992	12.07	0.982	0.999	27			25.00	0.10	1.00	2.50	5.00	50.00	98.00		
Benzo[a]anthracene	1	0	Avg	1.0284	1.0902	1.0073	1.0348	0.9643	0.9792	0.9000	-----	-----	1.00	13.32	0.998	1.00	6.0	0.80		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Chrysene	1	0	Avg	1.0524	1.2752	1.1815	1.1665	1.1108	0.9442	0.8656	-----	-----	1.09	13.36	0.993	1.00	13	0.70		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Benzo[b]fluoranthene	1	0	Avg	1.4360	1.5771	1.5088	1.5039	1.3886	1.6067	1.5409	-----	-----	1.51	14.59	0.999	0.999	5.1	0.70		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Benzo[k]fluoranthene	1	0	Avg	1.7108	1.8538	1.5970	1.9430	1.7798	2.0132	1.8086	-----	-----	1.82	14.62	0.997	0.997	7.7	0.70		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Benzo[a]pyrene	1	0	Avg	1.2427	1.2602	1.1141	1.2025	1.1002	1.4452	1.3814	-----	-----	1.25	14.98	0.997	0.997	10	0.70		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Indeno[1,2,3-cd]pyrene	1	0	Qua	1.7319	2.1355	1.3851	1.7616	1.4710	2.0501	2.0339	-----	-----	1.80	16.60	0.999	0.999	16	0.50		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Dibenzo[a,h]anthracene	1	0	Qua	1.6820	1.7230	1.2227	1.6036	1.2919	1.9874	1.9312	-----	-----	1.63	16.62	0.994	0.996	18	0.40		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Benzo[g,h,i]perylene	1	0	Qua	1.6494	2.2236	1.4663	1.7471	1.3983	1.9520	1.9630	-----	-----	1.77	17.04	0.994	0.998	17	0.50		5.00	0.02	0.20	0.50	1.00	10.00	19.60		

Avg Rsd: 16.9

Flags

a - failed the min rf criteria

c - failed the minimum correlation coeff criteria(if applicable)

Note:

Corr 1 = Correlation Coefficient for linear Eq.
Corr 2 = Correlation Coefficient for quad Eq.
Fit = Indicates whether Avg RF, Linear, or Quadratic Curve was used for compound.

3112730 0141

Form 6
Initial Calibration

Method: EPA8270D SIM

Instrument: GCMS_12Sm

Level #	Data File	Cal Identifier	Analysis Date/Time	Level #	Data File	Cal Identifier	Analysis Date/Time
1	12M17540.	CAL SIM@5PPM	12/05/13 08:20	2	12M17542.	CAL SIM@.02PPM	12/05/13 09:16
3	12M17541.	CAL SIM@.2PPM	12/05/13 08:52	4	12M17543.	CAL SIM@.5PPM	12/05/13 09:39
5	12M17544.	CAL SIM@1PPM	12/05/13 10:02	6	12M17545.	CAL SIM@10PPM	12/05/13 10:25
7	12M17546.	CAL SIM@19.6PPM	12/05/13 10:48				

Compound	Col	Mr	Fit:	RF1	RF2	RF3	RF4	RF5	RF6	RF7	RF8	RF9	AvgRf	RT	Corr1	Corr2	%Rsd			Calibration Level Concentrations Lvl1	Lvl2	Lvl3	Lvl4	Lvl5	Lvl6	Lvl7	Lvl8	Lvl9
N-Nitrosodimethylamin	1	0	Qua	0.6789	-----	0.5254	0.4457	0.4557	0.6761	0.7149	-----	-----	0.583	3.75	0.999	1.00	21	0.01		5.00		0.20	0.50	1.00	10.00	19.60		
2-Methylphenol	1	0	Qua	0.7438	0.2612	0.4881	0.4426	0.4992	0.7932	0.7897	-----	-----	0.574	6.37	0.994	0.996	36			5.00	0.02	0.20	0.50	1.00	10.00	19.60		
3&4-Methylphenol	1	0	Qua	0.9164	0.5711	0.7016	0.6112	0.6687	0.9098	0.7706	-----	-----	0.736	6.44	0.991	0.994	19			5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Hexachloroethane	1	0	Avg	0.4016	0.3994	0.3887	0.3168	0.3180	0.3897	0.3772	-----	-----	0.370	6.67	0.999	1.00	10	0.30		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
2.4-Dimethylphenol	1	0	Qua	0.7663	0.5972	0.5363	0.4803	0.4999	0.8354	0.9116	-----	-----	0.661	6.99	0.998	1.00	26			5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Nitrobenzene-d5	1	0	Qua	0.1454	0.1123	0.1258	0.1519	0.1871	0.1967	0.1838	-----	-----	0.158	6.69	0.995	0.995	21			25.00	0.10	1.00	2.50	5.00	50.00	98.00		
Naphthalene	1	0	Avg	1.0027	1.0660	1.0300	1.0489	1.0433	0.9686	0.8898	-----	-----	1.01	7.28	0.998	1.00	6.1	0.70		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Hexachlorobutadiene	1	0	Avg	0.1628	0.1693	0.1671	0.1670	0.1676	0.1610	0.1541	-----	-----	0.164	7.38	0.999	1.00	3.2	0.01		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Hexachlorocyclopentac	1	0	Qua	0.2205	-----	0.0911	0.1144	0.1419	0.2410	0.2485	-----	-----	0.176	7.96	0.996	0.998	39			5.00		0.20	0.50	1.00	10.00	19.60		
2.4.5-Trichlorophenol	1	0	Qua	0.3262	0.1597	0.2494	0.2535	0.2875	0.3214	0.3049	-----	-----	0.272	8.10	0.999	0.999	21			5.00	0.02	0.20	0.50	1.00	10.00	19.60		
2-Fluorobiphenyl	1	0	Qua	0.8608	1.1393	1.1470	1.1472	1.1110	0.7342	0.5446	-----	-----	0.955	8.13	0.950	0.997	26			25.00	0.10	1.00	2.50	5.00	50.00	98.00		
Acenaphthylene	1	0	Avg	1.8657	1.5138	1.6701	1.7186	1.7662	1.8166	1.6363	-----	-----	1.71	8.62	0.997	1.00	6.9	0.90		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Acenaphthene	1	0	Avg	1.0958	1.1782	1.1672	1.1516	1.1099	1.0382	0.9180	-----	-----	1.09	8.78	0.994	1.00	8.4	0.90		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Dibenzofuran	1	0	Avg	1.5655	1.6388	1.6867	1.7022	1.6686	1.4851	1.3435	-----	-----	1.58	8.94	0.997	1.00	8.3			5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Fluorene	1	0	Avg	0.8493	0.9120	0.9419	0.9121	0.9037	0.8105	0.7478	-----	-----	0.868	9.26	0.998	1.00	8.0	0.90	a	5.00	0.02	0.20	0.50	1.00	10.00	19.60		
4.6-Dinitro-2-methylphe	1	0	Qua	0.1686	-----	0.0318	0.0443	0.0659	0.1631	0.1841	-----	-----	0.110	9.30	0.991	0.995	63	0.01		5.00		0.20	0.50	1.00	10.00	19.60		
1.2-Diphenylhydrazine	1	0	Qua	1.0641	0.5902	0.8077	0.9497	1.0264	1.0546	1.0031	-----	-----	0.928	9.41	0.999	1.00	19			5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Hexachlorobenzene	1	0	Avg	0.1925	0.1965	0.1999	0.2025	0.1984	0.2028	0.1902	-----	-----	0.198	9.84	0.999	1.00	2.4	0.10		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Pentachlorophenol	1	0	Qua	0.1129	-----	0.0452	0.0482	0.0603	0.1139	0.1180	-----	-----	0.0831	10.03	0.996	0.997	42	0.05	a	5.00		0.20	0.50	1.00	10.00	19.60		
Phenanthrene	1	0	Avg	1.0599	1.0743	1.1029	1.1119	1.0904	1.0522	0.9299	-----	-----	1.06	10.27	0.996	1.00	5.8	0.70		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Anthracene	1	0	Avg	0.9762	0.7980	0.9306	0.9569	1.0066	0.9588	0.8590	-----	-----	0.927	10.32	0.996	1.00	7.9	0.70		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Carbazole	1	0	Avg	0.9677	0.6188	0.8205	0.8735	0.9796	0.9345	0.8423	-----	-----	0.862	10.49	0.996	1.00	14	0.01		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Fluoranthene	1	0	Avg	1.1891	0.9733	1.1002	1.1575	1.1749	1.1583	1.0353	-----	-----	1.11	11.62	0.996	1.00	7.3	0.60		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Pyrene	1	0	Avg	1.6395	1.4496	1.4885	1.4638	1.4949	1.4942	1.4690	-----	-----	1.50	11.89	0.999	1.00	4.3	0.60		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Terphenyl-d14	1	0	Qua	0.8093	1.0249	1.0833	1.0259	0.9694	0.6613	0.5839	-----	-----	0.880	12.06	0.990	0.998	22			25.00	0.10	1.00	2.50	5.00	50.00	98.00		
Benzo[a]anthracene	1	0	Avg	1.0298	0.8141	0.9486	0.8586	0.8976	0.9658	0.9338	-----	-----	0.921	13.31	0.999	1.00	7.8	0.80		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Chrysene	1	0	Avg	1.0336	1.1021	1.0540	1.0687	1.0471	0.9077	0.9180	-----	-----	1.02	13.35	0.997	0.999	7.4	0.70		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Benzo[b]fluoranthene	1	0	Qua	1.5355	1.1951	1.3080	1.3322	1.4616	1.7143	1.6993	-----	-----	1.46	14.57	0.998	0.999	14	0.70		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Benzo[k]fluoranthene	1	0	Avg	1.9036	1.3898	1.7050	1.8780	1.8724	1.9022	1.7365	-----	-----	1.77	14.60	0.998	1.00	11	0.70		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Benzo[a]pyrene	1	0	Qua	1.3806	0.8634	1.0287	1.0952	1.1734	1.4987	1.4141	-----	-----	1.21	14.97	0.997	0.998	19	0.70		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Indeno[1.2.3-cd]pyrene	1	0	Avg	2.2373	1.4473	1.9383	1.8986	1.9686	2.4691	2.3635	-----	-----	2.05	16.57	0.999	0.999	17	0.50		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Dibenzo[a.h]anthracen	1	0	Qua	2.1455	1.2362	1.5078	1.6689	1.8593	2.3246	2.1726	-----	-----	1.85	16.59	0.997	0.997	21	0.40		5.00	0.02	0.20	0.50	1.00	10.00	19.60		
Benzo[g.h.i]perylene	1	0	Qua	2.1459	1.4610	1.7085	1.8229	1.9354	2.3387	2.2479	-----	-----	1.95	17.02	0.998	0.998	16	0.50		5.00	0.02	0.20	0.50	1.00	10.00	19.60		

Flags

a - failed the min rf criteria

c - failed the minimum correlation coeff criteria(if applicable)

Note:

Avg Rsd: 17

Corr 1 = Correlation Coefficient for linear Eq.

Corr 2 = Correlation Coefficient for quad Eq.

Fit = Indicates whether Avg RF, Linear, or Quadratic Curve was used for compound.

Form7

Continuing Calibration

Calibration Name: CAL BNA@50PPM **Data File:** 5M83230.D **Instrument:** GCMS 5

Cont Calibration Date/Time 12/3/2013 2:55:00 P Method: EPA 8270D

TxtCompd:	Col#	Multi Num	Type	RT	Conc	Conc Exp	Lo Lim	MIN RF	Initial RF	RF	%Diff	Flag
1,4-Dichlorobenzene-d4	1	0	I	5.68	40.00	40	**			0.000	0.00	
Pyridine	1	0		2.84	51.29	50	**		1.706	1.749	2.57	
N-Nitrosodimethylamine	1	0		2.77	51.59	50	**		0.998	1.030	3.19	
2-Fluorophenol	1	0	S	4.46	47.34	50	**		1.369	1.296	5.32	
Benzaldehyde	1	0		5.31	78.66	50	20	0.01	0.589	0.968	57.31	C1
Aniline	1	0		5.40	47.47	50	**		2.320	2.203	5.05	
Pentachloroethane	1	0		5.44	44.80	50	**	0.05	0.493	0.442	10.41	
bis(2-Chloroethyl)ether	1	0		5.47	49.40	50	20	0.7	1.581	1.562	1.20	
Phenol-d5	1	0	S	5.37	50.14	50	**		1.999	2.005	0.28	
Phenol	1	0		5.38	50.36	50	20	0.8	2.269	2.285	0.73	
2-Chlorophenol	1	0		5.50	47.67	50	20	0.8	1.516	1.445	4.66	
N-Decane	1	0		5.55	48.87	50	**	0.05	1.316	1.286	2.27	
1,3-Dichlorobenzene	1	0		5.64	45.94	50	**		1.652	1.518	8.13	
1,4-Dichlorobenzene	1	0		5.70	46.11	50	20		1.675	1.545	7.79	
1,2-Dichlorobenzene	1	0		5.82	46.23	50	**		1.593	1.472	7.55	
Benzyl alcohol	1	0		5.80	49.32	50	**		1.061	1.047	1.36	
bis(2-chloroisopropyl)ether	1	0		5.91	51.51	50	20	0.01	1.640	1.690	3.03	
2-Methylphenol	1	0		5.89	50.69	50	20	0.7	1.452	1.472	1.38	
Acetophenone	1	0		6.02	49.87	50	20	0.01	2.093	2.087	0.27	
Hexachloroethane	1	0		6.10	44.81	50	20	0.3	0.608	0.545	10.38	
N-Nitroso-di-n-propylamine	1	0		6.02	56.09	50	20	0.5	1.021	1.146	12.18	
3&4-Methylphenol	1	0		6.02	53.60	50	20		1.472	1.578	7.20	
Naphthalene-d8	1	0	I	6.70	40.00	40	**			0.000	0.00	
Nitrobenzene-d5	1	0	S	6.14	23.92	25	**		0.168	0.161	4.31	
Nitrobenzene	1	0		6.16	49.73	50	20	0.2	0.389	0.387	0.54	
Isophorone	1	0		6.34	50.15	50	20	0.4	0.715	0.718	0.29	
2-Nitrophenol	1	0		6.41	47.05	50	20	0.1	0.193	0.189	5.90	
2,4-Dimethylphenol	1	0		6.43	49.56	50	20	0.2	0.390	0.386	0.88	
Benzoic Acid	1	0		6.51	51.52	50	**		0.316	0.327	3.04	
bis(2-Chloroethoxy)methane	1	0		6.51	48.44	50	20	0.3	0.473	0.458	3.12	
2,4-Dichlorophenol	1	0		6.59	49.07	50	20	0.2	0.317	0.312	1.86	
1,2,4-Trichlorobenzene	1	0		6.65	45.08	50	**		0.355	0.320	9.84	
Naphthalene	1	0		6.72	46.65	50	20	0.7	1.130	1.054	6.69	
4-Chloroaniline	1	0		6.75	42.75	50	20	0.01	0.410	0.398	14.50	
Hexachlorobutadiene	1	0		6.80	43.79	50	20	0.01	0.194	0.170	12.42	
Caprolactam	1	0		7.03	54.94	50	20	0.01	0.128	0.147	9.88	
4-Chloro-3-methylphenol	1	0		7.12	51.36	50	20	0.2	0.341	0.350	2.71	
2-Methylnaphthalene	1	0		7.24	47.86	50	**	0.4	0.781	0.748	4.28	
Methylnaphthalenes	1	0		7.24	47.57	50	20			1.434	4.86	
1,1'-Biphenyl	1	0		7.61	48.06	50	20	0.01	0.998	0.959	3.89	
Acenaphthene-d10	1	0	I	8.11	40.00	40	**			0.000	0.00	
1,2,4,5-Tetrachlorobenzene	1	0		7.37	44.39	50	20	0.01	0.583	0.518	11.22	
Hexachlorocyclopentadiene	1	0		7.36	42.54	50	20	0.05	0.323	0.274	14.91	
2,4,6-Trichlorophenol	1	0		7.46	47.76	50	20	0.2	0.389	0.372	4.49	
2,4,5-Trichlorophenol	1	0		7.50	47.50	50	20	0.2	0.412	0.392	5.00	
2-Fluorobiphenyl	1	0	S	7.53	22.89	25	**		1.417	1.298	8.43	
2-Chloronaphthalene	1	0		7.64	46.26	50	20	0.8	1.190	1.101	7.48	
1,4-Dimethylnaphthalene	1	0		7.91	48.28	50	**		0.919	0.888	3.44	
Dimethylnaphthalenes	1	0		7.91	48.28	50	20			0.888	3.44	
Diphenyl Ether	1	0		7.70	44.29	50	**		0.827	0.733	11.42	
2-Nitroaniline	1	0		7.72	54.48	50	20	0.01	0.372	0.405	8.95	
Coumarin	1	0		7.90	52.51		**		0.470			

S -Surrogate Compound I -Internal Standard Compound

N/O or N/Q - Not applicable for this run ** - No limit specified in method

Note: 8260/8270 limits are compared against the %DIFF/R.F. 625 limits are compared against the %DIFF.
624 limits are compared against the concentration found. 524.2 limits are compared against the %DIFF

Form7

Continuing Calibration

Calibration Name: CAL BNA@50PPM **Data File:** 5M83230.D **Instrument:** GCMS 5

Cont Calibration Date/Time 12/3/2013 2:55:00 P Method: EPA 8270D

TxtCompd:	Col#	Multi Num	Type	RT	Conc	Conc Exp	Lo Lim	MIN RF	Initial RF	RF	%Diff	Flag
Acenaphthylene	1	0		7.99	48.23	50	20	0.9	1.879	1.813	3.54	
Dimethylphthalate	1	0		7.86	48.37	50	20	0.01	1.375	1.330	3.26	
2,6-Dinitrotoluene	1	0		7.92	53.12	50	20	0.2	0.296	0.314	6.24	
Acenaphthene	1	0		8.14	47.70	50	20	0.9	1.225	1.169	4.61	
3-Nitroaniline	1	0		8.07	49.00	50	20	0.01	0.333	0.360	2.00	
2,4-Dinitrophenol	1	0		8.16	53.29	50	20	0.01	0.175	0.185	6.59	
Dibenzofuran	1	0		8.30	47.63	50	20	0.8	1.754	1.670	4.75	
2,4-Dinitrotoluene	1	0		8.27	51.05	50	20	0.2	0.402	0.438	2.10	
4-Nitrophenol	1	0		8.20	55.83	50	20	0.01	0.235	0.273	11.67	
2,3,4,6-Tetrachlorophenol	1	0		8.40	51.78	50	20	0.01	0.357	0.369	3.55	
Fluorene	1	0		8.61	50.23	50	20	0.9	1.419	1.426	0.46	
4-Chlorophenyl-phenylether	1	0		8.61	48.22	50	20	0.4	0.670	0.646	3.57	
Diethylphthalate	1	0		8.48	51.20	50	20	0.01	1.341	1.374	2.41	
4-Nitroaniline	1	0		8.62	53.76	50	20	0.01	0.354	0.405	7.52	
Atrazine	1	0		9.24	55.45	50	20	0.01	0.340	0.377	10.90	
Phenanthrene-d10	1	0	I	9.56	40.00	40	**			0.000	0.00	
4,6-Dinitro-2-methylphenol	1	0		8.65	47.37	50	20	0.01	0.130	0.121	5.26	
n-Nitrosodiphenylamine	1	0		8.72	42.79	50	20	0.01	0.658	0.563	14.42	
2,4,6-Tribromophenol	1	0	S	8.84	44.89	50	**		0.110	0.099	10.23	
1,2-Diphenylhydrazine	1	0		8.76	42.77	50	**		0.779	0.666	14.46	
4-Bromophenyl-phenylether	1	0		9.09	42.99	50	20	0.1	0.214	0.184	14.01	
Hexachlorobenzene	1	0		9.15	43.53	50	20	0.1	0.239	0.208	12.94	
N-Octadecane	1	0		9.42	46.01	50	**	0.05	0.390	0.359	7.99	
Pentachlorophenol	1	0		9.35	43.25	50	20	0.05	0.163	0.141	13.49	
Phenanthrene	1	0		9.58	45.52	50	20	0.7	1.140	1.038	8.96	
Anthracene	1	0		9.64	46.06	50	20	0.7	1.145	1.055	7.89	
Carbazole	1	0		9.81	48.82	50	20	0.01	1.113	1.087	2.36	
Di-n-butylphthalate	1	0		10.19	47.03	50	20	0.01	1.181	1.216	5.94	
Fluoranthene	1	0		10.91	50.54	50	20	0.6	1.256	1.269	1.08	
Chrysene-d12	1	0	I	12.61	40.00	40	**			0.000	0.00	
Pyrene	1	0		11.18	42.76	50	20	0.6	1.060	0.907	14.48	
Benzidine	1	0		11.07	50.05	50	**		0.378	0.453	0.09	
Terphenyl-d14	1	0	S	11.36	21.59	25	**		0.733	0.633	13.65	
4,4'-DDE	1	0		11.29	41.08		**		0.226			
4,4'-DDD	1	0		11.70	44.86		**		0.365			
Butylbenzylphthalate	1	0		11.95	45.79	50	20	0.01	0.449	0.421	8.43	
4,4'-DDT	1	0		12.05	47.14		**		0.308			
3,3'-Dichlorobenzidine	1	0		12.57	42.94	50	20	0.01	0.296	0.279	14.12	
Benzo[a]anthracene	1	0		12.59	45.56	50	20	0.8	1.056	0.962	8.88	
Chrysene	1	0		12.64	48.17	50	20	0.7	0.925	0.891	3.65	
bis(2-Ethylhexyl)phthalate	1	0		12.65	45.28	50	20	0.01	0.600	0.589	9.45	
Perylene-d12	1	0	I	14.21	40.00	40	**			0.000	0.00	
Di-n-octylphthalate	1	0		13.39	43.13	50	20	0.01	1.201	1.143	13.74	
Benzo[b]fluoranthene	1	0		13.81	46.38	50	20	0.7	1.146	1.063	7.24	
Benzo[k]fluoranthene	1	0		13.84	45.83	50	20	0.7	1.119	1.026	8.33	
Benzo[a]pyrene	1	0		14.15	48.47	50	20	0.7	1.080	1.046	3.07	
Indeno[1,2,3-cd]pyrene	1	0		15.47	50.47	50	20	0.5	1.197	1.208	0.93	
Dibenzo[a,h]anthracene	1	0		15.49	50.63	50	20	0.4	1.002	1.014	1.25	
Benzo[g,h,i]perylene	1	0		15.82	50.94	50	20	0.5	1.013	1.032	1.87	
4-Methylphenol	1	100		0.00	0.00	50	**	0.6		0.000	100.00	
Dimethylnaphthalenes (Total)	1	100		0.00	0.00	50	**		0.919	0.000	100.00	
2,2'-oxybis-(1-Chloropropane)	1	100		0.00	0.00	50	**			0.000	100.00	

S -Surrogate Compound I -Internal Standard Compound

N/O or N/Q - Not applicable for this run ** - No limit specified in method

Note: 8260/8270 limits are compared against the %DIFF/R.F. 625 limits are compared against the %DIFF.
624 limits are compared against the concentration found. 524.2 limits are compared against the %DIFF

Form7

Continuing Calibration

Calibration Name: CAL BNA@50PPM **Data File:** 5M83230.D **Instrument:** GCMS 5

Cont Calibration Date/Time 12/3/2013 2:55:00 P Method: EPA 8270D

TxtCompd:	Col#	Multi Num	Type	RT	Conc	Conc Exp	Lo Lim	MIN RF	Initial RF	RF	%Diff	Flag
Endrin	1	100		0.00	0.00	50	**			0.000	100.00	
gamma-BHC	1	100		0.00	0.00	10	**			0.000	100.00	
Heptachlor	1	100		0.00	0.00	10	**			0.000	100.00	
Heptachlor epoxide	1	100		0.00	0.00	10	**			0.000	100.00	
Methoxychlor	1	100		0.00	0.00	10	**			0.000	100.00	
Methylnaphthalenes (Total)	1	100		0.00	0.00	50	**		1.507	0.000	100.00	
Toluene Diisocyanate	1	100		0.00	0.00	50	**			0.000	100.00	
2,4 Diaminotoluene	1	100		0.00	0.00	50	**			0.000	100.00	
Diaminotoluene Dihydrochloride	1	100		0.00	0.00	50	**			0.000	100.00	

S -Surrogate Compound I -Internal Standard Compound

N/O or N/Q - Not applicable for this run ** - No limit specified in method

Note: 8260/8270 limits are compared against the %DIFF/R.F. 625 limits are compared against the %DIFF.

624 limits are compared against the concentration found. 524.2 limits are compared against the %DIFF

Form7

Continuing Calibration

Calibration Name: CAL BNA@50PPM **Data File:** 5M83264.D **Instrument:** GCMS 5

Cont Calibration Date/Time 12/4/2013 8:16:00 A Method: EPA 8270D

TxtCompd:	Col#	Multi Num	Type	RT	Conc	Conc Exp	Lo Lim	MIN RF	Initial RF	RF	%Diff	Flag
1,4-Dichlorobenzene-d4	1	0	I	5.68	40.00	40	**			0.000	0.00	
Pyridine	1	0		2.84	51.66	50	**		1.706	1.762	3.32	
N-Nitrosodimethylamine	1	0		2.77	50.23	50	**		0.998	1.003	0.46	
2-Fluorophenol	1	0	S	4.47	48.07	50	**		1.369	1.316	3.86	
Benzaldehyde	1	0		5.31	55.67	50	20	0.01	0.589	0.746	11.35	
Aniline	1	0		5.40	53.40	50	**		2.320	2.478	6.79	
Pentachloroethane	1	0		5.44	47.25	50	**	0.05	0.493	0.466	5.50	
bis(2-Chloroethyl)ether	1	0		5.47	50.60	50	20	0.7	1.581	1.600	1.21	
Phenol-d5	1	0	S	5.37	51.19	50	**		1.999	2.047	2.37	
Phenol	1	0		5.38	50.71	50	20	0.8	2.269	2.301	1.42	
2-Chlorophenol	1	0		5.50	48.71	50	20	0.8	1.516	1.477	2.58	
N-Decane	1	0		5.55	49.62	50	**	0.05	1.316	1.306	0.77	
1,3-Dichlorobenzene	1	0		5.64	48.38	50	**		1.652	1.598	3.24	
1,4-Dichlorobenzene	1	0		5.70	48.17	50	20		1.675	1.614	3.66	
1,2-Dichlorobenzene	1	0		5.82	48.00	50	**		1.593	1.529	4.00	
Benzyl alcohol	1	0		5.80	49.76	50	**		1.061	1.056	0.48	
bis(2-chloroisopropyl)ether	1	0		5.91	53.03	50	20	0.01	1.640	1.740	6.07	
2-Methylphenol	1	0		5.89	51.76	50	20	0.7	1.452	1.503	3.51	
Acetophenone	1	0		6.02	51.06	50	20	0.01	2.093	2.137	2.13	
Hexachloroethane	1	0		6.10	48.27	50	20	0.3	0.608	0.587	3.46	
N-Nitroso-di-n-propylamine	1	0		6.02	57.89	50	20	0.5	1.021	1.183	15.79	
3&4-Methylphenol	1	0		6.02	55.46	50	20		1.472	1.633	10.92	
Naphthalene-d8	1	0	I	6.70	40.00	40	**			0.000	0.00	
Nitrobenzene-d5	1	0	S	6.14	24.74	25	**		0.168	0.167	1.05	
Nitrobenzene	1	0		6.16	51.36	50	20	0.2	0.389	0.400	2.73	
Isophorone	1	0		6.34	50.91	50	20	0.4	0.715	0.728	1.82	
2-Nitrophenol	1	0		6.41	49.86	50	20	0.1	0.193	0.201	0.27	
2,4-Dimethylphenol	1	0		6.43	50.49	50	20	0.2	0.390	0.393	0.98	
Benzoic Acid	1	0		6.52	40.98	50	**		0.316	0.254	18.03	
bis(2-Chloroethoxy)methane	1	0		6.51	49.26	50	20	0.3	0.473	0.466	1.49	
2,4-Dichlorophenol	1	0		6.59	50.53	50	20	0.2	0.317	0.321	1.06	
1,2,4-Trichlorobenzene	1	0		6.66	47.78	50	**		0.355	0.340	4.45	
Naphthalene	1	0		6.72	47.93	50	20	0.7	1.130	1.083	4.13	
4-Chloroaniline	1	0		6.75	51.90	50	20	0.01	0.410	0.475	3.80	
Hexachlorobutadiene	1	0		6.80	46.81	50	20	0.01	0.194	0.182	6.38	
Caprolactam	1	0		7.03	49.65	50	20	0.01	0.128	0.132	0.70	
4-Chloro-3-methylphenol	1	0		7.12	52.08	50	20	0.2	0.341	0.355	4.16	
2-Methylnaphthalene	1	0		7.24	48.78	50	**	0.4	0.781	0.762	2.44	
Methylnaphthalenes	1	0		7.24	48.97	50	20			1.476	2.05	
1,1'-Biphenyl	1	0		7.61	49.50	50	20	0.01	0.998	0.988	1.00	
Acenaphthene-d10	1	0	I	8.11	40.00	40	**			0.000	0.00	
1,2,4,5-Tetrachlorobenzene	1	0		7.37	43.68	50	20	0.01	0.583	0.509	12.65	
Hexachlorocyclopentadiene	1	0		7.36	43.01	50	20	0.05	0.323	0.277	13.99	
2,4,6-Trichlorophenol	1	0		7.46	48.38	50	20	0.2	0.389	0.377	3.24	
2,4,5-Trichlorophenol	1	0		7.50	47.93	50	20	0.2	0.412	0.395	4.15	
2-Fluorobiphenyl	1	0	S	7.53	23.03	25	**		1.417	1.305	7.90	
2-Chloronaphthalene	1	0		7.64	46.76	50	20	0.8	1.190	1.113	6.47	
1,4-Dimethylnaphthalene	1	0		7.91	48.40	50	**		0.919	0.890	3.20	
Dimethylnaphthalenes	1	0		7.91	48.40	50	20			0.890	3.20	
Diphenyl Ether	1	0		7.70	43.59	50	**		0.827	0.721	12.81	
2-Nitroaniline	1	0		7.72	52.86	50	20	0.01	0.372	0.393	5.72	
Coumarin	1	0		7.90	50.81		**		0.470			

S -Surrogate Compound I -Internal Standard Compound

N/O or N/Q - Not applicable for this run ** - No limit specified in method

Note: 8260/8270 limits are compared against the %DIFF/R.F. 625 limits are compared against the %DIFF.

624 limits are compared against the concentration found. 524.2 limits are compared against the %DIFF

Form7

Continuing Calibration

Calibration Name: CAL BNA@50PPM **Data File:** 5M83264.D **Instrument:** GCMS 5

Cont Calibration Date/Time 12/4/2013 8:16:00 A Method: EPA 8270D

TxtCompd:	Col#	Multi Num	Type	RT	Conc	Conc Exp	Lo Lim	MIN RF	Initial RF	RF	%Diff	Flag
Acenaphthylene	1	0		7.99	48.33	50	20	0.9	1.879	1.816	3.34	
Dimethylphthalate	1	0		7.86	47.96	50	20	0.01	1.375	1.319	4.08	
2,6-Dinitrotoluene	1	0		7.92	52.02	50	20	0.2	0.296	0.307	4.05	
Acenaphthene	1	0		8.14	46.51	50	20	0.9	1.225	1.140	6.98	
3-Nitroaniline	1	0		8.07	50.61	50	20	0.01	0.333	0.371	1.21	
2,4-Dinitrophenol	1	0		8.16	41.85	50	20	0.01	0.175	0.142	16.31	
Dibenzofuran	1	0		8.30	47.68	50	20	0.8	1.754	1.672	4.65	
2,4-Dinitrotoluene	1	0		8.27	48.72	50	20	0.2	0.402	0.417	2.56	
4-Nitrophenol	1	0		8.20	53.94	50	20	0.01	0.235	0.264	7.87	
2,3,4,6-Tetrachlorophenol	1	0		8.40	50.24	50	20	0.01	0.357	0.358	0.48	
Fluorene	1	0		8.61	49.09	50	20	0.9	1.419	1.393	1.82	
4-Chlorophenyl-phenylether	1	0		8.61	48.23	50	20	0.4	0.670	0.647	3.55	
Diethylphthalate	1	0		8.48	48.40	50	20	0.01	1.341	1.299	3.20	
4-Nitroaniline	1	0		8.63	49.20	50	20	0.01	0.354	0.371	1.60	
Atrazine	1	0		9.24	48.75	50	20	0.01	0.340	0.332	2.49	
Phenanthrene-d10	1	0	I	9.56	40.00	40	**			0.000	0.00	
4,6-Dinitro-2-methylphenol	1	0		8.65	43.97	50	20	0.01	0.130	0.112	12.07	
n-Nitrosodiphenylamine	1	0		8.72	46.39	50	20	0.01	0.658	0.610	7.22	
2,4,6-Tribromophenol	1	0	S	8.84	50.07	50	**		0.110	0.110	0.14	
1,2-Diphenylhydrazine	1	0		8.76	46.85	50	**		0.779	0.729	6.31	
4-Bromophenyl-phenylether	1	0		9.09	46.88	50	20	0.1	0.214	0.201	6.25	
Hexachlorobenzene	1	0		9.15	46.43	50	20	0.1	0.239	0.222	7.14	
N-Octadecane	1	0		9.42	51.76	50	**	0.05	0.390	0.404	3.53	
Pentachlorophenol	1	0		9.35	45.41	50	20	0.05	0.163	0.148	9.18	
Phenanthrene	1	0		9.58	46.89	50	20	0.7	1.140	1.069	6.22	
Anthracene	1	0		9.64	48.05	50	20	0.7	1.145	1.101	3.89	
Carbazole	1	0		9.81	48.98	50	20	0.01	1.113	1.090	2.04	
Di-n-butylphthalate	1	0		10.19	47.99	50	20	0.01	1.181	1.241	4.02	
Fluoranthene	1	0		10.91	50.92	50	20	0.6	1.256	1.279	1.85	
Chrysene-d12	1	0	I	12.61	40.00	40	**			0.000	0.00	
Pyrene	1	0		11.17	46.28	50	20	0.6	1.060	0.981	7.45	
Benzidine	1	0		11.07	52.70	50	**		0.378	0.474	5.40	
Terphenyl-d14	1	0	S	11.36	23.32	25	**		0.733	0.684	6.71	
4,4'-DDE	1	0		11.29	45.59		**		0.226			
4,4'-DDD	1	0		11.70	47.46		**		0.365			
Butylbenzylphthalate	1	0		11.95	48.39	50	20	0.01	0.449	0.446	3.23	
4,4'-DDT	1	0		12.05	47.99		**		0.308			
3,3'-Dichlorobenzidine	1	0		12.57	52.00	50	20	0.01	0.296	0.335	4.01	
Benzo[a]anthracene	1	0		12.59	46.93	50	20	0.8	1.056	0.991	6.14	
Chrysene	1	0		12.64	48.97	50	20	0.7	0.925	0.906	2.06	
bis(2-Ethylhexyl)phthalate	1	0		12.64	47.87	50	20	0.01	0.600	0.623	4.26	
Perylene-d12	1	0	I	14.21	40.00	40	**			0.000	0.00	
Di-n-octylphthalate	1	0		13.39	46.86	50	20	0.01	1.201	1.244	6.28	
Benzo[b]fluoranthene	1	0		13.81	47.69	50	20	0.7	1.146	1.093	4.63	
Benzo[k]fluoranthene	1	0		13.83	50.48	50	20	0.7	1.119	1.129	0.95	
Benzo[a]pyrene	1	0		14.15	49.79	50	20	0.7	1.080	1.075	0.42	
Indeno[1,2,3-cd]pyrene	1	0		15.46	45.66	50	20	0.5	1.197	1.093	8.69	
Dibenzo[a,h]anthracene	1	0		15.48	45.48	50	20	0.4	1.002	0.911	9.05	
Benzo[g,h,i]perylene	1	0		15.82	43.54	50	20	0.5	1.013	0.883	12.91	
2,4 Diaminotoluene	1	100		0.00	0.00	50	**			0.000	100.00	
2,2'-oxybis-(1-Chloropropane)	1	100		0.00	0.00	50	**			0.000	100.00	
Dimethylnaphthalenes (Total)	1	100		0.00	0.00	50	**		0.919	0.000	100.00	

S -Surrogate Compound I -Internal Standard Compound

N/O or N/Q - Not applicable for this run ** - No limit specified in method

Note: 8260/8270 limits are compared against the %DIFF/R.F. 625 limits are compared against the %DIFF.

624 limits are compared against the concentration found. 524.2 limits are compared against the %DIFF

Form7

Continuing Calibration

Calibration Name: CAL BNA@50PPM **Data File:** 5M83264.D **Instrument:** GCMS 5

Cont Calibration Date/Time 12/4/2013 8:16:00 A Method: EPA 8270D

TxtCompd:	Col#	Multi Num	Type	RT	Conc	Conc Exp	Lo Lim	MIN RF	Initial RF	RF	%Diff	Flag
Endrin	1	100		0.00	0.00	50	**			0.000	100.00	
gamma-BHC	1	100		0.00	0.00	10	**			0.000	100.00	
Heptachlor	1	100		0.00	0.00	10	**			0.000	100.00	
Heptachlor epoxide	1	100		0.00	0.00	10	**			0.000	100.00	
Methoxychlor	1	100		0.00	0.00	10	**			0.000	100.00	
Methylnaphthalenes (Total)	1	100		0.00	0.00	50	**		1.507	0.000	100.00	
Toluene Diisocyanate	1	100		0.00	0.00	50	**			0.000	100.00	
4-Methylphenol	1	100		0.00	0.00	50	**	0.6		0.000	100.00	
Diaminotoluene Dihydrochloride	1	100		0.00	0.00	50	**			0.000	100.00	

S -Surrogate Compound I -Internal Standard Compound

N/O or N/Q - Not applicable for this run ** - No limit specified in method

Note: 8260/8270 limits are compared against the %DIFF/R.F. 625 limits are compared against the %DIFF.

624 limits are compared against the concentration found. 524.2 limits are compared against the %DIFF

Form7

Continuing Calibration

Calibration Name: CAL BNA@50PPM **Data File:** 9M54180.D **Instrument:** GCMS 9

Cont Calibration Date/Time 12/5/2013 10:45:00 Method: EPA 8270D

TxtCompd:	Col#	Multi Num	Type	RT	Conc	Conc Exp	Lo Lim	MIN RF	Initial RF	RF	%Diff	Flag
1,4-Dichlorobenzene-d4	1	0	I	5.61	40.00	40	**			0.000	0.00	
Pyridine	1	0		2.70	46.83	50	**		1.106	1.036	6.34	
N-Nitrosodimethylamine	1	0		2.65	45.97	50	**		0.662	0.609	8.06	
2-Fluorophenol	1	0	S	4.39	48.10	50	**		1.264	1.216	3.80	
Benzaldehyde	1	0		5.23	35.56	50	20	0.01	0.508	0.466	28.88	C1
Aniline	1	0		5.32	50.42	50	**		1.822	1.837	0.84	
Pentachloroethane	1	0		5.36	49.58	50	**	0.05	0.491	0.486	0.84	
bis(2-Chloroethyl)ether	1	0		5.39	49.85	50	20	0.7	1.213	1.209	0.29	
Phenol-d5	1	0	S	5.30	49.59	50	**		1.746	1.732	0.82	
Phenol	1	0		5.31	51.00	50	20	0.8	1.856	1.824	2.01	
2-Chlorophenol	1	0		5.43	51.30	50	20	0.8	1.506	1.545	2.60	
N-Decane	1	0		5.46	42.63	50	**	0.05	0.956	0.815	14.75	
1,3-Dichlorobenzene	1	0		5.55	48.31	50	**		1.718	1.660	3.38	
1,4-Dichlorobenzene	1	0		5.62	48.92	50	20		1.722	1.684	2.17	
1,2-Dichlorobenzene	1	0		5.75	49.54	50	**		1.602	1.587	0.92	
Benzyl alcohol	1	0		5.73	51.94	50	**		0.899	0.910	3.88	
bis(2-chloroisopropyl)ether	1	0		5.84	43.02	50	20	0.01	0.911	0.784	13.97	
2-Methylphenol	1	0		5.82	50.00	50	20	0.7	1.275	1.275	0.00	
Acetophenone	1	0		5.95	50.46	50	20	0.01	2.279	2.167	0.92	
Hexachloroethane	1	0		6.02	47.99	50	20	0.3	0.645	0.619	4.03	
N-Nitroso-di-n-propylamine	1	0		5.95	47.50	50	20	0.5	1.113	1.062	5.00	
3&4-Methylphenol	1	0		5.95	47.90	50	20		1.466	1.412	4.20	
Naphthalene-d8	1	0	I	6.62	40.00	40	**			0.000	0.00	
Nitrobenzene-d5	1	0	S	6.07	25.55	25	**		0.176	0.180	2.21	
Nitrobenzene	1	0		6.08	47.24	50	20	0.2	0.396	0.374	5.52	
Isophorone	1	0		6.27	49.23	50	20	0.4	0.655	0.644	1.55	
2-Nitrophenol	1	0		6.33	52.78	50	20	0.1	0.220	0.228	5.56	
2,4-Dimethylphenol	1	0		6.36	50.97	50	20	0.2	0.411	0.411	1.94	
Benzoic Acid	1	0		6.46	58.69	50	**		0.198	0.211	17.37	
bis(2-Chloroethoxy)methane	1	0		6.43	49.01	50	20	0.3	0.387	0.380	1.98	
2,4-Dichlorophenol	1	0		6.52	51.53	50	20	0.2	0.349	0.360	3.06	
1,2,4-Trichlorobenzene	1	0		6.58	49.87	50	**		0.401	0.400	0.26	
Naphthalene	1	0		6.64	48.83	50	20	0.7	1.192	1.165	2.33	
4-Chloroaniline	1	0		6.68	56.98	50	20	0.01	0.409	0.466	13.96	
Hexachlorobutadiene	1	0		6.72	49.74	50	20	0.01	0.254	0.252	0.52	
Caprolactam	1	0		6.96	52.58	50	20	0.01	0.123	0.129	5.16	
4-Chloro-3-methylphenol	1	0		7.04	52.87	50	20	0.2	0.362	0.370	5.74	
2-Methylnaphthalene	1	0		7.16	50.42	50	**	0.4	0.880	0.888	0.85	
Methylnaphthalenes	1	0		7.16	50.26	50	20			1.688	0.52	
1,1'-Biphenyl	1	0		7.53	50.40	50	20	0.01	1.120	1.129	0.81	
Acenaphthene-d10	1	0	I	8.03	40.00	40	**			0.000	0.00	
1,2,4,5-Tetrachlorobenzene	1	0		7.29	49.23	50	20	0.01	0.696	0.685	1.53	
Hexachlorocyclopentadiene	1	0		7.28	18.30	50	20	0.05	0.209	0.057	63.40	C1
2,4,6-Trichlorophenol	1	0		7.38	50.70	50	20	0.2	0.451	0.444	1.40	
2,4,5-Trichlorophenol	1	0		7.42	50.22	50	20	0.2	0.443	0.445	0.45	
2-Fluorobiphenyl	1	0	S	7.45	25.19	25	**		1.478	1.489	0.76	
2-Chloronaphthalene	1	0		7.56	48.56	50	20	0.8	1.275	1.238	2.89	
1,4-Dimethylnaphthalene	1	0		7.83	49.10	50	**		1.120	1.040	1.81	
Dimethylnaphthalenes	1	0		7.83	49.10	50	20			1.040	1.81	
Diphenyl Ether	1	0		7.61	47.83	50	**		0.964	0.922	4.35	
2-Nitroaniline	1	0		7.64	44.47	50	20	0.01	0.473	0.421	11.06	
Coumarin	1	0		7.82	47.72		**		0.538			

S -Surrogate Compound
N/O or N/Q - Not applicable for this run

I -Internal Standard Compound

** - No limit specified in method

Note: 8260/8270 limits are compared against the %DIFF/R.F.
624 limits are compared against the concentration found.
625 limits are compared against the %DIFF.
524.2 limits are compared against the %DIFF

Form7

Continuing Calibration

Calibration Name: CAL BNA@50PPM **Data File:** 9M54180.D **Instrument:** GCMS 9

Cont Calibration Date/Time 12/5/2013 10:45:00 Method: EPA 8270D

TxtCompd:	Col#	Multi Num	Type	RT	Conc	Conc Exp	Lo Lim	MIN RF	Initial RF	RF	%Diff	Flag
Acenaphthylene	1	0		7.91	47.89	50	20	0.9	2.018	1.933	4.23	
Dimethylphthalate	1	0		7.78	49.62	50	20	0.01	1.567	1.555	0.75	
2,6-Dinitrotoluene	1	0		7.84	47.18	50	20	0.2	0.362	0.341	5.65	
Acenaphthene	1	0		8.05	48.72	50	20	0.9	1.345	1.311	2.56	
3-Nitroaniline	1	0		7.99	55.16	50	20	0.01	0.335	0.369	10.32	
2,4-Dinitrophenol	1	0		8.08	57.10	50	20	0.01	0.151	0.185	14.20	
Dibenzofuran	1	0		8.21	53.34	50	20	0.8	1.901	1.897	6.69	
2,4-Dinitrotoluene	1	0		8.20	54.49	50	20	0.2	0.483	0.500	8.99	
4-Nitrophenol	1	0		8.13	46.65	50	20	0.01	0.250	0.228	6.71	
2,3,4,6-Tetrachlorophenol	1	0		8.31	54.33	50	20	0.01	0.395	0.419	8.65	
Fluorene	1	0		8.52	49.26	50	20	0.9	1.622	1.598	1.49	
4-Chlorophenyl-phenylether	1	0		8.52	51.28	50	20	0.4	0.879	0.860	2.57	
Diethylphthalate	1	0		8.40	49.49	50	20	0.01	1.577	1.561	1.02	
4-Nitroaniline	1	0		8.55	53.25	50	20	0.01	0.343	0.365	6.51	
Atrazine	1	0		9.16	44.86	50	20	0.01	0.420	0.377	10.28	
Phenanthrene-d10	1	0	I	9.47	40.00	40	**			0.000	0.00	
4,6-Dinitro-2-methylphenol	1	0		8.58	58.26	50	20	0.01	0.125	0.139	16.53	
n-Nitrosodiphenylamine	1	0		8.63	47.98	50	20	0.01	0.703	0.675	4.04	
2,4,6-Tribromophenol	1	0	S	8.76	57.37	50	**		0.116	0.130	14.73	
1,2-Diphenylhydrazine	1	0		8.67	45.53	50	**		0.812	0.739	8.93	
4-Bromophenyl-phenylether	1	0		9.00	48.79	50	20	0.1	0.279	0.272	2.42	
Hexachlorobenzene	1	0		9.06	50.72	50	20	0.1	0.290	0.295	1.44	
N-Octadecane	1	0		9.33	41.50	50	**	0.05	0.358	0.297	17.00	
Pentachlorophenol	1	0		9.27	55.80	50	20	0.05	0.141	0.147	11.60	
Phenanthrene	1	0		9.50	48.63	50	20	0.7	1.185	1.152	2.75	
Anthracene	1	0		9.55	49.61	50	20	0.7	1.191	1.182	0.79	
Carbazole	1	0		9.73	50.01	50	20	0.01	1.121	1.121	0.03	
Di-n-butylphthalate	1	0		10.10	50.72	50	20	0.01	1.404	1.431	1.45	
Fluoranthene	1	0		10.82	51.66	50	20	0.6	1.460	1.509	3.32	
Chrysene-d12	1	0	I	12.52	40.00	40	**			0.000	0.00	
Pyrene	1	0		11.09	50.66	50	20	0.6	1.133	1.148	1.31	
Benzidine	1	0		10.98	51.94	50	**		0.331	0.382	3.88	
Terphenyl-d14	1	0	S	11.27	26.05	25	**		0.778	0.810	4.20	
4,4'-DDE	1	0		11.20	49.15		**		0.270			
4,4'-DDD	1	0		11.60	50.21		**		0.438			
Butylbenzylphthalate	1	0		11.86	50.50	50	20	0.01	0.490	0.495	1.00	
4,4'-DDT	1	0		11.96	49.48		**		0.425			
3,3'-Dichlorobenzidine	1	0		12.49	57.54	50	20	0.01	0.344	0.418	15.08	
Benzo[a]anthracene	1	0		12.51	50.58	50	20	0.8	1.096	1.109	1.16	
Chrysene	1	0		12.56	51.34	50	20	0.7	1.002	1.029	2.68	
bis(2-Ethylhexyl)phthalate	1	0		12.56	48.05	50	20	0.01	0.693	0.678	3.90	
Perylene-d12	1	0	I	14.12	40.00	40	**			0.000	0.00	
Di-n-octylphthalate	1	0		13.31	47.97	50	20	0.01	1.536	1.420	4.05	
Benzo[b]fluoranthene	1	0		13.73	49.58	50	20	0.7	1.323	1.280	0.85	
Benzo[k]fluoranthene	1	0		13.75	49.06	50	20	0.7	1.375	1.349	1.88	
Benzo[a]pyrene	1	0		14.07	51.67	50	20	0.7	1.238	1.229	3.33	
Indeno[1,2,3-cd]pyrene	1	0		15.36	56.00	50	20	0.5	1.245	1.313	12.00	
Dibenzo[a,h]anthracene	1	0		15.38	56.38	50	20	0.4	1.022	1.085	12.77	
Benzo[g,h,i]perylene	1	0		15.72	52.57	50	20	0.5	0.988	1.039	5.14	
2,2'-oxybis-(1-Chloropropane)	1	100		0.00	0.00	50	**			0.000	100.00	
2,4 Diaminotoluene	1	100		0.00	0.00	50	**			0.000	100.00	
4-Methylphenol	1	100		0.00	0.00	50	**	0.6		0.000	100.00	

S -Surrogate Compound I -Internal Standard Compound

N/O or N/Q - Not applicable for this run ** - No limit specified in method

Note: 8260/8270 limits are compared against the %DIFF/R.F. 625 limits are compared against the %DIFF.

624 limits are compared against the concentration found. 524.2 limits are compared against the %DIFF

Form7

Continuing Calibration

Calibration Name: CAL BNA@50PPM **Data File:** 9M54180.D **Instrument:** GCMS 9

Cont Calibration Date/Time 12/5/2013 10:45:00 Method: EPA 8270D

TxtCompd:	Col#	Multi Num	Type	RT	Conc	Conc Exp	Lo Lim	MIN RF	Initial RF	RF	%Diff	Flag
Dimethylnaphthalenes (Total)	1	100		0.00	0.00	50	**		1.120	0.000	100.00	
Endrin	1	100		0.00	0.00	50	**			0.000	100.00	
gamma-BHC	1	100		0.00	0.00	10	**			0.000	100.00	
Heptachlor	1	100		0.00	0.00	10	**			0.000	100.00	
Heptachlor epoxide	1	100		0.00	0.00	10	**			0.000	100.00	
Methoxychlor	1	100		0.00	0.00	10	**			0.000	100.00	
Methylnaphthalenes (Total)	1	100		0.00	0.00	50	**		1.679	0.000	100.00	
Toluene Diisocyanate	1	100		0.00	0.00	50	**			0.000	100.00	
Diaminotoluene Dihydrochloride	1	100		0.00	0.00	50	**			0.000	100.00	

S -Surrogate Compound I -Internal Standard Compound

N/O or N/Q - Not applicable for this run ** - No limit specified in method

Note: 8260/8270 limits are compared against the %DIFF/R.F. 625 limits are compared against the %DIFF.

624 limits are compared against the concentration found. 524.2 limits are compared against the %DIFF

Form7

Continuing Calibration

Calibration Name: CAL BNA@50PPM **Data File:** 7M61303.D **Instrument:** GCMS 7

Cont Calibration Date/Time 12/5/2013 2:31:00 P Method: EPA 8270D

TxtCompd:	Col#	Multi Num	Type	RT	Conc	Conc Exp	Lo Lim	MIN RF	Initial RF	RF	%Diff	Flag
1,4-Dichlorobenzene-d4	1	0	I	5.90	40.00	40	**			0.000	0.00	
Pyridine	1	0		3.19	54.77	50	**		1.514	1.659	9.54	
N-Nitrosodimethylamine	1	0		3.14	54.57	50	**		0.891	0.972	9.13	
2-Fluorophenol	1	0	S	4.71	53.39	50	**		1.285	1.372	6.78	
Benzaldehyde	1	0		5.53	50.56	50	20	0.01	0.702	0.783	1.13	
Aniline	1	0		5.62	50.63	50	**		1.870	2.149	1.25	
Pentachloroethane	1	0		5.66	52.47	50	**	0.05	0.544	0.571	4.94	
bis(2-Chloroethyl)ether	1	0		5.68	52.33	50	20	0.7	1.437	1.503	4.66	
Phenol-d5	1	0	S	5.58	53.31	50	**		1.811	1.931	6.62	
Phenol	1	0		5.59	52.36	50	20	0.8	1.994	2.088	4.72	
2-Chlorophenol	1	0		5.72	51.17	50	20	0.8	1.482	1.517	2.35	
N-Decane	1	0		5.76	52.07	50	**	0.05	1.393	1.451	4.13	
1,3-Dichlorobenzene	1	0		5.85	50.39	50	**		1.577	1.590	0.78	
1,4-Dichlorobenzene	1	0		5.91	50.60	50	20		1.604	1.623	1.21	
1,2-Dichlorobenzene	1	0		6.04	50.71	50	**		1.494	1.515	1.43	
Benzyl alcohol	1	0		6.01	51.06	50	**		0.973	0.993	2.11	
bis(2-chloroisopropyl)ether	1	0		6.12	51.13	50	20	0.01	1.647	1.684	2.26	
2-Methylphenol	1	0		6.09	51.08	50	20	0.7	1.338	1.367	2.16	
Acetophenone	1	0		6.23	51.39	50	20	0.01	1.980	2.035	2.78	
Hexachloroethane	1	0		6.31	51.43	50	20	0.3	0.634	0.653	2.86	
N-Nitroso-di-n-propylamine	1	0		6.22	53.39	50	20	0.5	1.094	1.169	6.79	
3&4-Methylphenol	1	0		6.22	52.24	50	20		1.383	1.445	4.47	
Naphthalene-d8	1	0	I	6.92	40.00	40	**			0.000	0.00	
Nitrobenzene-d5	1	0	S	6.35	25.79	25	**		0.177	0.183	3.16	
Nitrobenzene	1	0		6.37	53.07	50	20	0.2	0.425	0.451	6.13	
Isophorone	1	0		6.55	51.93	50	20	0.4	0.706	0.733	3.87	
2-Nitrophenol	1	0		6.61	52.86	50	20	0.1	0.203	0.215	5.73	
2,4-Dimethylphenol	1	0		6.63	53.24	50	20	0.2	0.392	0.417	6.48	
Benzoic Acid	1	0		6.71	45.94	50	**		0.317	0.312	8.11	
bis(2-Chloroethoxy)methane	1	0		6.71	51.46	50	20	0.3	0.453	0.466	2.92	
2,4-Dichlorophenol	1	0		6.80	52.23	50	20	0.2	0.296	0.310	4.47	
1,2,4-Trichlorobenzene	1	0		6.87	51.09	50	**		0.343	0.350	2.18	
Naphthalene	1	0		6.93	52.45	50	20	0.7	1.126	1.181	4.90	
4-Chloroaniline	1	0		6.97	53.95	50	20	0.01	0.358	0.447	7.90	
Hexachlorobutadiene	1	0		7.02	51.60	50	20	0.01	0.204	0.211	3.19	
Caprolactam	1	0		7.25	50.65	50	20	0.01	0.123	0.125	1.31	
4-Chloro-3-methylphenol	1	0		7.33	52.03	50	20	0.2	0.346	0.360	4.06	
2-Methylnaphthalene	1	0		7.48	51.18	50	**	0.4	0.765	0.783	2.37	
Methylnaphthalenes	1	0		7.48	51.30	50	20			1.501	2.60	
1,1'-Biphenyl	1	0		7.86	50.97	50	20	0.01	0.928	0.946	1.95	
Acenaphthene-d10	1	0	I	8.37	40.00	40	**			0.000	0.00	
1,2,4,5-Tetrachlorobenzene	1	0		7.61	50.78	50	20	0.01	0.614	0.624	1.55	
Hexachlorocyclopentadiene	1	0		7.60	51.92	50	20	0.05	0.351	0.373	3.83	
2,4,6-Trichlorophenol	1	0		7.70	50.99	50	20	0.2	0.415	0.423	1.97	
2,4,5-Trichlorophenol	1	0		7.73	51.91	50	20	0.2	0.416	0.432	3.82	
2-Fluorobiphenyl	1	0	S	7.77	25.36	25	**		1.453	1.475	1.46	
2-Chloronaphthalene	1	0		7.88	49.99	50	20	0.8	1.252	1.252	0.02	
1,4-Dimethylnaphthalene	1	0		8.17	51.64	50	**		1.014	1.047	3.27	
Dimethylnaphthalenes	1	0		8.17	51.64	50	20			1.047	3.27	
Diphenyl Ether	1	0		7.94	50.82	50	**		0.885	0.899	1.65	
2-Nitroaniline	1	0		7.96	54.26	50	20	0.01	0.481	0.522	8.53	
Coumarin	1	0		8.15	51.25		**		0.521			

S -Surrogate Compound I -Internal Standard Compound

N/O or N/Q - Not applicable for this run ** - No limit specified in method

Note: 8260/8270 limits are compared against the %DIFF/R.F. 625 limits are compared against the %DIFF.

624 limits are compared against the concentration found. 524.2 limits are compared against the %DIFF

Form7

Continuing Calibration

Calibration Name: CAL BNA@50PPM **Data File:** 7M61303.D **Instrument:** GCMS 7

Cont Calibration Date/Time 12/5/2013 2:31:00 P Method: EPA 8270D

TxtCompd:	Col#	Multi Num	Type	RT	Conc	Conc Exp	Lo Lim	MIN RF	Initial RF	RF	%Diff	Flag
Acenaphthylene	1	0		8.25	51.13	50	20	0.9	1.933	1.976	2.25	
Dimethylphthalate	1	0		8.10	51.65	50	20	0.01	1.421	1.468	3.29	
2,6-Dinitrotoluene	1	0		8.16	53.30	50	20	0.2	0.329	0.351	6.61	
Acenaphthene	1	0		8.40	51.41	50	20	0.9	1.277	1.313	2.81	
3-Nitroaniline	1	0		8.32	53.57	50	20	0.01	0.320	0.369	7.15	
2,4-Dinitrophenol	1	0		8.41	51.74	50	20	0.01	0.209	0.212	3.47	
Dibenzofuran	1	0		8.56	51.52	50	20	0.8	1.793	1.847	3.04	
2,4-Dinitrotoluene	1	0		8.53	52.01	50	20	0.2	0.430	0.459	4.01	
4-Nitrophenol	1	0		8.44	50.54	50	20	0.01	0.310	0.323	1.08	
2,3,4,6-Tetrachlorophenol	1	0		8.66	51.27	50	20	0.01	0.385	0.395	2.54	
Fluorene	1	0		8.88	51.31	50	20	0.9	1.542	1.582	2.62	
4-Chlorophenyl-phenylether	1	0		8.87	50.39	50	20	0.4	0.751	0.757	0.78	
Diethylphthalate	1	0		8.74	51.62	50	20	0.01	1.489	1.537	3.25	
4-Nitroaniline	1	0		8.89	53.89	50	20	0.01	0.359	0.386	7.79	
Atrazine	1	0		9.52	51.73	50	20	0.01	0.393	0.407	3.45	
Phenanthrene-d10	1	0	I	9.84	40.00	40	**			0.000	0.00	
4,6-Dinitro-2-methylphenol	1	0		8.92	52.32	50	20	0.01	0.143	0.147	4.64	
n-Nitrosodiphenylamine	1	0		8.98	52.49	50	20	0.01	0.682	0.716	4.98	
2,4,6-Tribromophenol	1	0	S	9.12	51.92	50	**		0.125	0.127	3.84	
1,2-Diphenylhydrazine	1	0		9.03	52.63	50	**		0.844	0.888	5.25	
4-Bromophenyl-phenylether	1	0		9.36	50.98	50	20	0.1	0.237	0.241	1.96	
Hexachlorobenzene	1	0		9.43	50.47	50	20	0.1	0.260	0.263	0.94	
N-Octadecane	1	0		9.70	54.48	50	**	0.05	0.471	0.513	8.95	
Pentachlorophenol	1	0		9.63	52.68	50	20	0.05	0.179	0.183	5.36	
Phenanthrene	1	0		9.87	50.78	50	20	0.7	1.145	1.163	1.57	
Anthracene	1	0		9.93	51.02	50	20	0.7	1.159	1.183	2.03	
Carbazole	1	0		10.10	51.36	50	20	0.01	1.084	1.113	2.72	
Di-n-butylphthalate	1	0		10.48	53.05	50	20	0.01	1.255	1.393	6.10	
Fluoranthene	1	0		11.21	51.58	50	20	0.6	1.323	1.365	3.16	
Chrysene-d12	1	0	I	12.93	40.00	40	**			0.000	0.00	
Pyrene	1	0		11.48	51.69	50	20	0.6	1.089	1.125	3.38	
Benzidine	1	0		11.37	55.20	50	**		0.280	0.381	10.40	
Terphenyl-d14	1	0	S	11.66	25.45	25	**		0.758	0.772	1.80	
4,4'-DDE	1	0		11.60	51.54		**		0.248			
4,4'-DDD	1	0		12.00	52.58		**		0.377			
Butylbenzylphthalate	1	0		12.25	53.67	50	20	0.01	0.466	0.500	7.34	
4,4'-DDT	1	0		12.36	50.17		**		0.355			
3,3'-Dichlorobenzidine	1	0		12.88	53.20	50	20	0.01	0.271	0.323	6.41	
Benzo[a]anthracene	1	0		12.91	51.93	50	20	0.8	1.032	1.072	3.87	
Chrysene	1	0		12.95	49.79	50	20	0.7	0.964	0.960	0.43	
bis(2-Ethylhexyl)phthalate	1	0		12.95	50.97	50	20	0.01	0.648	0.683	1.93	
Perylene-d12	1	0	I	14.60	40.00	40	**			0.000	0.00	
Di-n-octylphthalate	1	0		13.72	50.86	50	20	0.01	1.255	1.340	1.73	
Benzo[b]fluoranthene	1	0		14.16	50.35	50	20	0.7	1.243	1.252	0.70	
Benzo[k]fluoranthene	1	0		14.19	53.08	50	20	0.7	1.250	1.327	6.16	
Benzo[a]pyrene	1	0		14.54	52.51	50	20	0.7	1.154	1.212	5.01	
Indeno[1,2,3-cd]pyrene	1	0		16.00	50.68	50	20	0.5	1.246	1.263	1.35	
Dibenzo[a,h]anthracene	1	0		16.03	50.51	50	20	0.4	1.027	1.039	1.01	
Benzo[g,h,i]perylene	1	0		16.41	50.17	50	20	0.5	1.039	1.043	0.34	
4-Methylphenol	1	100		0.00	0.00	50	**	0.6		0.000	100.00	
Dimethylnaphthalenes (Total)	1	100		0.00	0.00	50	**		1.014	0.000	100.00	
Endrin	1	100		0.00	0.00	50	**			0.000	100.00	

S -Surrogate Compound I -Internal Standard Compound

N/O or N/Q - Not applicable for this run ** - No limit specified in method

Note: 8260/8270 limits are compared against the %DIFF/R.F. 625 limits are compared against the %DIFF.
624 limits are compared against the concentration found. 524.2 limits are compared against the %DIFF

Form7

Continuing Calibration

Calibration Name: CAL BNA@50PPM **Data File:** 7M61303.D **Instrument:** GCMS 7

Cont Calibration Date/Time 12/5/2013 2:31:00 P Method: EPA 8270D

TxtCompd:	Col#	Multi Num	Type	RT	Conc	Conc Exp	Lo Lim	MIN RF	Initial RF	RF	%Diff	Flag
gamma-BHC	1	100		0.00	0.00	10	**			0.000	100.00	
2,4 Diaminotoluene	1	100		0.00	0.00	50	**			0.000	100.00	
Heptachlor	1	100		0.00	0.00	10	**			0.000	100.00	
2,2'-oxybis-(1-Chloropropane)	1	100		0.00	0.00	50	**			0.000	100.00	
Heptachlor epoxide	1	100		0.00	0.00	10	**			0.000	100.00	
Methoxychlor	1	100		0.00	0.00	10	**			0.000	100.00	
Methylnaphthalenes (Total)	1	100		0.00	0.00	50	**		1.463	0.000	100.00	
Toluene Diisocyanate	1	100		0.00	0.00	50	**			0.000	100.00	
Diaminotoluene Dihydrochloride	1	100		0.00	0.00	50	**			0.000	100.00	

S -Surrogate Compound I -Internal Standard Compound

N/O or N/Q - Not applicable for this run ** - No limit specified in method

Note: 8260/8270 limits are compared against the %DIFF/R.F. 625 limits are compared against the %DIFF.

624 limits are compared against the concentration found. 524.2 limits are compared against the %DIFF

Form7

Continuing Calibration

Calibration Name: CAL BNA@50PPM **Data File:** 9M54212.D **Instrument:** GCMS 9

Cont Calibration Date/Time 12/6/2013 10:01:00 Method: EPA 8270D

TxtCompd:	Col#	Multi Num	Type	RT	Conc	Conc Exp	Lo Lim	MIN RF	Initial RF	RF	%Diff	Flag
1,4-Dichlorobenzene-d4	1	0	I	5.58	40.00	40	**			0.000	0.00	
Pyridine	1	0		2.67	42.75	50	**		1.106	0.946	14.50	
N-Nitrosodimethylamine	1	0		2.62	42.84	50	**		0.662	0.567	14.31	
2-Fluorophenol	1	0	S	4.36	46.87	50	**		1.264	1.185	6.26	
Benzaldehyde	1	0		5.21	35.16	50	20	0.01	0.508	0.462	29.67	C1
Aniline	1	0		5.30	49.26	50	**		1.822	1.795	1.48	
Pentachloroethane	1	0		5.34	49.36	50	**	0.05	0.491	0.484	1.28	
bis(2-Chloroethyl)ether	1	0		5.37	48.96	50	20	0.7	1.213	1.188	2.09	
Phenol-d5	1	0	S	5.28	48.40	50	**		1.746	1.690	3.20	
Phenol	1	0		5.29	49.65	50	20	0.8	1.856	1.772	0.71	
2-Chlorophenol	1	0		5.41	50.62	50	20	0.8	1.506	1.525	1.24	
N-Decane	1	0		5.44	41.82	50	**	0.05	0.956	0.800	16.37	
1,3-Dichlorobenzene	1	0		5.53	48.11	50	**		1.718	1.653	3.78	
1,4-Dichlorobenzene	1	0		5.60	48.19	50	20		1.722	1.659	3.62	
1,2-Dichlorobenzene	1	0		5.72	49.23	50	**		1.602	1.577	1.54	
Benzyl alcohol	1	0		5.70	50.56	50	**		0.899	0.885	1.11	
bis(2-chloroisopropyl)ether	1	0		5.82	41.90	50	20	0.01	0.911	0.763	16.21	
2-Methylphenol	1	0		5.80	49.44	50	20	0.7	1.275	1.261	1.11	
Acetophenone	1	0		5.92	49.82	50	20	0.01	2.279	2.137	0.36	
Hexachloroethane	1	0		5.99	47.76	50	20	0.3	0.645	0.616	4.47	
N-Nitroso-di-n-propylamine	1	0		5.92	46.49	50	20	0.5	1.113	1.038	7.03	
3&4-Methylphenol	1	0		5.93	46.38	50	20		1.466	1.364	7.25	
Naphthalene-d8	1	0	I	6.60	40.00	40	**			0.000	0.00	
Nitrobenzene-d5	1	0	S	6.04	25.78	25	**		0.176	0.181	3.14	
Nitrobenzene	1	0		6.06	48.68	50	20	0.2	0.396	0.386	2.64	
Isophorone	1	0		6.24	49.73	50	20	0.4	0.655	0.651	0.54	
2-Nitrophenol	1	0		6.31	53.84	50	20	0.1	0.220	0.233	7.67	
2,4-Dimethylphenol	1	0		6.34	51.79	50	20	0.2	0.411	0.418	3.57	
Benzoic Acid	1	0		6.44	60.44	50	**		0.198	0.220	20.88	
bis(2-Chloroethoxy)methane	1	0		6.41	48.42	50	20	0.3	0.387	0.375	3.16	
2,4-Dichlorophenol	1	0		6.50	51.36	50	20	0.2	0.349	0.359	2.73	
1,2,4-Trichlorobenzene	1	0		6.55	49.78	50	**		0.401	0.399	0.44	
Naphthalene	1	0		6.61	48.57	50	20	0.7	1.192	1.158	2.85	
4-Chloroaniline	1	0		6.66	55.60	50	20	0.01	0.409	0.455	11.19	
Hexachlorobutadiene	1	0		6.70	50.25	50	20	0.01	0.254	0.255	0.51	
Caprolactam	1	0		6.94	50.98	50	20	0.01	0.123	0.125	1.96	
4-Chloro-3-methylphenol	1	0		7.02	52.55	50	20	0.2	0.362	0.368	5.10	
2-Methylnaphthalene	1	0		7.14	50.64	50	**	0.4	0.880	0.892	1.28	
Methylnaphthalenes	1	0		7.14	50.22	50	20			1.687	0.45	
1,1'-Biphenyl	1	0		7.51	49.62	50	20	0.01	1.120	1.111	0.76	
Acenaphthene-d10	1	0	I	7.99	40.00	40	**			0.000	0.00	
1,2,4,5-Tetrachlorobenzene	1	0		7.27	49.99	50	20	0.01	0.696	0.696	0.03	
Hexachlorocyclopentadiene	1	0		7.26	20.83	50	20	0.05	0.209	0.066	58.33	C1
2,4,6-Trichlorophenol	1	0		7.36	51.59	50	20	0.2	0.451	0.452	3.19	
2,4,5-Trichlorophenol	1	0		7.39	50.90	50	20	0.2	0.443	0.451	1.79	
2-Fluorobiphenyl	1	0	S	7.42	25.06	25	**		1.478	1.482	0.26	
2-Chloronaphthalene	1	0		7.53	45.50	50	20	0.8	1.275	1.160	9.01	
1,4-Dimethylnaphthalene	1	0		7.80	48.86	50	**		1.120	1.034	2.29	
Dimethylnaphthalenes	1	0		7.80	48.86	50	20			1.034	2.29	
Diphenyl Ether	1	0		7.59	48.15	50	**		0.964	0.928	3.70	
2-Nitroaniline	1	0		7.61	44.98	50	20	0.01	0.473	0.426	10.04	
Coumarin	1	0		7.80	47.95		**		0.538			

S -Surrogate Compound I -Internal Standard Compound

N/O or N/Q - Not applicable for this run ** - No limit specified in method

Note: 8260/8270 limits are compared against the %DIFF/R.F. 625 limits are compared against the %DIFF.

624 limits are compared against the concentration found. 524.2 limits are compared against the %DIFF

Form7

Continuing Calibration

Calibration Name: CAL BNA@50PPM **Data File:** 9M54212.D **Instrument:** GCMS 9

Cont Calibration Date/Time 12/6/2013 10:01:00 Method: EPA 8270D

TxtCompd:	Col#	Multi Num	Type	RT	Conc	Conc Exp	Lo Lim	MIN RF	Initial RF	RF	%Diff	Flag
Acenaphthylene	1	0		7.88	48.17	50	20	0.9	2.018	1.945	3.65	
Dimethylphthalate	1	0		7.75	49.42	50	20	0.01	1.567	1.549	1.16	
2,6-Dinitrotoluene	1	0		7.81	47.16	50	20	0.2	0.362	0.341	5.67	
Acenaphthene	1	0		8.03	49.00	50	20	0.9	1.345	1.318	1.99	
3-Nitroaniline	1	0		7.96	55.01	50	20	0.01	0.335	0.368	10.01	
2,4-Dinitrophenol	1	0		8.06	55.49	50	20	0.01	0.151	0.179	10.97	
Dibenzofuran	1	0		8.18	52.50	50	20	0.8	1.901	1.864	5.00	
2,4-Dinitrotoluene	1	0		8.17	54.94	50	20	0.2	0.483	0.505	9.87	
4-Nitrophenol	1	0		8.10	46.72	50	20	0.01	0.250	0.228	6.56	
2,3,4,6-Tetrachlorophenol	1	0		8.29	54.39	50	20	0.01	0.395	0.420	8.79	
Fluorene	1	0		8.50	48.89	50	20	0.9	1.622	1.586	2.22	
4-Chlorophenyl-phenylether	1	0		8.49	51.17	50	20	0.4	0.879	0.858	2.34	
Diethylphthalate	1	0		8.37	49.23	50	20	0.01	1.577	1.553	1.53	
4-Nitroaniline	1	0		8.52	53.20	50	20	0.01	0.343	0.365	6.40	
Atrazine	1	0		9.13	44.25	50	20	0.01	0.420	0.372	11.50	
Phenanthrene-d10	1	0	I	9.44	40.00	40	**			0.000	0.00	
4,6-Dinitro-2-methylphenol	1	0		8.55	58.64	50	20	0.01	0.125	0.140	17.28	
n-Nitrosodiphenylamine	1	0		8.60	47.56	50	20	0.01	0.703	0.669	4.89	
2,4,6-Tribromophenol	1	0	S	8.73	56.00	50	**		0.116	0.126	12.01	
1,2-Diphenylhydrazine	1	0		8.64	45.69	50	**		0.812	0.742	8.63	
4-Bromophenyl-phenylether	1	0		8.97	49.68	50	20	0.1	0.279	0.277	0.64	
Hexachlorobenzene	1	0		9.03	51.23	50	20	0.1	0.290	0.298	2.46	
N-Octadecane	1	0		9.30	42.19	50	**	0.05	0.358	0.302	15.61	
Pentachlorophenol	1	0		9.23	54.37	50	20	0.05	0.141	0.142	8.74	
Phenanthrene	1	0		9.46	48.51	50	20	0.7	1.185	1.149	2.97	
Anthracene	1	0		9.52	49.27	50	20	0.7	1.191	1.174	1.47	
Carbazole	1	0		9.69	49.41	50	20	0.01	1.121	1.107	1.19	
Di-n-butylphthalate	1	0		10.07	49.60	50	20	0.01	1.404	1.397	0.80	
Fluoranthene	1	0		10.79	50.92	50	20	0.6	1.460	1.487	1.83	
Chrysene-d12	1	0	I	12.49	40.00	40	**			0.000	0.00	
Pyrene	1	0		11.05	52.15	50	20	0.6	1.133	1.182	4.31	
Benzidine	1	0		10.95	51.61	50	**		0.331	0.380	3.22	
Terphenyl-d14	1	0	S	11.24	26.35	25	**		0.778	0.820	5.40	
4,4'-DDE	1	0		11.17	51.36		**		0.270			
4,4'-DDD	1	0		11.57	51.36		**		0.438			
Butylbenzylphthalate	1	0		11.83	51.27	50	20	0.01	0.490	0.503	2.54	
4,4'-DDT	1	0		11.92	49.66		**		0.425			
3,3'-Dichlorobenzidine	1	0		12.45	55.74	50	20	0.01	0.344	0.405	11.47	
Benzo[a]anthracene	1	0		12.47	51.10	50	20	0.8	1.096	1.121	2.21	
Chrysene	1	0		12.51	50.73	50	20	0.7	1.002	1.017	1.47	
bis(2-Ethylhexyl)phthalate	1	0		12.52	47.70	50	20	0.01	0.693	0.673	4.59	
Perylene-d12	1	0	I	14.09	40.00	40	**			0.000	0.00	
Di-n-octylphthalate	1	0		13.27	50.21	50	20	0.01	1.536	1.494	0.42	
Benzo[b]fluoranthene	1	0		13.69	51.29	50	20	0.7	1.323	1.328	2.58	
Benzo[k]fluoranthene	1	0		13.72	48.69	50	20	0.7	1.375	1.339	2.62	
Benzo[a]pyrene	1	0		14.03	51.99	50	20	0.7	1.238	1.237	3.97	
Indeno[1,2,3-cd]pyrene	1	0		15.31	56.15	50	20	0.5	1.245	1.317	12.29	
Dibenzo[a,h]anthracene	1	0		15.33	56.73	50	20	0.4	1.022	1.093	13.47	
Benzo[g,h,i]perylene	1	0		15.66	52.72	50	20	0.5	0.988	1.042	5.43	
4-Methylphenol	1	100		0.00	0.00	50	**	0.6		0.000	100.00	
Dimethylnaphthalenes (Total)	1	100		0.00	0.00	50	**		1.120	0.000	100.00	
Endrin	1	100		0.00	0.00	50	**			0.000	100.00	

S -Surrogate Compound I -Internal Standard Compound

N/O or N/Q - Not applicable for this run ** - No limit specified in method

Note: 8260/8270 limits are compared against the %DIFF/R.F. 625 limits are compared against the %DIFF.

624 limits are compared against the concentration found. 524.2 limits are compared against the %DIFF

Form7

Continuing Calibration

Calibration Name: CAL BNA@50PPM **Data File:** 9M54212.D **Instrument:** GCMS 9

Cont Calibration Date/Time 12/6/2013 10:01:00 Method: EPA 8270D

TxtCompd:	Col#	Multi Num	Type	RT	Conc	Conc Exp	Lo Lim	MIN RF	Initial RF	RF	%Diff	Flag
gamma-BHC	1	100		0.00	0.00	10	**			0.000	100.00	
Heptachlor	1	100		0.00	0.00	10	**			0.000	100.00	
Heptachlor epoxide	1	100		0.00	0.00	10	**			0.000	100.00	
Methoxychlor	1	100		0.00	0.00	10	**			0.000	100.00	
Methylnaphthalenes (Total)	1	100		0.00	0.00	50	**		1.679	0.000	100.00	
Toluene Diisocyanate	1	100		0.00	0.00	50	**			0.000	100.00	
2,2'-oxybis-(1-Chloropropane)	1	100		0.00	0.00	50	**			0.000	100.00	
2,4 Diaminotoluene	1	100		0.00	0.00	50	**			0.000	100.00	
Diaminotoluene Dihydrochloride	1	100		0.00	0.00	50	**			0.000	100.00	

S -Surrogate Compound I -Internal Standard Compound

N/O or N/Q - Not applicable for this run ** - No limit specified in method

Note: 8260/8270 limits are compared against the %DIFF/R.F. 625 limits are compared against the %DIFF.

624 limits are compared against the concentration found. 524.2 limits are compared against the %DIFF

Form7

Continuing Calibration

Calibration Name: CAL SIM@5PPM **Data File:** 12M17483.D **Instrument:** GCMS 12Sm

Cont Calibration Date/Time 12/3/2013 9:51:00 A Method: EPA8270D SIM

TxtCompd:	Col#	Multi Num	Type	RT	Conc	Conc Exp	Lo Lim	MIN RF	Initial RF	RF	%Diff	Flag
1,4-Dichlorobenzene-d4	1	0	I	6.27	0.40	0.4000	**			0.000	0.00	
N-Nitrosodimethylamine	1	0		3.76	5.18	5	20	0.01	0.676	0.701	3.62	
2-Methylphenol	1	0		6.37	4.99	5	20		0.653	0.777	0.30	
3&4-Methylphenol	1	0		6.46	4.41	5	20		0.900	0.897	11.88	
Hexachloroethane	1	0		6.69	4.68	5	20	0.3	0.422	0.396	6.34	
2,4-Dimethylphenol	1	0		6.99	4.44	5	20		0.818	0.917	11.28	
Naphthalene-d8	1	0	I	7.28	0.40	0.4000	**			0.000	0.00	
Nitrobenzene-d5	1	0	S	6.70	29.84		**		0.214			
Naphthalene	1	0		7.30	5.09	5	20	0.7	1.000	1.018	1.81	
Hexachlorobutadiene	1	0		7.38	4.92	5	20	0.01	0.167	0.165	1.56	
Acenaphthene-d10	1	0	I	8.75	0.40	0.4000	**			0.000	0.00	
Hexachlorocyclopentadiene	1	0		7.97	4.58	5	20		0.156	0.164	8.35	
2,4,5-Trichlorophenol	1	0		8.10	4.38		**		0.263			
2-Fluorobiphenyl	1	0	S	8.14	23.37		**		0.981			
Acenaphthylene	1	0		8.62	5.16	5	20	0.9	1.785	1.841	3.13	
Acenaphthene	1	0		8.78	4.81	5	20	0.9	1.100	1.057	3.85	
Dibenzofuran	1	0		8.94	4.79	5	20		1.582	1.514	4.28	
Fluorene	1	0		9.27	4.46	5	20	0.9	0.951	0.848	10.89	
4,6-Dinitro-2-methylphenol	1	0		9.30	5.40	5	20	0.01	0.076	0.110	8.08	
1,2-Diphenylhydrazine	1	0		9.41	4.52	5	20		0.955	1.024	9.68	
Phenanthrene-d10	1	0	I	10.25	0.40	0.4000	**			0.000	0.00	
Hexachlorobenzene	1	0		9.84	4.94	5	20	0.1	0.209	0.206	1.27	
Pentachlorophenol	1	0		10.04	4.99	5	20	0.05	0.073	0.095	0.14	
Phenanthrene	1	0		10.27	5.00	5	20	0.7	1.058	1.057	0.04	
Anthracene	1	0		10.33	5.19	5	20	0.7	0.948	0.984	3.78	
Carbazole	1	0		10.50	5.56	5	20	0.01	0.794	0.883	11.19	
Fluoranthene	1	0		11.62	5.30	5	20	0.6	1.134	1.201	5.98	
Chrysene-d12	1	0	I	13.33	0.40	0.4000	**			0.000	0.00	
Pyrene	1	0		11.89	5.28	5	20	0.6	1.651	1.743	5.60	
Terphenyl-d14	1	0	S	12.06	27.24		**		0.992			
Benzo[a]anthracene	1	0		13.31	5.14	5	20	0.8	1.001	1.029	2.86	
Chrysene	1	0		13.37	5.07	5	20	0.7	1.085	1.100	1.32	
Perylene-d12	1	0	I	15.06	0.40	0.4000	**			0.000	0.00	
Benzo[b]fluoranthene	1	0		14.58	5.46	5	20	0.7	1.509	1.647	9.15	
Benzo[k]fluoranthene	1	0		14.61	5.91	5	20	0.7	1.815	2.146	18.22	
Benzo[a]pyrene	1	0		14.98	5.84	5	20	0.7	1.250	1.461	16.89	
Indeno[1,2,3-cd]pyrene	1	0		16.58	5.11	5	20	0.5	1.796	1.969	2.13	
Dibenzo[a,h]anthracene	1	0		16.60	5.22	5	20	0.4	1.635	1.836	4.46	
Benzo[g,h,i]perylene	1	0		17.03	5.31	5	20	0.5	1.771	1.859	6.27	

S -Surrogate Compound I -Internal Standard Compound

N/O or N/Q - Not applicable for this run ** - No limit specified in method

Note: 8260/8270 limits are compared against the %DIFF/R.F. 625 limits are compared against the %DIFF.

624 limits are compared against the concentration found. 524.2 limits are compared against the %DIFF

Form7

Continuing Calibration

Calibration Name: CAL SIM@5PPM **Data File:** 12M17605.D **Instrument:** GCMS 12Sm

Cont Calibration Date/Time 12/9/2013 9:39:00 A Method: EPA8270D SIM

TxtCompd:	Col#	Multi Num	Type	RT	Conc	Conc Exp	Lo Lim	MIN RF	Initial RF	RF	%Diff	Flag
1,4-Dichlorobenzene-d4	1	0	I	6.25	0.40	0.4000	**			0.000	0.00	
N-Nitrosodimethylamine	1	0		3.79	4.54	5	20	0.01	0.583	0.598	9.16	
2-Methylphenol	1	0		6.38	5.13	5	20		0.574	0.733	2.56	
3&4-Methylphenol	1	0		6.38	2.92	5	20		0.736	0.523	41.65	C1
Hexachloroethane	1	0		6.67	5.34	5	20	0.3	0.370	0.395	6.70	
2,4-Dimethylphenol	1	0		7.02	4.90	5	20		0.661	0.762	2.04	
Naphthalene-d8	1	0	I	7.27	0.40	0.4000	**			0.000	0.00	
Nitrobenzene-d5	1	0	S	6.70	27.53		**		0.158			
Naphthalene	1	0		7.28	5.07	5	20	0.7	1.007	1.020	1.31	
Hexachlorobutadiene	1	0		7.38	4.93	5	20	0.01	0.164	0.162	1.34	
Acenaphthene-d10	1	0	I	8.75	0.40	0.4000	**			0.000	0.00	
Hexachlorocyclopentadiene	1	0		7.96	4.56	5	20		0.176	0.191	8.80	
2,4,5-Trichlorophenol	1	0		8.08	5.06		**		0.272			
2-Fluorobiphenyl	1	0	S	8.13	23.49		**		0.955			
Acenaphthylene	1	0		8.62	5.17	5	20	0.9	1.713	1.769	3.33	
Acenaphthene	1	0		8.78	4.73	5	20	0.9	1.094	1.036	5.31	
Dibenzofuran	1	0		8.94	4.74	5	20		1.584	1.501	5.29	
Fluorene	1	0		9.26	4.91	5	20	0.9	0.868	0.852	1.87	
4,6-Dinitro-2-methylphenol	1	0		9.30	5.35	5	20	0.01	0.110	0.154	7.03	
1,2-Diphenylhydrazine	1	0		9.40	5.33	5	20		0.928	1.117	6.50	
Phenanthrene-d10	1	0	I	10.24	0.40	0.4000	**			0.000	0.00	
Hexachlorobenzene	1	0		9.83	4.51	5	20	0.1	0.198	0.178	9.70	
Pentachlorophenol	1	0		10.05	4.19	5	20	0.05	0.083	0.085	16.24	
Phenanthrene	1	0		10.26	4.70	5	20	0.7	1.060	0.996	6.10	
Anthracene	1	0		10.32	5.11	5	20	0.7	0.927	0.948	2.26	
Carbazole	1	0		10.50	5.13	5	20	0.01	0.862	0.886	2.68	
Fluoranthene	1	0		11.62	5.12	5	20	0.6	1.113	1.140	2.45	
Chrysene-d12	1	0	I	13.32	0.40	0.4000	**			0.000	0.00	
Pyrene	1	0		11.88	5.20	5	20	0.6	1.500	1.559	3.93	
Terphenyl-d14	1	0	S	12.06	26.52		**		0.880			
Benzo[a]anthracene	1	0		13.31	5.46	5	20	0.8	0.921	1.007	9.29	
Chrysene	1	0		13.35	4.79	5	20	0.7	1.019	0.976	4.17	
Perylene-d12	1	0	I	15.05	0.40	0.4000	**			0.000	0.00	
Benzo[b]fluoranthene	1	0		14.57	4.58	5	20	0.7	1.464	1.446	8.46	
Benzo[k]fluoranthene	1	0		14.60	4.13	5	20	0.7	1.770	1.462	17.40	
Benzo[a]pyrene	1	0		14.97	4.70	5	20	0.7	1.208	1.306	6.08	
Indeno[1,2,3-cd]pyrene	1	0		16.57	5.32	5	20	0.5	2.046	2.176	6.32	
Dibenzo[a,h]anthracene	1	0		16.59	4.76	5	20	0.4	1.845	2.058	4.79	
Benzo[g,h,i]perylene	1	0		17.02	4.70	5	20	0.5	1.952	2.050	5.98	

S -Surrogate Compound I -Internal Standard Compound

N/O or N/Q - Not applicable for this run ** - No limit specified in method

Note: 8260/8270 limits are compared against the %DIFF/R.F. 625 limits are compared against the %DIFF.

624 limits are compared against the concentration found. 524.2 limits are compared against the %DIFF

FORM8

Internal Standard Areas

Evaluation Std Data File: 5M82748.D Method: EPA 8270D

Analysis Date/Time: 11/01/13 12:50

Lab File ID: CAL BNA@50PPM

	I1		I2		I3		I4		I5		I6	
	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT
Eval File Area/RT:	66818	5.70	268944	6.71	160903	8.13	293012	9.57	365308	12.62	316848	14.23
Eval File Area Limit:	33409-133636		134472-537888		80452-321806		146506-586024		182654-730616		158424-633696	
Eval File Rt Limit:	5.2-6.2		6.21-7.21		7.63-8.63		9.07-10.07		12.12-13.12		13.73-14.73	

Data File	Sample											
5M82740.D	CAL BNA@1C	60218	5.70	247989	6.71	150907	8.13	280656	9.57	356785	12.62	308571	14.22
5M82741.D	CAL BNA@2C	65028	5.70	257590	6.71	158249	8.13	288988	9.57	363993	12.62	317915	14.22
5M82742.D	CAL BNA@2F	62850	5.70	249343	6.71	154473	8.13	287718	9.57	357103	12.62	306942	14.22
5M82743.D	CAL BNA@.5	61968	5.70	249660	6.71	154583	8.13	289610	9.57	356246	12.62	310651	14.22
5M82744.D	CAL BNA@1S	58390	5.70	226128	6.72	140692	8.13	256503	9.58	293078	12.64	251363	14.23
5M82745.D	CAL BNA@1E	62218	5.70	242663	6.72	151431	8.13	277180	9.58	329573	12.63	285568	14.23
5M82746.D	CAL BNA@12	62243	5.70	240441	6.72	148587	8.13	267711	9.58	325496	12.63	280314	14.23
5M82747.D	CAL BNA@8C	64365	5.70	253814	6.72	152916	8.13	284139	9.57	351089	12.62	302342	14.23
5M82748.D	CAL BNA@5C	66818	5.70	268944	6.71	160903	8.13	293012	9.57	365308	12.62	316848	14.23
5M82749.D	ICV BNA@50	69786	5.70	268920	6.72	168671	8.13	307745	9.58	383185	12.62	323275	14.23

I1 =	1,4-Dichlorobenzene-d4	**I4 =**	Phenanthrene-d10	**625/8270 Internal Standard concentration = 40 mg/L (in final extract)**
I2 =	Naphthalene-d8	**I5 =**	Chrysene-d12	**624/8260 Internal Standard concentration = 30ug/L**
I3 =	Acenaphthene-d10	**I6 =**	Perylene-d12	**524 Internal Standard concentration =5ug/L**

QC Limits:

Internal Standard Areas

Upper Limit = + 100% of internal standard area from daily cal or mid pt.

Lower Limit = - 50% of internal standard area from daily cal or mid pt.

Flags:

A - Indicates the compound failed the internal standard area criteria

R - Indicates the compound failed the internal standard retention time criteria.

Retention Times: Limit = within +/- 0.5 min of internal standard retention time from the daily cal or mid pt.

FORM8

Internal Standard Areas

Evaluation Std Data File: 9M53699.D Method: EPA 8270D

Analysis Date/Time: 11/05/13 13:10

Lab File ID: CAL BNA@50PPM

	I1		I2		I3		I4		I5		I6	
	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT
Eval File Area/RT:	76178	5.72	294447	6.73	174319	8.15	334174	9.61	410489	12.67	296287	14.28
Eval File Area Limit:	38089-152356		147224-588894		87160-348638		167087-668348		205244-820978		148144-592574	
Eval File Rt Limit:	5.22-6.22		6.23-7.23		7.65-8.65		9.11-10.11		12.17-13.17		13.78-14.78	

Data File	Sample											
9M53691.D	CAL BNA@1C	71168	5.72	274078	6.73	166184	8.15	320117	9.61	400732	12.66	304173	14.28
9M53692.D	CAL BNA@2F	73015	5.72	288007	6.73	178139	8.15	337852	9.61	416059	12.66	316953	14.28
9M53693.D	CAL BNA@.5	74514	5.72	291386	6.73	186720	8.15	350566	9.61	434619	12.66	326608	14.28
9M53694.D	CAL BNA@2C	76804	5.72	298488	6.73	183279	8.15	353043	9.61	434037	12.67	321053	14.28
9M53695.D	CAL BNA@1S	60080	5.72	228081	6.74	141611	8.16	279272	9.61	367136	12.68	233515	14.28
9M53696.D	CAL BNA@1E	68597	5.72	254021	6.74	156401	8.15	300383	9.61	386403	12.67	255119	14.28
9M53697.D	CAL BNA@12	71458	5.72	272248	6.74	162760	8.15	312648	9.61	377880	12.67	258385	14.28
9M53698.D	CAL BNA@8C	76459	5.72	298118	6.74	183087	8.15	362907	9.61	473733	12.67	329712	14.28
9M53699.D	CAL BNA@5C	76178	5.72	294447	6.73	174319	8.15	334174	9.61	410489	12.67	296287	14.28
9M53700.D	ICV BNA@50	81125	5.72	308382	6.73	187911	8.15	357582	9.61	442907	12.67	313560	14.28

I1 =	1,4-Dichlorobenzene-d4	I4 =	Phenanthrene-d10	**625/8270 Internal Standard concentration = 40 mg/L (in final extract)**
I2 =	Naphthalene-d8	I5 =	Chrysene-d12	**624/8260 Internal Standard concentration = 30ug/L**
I3 =	Acenaphthene-d10	I6 =	Perylene-d12	**524 Internal Standard concentration =5ug/L**

QC Limits:

Internal Standard Areas

Upper Limit = + 100% of internal standard area from daily cal or mid pt.

Lower Limit = - 50% of internal standard area from daily cal or mid pt.

Flags:

A - Indicates the compound failed the internal standard area criteria

R - Indicates the compound failed the internal standard retention time criteria.

Retention Times: Limit = within +/- 0.5 min of internal standard retention time from the daily cal or mid pt.

FORM8

Internal Standard Areas

Evaluation Std Data File: 5M83230.D Method: EPA 8270D

Analysis Date/Time: 12/03/13 14:55

Lab File ID: CAL BNA@50PPM

	I1		I2		I3		I4		I5		I6	
	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT
Eval File Area/RT:	48428	5.68	198311	6.70	126718	8.11	271315	9.56	396368	12.61	372230	14.21
Eval File Area Limit:	24214-96856		99156-396622		63359-253436		135658-542630		198184-792736		186115-744460	
Eval File Rt Limit:	5.18-6.18		6.2-7.2		7.61-8.61		9.06-10.06		12.11-13.11		13.71-14.71	

Data File	Sample											
5M83231.D	TEST-A	49628	5.69	201122	6.70	124967	8.11	257424	9.56	380720	12.60	355985	14.21
5M83232.D	TEST-B	55348	5.69	222337	6.70	138625	8.11	271337	9.56	398463	12.60	379843	14.21
5M83233.D	WMB29382(M	51447	5.69	208745	6.70	138852	8.11	281179	9.56	410389	12.61	388773	14.21
5M83234.D	WMB29382	54780	5.69	234251	6.70	149516	8.11	308062	9.56	413432	12.60	381805	14.21
5M83235.D	WMB29386	45283	5.68	191620	6.70	124490	8.11	246749	9.56	345904	12.60	327414	14.21
5M83236.D	WMB29386(M	50898	5.69	207904	6.70	136169	8.11	273851	9.56	384881	12.61	354023	14.21
5M83238.D	AC75937-020	70936	5.69	299230	6.70	189867	8.11	381015	9.56	513343	12.60	478505	14.21
5M83239.D	AC75937-020(	74691	5.69	311415	6.70	202615	8.11	385795	9.56	488609	12.61	440763	14.21
5M83240.D	AC75937-020(	72599	5.69	307574	6.70	198134	8.11	381865	9.56	487794	12.61	437538	14.21
5M83241.D	AC75916-001(	72380	5.69	299927	6.71	187603	8.11	361736	9.56	477569	12.60	441570	14.21
5M83242.D	EF-1 V-17703	60069	5.69	246864	6.70	156956	8.11	310115	9.56	446518	12.60	421696	14.21
5M83243.D	AC75940-001	65366	5.69	275946	6.70	184057	8.11	371258	9.56	513552	12.60	458576	14.21
5M83244.D	AC75960-033	78138	5.68	317535	6.70	207415	8.11	406156	9.56	548077	12.60	493797	14.21
5M83245.D	AC75958-001	36941	5.69	159877	6.70	113519	8.11	240890	9.56	370644	12.60	340581	14.21
5M83246.D	AC75529-001(	63916	5.69	273403	6.70	174714	8.11	342860	9.56	479747	12.60	443854	14.21
5M83247.D	AC75937-021	75097	5.69	312466	6.70	200831	8.11	388685	9.56	510928	12.60	428312	14.21
5M83250.D	75908-002	54636	5.69	224352	6.70	148921	8.11	294878	9.56	409019	12.60	370117	14.21
5M83258.D	AC75938-027	34110	5.69	147355	6.70	107867	8.11	243938	9.56	368302	12.60	344492	14.21

I1 =	1,4-Dichlorobenzene-d4	I4 =	Phenanthrene-d10	**625/8270 Internal Standard concentration = 40 mg/L (in final extract)**
I2 =	Naphthalene-d8	I5 =	Chrysene-d12	**624/8260 Internal Standard concentration = 30ug/L**
I3 =	Acenaphthene-d10	I6 =	Perylene-d12	**524 Internal Standard concentration =5ug/L**

QC Limits:

Internal Standard Areas

Upper Limit = + 100% of internal standard area from daily cal or mid pt.

Lower Limit = - 50% of internal standard area from daily cal or mid pt.

Flags:

A - Indicates the compound failed the internal standard area criteria

R - Indicates the compound failed the internal standard retention time criteria.

Retention Times: Limit = within +/- 0.5 min of internal standard retention time from the daily cal or mid pt.

FORM8

Internal Standard Areas

Evaluation Std Data File: 5M83264.D Method: EPA 8270D

Analysis Date/Time: 12/04/13 08:16

Lab File ID: CAL BNA@50PPM

	I1		I2		I3		I4		I5		I6	
	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT
Eval File Area/RT:	65395	5.68	267752	6.70	171950	8.11	331594	9.56	441107	12.61	381143	14.21
Eval File Area Limit:	32698-130790		133876-535504		85975-343900		165797-663188		220554-882214		190572-762286	
Eval File Rt Limit:	5.18-6.18		6.2-7.2		7.61-8.61		9.06-10.06		12.11-13.11		13.71-14.71	

Data File	Sample											
5M83265.D	WMB29388(M	55968	5.69	226375	6.70	150142	8.11	289931	9.56	379243	12.61	336878	14.21
5M83266.D	WMB29388	42792	5.69	191100	6.70	127010	8.11	265727	9.56	367615	12.60	328607	14.20
5M83267.D	AC75938-027	48305	5.69	203844	6.70	141538	8.11	292353	9.56	393891	12.60	353636	14.21
5M83268.D	EF-1 V-17706	47041	5.68	191684	6.70	121083	8.11	249493	9.56	354254	12.60	311464	14.21
5M83269.D	AC75892-001(	43621	5.69	176838	6.70	115181	8.11	243208	9.56	342304	12.60	302160	14.21
5M83270.D	AC75892-002(	37881	5.68	157010	6.70	103556	8.11	223946	9.56	339917	12.60	312385	14.21
5M83271.D	AC75892-003(	41921	5.68	181424	6.70	117415	8.11	246400	9.56	347452	12.60	313035	14.21
5M83272.D	AC75892-001(	56394	5.69	232169	6.70	144788	8.11	283292	9.56	377544	12.61	329504	14.21
5M83273.D	AC75892-001(	54384	5.69	229597	6.70	149893	8.11	294467	9.56	385996	12.61	342475	14.21
5M83274.D	AC75941-001(	43439	5.69	184426	6.70	123218	8.11	253448	9.56	360328	12.60	329163	14.21
5M83275.D	AC75941-002(	53042	5.69	222643	6.70	144230	8.11	293056	9.56	389491	12.60	331880	14.21
5M83280.D	MBS-1	48551	5.69	206696	6.70	140266	8.11	293964	9.56	411440	12.60	375916	14.21
5M83281.D	MBS-2	38773	5.69	174015	6.70	125855	8.11	270477	9.56	396376	12.60	360860	14.21
5M83282.D	MBS-3	39171	5.68	178003	6.70	125367	8.11	265266	9.56	390370	12.60	356753	14.21
5M83283.D	MBS-4	36356	5.68	161181	6.70	113178	8.11	250338	9.56	383525	12.60	357868	14.21
5M83284.D	MBS-5	37316	5.68	162000	6.70	111612	8.11	232612	9.56	331683	12.60	305254	14.21
5M83285.D	MB	40323	5.69	178152	6.70	120503	8.11	258448	9.56	394452	12.60	356778	14.20

I1 =	1,4-Dichlorobenzene-d4	**I4 =**	Phenanthrene-d10	**625/8270 Internal Standard concentration = 40 mg/L (in final extract)**
I2 =	Naphthalene-d8	**I5 =**	Chrysene-d12	**624/8260 Internal Standard concentration = 30ug/L**
I3 =	Acenaphthene-d10	**I6 =**	Perylene-d12	**524 Internal Standard concentration =5ug/L**

QC Limits:

Internal Standard Areas

Upper Limit = + 100% of internal standard area from daily cal or mid pt.

Lower Limit = - 50% of internal standard area from daily cal or mid pt.

Flags:

A - Indicates the compound failed the internal standard area criteria

R - Indicates the compound failed the internal standard retention time criteria.

Retention Times: Limit = within +/- 0.5 min of internal standard retention time from the daily cal or mid pt.

FORM8

Internal Standard Areas

Evaluation Std Data File: 7M61300.D Method: EPA 8270D

Analysis Date/Time: 12/05/13 13:14

Lab File ID: CAL BNA@50PPM

	I1		I2		I3		I4		I5		I6	
	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT
Eval File Area/RT:	119037	5.90	461701	6.91	261635	8.37	485808	9.85	580195	12.92	456086	14.58
Eval File Area Limit:	59518-238074		230850-923402		130818-523270		242904-971616		290098-1160390		228043-912172	
Eval File Rt Limit:	5.4-6.4		6.41-7.41		7.87-8.87		9.35-10.35		12.42-13.42		14.08-15.08	

Data File	Sample											
7M61292.D	CAL BNA@1C	143154	5.90	543285	6.93	309492	8.40	572071	9.87	711754	12.94	590137	14.65
7M61293.D	CAL BNA@2F	142679	5.90	546988	6.92	314370	8.37	576660	9.85	685821	12.92	558202	14.59
7M61294.D	CAL BNA@.5	127044	5.90	496767	6.91	329078	8.37	608746	9.85	714394	12.92	575820	14.58
7M61295.D	CAL BNA@2C	122143	5.90	479999	6.92	273925	8.37	601304	9.84	703836	12.92	566050	14.59
7M61296.D	CAL BNA@1S	117630	5.90	450586	6.92	251794	8.37	457472	9.84	658001	12.93	515697	14.58
7M61297.D	CAL BNA@1E	117323	5.90	455243	6.92	262086	8.37	558144	9.85	681774	12.93	541979	14.57
7M61298.D	CAL BNA@12	116741	5.90	446940	6.92	254421	8.37	463978	9.84	549715	12.93	427374	14.60
7M61299.D	CAL BNA@8C	115862	5.90	437970	6.91	250503	8.36	457737	9.84	554188	12.92	426912	14.57
7M61300.D	CAL BNA@5C	119037	5.90	461701	6.91	261635	8.37	485808	9.85	580195	12.92	456086	14.58
7M61301.D	ICV BNA@50	118034	5.90	456842	6.92	258722	8.38	477124	9.85	574878	12.92	439615	14.59

I1 =	1,4-Dichlorobenzene-d4	I4 =	Phenanthrene-d10	**625/8270 Internal Standard concentration = 40 mg/L (in final extract)**
I2 =	Naphthalene-d8	I5 =	Chrysene-d12	**624/8260 Internal Standard concentration = 30ug/L**
I3 =	Acenaphthene-d10	I6 =	Perylene-d12	**524 Internal Standard concentration =5ug/L**

QC Limits:

Internal Standard Areas

Upper Limit = + 100% of internal standard area from daily cal or mid pt.

Lower Limit = - 50% of internal standard area from daily cal or mid pt.

Flags:

A - Indicates the compound failed the internal standard area criteria

R - Indicates the compound failed the internal standard retention time criteria.

Retention Times: Limit = within +/- 0.5 min of internal standard retention time from the daily cal or mid pt.

FORM8

Internal Standard Areas

Evaluation Std Data File: 9M54180.D Method: EPA 8270D

Analysis Date/Time: 12/05/13 10:45

Lab File ID: CAL BNA@50PPM

	I1		I2		I3		I4		I5		I6	
	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT
Eval File Area/RT:	71807	5.61	280625	6.62	178221	8.03	359311	9.47	465376	12.52	374860	14.12
Eval File Area Limit:	35904-143614		140312-561250		89110-356442		179656-718622		232688-930752		187430-749720	
Eval File Rt Limit:	5.11-6.11		6.12-7.12		7.53-8.53		8.97-9.97		12.02-13.02		13.62-14.62	

Data File	Sample											
9M54181.D	SMB29395(M	73829	5.61	289001	6.62	193787	8.02	360337	9.47	437581	12.52	343452	14.12
9M54182.D	SMB29395	73149	5.60	294526	6.62	188125	8.02	358302	9.46	435926	12.51	334611	14.12
9M54183.D	AC75875-001(	73694	5.60	300072	6.62	195812	8.02	379334	9.46	479110	12.51	384766	14.12
9M54184.D	AC75937-001	80110	5.60	329612	6.62	213318	8.02	399724	9.47	498230	12.51	380590	14.12
9M54185.D	AC75937-001(	82256	5.60	317581	6.62	205393	8.02	369192	9.47	435144	12.51	335086	14.12
9M54186.D	AC75937-001(	76040	5.60	291023	6.62	192033	8.02	355530	9.47	433653	12.51	347335	14.12
9M54187.D	AC75937-002	84287	5.60	330370	6.62	205132	8.02	377102	9.46	458418	12.51	348159	14.12
9M54188.D	AC75937-003	77392	5.60	301208	6.62	194716	8.02	371592	9.46	461835	12.51	354539	14.12
9M54189.D	AC75937-004	74546	5.60	300086	6.62	192250	8.02	355331	9.46	421329	12.51	317283	14.12
9M54190.D	AC75937-015	77715	5.60	314494	6.62	192546	8.02	353400	9.47	365967	12.51	261360	14.12
9M54191.D	AC75937-016	71356	5.60	270493	6.62	160410	8.02	281801	9.46	278262	12.51	225957	14.12
9M54192.D	AC75816-003	80338	5.61	311594	6.62	181078	8.02	284574	9.47	306554	12.52	276329	14.13
9M54193.D	AC75785-003(	92094	5.60	336825	6.62	214467	8.03	400256	9.48	418271	12.52	319740	14.12
9M54194.D	SMB29402(M	84003	5.61	320814	6.62	196576	8.02	329131	9.47	324033	12.51	251027	14.12
9M54195.D	SMB29402	77362	5.60	301404	6.62	183766	8.02	308087	9.46	294937	12.51	227476	14.12
9M54196.D	AC75785-005(	73596	5.61	281966	6.62	208336	8.03	360829	9.48	386685	12.52	316682	14.12
9M54197.D	AC75785-006(	87671	5.60	306463	6.62	212476	8.03	391141	9.48	415546	12.52	341968	14.12
9M54198.D	AC75877-001(	98717	5.60	389987	6.62	246372	8.02	432058	9.47	434900	12.52	347022	14.12
9M54199.D	AC75877-002(	90634	5.60	354487	6.62	218257	8.02	370663	9.47	371769	12.52	319467	14.13
9M54200.D	AC75905-001	96750	5.61	378807	6.62	222883	8.02	339570	9.47	372202	12.52	317129	14.13
9M54201.D	AC75905-002	80758	5.61	316393	6.62	186331	8.02	302704	9.47	354114	12.52	302635	14.13
9M54202.D	AC75905-003(	87282	5.61	348939	6.62	207366	8.02	331458	9.47	324351	12.52	279884	14.13
9M54203.D	AC75905-004	73954	5.61	278237	6.62	159491	8.02	254466	9.47	305015	12.52	264666	14.13
9M54204.D	AC75905-005	79282	5.61	310753	6.62	177776	8.02	284642	9.47	320795	12.52	269633	14.13
9M54205.D	AC75938-013(	89588	5.61	348505	6.62	203045	8.03	337185	9.48	356740	12.53	288042	14.14
9M54206.D	AC75938-015(	85432	5.61	323529	6.62	196499	8.03	325335	9.48	349828	12.53	280779	14.13
9M54207.D	AC75938-016(	98973	5.61	391410	6.62	229963	8.03	377686	9.48	375769	12.53	300926	14.13
9M54208.D	AC75938-014(	85158	5.61	328026	6.62	198931	8.02	334141	9.48	358057	12.53	292804	14.13
9M54209.D	AC75955-001	69594	5.61	264067	6.62	153024	8.03	257795	9.47	270861	12.52	245767	14.13

I1 =	1,4-Dichlorobenzene-d4	I4 =	Phenanthrene-d10	**625/8270 Internal Standard concentration = 40 mg/L (in final extract)**
I2 =	Naphthalene-d8	I5 =	Chrysene-d12	**624/8260 Internal Standard concentration = 30ug/L**
I3 =	Acenaphthene-d10	I6 =	Perylene-d12	**524 Internal Standard concentration =5ug/L**

QC Limits:

Internal Standard Areas

Upper Limit = + 100% of internal standard area from daily cal or mid pt.

Lower Limit = - 50% of internal standard area from daily cal or mid pt.

Flags:

A - Indicates the compound failed the internal standard area criteria

R - Indicates the compound failed the internal standard retention time criteria.

Retention Times: Limit = within +/- 0.5 min of internal standard retention time from the daily cal or mid pt.

FORM8

Internal Standard Areas

Evaluation Std Data File: 7M61303.D Method: EPA 8270D

Analysis Date/Time: 12/05/13 14:31

Lab File ID: CAL BNA@50PPM

	I1		I2		I3		I4		I5		I6	
	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT
Eval File Area/RT:	111961	5.90	422177	6.92	241839	8.37	451342	9.84	554334	12.93	436645	14.60
Eval File Area Limit:	55980-223922		211088-844354		120920-483678		225671-902684		277167-1108668		218322-873290	
Eval File Rt Limit:	5.4-6.4		6.42-7.42		7.87-8.87		9.34-10.34		12.43-13.43		14.1-15.1	

Data File	Sample											
7M61304.D	MBS-A	138848	5.90	516838	6.92	277825	8.38	468597	9.86	470722	12.93	326586	14.61
7M61305.D	MBS-B	136677	5.90	508423	6.91	276612	8.36	465775	9.84	463843	12.92	316451	14.58
7M61306.D	SMB29402	125739	5.90	480631	6.91	269025	8.35	464082	9.83	460700	12.92	348474	14.58
7M61307.D	MBS-C	110903	5.90	415285	6.92	231483	8.37	404709	9.84	459813	12.92	367064	14.61
7M61308.D	MBS-D	136231	5.90	508354	6.91	273863	8.35	468225	9.84	478836	12.92	342733	14.58
7M61309.D	MBS-E	133778	5.90	485869	6.91	254175	8.36	418912	9.84	415008	12.92	295478	14.58
7M61310.D	SMB29395	140420	5.90	539670	6.91	292253	8.35	504629	9.84	462846	12.92	318717	14.57
7M61311.D	AC75937-005	136473	5.90	509684	6.91	268049	8.35	476128	9.83	513842	12.92	406943	14.58
7M61312.D	AC75937-006	177626	5.90	678349	6.91	378244	8.35	639886	9.83	612656	12.92	407204	14.58
7M61313.D	AC75937-013	155940	5.90	590238	6.91	325566	8.35	558877	9.83	551835	12.92	384097	14.57
7M61314.D	AC75937-014	129303	5.90	491868	6.91	269210	8.35	465104	9.83	448094	12.91	319602	14.57
7M61315.D	AC75937-017	133022	5.90	507149	6.91	278666	8.35	485053	9.83	458074	12.92	324764	14.57
7M61316.D	AC75937-018	161001	5.90	600430	6.91	325509	8.35	543100	9.83	477169	12.92	326729	14.57
7M61317.D	AC75937-019	147589	5.90	563523	6.91	310040	8.35	528765	9.83	487822	12.92	356545	14.57
7M61318.D	AC75887-001	144323	5.90	554598	6.91	306793	8.35	503722	9.83	448742	12.92	354919	14.57
7M61319.D	AC75887-002	122413	5.90	463825	6.91	256220	8.35	427421	9.83	409050	12.92	315714	14.57
7M61320.D	AC75938-017	130433	5.90	508215	6.91	271888	8.35	461413	9.83	467909	12.92	394342	14.57
7M61321.D	AC75938-020	134743	5.90	512676	6.91	273051	8.35	447712	9.83	440504	12.92	384892	14.57
7M61322.D	AC75938-023	127963	5.90	492204	6.91	273431	8.35	458430	9.83	432519	12.92	369279	14.57

I1 =	1,4-Dichlorobenzene-d4	I4 =	Phenanthrene-d10	625/8270 Internal Standard concentration = 40 mg/L (in final extract)
I2 =	Naphthalene-d8	I5 =	Chrysene-d12	624/8260 Internal Standard concentration = 30ug/L
I3 =	Acenaphthene-d10	I6 =	Perylene-d12	524 Internal Standard concentration =5ug/L

QC Limits:

Internal Standard Areas

Upper Limit = + 100% of internal standard area from daily cal or mid pt.

Lower Limit = - 50% of internal standard area from daily cal or mid pt.

Flags:

A - Indicates the compound failed the internal standard area criteria

R - Indicates the compound failed the internal standard retention time criteria.

Retention Times: Limit = within +/- 0.5 min of internal standard retention time from the daily cal or mid pt.

FORM8

Internal Standard Areas

Evaluation Std Data File: 9M54212.D Method: EPA 8270D

Analysis Date/Time: 12/06/13 10:01

Lab File ID: CAL BNA@50PPM

	I1		I2		I3		I4		I5		I6	
	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT
Eval File Area/RT:	77577	5.58	294741	6.60	185498	7.99	367896	9.44	451270	12.49	335627	14.09
Eval File Area Limit:	38788-155154		147370-589482		92749-370996		183948-735792		225635-902540		167814-671254	
Eval File Rt Limit:	5.08-6.08		6.1-7.1		7.49-8.49		8.94-9.94		11.99-12.99		13.59-14.59	

Data File	Sample											
9M54211.D	50PPM	65933	5.60	257962	6.61	163684	8.02	330796	9.46	432830	12.51	336082	14.11
9M54213.D	SMB29409	92386	5.58	363271	6.60	226448	8.00	426656	9.44	471732	12.49	311377	14.10
9M54214.D	SMB29407	108236	5.58	427215	6.59	263604	7.99	469521	9.44	514116	12.48	359257	14.09
9M54215.D	OMB29408	75555	5.58	299483	6.59	193771	7.99	368443	9.44	467214	12.48	392171	14.09
9M54216.D	AC76036-001	76956	5.58	278459	6.59	160165	7.99	252583	9.44	263765	12.49	237847	14.10
9M54217.D	AC76036-002	77020	5.58	297176	6.59	176106	7.99	291199	9.44	280159	12.49	233639	14.09
9M54218.D	AC76033-001	83832	5.58	317767	6.60	179640	7.99	289713	9.44	336077	12.50	278685	14.11
9M54219.D	AC76033-002	83954	5.58	310459	6.60	171547	7.99	277134	9.44	273342	12.49	242566	14.09
9M54220.D	AC76034-001	80899	5.58	306630	6.60	166326	7.99	275224	9.44	284311	12.49	266133	14.10
9M54221.D	AC76034-002	93598	5.58	351112	6.60	186785	7.99	288160	9.44	304860	12.49	282539	14.10
9M54222.D	AC75984-006	78974	5.58	294731	6.60	151935	8.00	261725	9.45	363027	12.51	286940	14.12
9M54223.D	AC76023-007	95603	5.58	349639	6.60	190598	7.99	296342	9.44	325734	12.49	305667	14.10
9M54224.D	AC76000-003	91961	5.58	354022	6.60	202060	7.99	318460	9.44	285738	12.49	244075	14.09
9M54225.D	AC75877-002(	91121	5.58	355772	6.60	216207	8.00	360230	9.44	333816	12.49	280716	14.10
9M54226.D	AC75938-013(	104881	5.58	417765	6.60	260101	7.99	473843	9.44	549183	12.50	344428	14.10
9M54227.D	AC75938-015(	100341	5.58	396418	6.60	243089	7.99	431711	9.44	421394	12.49	302463	14.10
9M54228.D	AC75938-016(	97887	5.58	397319	6.60	251431	7.99	465553	9.44	500057	12.49	322859	14.10
9M54229.D	AC75785-005(	83562	5.58	301964	6.60	204679	8.00	393014	9.44	534971	12.49	384344	14.09
9M54230.D	AC76033-001(	86337	5.58	347982	6.60	226911	7.99	427209	9.44	442556	12.49	279654	14.10
9M54231.D	AC75984-006(	84341	5.58	328122	6.60	191902	7.99	331554	9.44	358015	12.49	269413	14.09
9M54232.D	AC75955-002	76621	5.58	291444	6.59	169632	7.99	285550	9.44	275832	12.49	230724	14.09
9M54233.D	AC75955-003	80499	5.58	312030	6.60	177999	7.99	292323	9.44	282030	12.49	246736	14.10
9M54234.D	AC75955-004	81093	5.58	306410	6.60	176591	7.99	279670	9.44	272172	12.49	241405	14.10
9M54235.D	AC75955-005	93662	5.58	352661	6.60	194413	7.99	301332	9.44	334948	12.49	333188	14.11
9M54236.D	AC75955-006	92205	5.58	347907	6.60	191772	7.99	291689	9.44	314864	12.49	308685	14.10
9M54237.D	AC75979-005	83154	5.59	309695	6.60	191325	7.99	334980	9.44	293638	12.49	258871	14.09
9M54238.D	AC75979-007	80505	5.60	395751	6.61	180335	8.00	320513	9.44	326373	12.49	278337	14.10
9M54239.D	AC75977-001(	93643	5.58	376007	6.60	236622	7.99	412932	9.44	328293	12.49	256442	14.10
9M54240.D	AC75948-009(	91832	5.58	370136	6.60	226900	7.99	368371	9.44	354018	12.50	276245	14.11
9M54241.D	AC75948-007(	91727	5.58	366750	6.60	226719	7.99	387074	9.44	321613	12.49	262698	14.10
9M54242.D	AC75948-017(	87033	5.58	359853	6.60	237737	7.99	438909	9.44	337762	12.49	266589	14.10
9M54243.D	AC75960-002(	92824	5.58	349793	6.60	202913	8.00	357287	9.44	335354	12.49	294467	14.10

I1 =	1,4-Dichlorobenzene-d4	I4 =	Phenanthrene-d10	625/8270 Internal Standard concentration = 40 mg/L (in final extract)
I2 =	Naphthalene-d8	I5 =	Chrysene-d12	624/8260 Internal Standard concentration = 30ug/L
I3 =	Acenaphthene-d10	I6 =	Perylene-d12	524 Internal Standard concentration =5ug/L

QC Limits:

Internal Standard Areas

Upper Limit = + 100% of internal standard area from daily cal or mid pt.

Lower Limit = - 50% of internal standard area from daily cal or mid pt.

Flags:

A - Indicates the compound failed the internal standard area criteria

R - Indicates the compound failed the internal standard retention time criteria.

Retention Times: Limit = within +/- 0.5 min of internal standard retention time from the daily cal or mid pt.

FORM8

Internal Standard Areas

Evaluation Std Data File: 12M17223.D Method: EPA8270D SIM

Analysis Date/Time: 11/14/13 08:57

Lab File ID: CAL SIM@5PPM

	I1		I2		I3		I4		I5		I6	
	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT
Eval File Area/RT:	7667	6.27	28017	7.28	14111	8.76	24812	10.26	17770	13.34	12817	15.06
Eval File Area Limit:	3834-15334		14008-56034		7056-28222		12406-49624		8885-35540		6408-25634	
Eval File Rt Limit:	5.77-6.77		6.78-7.78		8.26-9.26		9.76-10.76		12.84-13.84		14.56-15.56	

Data File	Sample											
12M17223.	CAL SIM@5P	7667	6.27	28017	7.28	14111	8.76	24812	10.26	17770	13.34	12817	15.06
12M17224.	CAL SIM@.2F	6622	6.27	24304	7.28	12722	8.76	21777	10.26	14244	13.34	9137	15.07
12M17225.	CAL SIM@.02	7290	6.27	27008	7.28	13628	8.76	22626	10.26	13080	13.35	7951	15.07
12M17226.	CAL SIM@1P	7937	6.27	26879	7.28	13723	8.76	22515	10.26	15988	13.34	10855	15.07
12M17227.	CAL SIM@10	6568	6.27	23640	7.28	12145	8.76	21330	10.26	16205	13.34	9435	15.07
12M17228.	CAL SIM@19	6470	6.27	23255	7.28	11947	8.76	20488	10.26	15173	13.35	9066	15.07
12M17229.	CAL SIM@.5F	6993	6.27	23606	7.28	11834	8.76	19608	10.26	13574	13.34	8593	15.07
12M17231.	ICV SIM@5P	6186	6.27	22304	7.28	11795	8.76	19769	10.26	14450	13.34	8876	15.07

I1 =	1,4-Dichlorobenzene-d4	I4 =	Phenanthrene-d10	**625/8270 Internal Standard concentration = 40 mg/L (in final extract)**
I2 =	Naphthalene-d8	I5 =	Chrysene-d12	**624/8260 Internal Standard concentration = 30ug/L**
I3 =	Acenaphthene-d10	I6 =	Perylene-d12	**524 Internal Standard concentration =5ug/L**

QC Limits:

Internal Standard Areas

Upper Limit = + 100% of internal standard area from daily cal or mid pt.

Lower Limit = - 50% of internal standard area from daily cal or mid pt.

Flags:

A - Indicates the compound failed the internal standard area criteria

R - Indicates the compound failed the internal standard retention time criteria.

Retention Times: Limit = within +/- 0.5 min of internal standard retention time from the daily cal or mid pt.

FORM8

Internal Standard Areas

Evaluation Std Data File: 12M17483.D Method: EPA8270D SIM

Analysis Date/Time: 12/03/13 09:51

Lab File ID: CAL SIM@5PPM

	I1		I2		I3		I4		I5		I6	
	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT
Eval File Area/RT:	5140	6.27	17476	7.28	9125	8.75	15117	10.25	10682	13.33	6491	15.06
Eval File Area Limit:	2570-10280		8738-34952		4562-18250		7558-30234		5341-21364		3246-12982	
Eval File Rt Limit:	5.77-6.77		6.78-7.78		8.25-9.25		9.75-10.75		12.83-13.83		14.56-15.56	

Data File	Sample											
12M17482.	SIM@5PPM	5182	6.27	16648	7.28	8565	8.75	14356	10.25	11059	13.33	6293	15.06
12M17484.	AC75782-004(	6063	6.27	18903	7.28	13098	8.75	18172	10.25	10209	13.33	6069	15.06
12M17485.	AC75782-005(	5963	6.27	18048	7.27	11293	8.75	17181	10.25	10096	13.33	5635	15.05
12M17486.	AC75782-006(	5968	6.27	18975	7.28	13004	8.75	17887	10.25	11000	13.33	6605	15.06
12M17487.	AC75782-007(	6119	6.27	19460	7.28	18020	8.75	19371	10.25	12149	13.32	6671	15.05
12M17488.	AC75782-008(	5796	6.27	17536	7.28	9616	8.75	16519	10.25	9089	13.33	5573	15.06
12M17489.	AC75782-009(	5909	6.27	19012	7.28	13883	8.75	19939	10.25	12053	13.33	6878	15.05
12M17490.	AC75903-014	5604	6.27	18770	7.28	9779	8.75	17206	10.25	10190	13.33	6125	15.06
12M17491.	AC75903-015	7096	6.27	20246	7.28	11331	8.75	19746	10.25	10613	13.33	6904	15.06
12M17492.	AC75903-017	6352	6.27	18669	7.28	9980	8.75	16936	10.25	9014	13.33	5586	15.06
12M17493.	AC75923-001	6060	6.27	19358	7.28	10936	8.75	18540	10.25	10878	13.33	7321	15.05
12M17494.	AC75923-002	6111	6.27	20011	7.28	12225	8.75	22233	10.25	13696	13.33	7421	15.06
12M17495.	AC75923-003	5867	6.27	17146	7.28	10552	8.75	21649	10.25	13197	13.33	7760	15.06
12M17496.	AC75923-004	6261	6.27	19314	7.28	10826	8.75	20317	10.25	12029	13.33	6557	15.05
12M17497.	AC75923-005	5359	6.27	16354	7.28	10670	8.75	18212	10.25	10699	13.33	5799	15.05
12M17498.	AC75923-006	7079	6.27	20602	7.28	17894	8.75	22504	10.25	13618	13.33	8455	15.05
12M17499.	AC75529-001(	6947	6.27	18871	7.28	10919	8.75	18791	10.25	12544	13.32	5861	15.05
12M17500.	WMB29382	6880	6.27	21606	7.28	11175	8.75	20024	10.25	11215	13.33	6401	15.06
12M17501.	AC75762-001(	6363	6.27	18935	7.28	10025	8.75	17518	10.25	9814	13.33	5666	15.06
12M17502.	WMB29386	6431	6.27	18926	7.28	9869	8.75	17411	10.25	9629	13.32	5725	15.05
12M17503.	AC75923-007	5572	6.27	10864	7.30	10489	8.75	17856	10.25	11566	13.32	6403	15.05
12M17504.	AC75923-008	5607	6.27	17088	7.28	9445	8.75	16545	10.25	11298	13.33	5355	15.05
12M17505.	AC75944-001	5788	6.27	17489	7.28	10133	8.75	16736	10.25	10433	13.32	6046	15.05
12M17506.	AC75938-027	5844	6.27	16926	7.28	9182	8.75	16150	10.25	8871	13.32	5223	15.05
12M17507.	AC75948-006	5520	6.27	16991	7.28	9542	8.75	16564	10.25	10303	13.32	5423	15.05
12M17508.	AC75948-014	6213	6.27	19613	7.28	10497	8.75	18319	10.25	10565	13.32	5855	15.05
12M17509.	AC75948-025	5966	6.27	18489	7.28	9992	8.75	17627	10.25	10667	13.33	5871	15.05
12M17510.	AC75923-005(	6319	6.27	16458	7.28	9955	8.75	18966	10.25	11736	13.32	5911	15.05

I1 =	1.4-Dichlorobenzene-d4	I4 =	Phenanthrene-d10	**625/8270 Internal Standard concentration = 40 mg/L (in final extract)**
I2 =	Naphthalene-d8	I5 =	Chrysene-d12	**624/8260 Internal Standard concentration = 30ug/L**
I3 =	Acenaphthene-d10	I6 =	Perylene-d12	**524 Internal Standard concentration =5ug/L**

QC Limits:

Internal Standard Areas

Upper Limit = + 100% of internal standard area from daily cal or mid pt.

Lower Limit = - 50% of internal standard area from daily cal or mid pt.

Flags:

A - Indicates the compound failed the internal standard area criteria

R - Indicates the compound failed the internal standard retention time criteria.

Retention Times: Limit = within +/- 0.5 min of internal standard retention time from the daily cal or mid pt.

FORM8

Internal Standard Areas

Evaluation Std Data File: 12M17540.D Method: EPA8270D SIM

Analysis Date/Time: 12/05/13 08:20

Lab File ID: CAL SIM@5PPM

	I1		I2		I3		I4		I5		I6	
	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT
Eval File Area/RT:	5648	6.25	17185	7.27	8708	8.75	15440	10.25	11487	13.32	7849	15.05
Eval File Area Limit:	2824-11296		8592-34370		4354-17416		7720-30880		5744-22974		3924-15698	
Eval File Rt Limit:	5.75-6.75		6.77-7.77		8.25-9.25		9.75-10.75		12.82-13.82		14.55-15.55	

Data File	Sample											
12M17540.	CAL SIM@5P	5648	6.25	17185	7.27	8708	8.75	15440	10.25	11487	13.32	7849	15.05
12M17541.	CAL SIM@.2F	5310	6.25	17436	7.27	8780	8.75	14804	10.25	11140	13.32	7920	15.05
12M17542.	CAL SIM@.02	5358	6.25	17129	7.27	8640	8.75	15061	10.24	10416	13.32	7296	15.04
12M17543.	CAL SIM@.5F	6605	6.25	17383	7.27	8846	8.75	14834	10.24	12069	13.32	7659	15.04
12M17544.	CAL SIM@1P	7081	6.25	17983	7.27	9184	8.75	15318	10.24	12610	13.32	7961	15.04
12M17545.	CAL SIM@10	4938	6.25	15481	7.27	7766	8.75	13310	10.24	10696	13.32	6205	15.04
12M17546.	CAL SIM@19.	4509	6.25	14641	7.27	7568	8.75	13230	10.24	9390	13.33	5996	15.05
12M17548.	ICV SIM@5P	4585	6.25	13973	7.27	7470	8.75	12770	10.24	10481	13.32	6320	15.04

I1 =	1,4-Dichlorobenzene-d4	**I4 =**	Phenanthrene-d10	**625/8270 Internal Standard concentration = 40 mg/L (in final extract)**
I2 =	Naphthalene-d8	**I5 =**	Chrysene-d12	**624/8260 Internal Standard concentration = 30ug/L**
I3 =	Acenaphthene-d10	**I6 =**	Perylene-d12	**524 Internal Standard concentration =5ug/L**

QC Limits:

Internal Standard Areas

Upper Limit = + 100% of internal standard area from daily cal or mid pt.

Lower Limit = - 50% of internal standard area from daily cal or mid pt.

Flags:

A - Indicates the compound failed the internal standard area criteria

R - Indicates the compound failed the internal standard retention time criteria.

Retention Times: Limit = within +/- 0.5 min of internal standard retention time from the daily cal or mid pt.

FORM8

Internal Standard Areas

Evaluation Std Data File: 12M17605.D Method: EPA8270D SIM

Analysis Date/Time: 12/09/13 09:39

Lab File ID: CAL SIM@5PPM

	I1		I2		I3		I4		I5		I6	
	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT
Eval File Area/RT:	4783	6.25	15286	7.27	8171	8.75	14829	10.24	11034	13.32	7890	15.05
Eval File Area Limit:	2392-9566		7643-30572		4086-16342		7414-29658		5517-22068		3945-15780	
Eval File Rt Limit:	5.75-6.75		6.77-7.77		8.25-9.25		9.74-10.74		12.82-13.82		14.55-15.55	

Data File	Sample											
12M17606	SMB29402	5718	6.27	17321	7.27	9304	8.74	17331	10.24	11829	13.32	10197	15.04
12M17607	AC75938-023	6262	6.27	16463	7.27	8810	8.74	16256	10.24	11413	13.32	9490	15.03
12M17608	AC75938-020	4665	6.27	15077	7.27	8814	8.74	15847	10.24	8860	13.32	7076	15.05
12M17609	AC75938-017	4486	6.27	15202	7.27	8494	8.74	16134	10.24	10188	13.32	4881	15.05
12M17610	AC75938-013(	5103	6.27	14988	7.27	10603	8.74	16079	10.25	5424 A	13.35	4811	15.05
12M17611	AC75938-014(	4593	6.27	14165	7.27	10650	8.74	14986	10.25	4039 A	13.35	3814 A	15.06
12M17612	AC75938-014(	4688	6.27	12806	7.27	9606	8.75	13688	10.25	1651 A	13.30	1158 A	15.01
12M17613	AC75938-013(	4794	6.25	12999	7.27	9041	8.74	13725	10.25	4727 A	13.34	2998 A	15.05
12M17614	WMB29424	5658	6.25	16020	7.27	8530	8.74	15559	10.24	11759	13.32	9293	15.04
12M17615	AC76075-001	5218	6.25	14683	7.27	9556	8.74	14574	10.24	10480	13.31	9390	15.04
12M17616	AC76075-002	4711	6.25	13507	7.27	9231	8.74	13314	10.24	9544	13.32	8717	15.04
12M17617	AC76075-003	5187	6.25	15410	7.27	9105	8.74	15712	10.24	11372	13.31	10356	15.04
12M17618	AC76075-004	4914	6.25	14108	7.27	9191	8.74	13966	10.24	9806	13.31	8924	15.04
12M17619	AC76080-001	6070	6.27	13145	7.27	8242	8.75	13448	10.25	11344	13.32	9966	15.04
12M17620	AC76040-001	7974	6.25	10009	7.28	11856	8.78	5552 A	10.29	13240	13.33	8054	15.05
12M17621	AC76040-002(	7140	6.25	9051	7.28	6502	8.74	8195	10.27	8854	13.32	7746	15.04
12M17622	AC76040-003	4311	6.25	12218	7.27	7397	8.74	13266	10.24	10025	13.31	8489	15.04
12M17623	AC76040-004	5560	6.25	15328	7.27	8231	8.74	14842	10.24	11049	13.31	9262	15.04
12M17624	AC76019-009	3870	6.27	12514	7.27	8786	8.74	15931	10.24	11533	13.33	7688	15.06
12M17625	AC76019-011	5412	6.27	10323	7.27	7777	8.75	10652	10.25	9331	13.36	5393	15.07
12M17626	AC76019-012	3374	6.27	10207	7.28	19432 A	8.76	3286 A	10.27	8727	13.35	4266	15.09
12M17627	AC76019-013	3578	6.27	13396	7.27	27507 A	8.73	13774	10.26	9933	13.34	4916	15.07
12M17628	AC76040-001	5843	6.27	8729	7.28	16220	8.79	5431 A	10.29	9363	13.32	5248	15.05
12M17629	AC76019-014(	3584	6.25	10754	7.27	6401	8.75	11274	10.24	9174	13.32	5941	15.04
12M17630	AC76019-015(	3819	6.25	11391	7.27	6393	8.74	12015	10.24	8912	13.31	5835	15.04
12M17631	AC75785-001(	3992	6.27	10623	7.27	5505	8.74	10267	10.24	7361	13.31	4736	15.04
12M17632	AC75785-009(	3616	6.25	9251	7.27	5634	8.74	9434	10.24	6768	13.31	4275	15.04

I1 =	1,4-Dichlorobenzene-d4	I4 =	Phenanthrene-d10	**625/8270 Internal Standard concentration = 40 me/L (in final extract)**
I2 =	Naphthalene-d8	I5 =	Chrysene-d12	**624/8260 Internal Standard concentration = 30ug/L**
I3 =	Acenaphthene-d10	I6 =	Perylene-d12	**524 Internal Standard concentration =5ug/L**

QC Limits:

Internal Standard Areas

Upper Limit = + 100% of internal standard area from daily cal or mid pt.

Lower Limit = - 50% of internal standard area from daily cal or mid pt.

Flags:

A - Indicates the compound failed the internal standard area criteria

R - Indicates the compound failed the internal standard retention time criteria.

Retention Times: Limit = within +/- 0.5 min of internal standard retention time from the daily cal or mid pt.

Metal Data

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-001	% Solid:	90	Lab Name:	Veritech	Nras No:	
Client Id:	WP-4 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.42	4.4	5.4	1	0.5	50	12/06/13	28471	S15768B3	24	P	PEICP3A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-002	% Solid:	82	Lab Name:	Veritech	Nras No:	
Client Id:	WP-5 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.46	4.9	16	1	0.5	50	12/06/13	28471	S15768B3	25	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-003	% Solid:	80	Lab Name:	Veritech	Nras No:	
Client Id:	WP-6 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.47	5.0	44	1	0.5	50	12/24/13	28527	S15822A3	27	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-005	% Solid:	86	Lab Name:	Veritech	Nras No:	
Client Id:	WP-8 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.44	4.7	25	1	0.5	50	12/06/13	28471	S15768B3	26	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-006	% Solid:	83	Lab Name:	Veritech	Nras No:	
Client Id:	WP-8 (3.5-4.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.46	4.8	18	1	0.5	50	12/06/13	28471	S15768B3	27	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-007	% Solid:	84	Lab Name:	Veritech	Nras No:	
Client Id:	WP-9 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.45	4.8	16	1	0.5	50	12/06/13	28471	S15768B3	28	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-008	% Solid:	83	Lab Name:	Veritech	Nras No:	
Client Id:	WP-9 (3.5-4.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.46	4.8	21	1	0.5	50	12/06/13	28471	S15768B3	29	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-009	% Solid:	83	Lab Name:	Veritech	Nras No:	
Client Id:	WP-10 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.46	4.8	13	1	0.5	50	12/24/13	28527	S15822A3	33	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-010	% Solid:	82	Lab Name:	Veritech	Nras No:	
Client Id:	WP-10 (3.5-4.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.46	4.9	5.6	1	0.5	50	12/24/13	28527	S15822A3	34	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-011	% Solid:	84	Lab Name:	Veritech	Nras No:	
Client Id:	WP-11 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.45	4.8	13	1	0.5	50	12/24/13	28527	S15822A3	35	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-012	% Solid:	81	Lab Name:	Veritech	Nras No:	
Client Id:	WP-11 (3.5-4.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.47	4.9	12	1	0.5	50	12/24/13	28527	S15822A3	36	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-013	% Solid:	81	Lab Name:	Veritech	Nras No:	
Client Id:	A3-9 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.47	4.9	3.6J	1	1	100	12/06/13	28471	S15768B3	15	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-014	% Solid:	79	Lab Name:	Veritech	Nras No:	
Client Id:	A3-9 (1.5-2.0)a	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.48	5.1	4.4J	1	0.5	50	12/06/13	28471	S15768B3	30	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-015	% Solid:	79	Lab Name:	Veritech	Nras No:	
Client Id:	A3-9 (1.5-2.0) MS	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.48	5.1	64	1	0.5	50	12/06/13	28471	S15768B3	17	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-016	% Solid:	80	Lab Name:	Veritech	Nras No:	
Client Id:	A3-9 (1.5-2.0) MSD	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.47	5.0	61	1	0.5	50	12/06/13	28471	S15768B3	18	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-017	% Solid:	82	Lab Name:	Veritech	Nras No:	
Client Id:	A3-10 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.46	4.9	5.3	1	0.5	50	12/06/13	28471	S15768B3	36	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-018	% Solid:	89	Lab Name:	Veritech	Nras No:	
Client Id:	A3-11 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.43	4.5	5.9	1	0.5	50	12/06/13	28471	S15768B3	37	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-019	% Solid:	89	Lab Name:	Veritech	Nras No:	
Client Id:	A3-12 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.43	4.5	11	1	0.5	50	12/06/13	28471	S15768B3	38	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-020	% Solid:	88	Lab Name:	Veritech	Nras No:	
Client Id:	A3-13 (1.5-2.0)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.43	4.5	4.3J	1	0.5	50	12/06/13	28471	S15768B3	39	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-025	% Solid:	80	Lab Name:	Veritech	Nras No:	
Client Id:	A8-6 (7.0-7.5)	Units:	MG/KG	Lab Code:		Sdg No:	
Matrix:	SOIL	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.47	5.0	5.7	1	0.5	50	12/06/13	28471	S15768B3	40	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID:	AC75938-027	% Solid:	0	Lab Name:	Veritech	Nras No:	
Client Id:	FB-112613	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	11/27/2013	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	3.8	40	ND	1	50	50	12/06/13	28471	S15768B3	41	P	PEICP3A

Comments: _____

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Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID: MB 28471 (100) % Solid: 0 Lab Name: Veritech
Client Id: MB 28471 (100) Units: MG/KG Lab Code:
Matrix: SOIL
Level: LOW

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-38-2	Arsenic	0.38	4.0	ND	1	0.5	50	12/06/13	28471	S15768B3	12	P	PEICP3A

Comments: _____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1
Inorganic Analysis Data Sheet

Sample ID: MB 28527 (100) % Solid: 0 Lab Name: Veritech
Client Id: MB 28527 (100) Units: MG/KG Lab Code:
Matrix: SOIL
Level: LOW

Cas No.	Analyte	MDL	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7429-90-5	Aluminum	15	200	ND	1	0.5	50	12/24/13	28527	S15822B3	11	P	PEICPRAD3A
7440-36-0	Antimony	0.51	4.0	ND	1	0.5	50	12/24/13	28527	S15822A3	12	P	PEICP3A
7440-38-2	Arsenic	0.38	4.0	ND	1	0.5	50	12/24/13	28527	S15822A3	12	P	PEICP3A
7440-39-3	Barium	0.074	10	0.24J	1	0.5	50	12/24/13	28527	S15822A3	12	P	PEICP3A
7440-41-7	Beryllium	0.014	1.2	0.17J	1	0.5	50	12/24/13	28527	S15822A3	12	P	PEICP3A
7440-43-9	Cadmium	0.078	1.2	0.23J	1	0.5	50	12/24/13	28527	S15822A3	12	P	PEICP3A
7440-70-2	Calcium	4.0	1000	80J	1	0.5	50	12/24/13	28527	S15822B3	11	P	PEICPRAD3A
7440-47-3	Chromium	0.26	5.0	0.33J	1	0.5	50	12/24/13	28527	S15822A3	12	P	PEICP3A
7440-48-4	Cobalt	0.13	2.5	0.21J	1	0.5	50	12/24/13	28527	S15822A3	12	P	PEICP3A
7440-50-8	Copper	0.19	5.0	ND	1	0.5	50	12/24/13	28527	S15822A3	12	P	PEICP3A
7439-89-6	Iron	5.4	200	ND	1	0.5	50	12/24/13	28527	S15822B3	11	P	PEICPRAD3A
7439-92-1	Lead	0.56	5.0	ND	1	0.5	50	12/24/13	28527	S15822A3	12	P	PEICP3A
7439-95-4	Magnesium	4.5	500	40J	1	0.5	50	12/24/13	28527	S15822B3	11	P	PEICPRAD3A
7439-96-5	Manganese	0.15	10	0.20J	1	0.5	50	12/24/13	28527	S15822A3	12	P	PEICP3A
7439-98-7	lolybdenum	0.20	2.5	ND	1	0.5	50	12/24/13	28527	S15822A3	12	P	PEICP3A
7440-02-0	Nickel	0.21	5.0	ND	1	0.5	50	12/24/13	28527	S15822A3	12	P	PEICP3A
7440-09-7	Potassium	6.9	500	66J	1	0.5	50	12/24/13	28527	S15822B3	11	P	PEICPRAD3A
7782-49-2	Selenium	0.94	3.0	ND	1	0.5	50	12/24/13	28527	S15822A3	12	P	PEICP3A
7440-22-4	Silver	0.20	1.5	ND	1	0.5	50	12/24/13	28527	S15822A3	12	P	PEICP3A
7440-23-5	Sodium	17	250	85J	1	0.5	50	12/24/13	28527	S15822B3	11	P	PEICPRAD3A
7440-28-0	Thallium	0.29	1.5	ND	1	0.5	50	12/24/13	28527	S15822A3	12	P	PEICP3A
7440-31-5	Tin	0.59	20	1.4J	1	0.5	50	12/24/13	28527	S15822A3	12	P	PEICP3A
7440-32-6	Titanium	0.022	10	0.24J	1	0.5	50	12/24/13	28527	S15822A3	12	P	PEICP3A
7440-62-2	Vanadium	0.097	10	0.16J	1	0.5	50	12/24/13	28527	S15822A3	12	P	PEICP3A
7440-66-6	Zinc	0.28	10	0.96J	1	0.5	50	12/24/13	28527	S15822A3	12	P	PEICP3A

Comments: _____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

FORM 2
(ICV/CCV Summary)

Date Analyzed: 12/06/13
Data File: S15768B3
Prep Batch: 28471
Analytical Method: 6010B/6010C/7470A,7471A/7471B(Hg),6020/6020A
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3112730

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICV/CCV SOURCE: VHG LABS

Analyte	ICV/CCV Amt	ICV (1) V-177540-7	Rec	CCV V-177540-20	Rec	CCV V-177540-33	Rec	CCV V-177540-46	Rec		Rec		Rec		Rec		Rec
Arsenic	1/.5	0.48237	96	0.48529	97	0.48532	97	0.48606	97								

Notes: a-indicates analyte failed the ICV limits for 6010B/6010C, 6020/6020A
b-indicates analyte failed the ICV limits for 200.7 or 200.8
c-indicates analyte failed the CCV limits for 200.7/200.8/245.1/6010B/6010C (Except Hg 7470/7470A,7471A/7471B),6020/6020A
d-indicates analyte failed the CCV limits Hg 7470A/7471A/7471B

Qc Limits: ICV - 200.7 : 95-105
CCV- 200.7/200.8/6010B/6010C/245.1 : 90-110 (Except Hg 7470/7470A/ 7471A/7471B=80-120)
ICV -6010B/6010C/6020/6020A/200.8 : 90-110

CLP ICP ICV/CCV: 90-110
CLP Hg ICV/CCV: 80-120

FORM 2
(LLICV/LLCCV Summary)

Date Analyzed: 12/06/13
Data File: S15768B3
Prep Batch: 28471
Analytical Method: 6010B/6010C/7470A,7471A/7471B(Hg),6020/6020A
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3112730

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICV/CCV SOURCE: VHG LABS

Analyte	LLICV/ LLCCV Amt	LLICV V-177694-8	Rec	LLCCV V-177694-21	Rec	LLCCV V-177694-34	Rec	LLCCV V-177694-47	Rec		Rec		Rec		Rec		Rec
Arsenic	0.04/0.04	0.0373735	93	0.0330367	83	0.0369454	92	0.0384400	96								

Notes: a-indicates analyte failed the LLICV limits for 6010B, 6010C, 6020, 6020A
c-indicates analyte failed the LLCCV limits for 6010B, 6010C, 6020, 6020A

Qc Limits: LLCCV- 6010B/6010C/6020/6020A (70-130)
LLICV -6010B/6010C/6020/6020A :70-130

FORM 2
(ICV/CCV Summary)

Date Analyzed: 12/24/13
Data File: S15822A3
Prep Batch: 28527
Analytical Method: 6010B(ICP)/7470A,7471A(Hg),6020
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3112730

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICV/CCV SOURCE: VHG LABS

Analyte	ICV/CCV Amt	ICV (1) V-177939-7	Rec	CCV V-178201-20	Rec	CCV V-178201-30	Rec	CCV V-178201-39	Rec	Rec	Rec	Rec	Rec
Arsenic	1/.5	0.49283	99	0.47262	95	0.47470	95	0.47264	95				
Barium	1/.5	0.50120	100	0.49609	99	0.49448	99	0.49424	99				
Chromium	1/.5	0.50438	101	0.50081	100	0.49819	100	0.50044	100				
Cobalt	1/.5	0.49586	99	0.49126	98	0.49416	99	0.49159	98				
Copper	1/.5	0.49153	98	0.48912	98	0.48823	98	0.48901	98				
Lead	1/.5	0.50238	100	0.48579	97	0.49389	99	0.47956	96				
Manganese	1/.5	0.49071	98	0.48551	97	0.48470	97	0.48473	97				
Nickel	1/.5	0.50113	100	0.49238	98	0.49498	99	0.49280	99				
Thallium	1/.5	0.51918	104	0.51292	103	0.51981	104	0.50693	101				
Vanadium	1/.5	0.48884	98	0.48161	96	0.47932	96	0.48107	96				
Zinc	1/.5	0.49182	98	0.48660	97	0.48571	97	0.48515	97				

Notes: a-indicates analyte failed the ICV limits for 6010B, 6020
b-indicates analyte failed the ICV limits for 200.7 or 200.8
c-indicates analyte failed the CCV limits for 200.7/200.8/245.1/6010B (Except Hg 7470A,7471A),6020
d-indicates analyte failed the CCV limits Hg 7470A/7471A

Qc Limits: ICV - 200.7 : 95-105
CCV- 200.7/200.8/6010B/245.1 : 90-110 (Except Hg 7470A/ 7471A=80-120)
ICV -6010B/6020/200.8 : 90-11

CLP ICP ICV/CCV: 90-110
CLP Hg ICV/CCV: 80-120

FORM 2
(ICV/CCV Summary)

Date Analyzed: 12/30/13
Data File: S15822D3
Prep Batch: 28527
Analytical Method: 6010B(ICP)/7470A,7471A(Hg),6020
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3112730

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICV/CCV SOURCE: VHG LABS

Analyte	ICV/CCV Amt	ICV (1) V-178665-7	Rec	CCV V-178665-20	Rec	Rec	Rec	Rec	Rec	Rec	Rec
Arsenic	1/.5	0.48668	97	0.49195	98						
Barium	1/.5	0.49906	100	0.50528	101						
Chromium	1/.5	0.50059	100	0.50690	101						
Cobalt	1/.5	0.49678	99	0.50641	101						
Copper	1/.5	0.48643	97	0.49065	98						
Lead	1/.5	0.50256	101	0.51252	103						
Manganese	1/.5	0.48801	98	0.49398	99						
Nickel	1/.5	0.49775	100	0.50752	102						
Thallium	1/.5	0.51729	103	0.51922	104						
Vanadium	1/.5	0.48696	97	0.49203	98						
Zinc	1/.5	0.49406	99	0.50638	101						

Notes:
a-indicates analyte failed the ICV limits for 6010B, 6020
b-indicates analyte failed the ICV limits for 200.7 or 200.8
c-indicates analyte failed the CCV limits for 200.7/200.8/245.1/6010B (Except Hg 7470A,7471A),6020
d-indicates analyte failed the CCV limits Hg 7470A/7471A

Qc Limits:
ICV - 200.7 : 95-105
CCV- 200.7/200.8/6010B/245.1 : 90-110 (Except Hg 7470A/ 7471A=80-120)
ICV -6010B/6020/200.8 : 90-11

CLP ICP ICV/CCV: 90-110
CLP Hg ICV/CCV: 80-120

FORM 3
(ICB/CCB/MB Summary)

Date Analyzed: 12/06/13
Data File: S15768B3
Prep Batch: 28471
Reporting Limits Used: 6010B/6010C/7470A,7471A/7471B(Hg),6020/6020A
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3112730

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:

Analyte	ICB V-174666-9	CCB V-174666-22	CCB V-174666-35	CCB V-174666-48	MB 28471 (100)-12	MB FB (1)-42		
Arsenic	.00379 U	.0044 a	.00379 U	.00379 U	.38 U	.0038 U		

Notes: a-indicates absolute value of result found above the reporting limits in CCB/ICB or result found above reporting limit in the MB
u-indicates result below reporting limit

FORM 3
(ICB/CCB/MB Summary)

Date Analyzed: 12/24/13
Data File: S15822A3
Prep Batch: 28527
Reporting Limits Used: SOIL,6010B(ICP)/7470A,7471A(Hg),6020
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3112730

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:

Analyte	ICB V-177943-9	CCB V-177943-22	CCB V-177943-32	CCB V-177943-41	MB 28527 (100)-12
Arsenic	.00654 a	.00535 a	.00379 U	.00572 a	.38 U
Barium	.00203 a	.00191 a	.00202 a	.00197 a	.24 a
Chromium	.00257 U	.00257 U	.00257 U	.00257 U	.33 a
Cobalt	.00194 a	.00287 a	.00164 a	.00191 a	.21 a
Copper	.00187 U	.00187 U	.00187 U	.00187 U	.19 U
Lead	.00565 U	.00565 U	.00565 U	.00565 U	.56 U
Manganese	.00194 a	.00193 a	.00193 a	.00195 a	.2 a
Nickel	.00215 U	.0023 a	.00215 U	.00215 U	.21 U
Thallium	.00289 U	-.00299 a	.00289 U	.00289 U	.29 U
Vanadium	.00152 a	.000975 U	.000975 U	.00109 a	.16 a
Zinc	.00282 U	.00282 U	.00282 U	.00282 U	.96 a

Notes: a-indicates absolute value of result found above the reporting limits in CCB/ICB or result found above reporting limit in the MB
u-indicates result below reporting limit

FORM 3
(ICB/CCB/MB Summary)

Date Analyzed: 12/30/13
Data File: S15822D3
Prep Batch: 28527
Reporting Limits Used: SOIL,6010B(ICP)/7470A,7471A(Hg),6020
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3112730

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:

Analyte	ICB V-177943-9	CCB V-177943-22
Arsenic	-.00515 a	.00379 U
Barium	-.00214 a	-.00146 a
Chromium	.00257 U	.00257 U
Cobalt	-.00219 a	-.00151 a
Copper	-.00213 a	.00187 U
Lead	.00565 U	.00565 U
Manganese	-.0017 a	-.00176 a
Nickel	-.00293 a	.00215 U
Thallium	-.00345 a	.00289 U
Vanadium	-.00192 a	-.00165 a
Zinc	.00282 U	.00282 U

Notes: a-indicates absolute value of result found above the reporting limits in CCB/ICB or result found above reporting limit in the MB
u-indicates result below reporting limit

FORM 4
(ICSA/ICSAB Summary)

Date Analyzed: 12/06/13
Data File: S15768B3
Prep Batch: 28471
Reporting Limits Used: 6010B/6010C/7470A,7471A/7471B(Hg),6020/6020A
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3112730

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICSA/ICSAB: SOURCE: VHG LABS

Analyte	Spk Amt	ICSA V-175629-10	Rec	ICSAB V-175630-11	Rec	ICSA V-175629-31	Rec	ICSAB V-175630-32	Rec	ICSA V-175629-44	Rec	ICSAB V-175630-45	Rec		Rec		Rec
Aluminum	500	492.88	99	493.56600	99	484.582	97	497.80200	100	488.422	98	512.31700	102				
Arsenic	1	.0043009b		1.01919	102	U		1.02967	103	.0103116a		1.06786	107				
Calcium	500	474.219	95	473.83200	95	465.115	93	479.25700	96	470.344	94	489.89800	98				
Iron	200	187.63	94	187.60400	94	182.983	91	189.44400	95	184.003	92	195.19400	98				
Magnesium	500	510.577	102	508.19400	102	495.911	99	514.38000	103	498.018	100	530.30600	106				

Notes: a-indicates absolute value of the concentration > 2 * Reporting Limits In the ICSA
b-indicates absolute value of the concentration above Reporting Limits but < 2 * Reporting Limits in the ICSA
c-indicates the recovery failed the Qc Criteria in the ICSAB
u-indicates the absolute value of the concentration was below the reporting limit

FORM 4
(ICSA/ICSAB Summary)

Date Analyzed: 12/24/13
Data File: S15822A3
Prep Batch: 28527
Reporting Limits Used: SOIL,6010B(ICP)/7470A,7471A(Hg),6020
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3112730

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICSA/ICSAB: SOURCE: VHG LABS

Analyte	Spk Amt	ICSA V-178199-10	Rec	ICSAB V-176919-11	Rec	ICSA V-178199-28	Rec	ICSAB V-176919-29	Rec	ICSA V-178199-37	Rec	ICSAB V-176919-38	Rec		Rec		Rec
Aluminum	500	489.205	98	486.57900	97	482.071	96	487.39200	97	489.67	98	488.39200	98				
Arsenic	1	.0107807a		1.04301	104	.0039442b		1.03103	103	U		1.02900	103				
Barium	.5	.0064523a		0.52892	106	.006111a		0.51709	103	.0064114a		0.51936	104				
Calcium	500	471.245	94	472.07600	94	468.28	94	462.12200	92	468.297	94	465.34300	93				
Chromium	.5	.0103543a		0.50947	102	.0097626a		0.49736	99	.0092211a		0.49876	100				
Cobalt	.5	.0098726a		0.48096	96	.0089033a		0.47075	94	.0097664a		0.47267	95				
Copper	.5	.0094874a		0.53477	107	.0090548a		0.52985	106	.0089872a		0.53716	107				
Iron	200	182.551	91	182.83500	91	180.128	90	182.52600	91	181.563	91	181.10300	91				
Lead	1	.0213668a		0.96829	97	.0141383a		0.94991	95	.0148899a		0.94625	95				
Magnesium	500	498.999	100	499.33300	100	492.924	99	499.31000	100	494.192	99	491.38600	98				
Manganese	.5	-.0140136a		0.48345	97	-.0137136a		0.47302	95	-.0136219a		0.47586	95				
Nickel	1	.0124393a		0.94379	94	.0114703a		0.92193	92	.0121577a		0.92263	92				
Thallium	1	-.0039106b		0.96078	96	-.0049721b		0.95403	95	-.0099896a		0.94941	95				
Vanadium	.5	.0121153a		0.48789	98	.0090721a		0.47474	95	.00851a		0.47698	95				
Zinc	1	.0041371b		0.95740	96	.0062621a		0.93133	93	.0042944b		0.92274	92				

Notes: a-indicates absolute value of the concentration > 2 * Reporting Limits In the ICSA
b-indicates absolute value of the concentration above Reporting Limits but < 2 * Reporting Limits in the ICSA
c-indicates the recovery failed the Qc Criteria in the ICSAB
u-indicates the absolute value of the concentration was below the reporting limit

FORM 4
(ICSA/ICSAB Summary)

Date Analyzed: 12/30/13
Data File: S15822D3
Prep Batch: 28527
Reporting Limits Used: SOIL,6010B(ICP)/7470A,7471A(Hg),6020
Instrument: PEICP3A
Units: All units in ppm except Hg and icp-ms in ppb
Project Number: 3112730

Lab Name: Veritech
Lab Code:
Contract:
Nras No:
Sdg No:
Case No:
ICSA/ICSAB: SOURCE: VHG LABS

Analyte	Spk Amt	ICSA V-178654-10	Rec	ICSAB V-178656-11	Rec	ICSA V-178654-18	Rec	ICSAB V-178656-19	Rec	Rec	Rec	Rec	Rec
Aluminum	500	513.587	103	510.52100	102	505.055	101	545.93000	109				
Arsenic	1	U		1.04206	104	U		1.08642	109				
Barium	.5	U		0.52555	105	U		0.55405	111				
Calcium	500	508.209	102	505.46900	101	498.824	100	526.50900	105				
Chromium	.5	.0095682a		0.50571	101	.008715a		0.53295	107				
Cobalt	.5	.0065091a		0.47971	96	.0054992a		0.50656	101				
Copper	.5	.0082491a		0.53572	107	.0073088a		0.56494	113				
Iron	200	193.571	97	191.91500	96	188.72	94	206.05400	103				
Lead	1	.0252174a		0.98435	98	.0196883a		1.02799	103				
Magnesium	500	530.775	106	523.79700	105	513.122	103	563.57300	113				
Manganese	.5	.0037647a		0.49875	100	.0041043a		0.52510	105				
Nickel	1	.0089963a		0.94193	94	.0084587a		0.99743	100				
Thallium	1	-.0060183a		0.98422	98	-.0135652a		1.02515	103				
Vanadium	.5	-.0059524a		0.47155	94	-.0051394a		0.49633	99				
Zinc	1	-.005312b		0.95555	96	-.0052051b		1.00954	101				

Notes: a-indicates absolute value of the concentration > 2 * Reporting Limits In the ICSA
b-indicates absolute value of the concentration above Reporting Limits but < 2 * Reporting Limits in the ICSA
c-indicates the recovery failed the Qc Criteria in the ICSAB
u-indicates the absolute value of the concentration was below the reporting limit

FORM5/FORM7
SPIKE RECOVERY DATA
PREP BATCH: 28471

Instrument Type: ICP/HG
Analytical Method(s):6010/200.7/7470A/7471A/245.1 ICP units in ppm, ICPMS and Hg in ppb

TxtQcType: LCS Matrix: AQUEOUS SampleID: LCSW

Analyte	BatchId	DF	Data File	Seq#:	Spk Conc:	Spk Added	Recov	Qual	Lo Lim	Hi Lim
Arsenic	28471	1	S15768B3	43	0.4688	0.500	94		80	120

TxtQcType: LCSMR Matrix: SOIL SampleID: LCS MR 28471

Analyte	BatchId	DF	Data File	Seq#:	Spk Conc:	Spk Added	Recov	Qual	Lo Lim	Hi Lim
Arsenic	28471	1	S15768B3	14	0.9696	0.996	97		81	119

TxtQcType: LCS Matrix: SOIL SampleID: LCS 28471

Analyte	BatchId	DF	Data File	Seq#:	Spk Conc:	Spk Added	Recov	Qual	Lo Lim	Hi Lim
Arsenic	28471	1	S15768B3	13	0.9874	0.996	99		81	119

TxtQcType: MSD Matrix: SOIL SampleID: AC75938-016

Analyte	BatchId	DF	Data File	Seq#:	NS Data Fil	Seq#	Spk Conc:	NS Conc:	Spk Added	Recov	Qual	Lo Lim	Hi Lim
Arsenic	28471	1	S15768B3	18	S15768B3	15	0.4882	0.0290	0.5	92		75	125

TxtQcType: MS Matrix: SOIL SampleID: AC75938-015

Analyte	BatchId	DF	Data File	Seq#:	NS Data Fil	Seq#	Spk Conc:	NS Conc:	Spk Added	Recov	Qual	Lo Lim	Hi Lim
Arsenic	28471	1	S15768B3	17	S15768B3	15	0.5035	0.0290	0.5	95		75	125

a-Indicates Recovery Failed the criteria b-Indicates Recovery Failed the criteria but non spike concentration >4*spike amount

FORM5/FORM7
SPIKE RECOVERY DATA
PREP BATCH: 28471

Instrument Type: ICP/HG
Analytical Method(s):6010/200.7/7470A/7471A/245.1

ICP units in ppm, ICPMS and Hg in ppb

TxtQcType: PS | Matrix: SOIL | SampleID: AC75938-013

Analyte	DF	Data File	Seq#:	NS Data Fil	Seq#	Spk Conc:	NS Conc:	Spk Added	Recov	Qual	Lo Lim	Hi Lim
Arsenic	1	S15768B3	19	S15768B3	15	0.5168	0.0290	0.50	98		80	120

a-Indicates Recovery Failed the criteria b-Indicates Recovery Failed the criteria but non spike concentration >4*spike amount

FORM5/FORM7

3112730 0207

SPIKE RECOVERY DATA

PREP BATCH: 28527

Instrument Type: ICP/HG

Analytical Method(s):6010/200.7/7470A/7471A/245.1 ICP units in ppm, ICPMS and Hg in ppb

TxtQcType: LCSMR Matrix: SOIL SampleID: LCS MR 28527

Analyte	BatchId	DF	Data Fil	Seq#:	Spk Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	28527	1	S15822A3	14	0.9004	0.996	90		81	119

TxtQcType: LCS Matrix: SOIL SampleID: LCS 28527

Analyte	BatchId	DF	Data Fil	Seq#:	Spk Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	28527	1	S15822A3	13	0.9303	0.996	93		81	119

TxtQcType: MSD Matrix: SOIL SampleID: AC76237-007

Analyte	BatchId	DF	Data Fil	Seq#:	NS Data Fil	Seq#	Spk Conc:	NS Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	28527	1	S15822D3	15	S15822D3	12	0.5178	0.0413	0.5	95		75	125

TxtQcType: MS Matrix: SOIL SampleID: AC76237-007

Analyte	BatchId	DF	Data Fil	Seq#:	NS Data Fil	Seq#	Spk Conc:	NS Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	28527	1	S15822D3	14	S15822D3	12	0.5151	0.0413	0.5	95		75	125

a-Indicates Recovery Failed the criteria b-Indicates Recovery Failed the criteria but non spike concentration >4*spike amount

FORM5/FORM7
SPIKE RECOVERY DATA
PREP BATCH: 28527

Instrument Type: ICP/HG
Analytical Method(s):6010/200.7/7470A/7471A/245.1 ICP units in ppm, ICPMS and Hg in ppb

TxtQcType: PS Matrix: SOIL SampleID: AC76237-007

Analyte	DF	Data Fil	Seq#:	NS Data Fil	Seq#	Spk Conc:	NS Conc:	Spk Adde	Recov	Qual	Lo Lim	Hi Lim
Arsenic	1	S15822D3	16	S15822D3	12	0.4628	0.0413	0.50	84		80	120

a-Indicates Recovery Failed the criteria b-Indicates Recovery Failed the criteria but non spike concentration >4*spike amount

FORM6/FORM9

RPD/%Difference Data

PREP BATCH: 28471

Instrument Type: ICP/HG

Analytical Method(s):6010/200.7/7470A/7471A/245.1 ICP units in ppm, ICPMS and Hg in ppb

TxtQcType: LCSMR Matrix: SOIL SampleID: LCS MR 28471

Analyte	BatchId	Data File	Seq#:	NS File	Seq#	Result 1	Result 2	RPD	Limit
Arsenic	28471	S15768B3	14	S15768B3	13	0.9696	0.9874	1.8	20

TxtQcType: MR Matrix: SOIL SampleID: AC75938-013

Analyte	BatchId	Data File	Seq#:	NS File	Seq#	Result 1	Result 2	RPD	Limit
Arsenic	28471	S15768B3	16	S15768B3	15	0.0288	0.0290	0.44	20

TxtQcType: MSD Matrix: SOIL SampleID: AC75938-016

Analyte	BatchId	Data File	Seq#:	MS File	Seq#	Result 1	Result 2	RPD	Limit
Arsenic	28471	S15768B3	18	S15768B3	17	0.4882	0.5035	3.1	20

TxtQcType: SD Matrix: SOIL SampleID: AC75938-013

Analyte	BatchId	Data File	Seq#:	NS File	Seq#	DF	Result 1	Result 2	%Diff		Limit
Arsenic	28471	S15768B3	23	S15768B3	15	5	0.0092	0.0290	59	c	10

a-Indicates Rpd Failed the criteria

b-Method Rep Out but concentrations < 5*RL

c-Serial dilution Out but conc < 10 * IDL

FORM6/FORM9

RPD/%Difference Data

PREP BATCH: 28527

Instrument Type: ICP/HG

Analytical Method(s):6010/200.7/7470A/7471A/245.1 ICP units in ppm, ICPMS and Hg in ppb

TxtQcType: LCSMR Matrix: SOIL SampleID: LCS MR 28527

Analyte	BatchId	Data Fil	Seq#:	NS File	Seq#	Result 1	Result 2	RPD		Limit
Arsenic	28527	S15822A3	14	S15822A3	13	0.9004	0.9303	3.3		20

TxtQcType: MR Matrix: SOIL SampleID: AC76237-007

Analyte	BatchId	Data Fil	Seq#:	NS File	Seq#	Result 1	Result 2	RPD		Limit
Arsenic	28527	S15822D3	13	S15822D3	12	0.0298	0.0413	32	a	20

TxtQcType: MSD Matrix: SOIL SampleID: AC76237-007

Analyte	BatchId	Data Fil	Seq#:	MS File	Seq#	Result 1	Result 2	RPD		Limit
Arsenic	28527	S15822D3	15	S15822D3	14	0.5178	0.5151	.52		20

TxtQcType: SD Matrix: SOIL SampleID: AC76237-007

Analyte	BatchId	Data Fil	Seq#:	NS File	Seq#	DF	Result 1	Result 2	%Diff		Limit
Arsenic	28527	S15822D3	17	S15822D3	12	5	0.0099	0.0413	19	c	10

a-Indicates Rpd Failed the criteria

b-Method Rep Out but concentrations < 5*RL

c-Serial dilution Out but conc < 10 * IDL

Run Log

Data File: W:\METALS.FRM\ICPDATA\New\PEICP3A\S15768B3.txt

Analysis Date: 12/06/13 **Instrument:** PEICP3A

Sample Id	DF	Qc Type	Time	Run #	Test Group	Rept Limit Matrix	Qc Matrix	Anal Method	Prep Batch	Comments:	Stds:
Calib Blank 1 V-174666	1	CAL	14:02	1							V-174666(ICB/CCB)
Calib 1 V-175627	1	CAL	14:05	2							V-175627(ICS1 Lowest std)
Calib 2 V-175715	1	CAL	14:09	3							V-175715(ICS2- Low Std)
Calib 3 V-176923	1	CAL	14:12	4							V-176923(ICS3 - Middle Std)
Calib 4 V-177156	1	CAL	14:16	5							V-177156(ICS4 - High std)
ICS3 V-176923	1	ICS	14:20	6							V-176923(ICS3 - Middle Std)
ICV (1) V-177540	1	ICV	14:24	7							V-177540(CCV)
LLICV V-177694	1	LLICV	14:28	8		SOIL	SOIL	SW846	28471		V-177694(LLICV/CCV-SOIL)
ICB V-174666	1	ICB	14:31	9							V-174666(ICB/CCB)
ICSA V-175629	1	ICSA	14:35	10							V-175629(ICSA)
ICSAB V-175630	1	ICSAB	14:39	11							V-175630(ICSAB)
MB 28471 (100)	1	MB	14:43	12		SOIL	SOIL	SW846	28471		0
LCS 28471	1	LCS	14:46	13		SOIL	SOIL	SW846	28471		0
LCS MR 28471	1	LCS	14:50	14		SOIL	SOIL	SW846	28471		0
AC75938-013	1	SMP	14:54	15	MET-1-SOIL	SOIL	SOIL	SW846	28471		0
AC75938-013	1	MR	14:58	16	MET-1-SOIL	SOIL	SOIL	SW846	28471		0
AC75938-015	1	MS	15:01	17	MET-1-SOIL	SOIL	SOIL	SW846	28471		0
AC75938-016	1	MSD	15:05	18	MET-1-SOIL	SOIL	SOIL	SW846	28471		0
AC75938-013	1	PS	15:09	19	MET-1-SOIL	SOIL	SOIL	SW846	28471		0
CCV V-177540	1	CCV	15:13	20							V-177540(CCV)
LLCCV V-177694	1	LLCCV	15:17	21		SOIL	SOIL	SW846	28471		V-177694(LLICV/CCV-SOIL)
CCB V-174666	1	CCB	15:21	22							V-174666(ICB/CCB)
AC75938-013	5	SD	15:24	23	MET-1-SOIL	SOIL	SOIL	SW846	28471		0
AC75938-001	1	SMP	15:28	24	MET-1-SOIL	SOIL	SOIL	SW846	28471		0
AC75938-002	1	SMP	15:31	25	MET-1-SOIL	SOIL	SOIL	SW846	28471		0
AC75938-005	1	SMP	15:35	26	MET-1-SOIL	SOIL	SOIL	SW846	28471		0
AC75938-006	1	SMP	15:38	27	MET-1-SOIL	SOIL	SOIL	SW846	28471		0
AC75938-007	1	SMP	15:42	28	MET-1-SOIL	SOIL	SOIL	SW846	28471		0
AC75938-008	1	SMP	15:45	29	MET-1-SOIL	SOIL	SOIL	SW846	28471		0
AC75938-014	1	SMP	15:49	30	MET-1-SOIL	SOIL	SOIL	SW846	28471		0
ICSA V-175629	1	ICSA	15:52	31							V-175629(ICSA)
ICSAB V-175630	1	ICSAB	15:57	32							V-175630(ICSAB)
CCV V-177540	1	CCV	16:01	33							V-177540(CCV)
LLCCV V-177694	1	LLCCV	16:05	34		SOIL	SOIL	SW846	28471		V-177694(LLICV/CCV-SOIL)
CCB V-174666	1	CCB	16:08	35							V-174666(ICB/CCB)
AC75938-017	1	SMP	16:12	36	MET-1-SOIL	SOIL	SOIL	SW846	28471		0
AC75938-018	1	SMP	16:15	37	MET-1-SOIL	SOIL	SOIL	SW846	28471		0
AC75938-019	1	SMP	16:19	38	MET-1-SOIL	SOIL	SOIL	SW846	28471		0
AC75938-020	1	SMP	16:22	39	MET-1-SOIL	SOIL	SOIL	SW846	28471		0
AC75938-025	1	SMP	16:26	40	MET-1-SOIL	SOIL	SOIL	SW846	28471		0
AC75938-027	1	SMP	16:29	41	MET-1-SOIL	SOIL	AQUEO	SW846	28471		0
MB FB (1)	1	MB	16:33	42		SOIL	AQUEO	SW846	28471		0
LCSW	1	LCS	16:36	43		SOIL	AQUEO	SW846	28471		0
ICSA V-175629	1	ICSA	16:40	44							V-175629(ICSA)
ICSAB V-175630	1	ICSAB	16:44	45							V-175630(ICSAB)
CCV V-177540	1	CCV	16:48	46							V-177540(CCV)
LLCCV V-177694	1	LLCCV	16:52	47		SOIL	SOIL	SW846	28471		V-177694(LLICV/CCV-SOIL)
CCB V-174666	1	CCB	16:56	48							V-174666(ICB/CCB)

Comments/Reviewedby:

OLUFEMI
192.168.1.85 12/6/2013 5:21:52 PM

RUN IS OK
As reported

12/6/13

Standard/Batch/SnCl2 Lot #:

Run Log

Data File: W:\METALS.FRM\ICPDATA\New\PEICP3A\S15822A3.txt

Analysis Date: 12/24/13 **Instrument:** PEICP3A

Sample Id	DF	Qc Type	Time	Run #	Test Group	Rept Limit Matrix	Qc Matrix	Anal Method	Prep Batch	Comments:	Stds:
Calib Blank 1 V-177943	1	CAL	20:27	1							V-177943(ICB/CCB)
Calib 1 V-177278	1	CAL	20:30	2							V-177278(ICS1 Lowest std)
Calib 2 V-178045	1	CAL	20:34	3							V-178045(ICS2- Low Std)
Calib 3 V-177155	1	CAL	20:37	4							V-177155(ICS3 - Middle Std)
Calib 4 V-178047	1	CAL	20:41	5							V-178047(ICS4 - High std)
ICS3 V-177155	1	ICS	20:45	6							V-177155(ICS3 - Middle Std)
ICV (1) V-177939	1	ICV	20:49	7							V-177939(CCV)
LLICV V-177694	1	LLICV	20:53	8	MET-1-SOIL	SOIL	SOIL	SW846	28527		V-177694(LLICV/CCV-SOIL)
ICB V-177943	1	ICB	20:57	9							V-177943(ICB/CCB)
ICSA V-178199	1	ICSA	21:00	10							V-178199(ICSA)
ICSAB V-176919	1	ICSAB	21:04	11							V-176919(ICSAB)
MB 28527 (100)	1	MB	21:09	12	MET-1-SOIL	SOIL	SOIL	SW846	28527		()
LCS 28527	1	LCS	21:12	13	MET-1-SOIL	SOIL	SOIL	SW846	28527		()
LCS MR 28527	1	LCS	21:16	14	MET-1-SOIL	SOIL	SOIL	SW846	28527		()
AC76237-007	1	NA	21:20	15	MET-TAL6010S	SOIL	SOIL	SW846	28527		()
AC76237-007	1	NA	21:25	16	MET-TAL6010S	SOIL	SOIL	SW846	28527		()
AC76237-007	1	NA	21:29	17	MET-TAL6010S	SOIL	SOIL	SW846	28527		()
AC76237-007	1	NA	21:33	18	MET-TAL6010S	SOIL	SOIL	SW846	28527		()
AC76237-007	1	NA	21:37	19	MET-TAL6010S	SOIL	SOIL	SW846	28527		()
CCV V-178201	1	CCV	21:41	20							V-178201(CCV)
LLCCV V-177694	1	LLCCV	21:45	21	MET-1-SOIL	SOIL	SOIL	SW846	28527		V-177694(LLICV/CCV-SOIL)
CCB V-177943	1	CCB	21:49	22							V-177943(ICB/CCB)
AC76237-007	5	NA	21:52	23	MET-TAL6010S	SOIL	SOIL	SW846	28527		()
AC76140-023	1	SMP	21:56	24	MET-TAL6010S	SOIL	SOIL	SW846	28527		()
AC76140-024	1	SMP	21:59	25	MET-TAL6010S	SOIL	SOIL	SW846	28527		()
AC76137-001	1	SMP	22:04	26	MET-TAL6010S	SOIL	SOIL	SW846	28527		()
AC75938-003	1	SMP	22:07	27	MET-1-SOIL	SOIL	SOIL	SW846	28527		()
ICSA V-178199	1	ICSA	22:11	28							V-178199(ICSA)
ICSAB V-176919	1	ICSAB	22:15	29							V-176919(ICSAB)
CCV V-178201	1	CCV	22:19	30							V-178201(CCV)
LLCCV V-177694	1	LLCCV	22:23	31	MET-1-SOIL	SOIL	SOIL	SW846	28527		V-177694(LLICV/CCV-SOIL)
CCB V-177943	1	CCB	22:27	32							V-177943(ICB/CCB)
AC75938-009	1	SMP	22:30	33	MET-1-SOIL	SOIL	SOIL	SW846	28527		()
AC75938-010	1	SMP	22:34	34	MET-1-SOIL	SOIL	SOIL	SW846	28527		()
AC75938-011	1	SMP	22:38	35	MET-1-SOIL	SOIL	SOIL	SW846	28527		()
AC75938-012	1	SMP	22:41	36	MET-1-SOIL	SOIL	SOIL	SW846	28527		()
ICSA V-178199	1	ICSA	22:45	37							V-178199(ICSA)
ICSAB V-176919	1	ICSAB	22:49	38							V-176919(ICSAB)
CCV V-178201	1	CCV	22:53	39							V-178201(CCV)
LLCCV V-177694	1	LLCCV	22:57	40	MET-1-SOIL	SOIL	SOIL	SW846	28527		V-177694(LLICV/CCV-SOIL)
CCB V-177943	1	CCB	23:01	41							V-177943(ICB/CCB)

Comments/Reviewedby:

olufemi
192.168.1.85 12/26/2013 1:28:07 PM

RUN IS OK
All elements reported except the earth elements

12/31/13

Standard/Batch/SnCl2 Lot #:

Run Log

Data File: W:\METALS.FRM\ICPDATA\New\PEICP3A\S15822D3.txt

Analysis Date: 12/30/13 **Instrument:** PEICP3A

Sample Id	DF	Qc Type	Time	Run #	Test Group	Rept Limit Matrix	Qc Matrix	Anal Method	Prep Batch	Comments:	Stds:
Calib Blank 1 V-177943	1	CAL	16:17	1							V-177943(ICB/CCB)
Calib 1 V-178658	1	CAL	16:21	2							V-178658(ICS1 Lowest std)
Calib 2 V-178659	1	CAL	16:24	3							V-178659(ICS2- Low Std)
Calib 3 V-177155	1	CAL	16:27	4							V-177155(ICS3 - Middle Std)
Calib 4 V-178047	1	CAL	16:31	5							V-178047(ICS4 - High std)
ICS3 V-177155	1	ICS	16:35	6							V-177155(ICS3 - Middle Std)
ICV (1) V-178665	1	ICV	16:39	7							V-178665(CCV)
LLICV V-178620	1	LLICV	16:43	8	MET-TAL6010S	SOIL	SOIL	SW846	28527		V-178620(LLICV/CCV-SOIL)
ICB V-177943	1	ICB	16:47	9							V-177943(ICB/CCB)
ICSA V-178654	1	ICSA	16:50	10							V-178654(ICSA)
ICSAB V-178656	1	ICSAB	16:54	11							V-178656(ICSAB)
AC76237-007	1	SMP	16:59	12	MET-TAL6010S	SOIL	SOIL	SW846	28527		()
AC76237-007	1	MR	17:03	13	MET-TAL6010S	SOIL	SOIL	SW846	28527		()
AC76237-007	1	MS	17:07	14	MET-TAL6010S	SOIL	SOIL	SW846	28527		()
AC76237-007	1	MSD	17:11	15	MET-TAL6010S	SOIL	SOIL	SW846	28527		()
AC76237-007	1	PS	17:15	16	MET-TAL6010S	SOIL	SOIL	SW846	28527		()
AC76237-007	5	SD	17:19	17	MET-TAL6010S	SOIL	SOIL	SW846	28527		()
ICSA V-178654	1	ICSA	17:23	18							V-178654(ICSA)
ICSAB V-178656	1	ICSAB	17:27	19							V-178656(ICSAB)
CCV V-178665	1	CCV	17:31	20							V-178665(CCV)
LLCCV V-178620	1	LLCCV	17:35	21	MET-TAL6010S	SOIL	SOIL	SW846	28527		V-178620(LLICV/CCV-SOIL)
CCB V-177943	1	CCB	17:39	22							V-177943(ICB/CCB)

Comments/Reviewedby:

olufemi
192.168.1.85 12/31/2013 10:57:01 AM

RUN IS OK
All elements reported except the earth elements

12/31/13

Standard/Batch/SnCl2 Lot #:

Hampton-Clarke/Veritech

ICP SAMPLE PREPARATION LOG

ANALYTICAL METHOD: 3010A 3005A (3050B) (6020) 200.7/200.8 OTHER_____

Batch No.: 15764 Analyst: JH

QC Number: 28471 Prep Date: 12/3/13

Matrix: Soil Reviewed By: QA

LAB ID#	ICP		ICP-MS (Secondary dil)		TCLP		COMMENTS
	Initial	Final	Aliquot	Final	Eff	TCLP	
Method blank	50ml	50ml				--	
LCS	0.5g	↓				--	
LCSD	↓	↓				--	
1. AC75938-013	1.0	100ml					
MR 75938-013	0.5g	50ml					
MS 75938-015	↓	↓					
MSD 75938-016	↓	↓					
2. 75938-001	↓	↓					
3. 75938-002	↓	↓					
4. 75938-005	↓	↓					
5. 75938-006	↓	↓					
6. 75938-007	↓	↓					
7. 75938-008	↓	↓					
8. 75938-014	↓	↓					
9. 75938-017	↓	↓					
10. 75938-018	↓	↓					
11. 75938-019	↓	↓					
12. 75938-020	↓	↓					
13. 75938-025	↓	↓					
14. 75938-027	50ml	↓					FB
15. LCSW	↓	↓					
16. FBMB	↓	↓					
17.							
18.							
19.							
20.							

Hot Plate Temperature: 94.1°C (90-95° C)

	Volume mL	Lot #
LCS, LCSD	0.5g	V- 8106
LLLCS, LLLCSD		V-
MS, MSD	0.5ml	V- 8113, 8114
LLMS, LLMSD		V-

Acid	Vol mL	Lot#
HNO_3	2.5	V- 8123
HCl	5	V- 8069
H_2O_2	1.5	V- 7423

Acid	Vol mL	Lot#
1:1 HNO_3	5	V- 173855
1:1 HCl		V-

Relinquished By JH Date 12/3/13

Received By QA Date 12/06/2013

B154

Hampton-Clarke/Veritech

ICP SAMPLE PREPARATION LOG

ANALYTICAL METHOD: 3010A 3005A 3050B (6020) 200.7/200.8 OTHER_____

Batch No.: 15822 Analyst: TM

QC Number: 28527 Prep Date: 12/23/13

Matrix: Soil Reviewed By: [signature]

LAB ID#	ICP		ICP-MS (Secondary dil)		TCLP		COMMENTS
	Initial	Final	Aliquot	Final	Eff	TCLP	
Method blank	50ml	50ml				--	
LCS	0.5g					--	
LCSD						--	
1. MR-76237-007	1.0g	100ml					
MR 76237-007	0.5g	50ml					
MS 76237-007							
MSD 76237-007							
2. 76140-023							
3. 76140-024							
4. 76137-001							
5. 75938-002							
6. 75938-009							
7. 75938-010							
8. 75938-011							
9. 75938-012							
10.							
11.							
12.							
13.							
14.							
15.							
16.							
17.							
18.							
19.							
20.							

Hot Plate Temperature: 93-2° C (90-95° C)

	Volume mL	Lot #
LCS, LCSD	0.5g	V- 8106
LLLCS, LLLCSD		V-
MS, MSD	0.5ml	V- 8113, 8114
LLMS, LLMSD		V-

Acid	Vol mL	Lot#
HNO_3	2.5	V- 8222
HCl	5	V- 8223
H_2O_2	1.5	V- 8150

Acid	Vol mL	Lot#
1:1 HNO_3	5	V- 178262
1:1 HCl		V-

Relinquished By TM Date 12/23/13

Received By [signature] Date 12/31/2013

0027

T:\QC\FORMS\LOGBOOK FORMS\METALS\ICP sample prep log 2012.DOC

Wet Chemistry Data

VERITECH Wet Chem Form1 Analysis Summary
% Solids

TestGroupName: % Solids SM2540G **Project #: 3112730**

TestGroup: %SOLIDS

Lab#	Client SampleID	Matrix	Dilution:	Result	Units:	RL	Prep Date	Analysis Date	Received Date	Collect Date
AC75938-001	WP-4 (1.5-2.0)	Soil	1	90	Percent			12/02/13	11/27/13	11/26/13
AC75938-002	WP-5 (1.5-2.0)	Soil	1	82	Percent			12/02/13	11/27/13	11/26/13
AC75938-003	WP-6 (1.5-2.0)	Soil	1	80	Percent			12/19/13	11/27/13	11/26/13
AC75938-005	WP-8 (1.5-2.0)	Soil	1	86	Percent			12/02/13	11/27/13	11/26/13
AC75938-006	WP-8 (3.5-4.0)	Soil	1	83	Percent			12/02/13	11/27/13	11/26/13
AC75938-007	WP-9 (1.5-2.0)	Soil	1	84	Percent			12/02/13	11/27/13	11/26/13
AC75938-008	WP-9 (3.5-4.0)	Soil	1	83	Percent			12/02/13	11/27/13	11/26/13
AC75938-009	WP-10 (1.5-2.0)	Soil	1	83	Percent			12/19/13	11/27/13	11/26/13
AC75938-010	WP-10 (3.5-4.0)	Soil	1	82	Percent			12/19/13	11/27/13	11/26/13
AC75938-011	WP-11 (1.5-2.0)	Soil	1	84	Percent			12/19/13	11/27/13	11/26/13
AC75938-012	WP-11 (3.5-4.0)	Soil	1	81	Percent			12/19/13	11/27/13	11/26/13
AC75938-013	A3-9 (1.5-2.0)	Soil	1	81	Percent			12/02/13	11/27/13	11/26/13
AC75938-014	A3-9 (1.5-2.0)a	Soil	1	79	Percent			12/02/13	11/27/13	11/26/13
AC75938-015	A3-9 (1.5-2.0) MS	Soil	1	79	Percent			12/02/13	11/27/13	11/26/13
AC75938-016	A3-9 (1.5-2.0) MS	Soil	1	80	Percent			12/02/13	11/27/13	11/26/13
AC75938-017	A3-10 (1.5-2.0)	Soil	1	82	Percent			12/02/13	11/27/13	11/26/13
AC75938-018	A3-11 (1.5-2.0)	Soil	1	89	Percent			12/02/13	11/27/13	11/26/13
AC75938-019	A3-12 (1.5-2.0)	Soil	1	89	Percent			12/02/13	11/27/13	11/26/13
AC75938-020	A3-13 (1.5-2.0)	Soil	1	88	Percent			12/02/13	11/27/13	11/26/13
AC75938-023	IA-22 (5.5-6.0)	Soil	1	84	Percent			12/02/13	11/27/13	11/26/13
AC75938-025	A8-6 (7.0-7.5)	Soil	1	80	Percent			12/02/13	11/27/13	11/26/13

% Solids Report

Analysis Type: SOLIDS-SS
BatchID: SOLIDS-SS-2512

QcType	SampleID:	Rounded Result	Raw Result	Units	Tare Weight	Wet Weight	Dry Weight	Analysis Date	Analyzed By	QC RPD	Rpd Limit
DUP	AC75938-001	90	90.07859	Percent	1.11	11.29	10.28	12/02/13	hossain	0.14	5
Sample	AC75936-001	82	81.66667	Percent	1.11	11.91	9.94	12/02/13	hossain		
Sample	AC75937-001	86	85.99811	Percent	1.10	11.67	10.20	12/02/13	hossain		
Sample	AC75937-002	87	87.36842	Percent	1.10	11.55	10.24	12/02/13	hossain		
Sample	AC75937-003	92	92.15311	Percent	1.09	11.54	10.72	12/02/13	hossain		
Sample	AC75937-004	93	92.63566	Percent	1.10	11.42	10.66	12/02/13	hossain		
Sample	AC75937-005	94	94.11197	Percent	1.11	11.47	10.86	12/02/13	hossain		
Sample	AC75937-006	94	93.86792	Percent	1.10	11.70	11.06	12/02/13	hossain		
Sample	AC75937-007	86	86.39329	Percent	1.10	11.83	10.38	12/02/13	hossain		
Sample	AC75937-008	88	88.03264	Percent	1.10	12.13	10.82	12/02/13	hossain		
Sample	AC75937-009	88	87.91627	Percent	1.10	11.61	10.35	12/02/13	hossain		
Sample	AC75937-010	89	88.60878	Percent	1.10	11.81	10.60	12/02/13	hossain		
Sample	AC75937-013	81	81.43133	Percent	1.09	11.43	9.52	12/02/13	hossain		
Sample	AC75937-014	87	86.98885	Percent	1.09	11.85	10.45	12/02/13	hossain		
Sample	AC75937-015	88	87.59259	Percent	1.12	11.92	10.58	12/02/13	hossain		
Sample	AC75937-016	84	84.42777	Percent	1.11	11.77	10.11	12/02/13	hossain		
Sample	AC75937-017	88	88.42412	Percent	1.09	11.37	10.18	12/02/13	hossain		
Sample	AC75937-018	85	85.38238	Percent	1.11	11.44	9.94	12/02/13	hossain		
Sample	AC75937-019	84	84.08203	Percent	1.10	11.34	9.72	12/02/13	hossain		
Sample	AC75938-001	90	90.20568	Percent	1.09	11.30	10.31	12/02/13	hossain		
Sample	AC75938-002	82	81.67293	Percent	1.09	11.73	9.76	12/02/13	hossain		

* - Indicates Failed Rpd Criteria

% Solids Report

Analysis Type: SOLIDS-SS
BatchID: SOLIDS-SS-2513

QcType	SampleID:	Rounded Result	Raw Result	Units	Tare Weight	Wet Weight	Dry Weight	Analysis Date	Analyzed By	QC RPD	Rpd Limit
DUP	AC75942-001	89	89.12442	Percent	1.09	11.94	10.77	12/02/13	hossain	0.59	5
Sample	AC75938-005	86	85.66176	Percent	1.09	11.97	10.41	12/02/13	hossain		
Sample	AC75938-006	83	82.67644	Percent	1.09	12.00	10.12	12/02/13	hossain		
Sample	AC75938-007	84	83.84615	Percent	1.10	11.50	9.83	12/02/13	hossain		
Sample	AC75938-008	83	82.69411	Percent	1.09	11.78	9.94	12/02/13	hossain		
Sample	AC75938-013	81	81.32942	Percent	1.09	11.32	9.42	12/02/13	hossain		
Sample	AC75938-014	79	78.96282	Percent	1.10	11.32	9.18	12/02/13	hossain		
Sample	AC75938-015	79	79.15888	Percent	1.10	11.80	9.58	12/02/13	hossain		
Sample	AC75938-016	80	80.03663	Percent	1.09	12.01	9.83	12/02/13	hossain		
Sample	AC75938-017	82	81.83538	Percent	1.10	11.67	9.75	12/02/13	hossain		
Sample	AC75938-018	89	88.71745	Percent	1.10	11.47	10.31	12/02/13	hossain		
Sample	AC75938-019	89	89.27239	Percent	1.10	11.82	10.67	12/02/13	hossain		
Sample	AC75938-020	88	88.46154	Percent	1.11	11.77	10.54	12/02/13	hossain		
Sample	AC75938-023	84	83.54067	Percent	1.09	11.54	9.83	12/02/13	hossain		
Sample	AC75938-025	80	79.58446	Percent	1.09	12.16	9.91	12/02/13	hossain		
Sample	AC75942-001	90	89.64880	Percent	1.11	11.93	10.82	12/02/13	hossain		
Sample	AC75942-002	86	85.84392	Percent	1.11	12.13	10.58	12/02/13	hossain		
Sample	AC75943-001	93	92.98246	Percent	1.09	11.35	10.64	12/02/13	hossain		
Sample	AC75943-002	95	95.16441	Percent	1.11	11.45	10.96	12/02/13	hossain		
Sample	AC75943-003	95	94.52424	Percent	1.11	12.25	11.66	12/02/13	hossain		
Sample	AC75947-001	89	89.23643	Percent	1.10	11.97	10.85	12/02/13	hossain		

* - Indicates Failed Rpd Criteria

% Solids Report

Analysis Type: SOLIDS-SS
BatchID: SOLIDS-SS-2556

QcType	SampleID:	Rounded Result	Raw Result	Units	Tare Weight	Wet Weight	Dry Weight	Analysis Date	Analyzed By	QC RPD	Rpd Limit
DUP	AC76258-011	85	84.89681	Percent	1.10	11.76	10.14	12/19/13	hossain	2	5
Sample	AC75938-003	80	79.73610	Percent	1.10	11.71	9.56	12/19/13	hossain		
Sample	AC75938-009	83	83.00095	Percent	1.10	11.63	9.84	12/19/13	hossain		
Sample	AC75938-010	82	81.69145	Percent	1.09	11.85	9.88	12/19/13	hossain		
Sample	AC75938-011	84	83.71212	Percent	1.10	11.66	9.94	12/19/13	hossain		
Sample	AC75938-012	81	81.41674	Percent	1.11	11.98	9.95	12/19/13	hossain		
Sample	AC76258-005	70	69.83511	Percent	1.11	11.42	8.31	12/19/13	hossain		
Sample	AC76258-006	89	88.61566	Percent	1.10	12.08	10.83	12/19/13	hossain		
Sample	AC76258-007	68	67.84101	Percent	1.10	12.17	8.62	12/19/13	hossain		
Sample	AC76258-008	91	90.51643	Percent	1.11	11.76	10.75	12/19/13	hossain		
Sample	AC76258-009	77	77.32832	Percent	1.11	11.74	9.33	12/19/13	hossain		
Sample	AC76258-010	72	72.02487	Percent	1.10	12.36	9.21	12/19/13	hossain		
Sample	AC76258-011	83	83.17669	Percent	1.10	11.74	9.96	12/19/13	hossain		
Sample	AC76258-012	86	85.56505	Percent	1.10	11.63	10.11	12/19/13	hossain		
Sample	AC76258-013	85	85.23132	Percent	1.12	12.36	10.69	12/19/13	hossain		
Sample	AC76258-014	75	75.11521	Percent	1.09	11.94	9.24	12/19/13	hossain		
Sample	AC76264-001	63	62.59191	Percent	1.12	12.00	7.93	12/19/13	hossain		
Sample	AC76264-002	61	60.91324	Percent	1.11	12.06	7.78	12/19/13	hossain		
Sample	AC76264-003	62	61.70583	Percent	1.09	12.58	8.18	12/19/13	hossain		
Sample	AC76264-004	58	58.23864	Percent	1.10	11.66	7.25	12/19/13	hossain		

* - Indicates Failed Rpd Criteria

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Appendix F

95 UCL Calculations

95 UCL Inputs for Arsenic
Former Manufacturing Area (0 to 15 ft bgs)

Location ID	Sample Date	Arsenic	
		Sample Depth Interval (ft bgs)	Unit (mg/kg)
A4-01	4/12/2012	2.5 -3.0	18
A4-01	4/12/2012	11.0 - 11.5	11
A4-02	4/13/2012	7.5 - 8.0	12
A4-03	4/12/2012	12.0 - 12.5	4.1
A4-04	4/12/2012	7.0 - 8.0	11
A8-01	4/10/2012	4.5	5.4
A8-01	4/10/2012	11.5 - 12.0	2.6
A8-02	4/10/2012	4.5 - 5.0	4.1
A8-02	4/10/2012	11.0 - 12.0	1.7
A8-03	4/10/2012	6.0 - 6.5	4.7
A8-03	4/10/2012	11.0 - 12.0	2.1
A8-04	4/10/2012	7.0 -7.5	21
A8-04	4/10/2012	11.5 - 12.0	2.5
A8-05	4/10/2012	4.5 - 5.0	6.1
A8-05	4/10/2012	10.0 - 11.0	1.8
A8-06	11/26/2013	7.0 - 7.5	5.7
IA-01	4/9/2012	3.5	5.6
IA-01	4/9/2012	11.5 - 12.0	7.6
IA-03	4/3/2012	11.5 - 12.0	4.6
IA-04	4/9/2012	5.0 - 5.5	12
IA-04	4/9/2012	9.5 - 10.0	5.5
IA-05	4/11/2012	2.5 - 3.0	3.2
IA-05	4/11/2012	4.0 - 5.0	4.7
IA-06	4/11/2012	2.5 - 3.5	5.4
IA-06	4/11/2012	6.5 - 7.0	4.5
IA-07	4/3/2012	12.0 - 12.5	5.1
IA-08	4/3/2012	13.5 - 14.5	3.9
IA-09	4/3/2012	10.5 - 11.5	7.6
IA-10	4/3/2012	3.0 - 3.5	3.8
IA-10	4/3/2012	13.0 - 14.0	6.2
IA-11	4/3/2012	4.5 - 5.0	3.6
IA-11	4/3/2012	9.0 - 9.5	5.5
IA-12	4/4/2012	6.5 - 7.0	12
IA-12	4/4/2012	17.0 - 18.0	7.5
IA-13	4/3/2012	12.0 - 13.0	4.9
IA-14	4/4/2012	12.0 - 13.0	4.9
IA-15	4/2/2012	3.5 - 4.0	3.8
IA-15	4/2/2012	14.5 - 15.0	5.8
IA-16	4/2/2012	3.5 - 4.0	2.7
IA-16	4/2/2012	4.5 - 5.0	4.9
IA-17	4/3/2012	2.0 - 3.0	4.7
IA-17	4/3/2012	11.0 -12.0	3.8
IA-18	4/2/2012	5.5 - 6.0	5
IA-18	4/13/2012	12.5 - 13.0	4.3
IA-19	4/2/2012	4.5 - 5.0	5.1
IA-20	4/2/2012	2.0 - 2.5	5.1
IA-20	4/2/2012	13.0 - 13.5	6.7
IA-21	4/2/2012	14.5 - 15.0	4.4

UCL Statistics for Data Sets with Non-Detects			
Arsenic in Former Manufacturing Area (0 to 15 ft bgs)			
User Selected Options			
Date/Time of Computation	6/25/2015 2:06:50 PM		
From File	ProUCL input.xls.xls		
Full Precision	OFF		
Confidence Coefficient	95%		
Number of Bootstrap Operations	2000		
Arsenic (mg/kg)			
General Statistics			
Total Number of Observations	48	Number of Distinct Observations	33
		Number of Missing Observations	0
Minimum	1.7	Mean	6.004
Maximum	21	Median	4.95
SD	3.815	Std. Error of Mean	0.551
Coefficient of Variation	0.635	Skewness	2.221
Normal GOF Test			
Shapiro Wilk Test Statistic	0.761	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.251	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.128	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Assuming Normal Distribution			
95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	6.928	95% Adjusted-CLT UCL (Chen-1995)	7.098
		95% Modified-t UCL (Johnson-1978)	6.957
Gamma GOF Test			
A-D Test Statistic	1.707	**Anderson-Darling Gamma GOF Test**	
5% A-D Critical Value	0.755	Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.184	**Kolmogrov-Smirnoff Gamma GOF Test**	
5% K-S Critical Value	0.129	Data Not Gamma Distributed at 5% Significance Level	
Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	3.583	k star (bias corrected MLE)	3.373
Theta hat (MLE)	1.676	Theta star (bias corrected MLE)	1.78
nu hat (MLE)	344	nu star (bias corrected)	323.8
MLE Mean (bias corrected)	6.004	MLE Sd (bias corrected)	3.269
		Approximate Chi Square Value (0.05)	283.1
Adjusted Level of Significance	0.045	Adjusted Chi Square Value	281.9

UCL Statistics for Data Sets with Non-Detects			
Arsenic in Former Manufacturing Area (0 to 15 ft bgs)			
User Selected Options			
Date/Time of Computation	6/25/2015 2:06:50 PM		
From File	ProUCL input.xls.xls		
Full Precision	OFF		
Confidence Coefficient	95%		
Number of Bootstrap Operations	2000		
Arsenic (mg/kg)			
Assuming Gamma Distribution			
95% Approximate Gamma UCL (use when n>=50))	6.867	95% Adjusted Gamma UCL (use when n<50)	6.896
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.949	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.947	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.145	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.128	Data Not Lognormal at 5% Significance Level	
Data appear Approximate Lognormal at 5% Significance Level			
Lognormal Statistics			
Minimum of Logged Data	0.531	Mean of logged Data	1.646
Maximum of Logged Data	3.045	SD of logged Data	0.525
Assuming Lognormal Distribution			
95% H-UCL	6.889	90% Chebyshev (MVUE) UCL	7.357
95% Chebyshev (MVUE) UCL	8.001	97.5% Chebyshev (MVUE) UCL	8.895
99% Chebyshev (MVUE) UCL	10.65		
Nonparametric Distribution Free UCL Statistics			
Data appear to follow a Discernible Distribution at 5% Significance Level			
Nonparametric Distribution Free UCLs			
95% CLT UCL	6.91	95% Jackknife UCL	6.928
95% Standard Bootstrap UCL	6.906	95% Bootstrap-t UCL	7.212
95% Hall's Bootstrap UCL	7.422	95% Percentile Bootstrap UCL	6.927
95% BCA Bootstrap UCL	7.163		
90% Chebyshev(Mean, Sd) UCL	7.656	95% Chebyshev(Mean, Sd) UCL	8.404
97.5% Chebyshev(Mean, Sd) UCL	9.443	99% Chebyshev(Mean, Sd) UCL	11.48
Suggested UCL to Use			
95% Chebyshev (Mean, Sd) UCL	8.404		
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)			
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.			
For additional insight the user may want to consult a statistician.			

95 UCL Inputs for Benzo(a)pyrene
Former Manufacturing Area (0 to 15 ft bgs)

Location ID	Sample Date	Benzo(a)pyrene (BAP)	
		Sample Depth Interval	Unit
		(ft bgs)	(mg/kg)
IA-01	4/9/2012	3.5	0.04
IA-01	4/9/2012	11.5 - 12.0	0.039
IA-03	4/3/2012	11.5 - 12.0	0.041
IA-04	4/9/2012	5.0 - 5.5	0.07
IA-04	4/9/2012	9.5 - 10.0	0.038
IA-05	4/11/2012	2.5 - 3.0	0.037
IA-05	4/11/2012	4.0 - 5.0	0.038
IA-06	4/11/2012	2.5 - 3.5	0.63
IA-06	4/11/2012	6.5 - 7.0	0.0079
IA-07	4/3/2012	12.0 - 12.5	0.037
IA-08	4/3/2012	13.5 - 14.5	0.036
IA-09	4/3/2012	10.5 - 11.5	0.039
IA-10	4/3/2012	3.0 - 3.5	0.041
IA-10	4/3/2012	13.0 - 14.0	0.04
IA-11	4/3/2012	4.5 - 5.0	0.0078
IA-11	4/3/2012	9.0 - 9.5	0.04
IA-12	4/4/2012	6.5 - 7.0	0.0045
IA-12	4/4/2012	17.0 - 18.0	0.04
IA-13	4/3/2012	12.0 - 13.0	0.037
IA-14	4/4/2012	12.0 - 13.0	0.036
IA-15	4/2/2012	3.5 - 4.0	0.021
IA-15	4/2/2012	14.5 - 15.0	0.04
IA-16	4/2/2012	3.5 - 4.0	0.021
IA-16	4/2/2012	4.5 - 5.0	0.039
IA-17	4/3/2012	2.0 - 3.0	0.0097
IA-17	4/3/2012	11.0 -12.0	0.035
IA-18	4/2/2012	5.5 - 6.0	0.0046
IA-18	4/13/2012	12.5 - 13.0	0.035
IA-19	4/2/2012	4.5 - 5.0	0.038
IA-20	4/2/2012	2.0 - 2.5	0.037
IA-20	4/2/2012	13.0 - 13.5	0.039
IA-21	4/2/2012	14.5 - 15.0	0.036

UCL Statistics for Data Sets with Non-Detects

Benzo(a)pyrene in Former Manufacturing Area (0 to 15 ft bgs)

User Selected Options	
Date/Time of Computation	7/8/2015 10:19:25 PM
From File	ProUCL input.xls.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

BAP (mg/kg)

General Statistics

Total Number of Observations	32	Number of Distinct Observations	15
Number of Detects	10	Number of Non-Detects	22
Number of Distinct Detects	9	Number of Distinct Non-Detects	7
Minimum Detect	0.0045	Minimum Non-Detect	0.035
Maximum Detect	0.63	Maximum Non-Detect	0.041
Variance Detects	0.0376	Percent Non-Detects	68.75%
Mean Detects	0.0814	SD Detects	0.194
Median Detects	0.0154	CV Detects	2.383
Skewness Detects	3.1	Kurtosis Detects	9.7
Mean of Logged Detects	-3.926	SD of Logged Detects	1.51

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.447	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.842	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.423	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.28	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0336	Standard Error of Mean	0.0202
SD	0.108	95% KM (BCA) UCL	0.0752
95% KM (t) UCL	0.068	95% KM (Percentile Bootstrap) UCL	0.0725
95% KM (z) UCL	0.0669	95% KM Bootstrap t UCL	0.211
90% KM Chebyshev UCL	0.0944	95% KM Chebyshev UCL	0.122
97.5% KM Chebyshev UCL	0.16	99% KM Chebyshev UCL	0.235

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.291	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.785	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.289	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.282	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

UCL Statistics for Data Sets with Non-Detects			
Benzo(a)pyrene in Former Manufacturing Area (0 to 15 ft bgs)			
User Selected Options			
Date/Time of Computation	7/8/2015 10:19:25 PM		
From File	ProUCL input.xls.xls		
Full Precision	OFF		
Confidence Coefficient	95%		
Number of Bootstrap Operations	2000		
BAP (mg/kg)			
Gamma Statistics on Detected Data Only			
k hat (MLE)	0.455	k star (bias corrected MLE)	0.385
Theta hat (MLE)	0.179	Theta star (bias corrected MLE)	0.211
nu hat (MLE)	9.099	nu star (bias corrected)	7.702
MLE Mean (bias corrected)	0.0814	MLE Sd (bias corrected)	0.131
Gamma Kaplan-Meier (KM) Statistics			
k hat (KM)	0.0972	nu hat (KM)	6.221
Approximate Chi Square Value (6.22, α)	1.754	Adjusted Chi Square Value (6.22, β)	1.63
95% Gamma Approximate KM-UCL (use when n>=50)	0.119	95% Gamma Adjusted KM-UCL (use when n<50)	0.128
Gamma (KM) may not be used when k hat (KM) is < 0.1			
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detected data is small such as < 0.1			
For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.0045	Mean	0.038
Maximum	0.63	Median	0.01
SD	0.109	CV	2.885
k hat (MLE)	0.691	k star (bias corrected MLE)	0.647
Theta hat (MLE)	0.0549	Theta star (bias corrected MLE)	0.0587
nu hat (MLE)	44.22	nu star (bias corrected)	41.41
MLE Mean (bias corrected)	0.038	MLE Sd (bias corrected)	0.0472
		Adjusted Level of Significance (β)	0.0416
Approximate Chi Square Value (41.41, α)	27.66	Adjusted Chi Square Value (41.41, β)	27.06
95% Gamma Approximate UCL (use when n>=50)	0.0568	95% Gamma Adjusted UCL (use when n<50)	0.0581
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic	0.866	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.842	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.183	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.28	Detected Data appear Lognormal at 5% Significance Level	
Detected Data appear Lognormal at 5% Significance Level			

UCL Statistics for Data Sets with Non-Detects

Benzo(a)pyrene in Former Manufacturing Area (0 to 15 ft bgs)

User Selected Options	
Date/Time of Computation	7/8/2015 10:19:25 PM
From File	ProUCL input.xls.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

BAP (mg/kg)

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.0343	Mean in Log Scale	-4.367
SD in Original Scale	0.11	SD in Log Scale	1.038
95% t UCL (assumes normality of ROS data)	0.0671	95% Percentile Bootstrap UCL	0.0726
95% BCA Bootstrap UCL	0.093	95% Bootstrap t UCL	0.297
95% H-UCL (Log ROS)	0.0345		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-4.414	95% H-UCL (KM -Log)	0.0316
KM SD (logged)	1.014	95% Critical H Value (KM-Log)	2.447
KM Standard Error of Mean (logged)	0.266		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.0386	Mean in Log Scale	-3.948
SD in Original Scale	0.108	SD in Log Scale	0.815
95% t UCL (Assumes normality)	0.0711	95% H-Stat UCL	0.0372

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	0.122

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

95 UCL Inputs for Arsenic
Non-Residential Area (0 to 2 ft bgs)

Location ID	Sample Date	Arsenic	
		Sample Depth Interval (ft bgs)	Unit (mg/kg)
AR-07	6/18/2013	1.5 -2	51
AR-08	6/18/2013	1.5 -2	48
AR-09	6/18/2013	1.5 -2	36
AR-10	6/19/2013	1.5 -2	26
AR-14	6/18/2013	1.5 -2	4.1
AR-15	6/18/2013	1.5 -2	31
AR-16	6/18/2013	1.5 -2	110
AR-20	9/24/2013	0.5 -1	20
AR-21	9/24/2013	1 -1.5	51
AR-22	9/24/2013	1.5 -2	27
AR-23	9/23/2013	1.5 -2	18
AR-24	9/23/2013	1.5 -2	17
AR-25	9/23/2013	1 -1.5	20
AR-26	9/23/2013	1 -1.5	25
AR-27	9/24/2013	1.5 -2	29
AR-31	9/24/2013	1.5 -2	5
AR-43	9/23/2013	1.5 -2	6.3
AR-45	9/24/2013	1.5 -2	7
AR-47	5/19/2014	1.5 -2	5.8
AR-50	5/19/2014	1.5 -2	12
AR-51	5/19/2014	1.5 -2	13
AR-52	5/20/2014	1.5 - 2	11
AR-53	5/21/2014	1.5 - 2	15
AR-54	5/20/2014	1.5 -2	26
AR-54A	5/20/2014	1.5 -2	3
AR-55	5/20/2014	1.5 -2	22
AR-57	5/20/2014	1.5 -2	3.8
AR-60	5/20/2014	1.5 -2	6.6
AR-63	5/20/2014	1.5 -2	8.9
AR-66	5/20/2014	1.5 -2	11
AR-69	5/20/2014	1.5 -2	7.8
AR-72	5/20/2014	1.5 -2	7.2
AR-75	5/20/2014	1.5 -2	8.7
AR-78	5/21/2014	1.5 -2	8.7
AR-81	5/20/2014	1.5 -2	10
AR-84	5/20/2014	1.5 -2	7.55
AR-87	5/20/2014	1.5 -2	8.3
AR-90	5/20/2014	1.5 -2	19
AR-91	5/20/2014	1.5 -2	4
AR-93	5/20/2014	1.5 - 2.0	19
AR-94	5/21/2014	1.5 - 2.0	7.8
OU-01	6/19/2013	0 - 0.5	110
OU-02	6/19/2013	0 - 0.5	31
OU-03	6/19/2013	0 - 0.5	40
OU-04	6/19/2013	0 - 0.5	10
AR-111	4/22/2015	1.5 - 2	150
AR-112	4/22/2015	1.5 - 2	260
AR-120	4/22/2015	1.5 - 2	25
AR-121	4/22/2015	1.5 - 2	41
AR-122	4/22/2015	1.5 - 2	17
AR-123	4/22/2015	1.5 - 2	31

95 UCL Inputs for Arsenic
Non-Residential Area (0 to 2 ft bgs)

Location ID	Sample Date	Arsenic	
		Sample Depth Interval	Unit
		(ft bgs)	(mg/kg)
AR-124	4/22/2015	1.5 - 2	48
AR-125	4/22/2015	1.5 - 2	36
AR-126	4/22/2015	1.5 - 2	40
AR-127	4/22/2015	1.5 - 2	56
AR-128	4/22/2015	1.5 - 2	24
AR-129	4/22/2015	1.5 - 2	18
AR-130	4/22/2015	1.5 - 2	22
AR-131	4/22/2015	1.5 - 2	25

UCL Statistics for Data Sets with Non-Detects

Arsenic in Non-Residential Area (0 to 2 ft bgs)

User Selected Options	
Date/Time of Computation	6/25/2015 6:05:01 PM
From File	ProUCL input.xls.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Arsenic (mg/kg)

General Statistics

Total Number of Observations	62	Number of Distinct Observations	41
Number of Detects	61	Number of Non-Detects	1
Number of Distinct Detects	40	Number of Distinct Non-Detects	1
Minimum Detect	3	Minimum Non-Detect	5
Maximum Detect	260	Maximum Non-Detect	5
Variance Detects	1609	Percent Non-Detects	1.613%
Mean Detects	30.22	SD Detects	40.11
Median Detects	19	CV Detects	1.327
Skewness Detects	3.913	Kurtosis Detects	18.79
Mean of Logged Detects	2.944	SD of Logged Detects	0.922

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.587	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.249	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.113	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	29.79	Standard Error of Mean	5.07
SD	39.6	95% KM (BCA) UCL	39.71
95% KM (t) UCL	38.26	95% KM (Percentile Bootstrap) UCL	38.95
95% KM (z) UCL	38.13	95% KM Bootstrap t UCL	44
90% KM Chebyshev UCL	45.01	95% KM Chebyshev UCL	51.9
97.5% KM Chebyshev UCL	61.46	99% KM Chebyshev UCL	80.25

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.456	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.775	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.124	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.117	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

UCL Statistics for Data Sets with Non-Detects

Arsenic in Non-Residential Area (0 to 2 ft bgs)

User Selected Options	
Date/Time of Computation	6/25/2015 6:05:01 PM
From File	ProUCL input.xls.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Arsenic (mg/kg)

Gamma Statistics on Detected Data Only

k hat (MLE)	1.216	k star (bias corrected MLE)	1.167
Theta hat (MLE)	24.85	Theta star (bias corrected MLE)	25.89
nu hat (MLE)	148.4	nu star (bias corrected)	142.4
MLE Mean (bias corrected)	30.22	MLE Sd (bias corrected)	27.97

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.566	nu hat (KM)	70.21
Approximate Chi Square Value (70.21, α)	51.92	Adjusted Chi Square Value (70.21, β)	51.55
95% Gamma Approximate KM-UCL (use when n>=50)	40.29	95% Gamma Adjusted KM-UCL (use when n<50)	40.58

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	29.73
Maximum	260	Median	19
SD	39.96	CV	1.344
k hat (MLE)	1.011	k star (bias corrected MLE)	0.973
Theta hat (MLE)	29.4	Theta star (bias corrected MLE)	30.55
nu hat (MLE)	125.4	nu star (bias corrected)	120.7
MLE Mean (bias corrected)	29.73	MLE Sd (bias corrected)	30.14
		Adjusted Level of Significance (β)	0.0461
Approximate Chi Square Value (120.67, α)	96.31	Adjusted Chi Square Value (120.67, β)	95.79
95% Gamma Approximate UCL (use when n>=50)	37.26	95% Gamma Adjusted UCL (use when n<50)	37.46

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.0675	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.113	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

UCL Statistics for Data Sets with Non-Detects

Arsenic in Non-Residential Area (0 to 2 ft bgs)

User Selected Options	
Date/Time of Computation	6/25/2015 6:05:01 PM
From File	ProUCL input.xls.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Arsenic (mg/kg)

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	29.79	Mean in Log Scale	2.916
SD in Original Scale	39.92	SD in Log Scale	0.94
95% t UCL (assumes normality of ROS data)	38.26	95% Percentile Bootstrap UCL	38.04
95% BCA Bootstrap UCL	41.4	95% Bootstrap t UCL	44.83
95% H-UCL (Log ROS)	37.49		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	2.918	95% H-UCL (KM -Log)	37.06
KM SD (logged)	0.93	95% Critical H Value (KM-Log)	2.204
KM Standard Error of Mean (logged)	0.119		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	29.78	Mean in Log Scale	2.911
SD in Original Scale	39.93	SD in Log Scale	0.95
95% t UCL (Assumes normality)	38.25	95% H-Stat UCL	37.79

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	51.9

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

95 UCL Inputs for Arsenic
Non-Residential Area (2 to 15 ft bgs)

Location ID	Sample Date	Arsenic	
		Sample Depth Interval	Unit
		(ft bgs)	(mg/kg)
A6-02	4/4/2012	1.5 - 2.5	58
A6-02	4/4/2012	4.0 - 4.5	29
A6-04	4/13/2012	4.0 - 4.5	15
AR-07	6/18/2013	5 -5.5	27
AR-08	6/18/2013	5	30
AR-09	6/18/2013	5 - 5.5	39
AR-10	6/19/2013	3.5 -4	25
AR-15	6/18/2013	4.5 -5	17
AR-16	6/18/2013	5 -5.5	9.2

UCL Statistics for Data Sets with Non-Detects

Arsenic in Non-Residential Area (2 to 15 ft bgs)

User Selected Options	
Date/Time of Computation	6/25/2015 2:00:18 PM
From File	ProUCL input.xls_c.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Arsenic (mg/kg)

General Statistics

Total Number of Observations	9	Number of Distinct Observations	9
		Number of Missing Observations	0
Minimum	9.2	Mean	27.69
Maximum	58	Median	27
SD	14.49	Std. Error of Mean	4.828
Coefficient of Variation	0.523	Skewness	1.042

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest. For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012). Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test

Shapiro Wilk Test Statistic	0.928	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.829	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.214	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.295	Data appear Normal at 5% Significance Level	

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	36.67	95% Adjusted-CLT UCL (Chen-1995)	37.42
		95% Modified-t UCL (Johnson-1978)	36.95

UCL Statistics for Data Sets with Non-Detects

Arsenic in Non-Residential Area (2 to 15 ft bgs)

User Selected Options	
Date/Time of Computation	6/25/2015 2:00:18 PM
From File	ProUCL input.xls_c.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Arsenic (mg/kg)

Gamma GOF Test

A-D Test Statistic	0.205	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.725	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.151	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.28	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.172	k star (bias corrected MLE)	2.855
Theta hat (MLE)	6.638	Theta star (bias corrected MLE)	9.698
nu hat (MLE)	75.09	nu star (bias corrected)	51.39
MLE Mean (bias corrected)	27.69	MLE Sd (bias corrected)	16.39
		Approximate Chi Square Value (0.05)	35.93
Adjusted Level of Significance	0.0231	Adjusted Chi Square Value	33.22

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	39.61	95% Adjusted Gamma UCL (use when n<50)	42.83

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.975	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.829	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.183	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.295	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	2.219	Mean of logged Data	3.196
Maximum of Logged Data	4.06	SD of logged Data	0.544

UCL Statistics for Data Sets with Non-Detects

Arsenic in Non-Residential Area (2 to 15 ft bgs)

User Selected Options	
Date/Time of Computation	6/25/2015 2:00:18 PM
From File	ProUCL input.xls_c.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Arsenic (mg/kg)

Assuming Lognormal Distribution

95% H-UCL	44.2	90% Chebyshev (MVUE) UCL	43.25
95% Chebyshev (MVUE) UCL	50.23	97.5% Chebyshev (MVUE) UCL	59.91
99% Chebyshev (MVUE) UCL	78.94		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	35.63	95% Jackknife UCL	36.67
95% Standard Bootstrap UCL	35.3	95% Bootstrap-t UCL	39.82
95% Hall's Bootstrap UCL	53.29	95% Percentile Bootstrap UCL	35.91
95% BCA Bootstrap UCL	36.78		
90% Chebyshev(Mean, Sd) UCL	42.17	95% Chebyshev(Mean, Sd) UCL	48.74
97.5% Chebyshev(Mean, Sd) UCL	57.84	99% Chebyshev(Mean, Sd) UCL	75.73

Suggested UCL to Use

95% Student's-t UCL	36.67

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.

For additional insight the user may want to consult a statistician.

95 UCL Inputs for Arsenic
Non-Residential Area (0 to 15 ft bgs)

Location ID	Sample Date	Arsenic	
		Sample Depth Interval (ft bgs)	Unit (mg/kg)
A6-02	4/4/2012	1.5 - 2.5	58
A6-02	4/4/2012	4.0 - 4.5	29
A6-04	4/13/2012	1.5 - 2.0	11
A6-04	4/13/2012	4.0 - 4.5	15
AR-06	6/18/2013	1.5 -2	18
AR-07	6/18/2013	1.5 -2	51
AR-07	6/18/2013	5 -5.5	27
AR-08	6/18/2013	1.5 -2	48
AR-08	6/18/2013	5	30
AR-09	6/18/2013	1.5 -2	36
AR-09	6/18/2013	5 - 5.5	39
AR-10	6/19/2013	1.5 -2	26
AR-10	6/19/2013	3.5 -4	25
AR-14	6/18/2013	1.5 -2	4.1
AR-15	6/18/2013	1.5 -2	31
AR-15	6/18/2013	4.5 -5	17
AR-16	6/18/2013	1.5 -2	110
AR-16	6/18/2013	5 -5.5	9.2
AR-20	9/24/2013	0.5 -1	20
AR-21	9/24/2013	1 -1.5	51
AR-22	9/24/2013	1.5 -2	27
AR-23	9/23/2013	1.5 -2	18
AR-24	9/23/2013	1.5 -2	17
AR-25	9/23/2013	1 -1.5	20
AR-26	9/23/2013	1 -1.5	25
AR-27	9/24/2013	1.5 -2	29
AR-31	9/24/2013	1.5 -2	5
AR-43	9/23/2013	1.5 -2	6.3
AR-45	9/24/2013	1.5 -2	7
AR-47	5/19/2014	1.5 -2	5.8
AR-50	5/19/2014	1.5 -2	12
AR-51	5/19/2014	1.5 -2	13
AR-52	5/20/2014	1.5 - 2	11
AR-53	5/21/2014	1.5 - 2	15
AR-54	5/20/2014	1.5 -2	26
AR-54A	5/20/2014	1.5 -2	3
AR-55	5/20/2014	1.5 -2	22
AR-57	5/20/2014	1.5 -2	3.8
AR-60	5/20/2014	1.5 -2	6.6
AR-63	5/20/2014	1.5 -2	8.9
AR-66	5/20/2014	1.5 -2	11
AR-69	5/20/2014	1.5 -2	7.8

95 UCL Inputs for Arsenic
Non-Residential Area (0 to 15 ft bgs)

Location ID	Sample Date	Arsenic	
		Sample Depth Interval	Unit
		(ft bgs)	(mg/kg)
AR-72	5/20/2014	1.5 -2	7.2
AR-75	5/20/2014	1.5 -2	8.7
AR-78	5/21/2014	1.5 -2	8.7
AR-81	5/20/2014	1.5 -2	10
AR-84	5/20/2014	1.5 -2	7.55
AR-87	5/20/2014	1.5 -2	8.3
OU-01	6/19/2013	0 - 0.5	110
OU-02	6/19/2013	0 - 0.5	31
OU-03	6/19/2013	0 - 0.5	40
OU-04	6/19/2013	0 - 0.5	10
AR-111	4/22/2015	1.5 - 2	150
AR-112	4/22/2015	1.5 - 2	260
AR-120	4/22/2015	1.5 - 2	25
AR-121	4/22/2015	1.5 - 2	41
AR-122	4/22/2015	1.5 - 2	17
AR-123	4/22/2015	1.5 - 2	31
AR-124	4/22/2015	1.5 - 2	48
AR-125	4/22/2015	1.5 - 2	36
AR-126	4/22/2015	1.5 - 2	40
AR-127	4/22/2015	1.5 - 2	56
AR-128	4/22/2015	1.5 - 2	24
AR-129	4/22/2015	1.5 - 2	18
AR-130	4/22/2015	1.5 - 2	22
AR-131	4/22/2015	1.5 - 2	25

UCL Statistics for Data Sets with Non-Detects

Arsenic in Non-Residential Area (0 to 15 ft bgs)

User Selected Options	
Date/Time of Computation	6/25/2015 2:06:05 PM
From File	ProUCL input.xls_a.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Arsenic (mg/kg)

General Statistics

Total Number of Observations	66	Number of Distinct Observations	42
Number of Detects	65	Number of Non-Detects	1
Number of Distinct Detects	41	Number of Distinct Non-Detects	1
Minimum Detect	3	Minimum Non-Detect	5
Maximum Detect	260	Maximum Non-Detect	5
Variance Detects	1501	Percent Non-Detects	1.515%
Mean Detects	30.54	SD Detects	38.74
Median Detects	22	CV Detects	1.268
Skewness Detects	4.044	Kurtosis Detects	20.2
Mean of Logged Detects	3	SD of Logged Detects	0.877

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.586	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.249	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.11	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	30.13	Standard Error of Mean	4.749
SD	38.29	95% KM (BCA) UCL	38.92
95% KM (t) UCL	38.06	95% KM (Percentile Bootstrap) UCL	39.23
95% KM (z) UCL	37.94	95% KM Bootstrap t UCL	44.03
90% KM Chebyshev UCL	44.38	95% KM Chebyshev UCL	50.83
97.5% KM Chebyshev UCL	59.79	99% KM Chebyshev UCL	77.39

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.447	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.773	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.133	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.113	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

UCL Statistics for Data Sets with Non-Detects

Arsenic in Non-Residential Area (0 to 15 ft bgs)

User Selected Options	
Date/Time of Computation	6/25/2015 2:06:05 PM
From File	ProUCL input.xls_a.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Arsenic (mg/kg)

Gamma Statistics on Detected Data Only

k hat (MLE)	1.334	k star (bias corrected MLE)	1.283
Theta hat (MLE)	22.89	Theta star (bias corrected MLE)	23.81
nu hat (MLE)	173.4	nu star (bias corrected)	166.8
MLE Mean (bias corrected)	30.54	MLE Sd (bias corrected)	26.96

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.619	nu hat (KM)	81.75
Approximate Chi Square Value (81.75, α)	61.91	Adjusted Chi Square Value (81.75, β)	61.53
95% Gamma Approximate KM-UCL (use when n>=50)	39.78	95% Gamma Adjusted KM-UCL (use when n<50)	40.03

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	30.08
Maximum	260	Median	21
SD	38.62	CV	1.284
k hat (MLE)	1.099	k star (bias corrected MLE)	1.059
Theta hat (MLE)	27.36	Theta star (bias corrected MLE)	28.39
nu hat (MLE)	145.1	nu star (bias corrected)	139.9
MLE Mean (bias corrected)	30.08	MLE Sd (bias corrected)	29.22
		Adjusted Level of Significance (β)	0.0464
Approximate Chi Square Value (139.85, α)	113.5	Adjusted Chi Square Value (139.85, β)	113
95% Gamma Approximate UCL (use when n>=50)	37.05	95% Gamma Adjusted UCL (use when n<50)	37.22

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.064	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.11	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

UCL Statistics for Data Sets with Non-Detects

Arsenic in Non-Residential Area (0 to 15 ft bgs)

User Selected Options	
Date/Time of Computation	6/25/2015 2:06:05 PM
From File	ProUCL input.xls_a.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Arsenic (mg/kg)

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	30.13	Mean in Log Scale	2.973
SD in Original Scale	38.58	SD in Log Scale	0.897
95% t UCL (assumes normality of ROS data)	38.05	95% Percentile Bootstrap UCL	38.67
95% BCA Bootstrap UCL	42.08	95% Bootstrap t UCL	42.71
95% H-UCL (Log ROS)	37.27		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	2.973	95% H-UCL (KM -Log)	36.93
KM SD (logged)	0.889	95% Critical H Value (KM-Log)	2.178
KM Standard Error of Mean (logged)	0.11		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	30.11	Mean in Log Scale	2.968
SD in Original Scale	38.59	SD in Log Scale	0.907
95% t UCL (Assumes normality)	38.04	95% H-Stat UCL	37.59

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	50.83

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

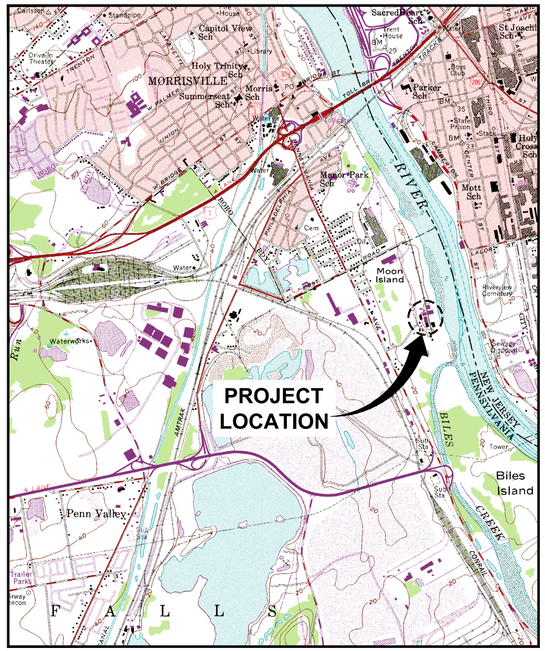
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Appendix G

Design Drawings

M



REFERENCE: BASE MAP USGS 7.5 MINUTE □UADRANGLE., TRENTON WEST, NJ, 1955, PHOTOREVISED 1981

LOCATION MAP

0 2000□ 4000□

GRAPHIC SCALE

PENNSYLVANIA

DATE ISSUED

JUNE 2015

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MORRISVILLE, PENNSYLVANIA

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1 GENERAL NOTES AND LEGEND

2 EXISTING SITE PLAN

3 PROPOSED SOIL COVER PLAN

4 CROSS SECTIONS

5 CROSS SECTIONS AND DETAILS

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LEGEND:

PROPOSED 1' THICK SOIL COVER

PROPOSED PERMEABLE LINER WITH 1' THICK SOIL COVER

3/4 SECTION NUMBER / DRAWING NUMBER

14 EXISTING CONTOUR

EXISTING PROPERTY BOUNDARY

SOURCE:

1. BASE MAP SOURCE UNKNOWN. ALL LOCATIONS APPROXIMATE.

GENERAL NOTES:

1. SCALES ARE AS INDICATED ON EACH DRAWING.
2. THE GENERAL NOTES AND LEGEND PROVIDED ON THIS SHEET APPLY TO ALL DRAWINGS, UNLESS OTHERWISE INDICATED.
3. CONTOUR INTERVAL IS 1 FOOT, UNLESS OTHERWISE INDICATED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING SURVEY CONTROL TO VERIFY EXISTING SITE GRADES AND CONDITIONS. THE OWNER WILL PROVIDE THE CONTRACTOR WITH SURVEY CONDITIONS AND COPIES OF ALL DRAWINGS IN ELECTRONIC FORMAT.
5. SITE CONDITIONS MAY HAVE BEEN ALTERED SINCE DEVELOPMENT OF THE EXISTING TOPOGRAPHIC CONDITIONS; ALL EXISTING DIMENSIONS, CONTOUR LINES AND FIELD CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO START OF ANY CONSTRUCTION. DIFFERENCES NOTED BY THE CONTRACTOR BETWEEN BASE MAP INFORMATION AND ACTUAL SITE CONDITIONS SHALL BE SUBMITTED TO THE FIELD CM/ENGINEER.
6. CONTRACTOR SHALL NOTIFY PENNSYLVANIA ONE CALL, DIG SAFE (811) AT LEAST 3 DAYS PRIOR TO COMMENCEMENT OF WORK TO VERIFY UTILITY LOCATIONS AND PERFORM A MARKOUT SURVEY. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND VERIFYING THE LOCATION OF ALL SITE UTILITIES.
7. BENCHMARKS, MONUMENTS, BUILDINGS, METHANE WELLS OR OTHER STRUCTURES, SHALL BE PROTECTED AT ALL TIMES AND SHALL NOT BE DISTURBED BY CONSTRUCTION ACTIVITIES. ANY REPAIR OR REPLACEMENT OF STRUCTURES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
8. THE CONTRACTOR SHALL RESTORE TO PRECONSTRUCTION CONDITIONS ALL SITE AND NON-SITE AREAS THAT ARE DISTURBED BY CONSTRUCTION ACTIVITIES PER PROJECT SPECIFICATIONS.
9. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE SAFETY OF, AND SHALL PROVIDE THE NECESSARY PRECAUTION TO PREVENT DAMAGE, INJURY, OR LOSS TO, SITE WORKERS, CONSTRUCTION OVERSIGHT PERSONNEL, AND SITE VISITORS.
10. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS, AND ORDERS OF PUBLIC BODIES HAVING JURISDICTION FOR THE SAFETY OF PERSONS OR PROPERTY OR TO PROTECT THEM FROM DAMAGE, INJURY, OR LOSS, INCLUDING, WITHOUT LIMITATION, THE DEPARTMENT OF LABOR SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION PROMULGATED UNDER THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 (PL 91-596) AND UNDER SECTION 107 OF THE CONTRACT WORK HOURS AND SAFETY STANDARDS ACT (PL 91-54) AND AMENDMENTS THERETO. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS SET FORTH UNDER 29 CFR 1910, AND 29 CFR 1926. THE CONTRACTOR SHALL ERECT AND MAINTAIN, AS REQUIRED BY THE CONDITIONS AND THE PROGRESS OF THE WORK, ALL NECESSARY SAFEGUARDS FOR THE SAFETY AND PROTECTION OF PERSONS AND PROPERTY AND SHALL COMPLY WITH ALL APPLICABLE RECOMMENDATIONS OF THE MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION OF THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA INC.
11. THE CONTRACTOR SHALL FURNISH AND PLACE PROPER GUARDS FOR PREVENTION OF ACCIDENTS, PROVIDE ALL TRENCH SHORING, SCAFFOLDING, SHIELDING, DUST/FUME PROTECTION, MECHANICAL/ELECTRICAL PROTECTION, SPECIAL GROUNDING, SAFETY RAILINGS, BARRIERS, OR OTHER SAFETY FEATURES REQUIRED.
12. THE CONTRACTOR SHALL VERIFY THE PRESENCE AND LOCATION OF ABOVEGROUND AND UNDERGROUND SITE FEATURES (INCLUDING EXISTING UTILITIES) RELEVANT TO AND POTENTIALLY TO BE ENCOUNTERED DURING PERFORMANCE OF THIS PROJECT. ADDITIONAL SITE FEATURES/UTILITIES MAY BE PRESENT THAT ARE NOT SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL HAND DIG AND/OR AIR KNIFE IN THE VICINITY OF THESE SITE FEATURES TO VISUALLY LOCATE PRIOR TO EXCAVATION.
13. THE CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES REGARDING UTILITIES THAT THE PROJECT MAY AFFECT.
14. WORK SHALL BE PERFORMED WITHIN THE PROJECT WORK LIMITS. WORK NECESSARY TO BE PERFORMED OUTSIDE THE PROJECT WORK LIMITS, SHALL BE APPROVED BY THE CM/ENGINEER PRIOR TO THE COMMENCEMENT OF SUCH WORK.
15. THE CONTRACTOR SHALL COORDINATE NECESSARY TRAFFIC CONTROLS WITHIN THE PROJECT WORK LIMITS AND OBTAIN NECESSARY PERMITS THAT MAY BE REQUIRED IN CONJUNCTION WITH VEHICLE USE ON FACILITY ROADS. FLAGGERS SHALL BE USED FOR WASTE AND EQUIPMENT SHIPMENTS LEAVING THE SITE.

SCALE(S) AS INDICATED

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D... S...g... d
Pr... Mgr.
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1

SOUTH PENNSYLVANIA AVENUE

SEE DRAWING 3 FOR PROPOSED WORK IN THIS AREA

AREA 6

AREA 5

AREA 10
STORMWATER
DETENTION
FEATURE

EXISTING OFFICE BUILDING

FORMER STRUCTURE (TYP.)

DELAWARE RIVER

NOTE:

1. BASE MAP SOURCE UNKNOWN. ALL LOCATIONS APPROXIMATE.

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100′ 0 100′ 200′
1"=100′

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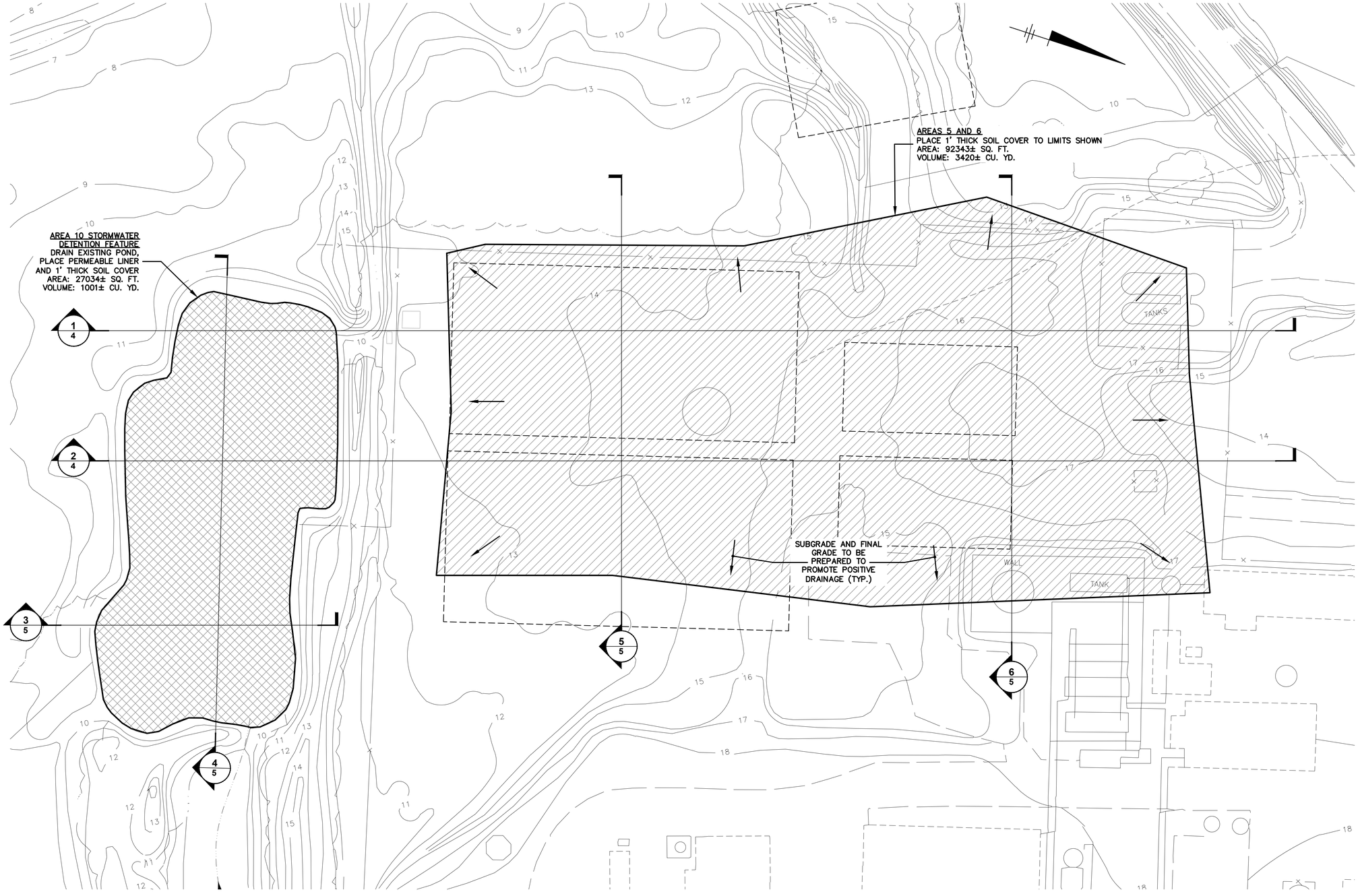

LEGEND:

PROPOSED 1' THICK SOIL COVER

PROPOSED PERMEABLE LINER WITH 1' THICK SOIL COVER

PROPOSED RUNOFF FLOW DIRECTION

NOTE:

1. BASE MAP SOURCE UNKNOWN. ALL LOCATIONS APPROXIMATE.

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1"=30' 30' 0 30' 60'

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PROPOSED SOIL COVER PLAN

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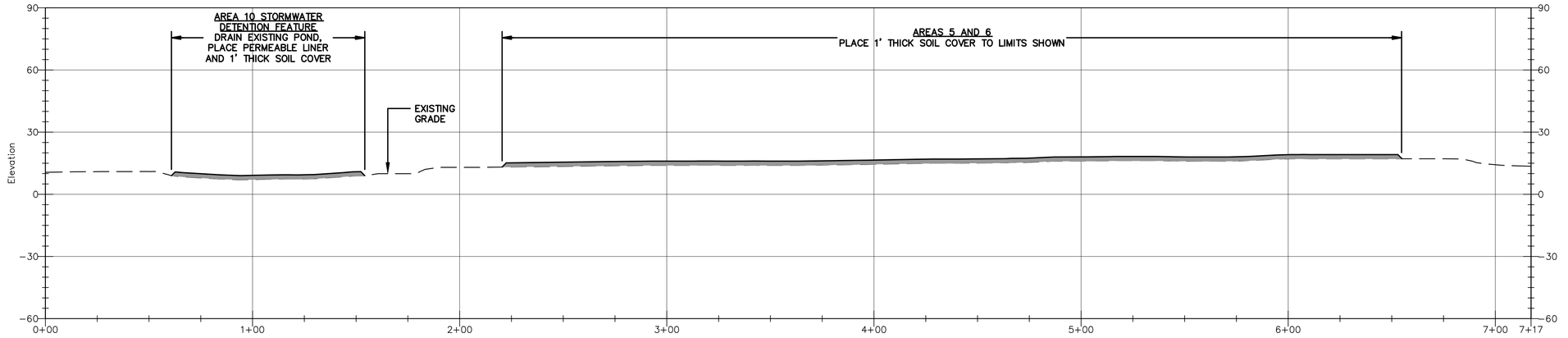

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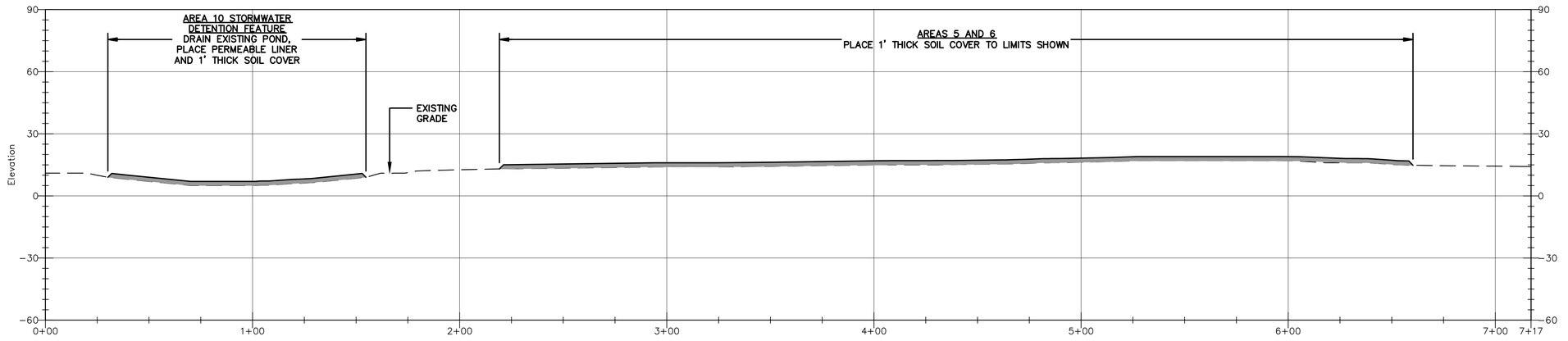

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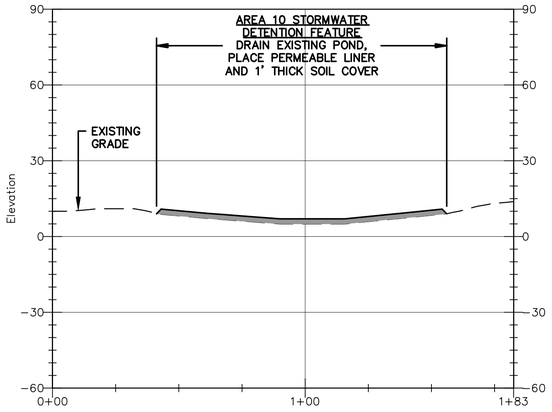

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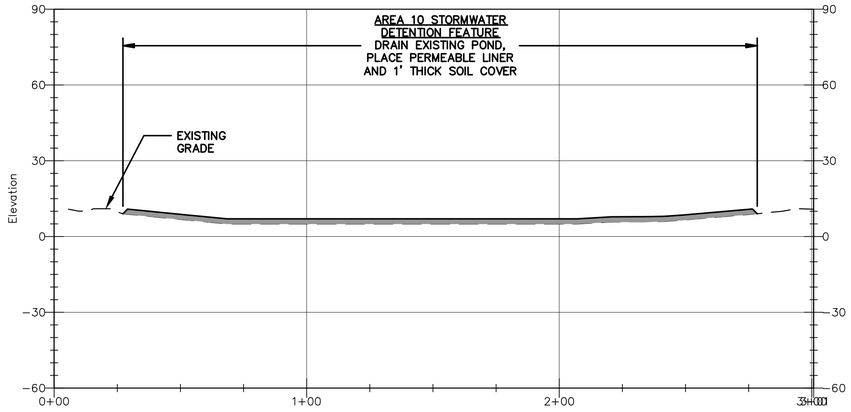

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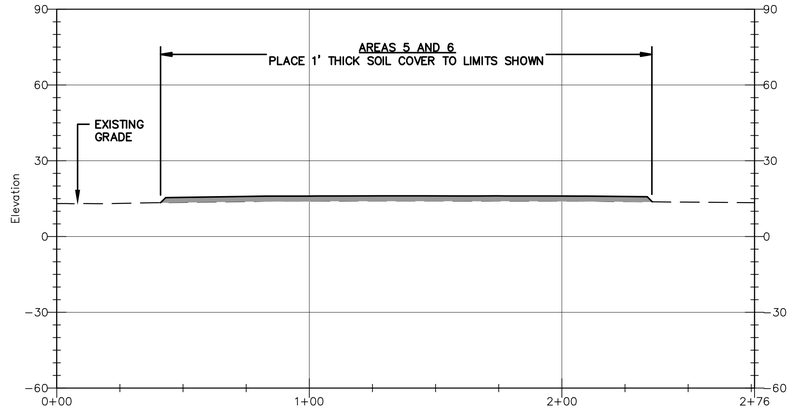

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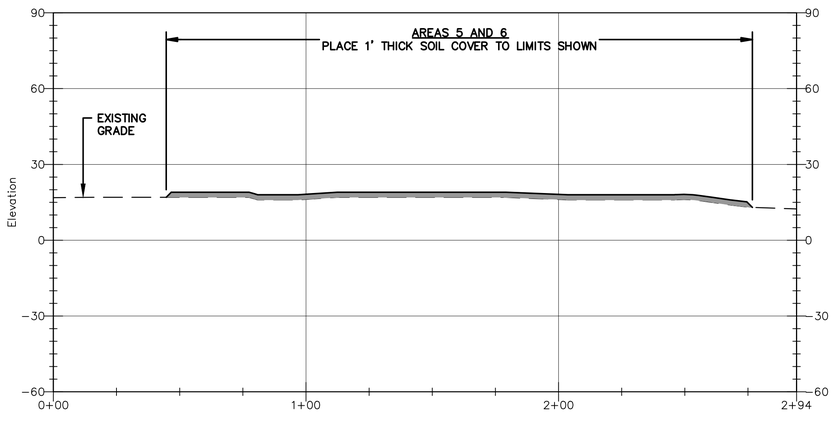

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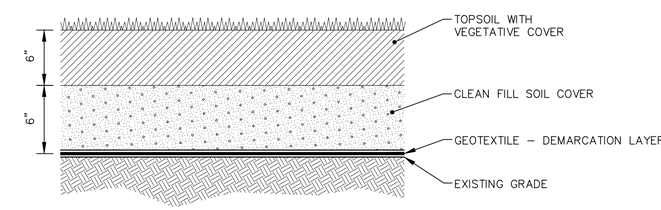

COVER SYSTEM 7

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S. PA | D. S. g. d. | Pr. Mgr.
D. g. d. | Dr. w. GS | C. d.

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Appendix H

Construction QAQC Plan

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Infrastructure · Water · Environment · Buildings

Solvay, Inc.

Construction Quality Assurance/Quality Control Plan

Morrisville, Pennsylvania Facility
USEPA ID No. PAD002336410

July 2015

Construction Quality Assurance/Quality Control Plan

Morrisville, Pennsylvania Facility
USEPA ID No. PAD002336410

Prepared for:
Solvay, Inc.

Prepared by:
ARCADIS U.S., Inc.
10 Friends Lane
Newtown
Pennsylvania 18940
Tel 267.685.1800
Fax 267.685.1801

Our Ref.:
NP000448.0002

Date:
July 2015

ARCADIS

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1. Introduction

1.1 Purpose

This *Construction Quality Assurance/Quality Control Plan* (Construction QA/QC Plan) has been prepared by ARCADIS to support implementation of the remedial action at the Morrisville PA Facility (Site), located in Morrisville, Pennsylvania. This Construction QA/QC Plan describes the materials, procedures, and testing necessary for proper construction, evaluation, and documentation during implementation of the remedial action identified in the Cleanup Plan (CP).

1.2 Definitions and Terms

The following terms and abbreviations are used throughout this Construction QA/QC Plan. The definition of each term or abbreviation is consistent throughout this plan.

ASTM – American Society for Testing and Materials.

Contractor – The person or persons designated by the Client to perform the remedial activities.

Cleanup Plan – Documents included as part of the CP include the Design Drawings and Construction QA/QC Plan.

CQA – Construction quality assurance.

CQC – Construction quality control.

Engineer – The person or persons responsible for the design aspects of the project. The Engineer's duties include reviewing modifications to the CP. In addition, the Engineer will be responsible for the QA/QC aspects of the project. Duties will include CQA testing (as necessary), determination of work limits, and measurement of work for payment and final acceptance.

E&S Controls – erosion and sediment controls.

Manufacturer – The person or persons designated by the Contractor to provide construction materials.

M&P Specifications – material and performance specifications.

PADEP – Pennsylvania Department of Environmental Protection.

1.3 Construction QA/QC Plan Organization

The Construction QA/QC Plan is organized as follows:

Section	Purpose
Section 1 – Introduction	Presents the purpose and contents of the Construction QA/QC Plan and definition of terms used throughout the Construction QA/QC Plan.
Section 2 – Required Personnel and Qualifications	Presents a description of personnel qualifications for proper implementation of Construction QA/QC Plan procedures.
Section 3 – Documentation Requirements	Presents a description of proper communication and documentation of work activities.
Section 4 – Pre-Construction Activities/Mobilization	Presents a description of CQA/CQC requirements for pre-construction activities/mobilization (including installation of the storm water diversion system).
Section 5 – Site Preparation	Presents a description of CQA/CQC requirements for Site preparation activities (including installation of E&S controls and access roads).
Section 6 – Installation of Clean Fill Soil Cover	Presents a description of CQA/CQC requirements during installation of clean fill soil cover.
Section 7 – Installation of Liner and Soil Cover on Permitted Storm Water Feature	Presents a description of CQA/CQC requirements during draining and installation of the new liner and soil cover on permitted storm water feature.
Section 8 – Excavation	Presents a description of CQA/CQC requirements during the excavation activities.
Section 9 – Site Restoration/ Demobilization	Presents a description of CQA/CQC requirements for Site restoration/demobilization.

2. Required Personnel and Qualifications

2.1 CQA Management Organization

As part of the engineering services performed during the remedial activities, the Engineer will be responsible for observing and documenting the activities outlined in the CP.

In general, observation, testing, and/or documentation of construction materials installation and associated procedures will be performed by a person or persons familiar with contemporary construction procedures and materials. The project personnel will be under the direct supervision of a Professional Engineer licensed in the State of Pennsylvania. The CQA Personnel will be familiar with the use of equipment and methodology needed to test soil and other materials. When necessary, the CQA Personnel will provide proof that field personnel are appropriately trained and/or certified for the use of applicable testing equipment.

Specific qualifications for personnel affiliated with the Engineer and with daily project involvement are as follows:

Project Manager – The Project Manager will have experience in a position of significant responsibility for construction projects similar in magnitude and complexity to the project being undertaken. The Project Manager must be knowledgeable of the project requirements and objectives and must be familiar with the CP.

The Project Manager will have the following responsibilities during the implementation of the procedures in the Construction QA/QC Plan:

- Attend the pre-construction Site meeting.
- Maintain responsibility for the implementation of the procedures in the Construction QA/QC Plan.
- Provide the appropriate technical review (i.e., by qualified representatives of the Engineer) of the CP, modifications to the CP, and construction reports (as necessary).
- Maintain contact with the Client, the Engineer, Contractor, and subcontractors regarding conformance with the requirements in this plan.
- Provide overall coordination of the remedial activities.

- Provide assistance in the review and interpretation of field testing results.
- Provide assistance in the review of drawings and other submittals from the Contractor.
- Perform periodic Site visits to review the progress of the remedial activities.
- Review the installed portion of work to permit further construction.
- Identify noted deficiencies during remedial construction activities (based on QC testing results) so corrective actions can be taken.
- Review weekly construction summary reports prior to submittal to the Client, and
- Prepare the Engineering Certification Report.

CQA Engineer – The CQA Engineer must demonstrate knowledge of construction and applicable test methods through a combination of formal education, training, and experience. If qualified, the Project Manager may also fill this role.

The CQA Engineer will have the following responsibilities in the implementation of the procedures in the Construction QA/QC Plan:

- Oversee and coordinate applicable QA/QC testing.
- Attend the pre-construction Site meeting.
- Record onsite activities that could run counter to the CP and report these activities to the Contractor and Project Manager.
- Review construction reports with the CQA Observer(s).
- Prepare weekly project status reports.
- Serve as the daily contact person for CQA personnel.
- Maintain routine contact with the Client and the Contractor regarding conformance with QC requirements.
- Review drawings and other submittals from the Contractor.

- Determine Site areas that may require rework and/or repair (if any).

- Coordinate the activities of the CQA Observer(s) to establish proper field testing procedures, and

- Perform regular Site walk-throughs to review progress and QA/QC procedures.

CQA Observer(s) – The CQA Observer(s) who also may serve as the CQA Engineer and will be employed during the construction phase must demonstrate knowledge of construction and applicable test methods through a combination of formal education, training, and experience.

The CQA Observer(s) will have the following responsibilities in the implementation of the procedures in the Construction QA/QC Plan:

- Perform and document field activities for QA/QC testing, as required.

- Observe construction materials, such as soils and liners, delivered to the Site, to determine general conformance with material specifications.

- Observe and record construction activities.

- Observe and record noise and dust control procedures, and

- Prepare construction reports.

2.2 Contractor Qualifications and Responsibilities

The Contractor will be trained and experienced and be able to demonstrate that the superintendent, field crew foreman, and subcontractors have similar experience in the construction, installation, and performance of the specific components outlined in the CP, including storm water diversion/management. The Contractor will have the following responsibilities for implementing the procedures presented in the Construction QA/QC Plan:

- Review and be familiar with the CP.

- Maintain lines of communication with the CQA Personnel to identify and discuss field issues as they arise.

- Coordinate with equipment suppliers to document compliance with the Construction QA/QC Plan requirements.

- Provide the Client and/or the Engineer with timely notice of tests or inspections required by the CP.

- Prepare and submit to the CQA Engineer drawings and other required submittals specified in the CP.

- Identify potential design and/or construction issues as early as reasonably possible to allow resolution that will not impact the quality or schedule of construction activities.

- Maintain a continuous record of any approved changes or modifications to the CP, and

- Prepare periodic erosion and sediment control inspection reports, as required.

2.3 CQA Surveyor Qualifications

Surveys necessary for implementation of the remedial action and for the collection of as-built information will be carried out by personnel practiced in land survey techniques and under the direction of a Pennsylvania State-licensed Land Surveyor.

3. Documentation Requirements

3.1 Documentation

The documentation of CQA activities will facilitate construction in general accordance with the CP. The documentation process includes recognition of construction tasks that will be observed and documented, assignment of responsibilities for the observation, testing, and documentation of these tasks, and the completion of the required reports, data sheets, forms, and checklists to provide an accurate record of the work performed during the remedial action.

3.1.1 Construction Reports

The CQA Engineer or Observer will complete summary reports of construction activities. The construction reports will include the following information, as appropriate:

- Date, project name, location, and the number and names of people onsite.
- Time that work starts and ends, in addition to the time of work stoppages related to inclement weather or insufficient equipment or personnel or other reasons.
- Data on weather conditions, including temperature and precipitation.
- Contractor's workforce, equipment, and materials delivered to or removed from the Site.
- Chronological description of work in progress, including notices to or requests from the Contractor and/or installer.
- A description of relevant known health and safety issues.
- Results of testing (if any) performed onsite by CQA Personnel.

- Potential issues of concern and documentation describing corrective actions taken relative to this plan.

- A record of field testing locations for CQA/CQC.

- A record of relevant communications with other onsite parties, outside companies, regulatory agencies, or consultants regarding the construction activities, and

- A record of calibrations or standardizations performed on field testing equipment, including recalibrations, as needed.

3.1.1.1 Identification of Issues and Corrective Action Documentation

Construction reports prepared by the CQA Observer will include documentation of issues noted during construction that may require corrective action (e.g., when construction material or activity is observed or tested that does not meet the requirements set forth in this plan), and actions employed by the Contractor to address the issues. The reports will be cross-referenced to the reports, data sheets, forms, and checklists that contain data or observations leading to the determination requiring possible corrective action. This may include:

- A description of the issue including reference to supplemental data or observations related to the determination.

- Location of the issue observed, including how and when it was discovered, and

- The action taken for resolution of the issue. If the action has already been implemented, observations and documentation showing that the issue was resolved will be included. If the issue has not been resolved soon after discovery, documentation will state why and what actions are to be implemented to resolve the issue.

If the issue has not been resolved, then the Client and the Engineer will discuss the corrective actions necessary to resolve the issue as soon as possible.

3.1.2 Erosion and Sediment Control Inspection Reports

The Contractor will complete inspection reports required by applicable permits that summarize the results of E&S control inspections. E&S control inspection report requirements will be included in the forthcoming E&S Control Plan.

3.1.3 Photographic Documentation

Photographic reporting will be utilized, cross-referenced, or appended to field logbook or daily reports and/or problem identification and corrective measures reports. At a minimum, photographic reporting will include the following information:

- a unique identifying number for data sheets and photographs for cross-referencing and document control;
- the location where the photograph was taken; and,
- a description of the work depicted by the photograph.

These photographs will serve as a pictorial record of work progress, problems, and corrective measures. All photographs will be kept in chronological order in a protective file. The negatives or digital files will be stored in a separate file from the printed photographs, unless otherwise directed by the PADEP.

The Contractor and CQA Observer(s) will document observations and work in progress in photographs in color print format. The following information will be documented for each photograph:

3.1.4 Waste Tracking Logs

The Contractor and CQA Observer shall maintain a log of all waste shipped off-site. The log will include date material is shipped, waste type, transporter, disposal facility, manifest or bill-of-lading number, vehicle identification number, driver, and weight of waste. Waste tracking logs will be submitted to the Client and Engineer with other disposal-related documentation (e.g., manifests, bills of lading, weight tickets, etc.).

3.1.5 Engineering Certification Report

An Engineering Certification Report will be prepared at the end of construction and incorporated into the Final Report. At a minimum, the report will contain the following information:

- Record drawings showing the installation of each construction material as it relates to the plan views and individual details.

- Correspondence with the Pennsylvania Department of Environmental Protection (PADEP), United States Environmental Protection Agency (USEPA) and others, as deemed relevant to the remedial action.

- A summary of field observations, tests performed and test results reported.

- A summary of the construction, and

- Documentation that the construction activities comply with the CP.

3.1.6 Construction Submittals

The Contractor will prepare and submit to the Engineer an electronic copy and a hard copy of all submittals required in the CP. Information contained in the Contractor's submittals that is not applicable to the specification furnished will be clearly lined out or deleted. The Contractor's submittals will be easily legible, clean, and clearly reproduced.

All required submittals shall be reviewed and approved by the Engineer for conformance with the requirements presented in the CP.

The Engineer's review shall in no way be construed as permitting departure from the CP, except where the written request by the Contractor and written acceptance by the Engineer and the Client for such departure is provided. The Engineer's review does not relieve the Contractor of any responsibility to comply with applicable laws, rules, regulations, or agreements. The Engineer will mark each submittal with a stamp to indicate the following:

1. "Reviewed" if no objections are observed or comments made.

2. "Reviewed and Noted" if minor objections, comments, or additions are made but re-submittal is not necessary.

3. "Resubmit" if the objections, comments, or additions are extensive. In this case the Contractor shall revise and resubmit the items for review by the Engineer within five business days of receiving comments on the original submittal.

4. "Rejected" if the submittal does not comply, even with reasonable revision, with contract conditions. In this case, the Contractor shall resubmit to the Engineer within four days a new or modified supplemental submittal that meets the scope and intent of the work specified herein, and

5. "For Your Information" if a submittal does not require the Engineer's review and is being filed for informational purposes only (this code is generally used in acknowledging receipt of field conformance test reports and *Health and Safety Plans*).

3.2 Project Meetings

Site safety inspections and project coordination/progress meetings may be attended by a PADEP/USEPA representative for the duration of the construction activities. A brief description of the Site meetings and inspections/reviews to be conducted is provided below.

3.2.1 Preconstruction Meeting

Following award of the contract and prior to Contractor mobilization, a preconstruction meeting will be held at the Site to introduce project team members, which may include the Contractor, the Client, the Engineer, and PADEP/USEPA representatives. The meeting will be scheduled by the Client shortly after the award of the Contract. The meeting will be conducted to review Contract requirements, establish a detailed schedule of operations, and resolve issues (if any) raised by the attending parties.

The Engineer will prepare a summary of the preconstruction meeting. A copy of this summary will be provided to each of the parties in attendance. Failure by the Contractor to inform the Client, within seven days of receiving this summary, of any discrepancies or inaccuracies contained therein indicates that the Contractor concurs with the Engineer's summary of the meeting.

3.2.2 Site Safety/Coordination Meetings

Daily meetings (as necessary) will be attended by the Contractor's onsite project foreman, the Engineer's representative, the Client (as necessary), and other parties to be onsite during the day to discuss day-to-day operations, daily schedule, health and safety issues, Contractor coordination issues, and general project status.

3.2.3 Weekly Project Coordination Meetings

Weekly project coordination meetings (as necessary) will be held onsite for the duration of the project. Participants in these meeting will include onsite representatives of the Contractor, officers of the Contractor's firm (as requested by the Engineer), and the Engineer. The Client and the PADEP may attend some or all of the weekly progress meetings. Weekly progress meetings will be held to discuss issues including, but not limited to, project status, schedule, scope of work, and overall project implementation.

Site inspections/reviews may be conducted by the Client and/or CQA Personnel as part of the periodic project coordination meetings prior to, during, and at the completion of the remedial action. The weekly progress meetings will be scheduled by the Engineer.

4. Pre-Construction Activities

4.1 General

This section describes the CQA activities that will take place prior to the start of the construction activities, including conducting a pre-construction meeting and reviewing submittals.

4.2 Pre-Construction Meeting

As described in Section 3.2.1, a preconstruction meeting will be held at the Site once the contract has been awarded. The meeting will be conducted to review health and safety procedures/requirements, remedial activities to be performed, contract requirements and schedule, project issues/concerns, and the lines of communication.

4.3 Submittals

Prior to Contractor mobilization, the Contractor will begin submitting deliverables required by the Specifications. These submittals will include, but not be limited to, a Contractor Health and Safety Plan and proposed fill materials.

4.4 Preparatory (Pre-Construction) Inspections

The CQA Observer(s) will perform preparatory inspections prior to beginning each feature of definable work conducted by the Contractor or its subcontractors.

Preparatory inspections for the applicable feature of work will include:

- A review of each paragraph of applicable Specification sections.
- A review of the Design Drawings.
- A check to assure that all materials and/or equipment have been tested, submitted, and approved.
- Review to ensure provisions have been made to provide required control inspection and testing.
- Examination of work area to assure that all required preliminary work has been completed and is in compliance with the contract.

- A physical examination of materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

- A review of the appropriate activity hazard analysis to assure safety requirements are met.

- Discussion of procedures for controlling quality of the work including repetitive deficiencies.

- Document construction tolerances and workmanship standards for that feature of work.

- A check to ensure that the portion of the plan for the work to be performed has been accepted by Client and Engineer.

- Discussion of the initial control phase.

4.5 Construction Surveying

A Pennsylvania licensed land surveyor shall perform an initial Site survey to verify existing Site conditions and establish the exact limits of the Work as shown on the Design Drawings.

Any discrepancies between the site survey and Design Drawings will be brought to the immediate attention of the Engineer and CQA Observer. Areas of work will be clearly delineated through the placement of different colored stakes and ribbons.

The Contractor shall protect/re-establish survey control points prior to starting site work and will preserve permanent reference points during construction. The CQA Observer shall be notified if a reference point is lost or destroyed or if relocation is required due to changes in grade or other reasons. The surveyor then will be instructed to replace the dislocated survey control point(s) based on the original survey.

Periodic surveys will be conducted during construction in accordance with the Specifications to determine the following:

- · Excavation and Backfill Elevations,

- · Surface of the Cover Layer, and

- · Final Elevations of Topsoil Layer.

The surveyor will conduct a final survey to locate and document elevations of completed structures (i.e., drain inlets, permanent fencing, property boundaries, etc.) and determine final site elevations. Final as built drawings will be prepared and submitted in accordance with the Specifications.

5. Equipment Decontamination

This section identifies the equipment and procedures to be used to decontaminate any earthwork equipment contacting impacted materials at the Site. This plan does not apply to the decontamination of workers, personal protective equipment, or decontamination during emergency events which will be performed as described in the HASP.

5.1 General

1. The Contractor shall inspect construction equipment and trucks upon arrival at the Site to verify that they are non-contaminated and free of mud, dirt, grease, or other accumulations. If obvious indications of contamination are observed, the Contractor shall either refuse entrance of the equipment or truck onto the Site or will decontaminate the equipment or truck before it is used on-site.

2. Site traffic shall be managed so as to avoid cross-contamination. Clean trucks will remain outside of the impacted areas and will be kept separate from potentially contaminated truck traffic. Delivery vehicles will not enter impacted areas, to avoid tracking impacted soils.

3. The Contractor shall operate the equipment in a manner that minimizes contact with impacted soil. Portions of equipment that do come into contact with impacted soils (i.e., the excavator bucket, vehicle undercarriages and wheels) shall be broom cleaned to remove visible solids prior to departing the work area.

4. Equipment and vehicles used in impacted areas shall be washed with water on the decontamination pad prior to leaving the Site to ensure that soil is not tracked from the Site onto adjacent roadways.

5.2 Decontamination Materials & Equipment

The Contractor will provide the following decontamination materials and equipment in support of this Project:

1. Water. Potable water for equipment decontamination will be obtained from an off-site source.

2. High Pressure Washer. A high pressure washer will be used to perform the final rinse.

3. Holding Tank. A storage tank (holding capacity to be determined) shall be mobilized to the Site to contain construction water (including decontamination fluids). The tanks will be

located in an approved location near the decontamination pad (actual site location to be field determined).

4. Transfer Pumps. Appropriately-sized transfer pumps will be used to transfer wash water from the decontamination pad to the storage tanks.

5. Hose and Fittings. Appropriately sized hoses and fittings will be used to connect the pressure washer to the water supply and to connect the transfer pumps to the holding tanks.

6. Miscellaneous Equipment. Scrub brushes and/or other equipment necessary to remove caked or hardened material will be maintained in the decontamination zones. Buckets, shovels, storage containers, and other miscellaneous equipment necessary to handle, transfer, and/or remove construction water and associated sediment from the decontamination pad also will be provided.

5.3 Decontamination Pad

The Contractor shall construct a decontamination pad that will be constructed with an 8-inch thick layer of gravel over a minimum of 30 mil (minimum thickness) polyethylene sheeting that will slope to a sump and allow for the collection of decontamination water. Dirt and sediment will collect in the rocks.

5.4 Decontamination Procedures

Dry “gross” removal of solids shall be conducted within the work area prior to final rinsing above the decontamination pad to minimize the amount of soils and sediment collected in the wash waters. Brooms and brushes will be used to remove all soil adhering to equipment and tire surfaces before leaving impacted work areas. A final rinse using pressurized water shall be performed on the decontamination pad prior to site departure. Inspections shall be conducted to verify that equipment has been properly decontaminated prior to departing the work area and prior to leaving the Site.

5.5 Disposal of Decontamination Residuals

Water collected from the decontamination activities shall be handled be sampled, waste characterized, profiled for subsequent transportation and disposal at an approved disposal facility. The decontamination pad and any associated residual solids will be removed at the appropriate time and shall be sampled, waste characterized, profiled for subsequent transportation and disposal at an approved disposal facility.

5.6 Documentation

Decontamination activities shall be documented in the daily reports.

6. Mobilization and Site Preparation

6.1 General

This section describes the CQA activities that will take place during the mobilization and Site preparation activities, including: 1) site personnel and equipment mobilization; 2) E&S control measure installation; 3) clearing and grubbing; 4) installation of temporary stone access roads, as necessary, to support construction equipment and transport vehicles, and 5) installation of temporary storm water diversion piping/structures.

6.2 Mobilization

The Contractor shall mobilize personnel, equipment, and materials to the Site in sufficient quantity to accomplish the proposed remedial action in accordance with the CP.

Typical major equipment (or equal) to be mobilized in support of this project includes:

- Excavator(200 & 300 Series)
- Dozers (D5-D6 Series)
- Compactor/Roller
- Articulated Dump Trucks
- Water Truck & Storage Tanks
- Construction Trailers, Support Vehicles
- Safety and Air Monitoring Equipment
- Traffic Control Devices
- Power/Hand Tools and Small Equipment

6.3 Erosion and Sediment Control Measures

Prior to the start of the remedial activities, E&S control measures will be constructed/installed/placed by the Contractor in general accordance with the Design Drawings, the CP, and the *E&SC Plan*.

CQA Observations

The CQA Observer(s) will document, through visual observations, that E&S control measures are constructed and maintained in accordance with the Design Drawings, the CP, and the E&SC Plan.

6.4 Clearing and Grubbing

Clearing and grubbing will be performed in accordance with the CP and as shown on the Design Drawings once appropriate E&S control measures are in place. Clearing operations will be limited to the necessary for work zone access, remedial activities, and construction support. Trees, vegetation, and structures that are outside the limits of disturbance or that are designated to remain will be tagged as required and protected to the extent practical.

The Contractor shall clear trees, shrubs, plant life, and designated above-grade landscaping features/ancillary structures as required to perform the Work. Root balls will be physically agitated at the point of removal to dislodge soil; cut into manageable sizes, and disposed off-site with like materials.

Heavy equipment and/or chains saws will be used for clearing above grade vegetation which will be chipped pending on-site reuse or off-site disposal as directed by the Engineer.

CQA Observations

The CQA Observer(s) will document that clearing and grubbing is limited to that required to implement the CP and that all debris generated by clearing and grubbing activities is handled in accordance with the Design Drawings.

6.5 Temporary Access Roads

After E&S controls have been established, temporary access roads and construction entrances will be constructed at the Site at the approximate locations shown on the Design Drawings.

CQA Observations

The CQA Observer(s) will document that only approved (through the submittal process) materials are used to construct the temporary access roads. The CQA Observer(s) will also document that all temporary access roads are constructed and maintained in accordance with the Design Drawings and the CP.

6.6 Storm Water Diversion System

Prior to the start of the backfilling, the Contractor will install a storm water diversion system (including any pumps/hoses that may be required for temporary bypass pumping activities) as indicated in the CP. Additional piping/structures will be installed throughout the course of the remedial action as needed to divert storm water around active work areas. The Contractor will be responsible for submitting required product data and other information, for review by the Engineer, prior to initiating piping/structures installation activities.

CQA Observations

Upon delivery of piping/structure materials to the Site, the CQA Observer(s) will observe the quality of the materials for consistency with the requirements of the Design Drawings and the CP. During installation/operation, the CQA Observer(s) will observe that the materials are being installed/operated in accordance with the manufacturer's installation/operating guidelines and the CP. Throughout the course of the remedial action, the CQA Observer(s) will periodically inspect installed piping/structures to verify that the features are functioning as designed, have not been damaged (e.g., dislodged joints, uncontrollable leaks) or become clogged (e.g., with sediment and/or debris), and are not creating any unacceptable flooding or ponding conditions within the limits of work, upgradient of the limits of work, and/or downgradient of the limits of work. If any such conditions are observed, the CQA Observer(s) will document such observations and report the issues of concern immediately to the Contractor and the Engineer, so these issues can be resolved in a timely manner.

6.7 Site Maintenance

The Contractor shall maintain the Site at all times. Specifically, the Contractor shall collect and properly containerize all accumulated material, including discarded health and safety equipment. Periodic cleaning shall be conducted to keep the Site free from accumulation of material resulting from Project work. Trash and garbage wastes shall be placed in appropriate waste containers at the end of each day and disposed of by the Contractor in accordance with applicable federal, state, and local regulations. Provisions will be made to insure safe unobstructed egress from emergency exits within the secured work area on a daily basis. Public streets will be continually maintained with respect to dirt, dust, and debris from vehicles entering and exiting the Site.

The Contractor and CQA Observer shall inspect the Site daily during remedial work to ensure that it is properly maintained.

7. Installation of Clean Fill Soil Cover

7.1 General

A one foot thick soil cover will be placed over the extent of Areas 5 and 6 as well as over the Area 10 permitted storm water feature as detailed on the Design Drawings. Upon completion of the soil covering activities, the soil covered area will be surveyed to confirm that grades specified in the Design Drawings have been achieved.

7.2 Soil Cover

Soil covering will be completed with clean fill in accordance with the Design Drawings and the CP. The Contractor will select an appropriate offsite fill source and provide the data report for that source to the Engineer at least 3 weeks prior to bringing the selected fill material onsite. If sample results show that the fill material does not meet the requirements in the CP, the Contractor must identify a new source for the fill material and provide the required data report for the new source of fill material prior to the use of such fill material onsite.

The soil covered areas will be restored with 6-inches of top soil, seeded, and maintained until re-vegetated.

CQA Observations

The CQA Observer(s) will observe the soil covering activities to document that the following activities are completed in accordance with the CP, including (but not limited to):

- Soil covering is done in accordance with the CP.
- Fill material is placed in accordance with the CP and the Design Drawings.
- In place density tests will be performed at a frequency of one per 1,000 cubic yards of fill material placed or other frequencies deemed necessary by the Engineer to reliably and consistently meet any applicable requirements.
- Compacted surface of fill material is smooth and free of protrusions, and other sharp objects or foreign matter.
- Fill material placed contains the optimum moisture content.

- The compaction of fill material meets any applicable requirements, and
- Any settlement occurring in the backfilled areas is refilled and compacted.

7.3 Limits of Fill

After fill materials have been placed and compacted to the vertical and horizontal limits described in the Design Drawings, the Contractor will perform a topographic survey of the area. The cover will be constructed to promote surface water drainage and will be extended beyond the limits of impact to adequately tie into existing topography.

CQA Observations

The CQA Observer(s) will review all survey information to confirm that fill materials have been placed to the vertical and horizontal limits detailed in the Design Drawings.

8. Installation of the Liner and Soil Cover on Permitted Storm Water Feature

8.1 General

Concurrent with the installation of the soil cover on Areas 5 and 6 and prior to the soil cover installation in Area 10, the Contractor will install a new liner (liner type and thickness to be determined – HDPE, PVC) over the Area 10 permitted storm water feature. The liner will be installed in accordance with the Design Drawings, CP, and the manufacturer's installation instructions.

8.2 Delivery, Handling, and Storage of Materials

After factory fabrication and delivery to the Site, the liner will be unloaded and stored in a secure area. The following practices will be used, at a minimum, in receiving and storing the materials in the designated storage area at the Site:

- Unloading or transfer from one location to another will be performed in such a manner as to prevent damage to the materials, and

- Materials will be stored to adequately protect them from equipment damage.

Unless otherwise specified in the CP, the Contractor will be responsible for the means and methods to implement the work. The Contractor will be responsible for ensuring that all installed materials meet specification.

CQA Observations

The CQA Observer(s) will observe and document, throughout the remedial activities, that the installer is providing adequate handling equipment for moving materials and that the equipment and the handling methods used do not pose unnecessary risk of damage.

8.3 Installation of the Liner

The liner will be installed in accordance with the methods recommended by the manufacturer and as detailed on the Design Drawings. All materials will be installed to the grades indicated on the Design Drawings.

CQA Observations

During installation of liner, the CQA Observer(s) will monitor for irregularities and indications that the materials are not being installed to the design elevations or in accordance with the methods recommended by the manufacturer. Such issues of concern will be reported to the Engineer. If these issues cannot be corrected, the material will be removed and re-installed.

Throughout the installation activities, final soil cover elevations will be verified by the Contractor, and the CQA Observer(s) will document whether the design elevations have been achieved

9. Excavation

9.1 General

The Contractor will excavate the targeted removal area in accordance with the Design Drawings and the CP.

9.2 Excavation

All earthwork shall be constructed to the elevations, lines, grades, and cross sections shown on the Design Drawings in accordance with the Specifications unless otherwise directed by the Engineer. Excavation will be supervised by a "responsible person" as defined by OSHA 29 CFR Part 1926 and will conform to applicable OSHA requirements and the safety procedures set forth in Contractor's approved HASP.

9.3 Backfill and Grading

When excavations have reached required subgrade elevations, the Contractor shall notify the CQA Observer who will inspect and approve the excavated area. Once the excavation has been approved, the Contractor will place backfill in accordance with the Specifications to the elevations shown on the Design Drawings. Excavations will be backfilled with certified clean fill material and a 6-inch layer of topsoil. All excavated areas will be areas graded at the completion of work to provide a uniform final surface.

9.4 Off-Site Transportation and Disposal

Off-site transportation and disposal of the soils will be provided in accordance with Specifications. Waste characterization samples will be collected and analyzed prior to determine the appropriate disposal facility. Soils that pass the TCLP requirements will be direct loaded for off-site transport and disposal at a RCRA Subtitle D Landfill.

Soils that exceed the TCLP requirements (not anticipated based on existing site data) will be treated as required and loaded for off-site transport and disposal at a Subtitle C Landfill.

C&D debris and cleared vegetation will be transported off-site for disposal at local landfill.

CQA Observations

During excavation, the CQA Observer(s) will monitor that the area of concern has been fully excavated and that the excavated material is disposed of in accordance with the CP. Any issues of concern will be reported to the Engineer.

10. Site Restoration/Demobilization

10.1 General

Following completion of remedial activities, the Contractor shall restore each area and demobilize labor, equipment, and materials from the Site in accordance with the Design Drawings and the CP. Site restoration activities shall include completing final grading and re-vegetation of disturbed areas. Site restoration and demobilization activities shall be completed as indicated below.

10.2 Surface Restoration

Following remedial activities, all disturbed areas will be restored to the final grades and conditions indicated on the Design Drawings and in the CP.

CQA Observations

Prior to the start of construction, the CQA Observer(s) will obtain photographic documentation of pre-construction conditions in all areas that are indicated to be restored to pre-construction conditions within the CP.

During restoration activities, the CQA Observer(s) will observe surface restoration activities to document that the following activities are completed in accordance with the Design Drawings and the CP, including (but not limited to):

- Topsoil is placed over all disturbed surfaces to the lines and grades indicated in the Design Drawings.
- Prior to placement of seed and mulch, the topsoil surface is lightly loosened, roughened, or tracked.
- Seed and mulch is placed at the minimum required application rates specified on the Design Drawings and in the CP and uniformly distributed over the entire area to be revegetated, and
- Following seeding and mulching, the Contractor will maintain all restored, vegetated areas (including reseeding, if necessary) until perennial vegetation is established and favorably reviewed by the Engineer.

10.3 Demobilization

The Contractor will demobilize from the Site following completion of all remediation activities. Demobilization activities will include, at a minimum, the following:

- Disposing of material staging, containment, and decontamination area construction materials in accordance with the CP.
- Cleaning/decontaminating equipment and construction-related materials prior to removal from the Site, and
- Removing from the Site, all materials, equipment, and support structures.

CQA Observations

The CQA Observer(s) will observe the Contractor demobilization activities to document that the following activities were completed in accordance with the CP:

- Equipment and construction-related materials have been cleaned/decontaminated prior to demobilization from the Site
- Work area(s), material staging area(s), and equipment and personnel decontamination area(s) have been dismantled, and
- All Contractor materials, equipment, and support systems have been removed from the Site.