



**Evergreen Resources Management**  
2 Righter Parkway, Suite 120  
Wilmington, DE 19803

August 30, 2019

Mr. Richard Staron, P.G.  
Pennsylvania Department of Environmental Protection  
2 East Main Street  
Norristown, Pennsylvania 19401

**RE: Philadelphia Refinery Remediation Program  
Groundwater Remediation Status Report, First Half 2019**

Dear Mr. Staron:

This semi-annual report summarizes Operation & Maintenance (O&M) work completed at the Philadelphia Energy Solutions Refining & Marketing LLC (PES) Philadelphia Refining Complex (Complex) and the Sunoco Partners Marketing and Terminals L.P. (SPMT) Belmont Terminal between January 1, 2019 and June 30, 2019. Detailed information regarding O&M activity is included in the attached tables for the PES Complex and Belmont Terminal as prepared by Stantec Consulting Services Inc. (Stantec). This letter summarizes the information detailed in the tables plus additional activities under the “Work Plan for Site Wide Approach under the One Cleanup Program” (Site Wide Approach) such as investigations of the various Areas of Interest (AOIs).

In compliance with the 2003 Consent Order and Agreement (CO&A) entered into between Sunoco Inc. (R&M) (Sunoco) and the Pennsylvania Department of Environmental Protection (PADEP) for the PES Complex located at 3144 Passyunk Avenue in Philadelphia, Pennsylvania, Sunoco has completed site characterization activities for all AOIs. The Complex has since entered into the Pennsylvania One Cleanup Program. On November 30, 2011, Sunoco submitted a Site Wide Approach to the PADEP and the United States Environmental Protection Agency (USEPA). The Site Wide Approach clarified the technical method beyond the CO&A and provided an anticipated schedule for future Act 2 submissions with respect to the Philadelphia Refinery remediation program. Effective December 30, 2013, Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC (Evergreen) assumed Sunoco legacy remediation liabilities with respect to the PES Complex. All remediation of Sunoco's/Atlantic's historic environmental liabilities at the PES Complex and Belmont Terminal will be managed moving forward by Evergreen. Environmental liabilities following the September 8, 2012 purchase and transfer of the Philadelphia Refinery to PES are managed by PES.

Evergreen will continue to submit the required documentation and implement remedial obligations. Supplemental characterization data obtained following an approved Area of Interest (AOI) Remedial Investigation Report (RIR) or Site Characterization Report (SCR) will be incorporated in a future Act 2 deliverable. Evergreen will submit a Groundwater Remediation Status Report with the O&M summary, figures, tables, and Act 2 submittal updates on an annual basis coinciding with the annual groundwater gauging and monitoring. On the alternating six-month interval, Evergreen will submit an abbreviated Groundwater Remediation Status Report detailing the O&M summary with limited tables and without figures.

On June 26, 2019, PES announced the planned closure of the Complex. The refinery closure has not affected the ongoing remediation program. However, if any significant changes to the program occur, they will be communicated to PADEP.

### **AOI 1 – Point Breeze Refinery No. 1 Tank Farm and No. 2 Tank Farm; and Belmont Terminal**

#### **Consent Order / Characterization Status**

Sunoco submitted to the PADEP and the USEPA an SCR for AOI 1 dated June 30, 2005. Based on comments received by the PADEP with regard to the AOI 1 SCR, Sunoco prepared and submitted to the PADEP a revised SCR for AOI 1 dated July 17, 2006. The recommendations in the AOI 1 report were to supplement the existing remediation system along the northwestern portion of the Belmont Terminal and southeastern portion of the No. 2 Tank Farm. Sunoco has implemented these actions as detailed in previous quarterly reports. In addition, Sunoco provided the PADEP a Remedial Action Plan (RAP) for AOI 1 in January 2008. As a result of the 26<sup>th</sup> Street North Remediation System study and the S-50 Area (26<sup>th</sup> Street South) investigation, an addendum to the RAP was considered necessary. In December 2008, a RAP Addendum for AOI 1 was submitted to address the 26<sup>th</sup> Street North Remediation System data analysis and the 26<sup>th</sup> Street South investigation and subsequent remedial actions. Evergreen submitted a revised RIR for AOI 1 on August 5, 2016 which was approved by the PADEP on November 1, 2016.

#### **Belmont Terminal Remediation System– Operation During the First Half of 2019**

The Belmont Terminal Remediation System consists of two components including the Frontage Road System and the Loading Rack System.

On August 30, 2012, the Frontage Road system was turned off and will remain offline unless there are significant increases in light non-aqueous phase liquid (LNAPL) in the recovery wells. The recovery wells were gauged on February 14, 2019 and June 3, 2019, and no LNAPL was detected.

The Loading Rack system consists of six dual-phase pumping systems (RW-4, RW-21, RW-22, RW-23, RW-24, and RW-25). Each recovery well contains separate pumps controlled by density floats and conductivity probes to pump groundwater and LNAPL. Recovered groundwater is discharged to an onsite process sewer. LNAPL thicknesses are monitored, and pumps are turned on/off as needed based on recoverable LNAPL accumulations in each recovery well. The recovered LNAPL is stored in a 5,000-gallon holding tank, the contents of which are pumped out and recycled on an as needed basis. During the reporting period the pumps in RW-4, RW-23, RW-24, and RW-25 were active.

The Loading Rack system was operational during the reporting period. System performance and operational status for the Loading Rack system can be found in **Appendix 1**. A total of 1,434,343 gallons of groundwater and 38 gallons of LNAPL was recovered by this system during the first half of 2019.

#### **Shunk Street Sewer Ventilation System and Biofilter – Operation During the First Half of 2019**

The biofilter was operational until April 9, 2019 when the blower was removed for repair. The biofilter remained off during the remainder of the reporting period. Details of the Shunk Street Sewer Ventilation System and Biofilter operational status during the first half of 2019 can be found in **Appendix 1**.

26<sup>th</sup> Street North Remediation System - Operation During the First Half of 2019:

The 26<sup>th</sup> Street North Remediation system was modified in 2015 to increase the overall effectiveness of the system and was restarted on October 12, 2015. The four-inch diameter recovery wells (S-180, S-181, S-182, S-183, S-184, S-185, S-186, S-187, S-188, S-189, S-190, S-191, and S-192) were replaced with six-inch diameter recovery wells. Additionally, RW-400 and RW-402 are connected to the system for a total of fifteen recovery wells.

Within each well, a QED Environmental Systems Model AP-4+T AutoPump was installed to recover groundwater and LNAPL. Each recovery well contains a two-inch diameter lateral discharge line that connects to a four-inch high density polyethylene (HDPE) trunk line, which transfers the total fluids to an onsite process sewer. The pumps utilize compressed air, which is supplied by a Kaeser rotary screw air compressor. A one-inch diameter air line runs to each recovery well and is reduced to a 3/8-inch diameter line in each well vault at the pneumatic pump.

The 26<sup>th</sup> Street North Remediation System was operational during the reporting period. Details for the 26<sup>th</sup> Street Sewer North Remediation System performance data and operational status can be found in **Appendix 1**. A total of 7,764,941 gallons of total fluids was recovered by this system during the first half of 2019.

26<sup>th</sup> Street and Packer Avenue Sewers Biofilter Remediation System – Operation During the First Half of 2019

The 26<sup>th</sup> Street and Packer Avenue Sewers Biofilter system was upgraded including replacing the compost beds, repairing the duct work, and replacing or repairing the fans. The system was restarted on June 6, 2016 for final stages of startup and system startup was completed on November 10, 2016. The system was operational during the first half of 2019. Details for the 26<sup>th</sup> Street and Packer Avenue Sewer Biofilter system performance data and operational status can be found in **Appendix 1**.

**AOI 2 – Point Breeze Refinery**

Consent Order / Characterization Status

The AOI 2 SCR/RIR was submitted to the PADEP and the USEPA on September 29, 2010. A revised RIR was completed in July 2017. PADEP approved the report on October 18, 2017.

Pollock Street West End Remediation System – Operation During the First Half of 2019

During October 2011, heavier than usual quantities of oil were observed within the Pollock Street sewer outfall. As a result, Sunoco completed the expansion of the existing vertical recovery well remediation system in the vicinity of the Pollock Street sewer outfall in February 2012. The system, referred to as the Pollock Street West End system, consists of a total of ten 4-inch diameter recovery wells on the east side of River Road and twenty 6-inch diameter recovery wells on the west side of River Road. Groundwater and LNAPL are removed from select recovery wells using pneumatic submersible pumps. All liquids are processed through an oil/water separator (OWS) and water is discharged to a refinery process sewer (S-10 Sump). LNAPL is recovered in a 550-gallon tank and then recycled by the PES Complex. A report describing the details of the investigation and remediation performed in response to the oil observed in the Pollock Street sewer outfall was submitted to the PADEP and the USEPA on June 29, 2012.

The Pollock Street West End Remediation System was turned off December 19, 2016 to evaluate LNAPL recharge. The system remained off during the first half of 2019.

Pollock Street Horizontal Well Remediation System – Operation During the First Half of 2019

The Pollock Street Horizontal Well Remediation System consists of HW-1, HW-2, and HW-3. HW-1 was installed in July 2004 along the north side of the Pollock Street sewer from approximately RW-103 to approximately 100 feet west of RW-101. HW-2 and HW-3 were installed from approximately RW-103 to the intersection of Pollock Street and 16<sup>th</sup> Street in the first quarter of 2006. Groundwater and LNAPL from HW-1 and HW-2 discharge directly into a Benzene National Emission Standard for Hazardous Air Pollutants (NESHAP) controlled sewer, whereas groundwater and LNAPL from HW-3 discharges directly into an onsite process sewer.

Totalizers were installed in HW-1 and HW-2 on May 25, 2013 and July 6, 2015 respectively. The estimated flow rate for HW-3 as determined by pump testing is 15.38 gallons per minute (gpm).

The Pollock Street Horizontal Well Remediation System was operational during the reporting period. System performance data and operational status can be found in **Appendix 1**. A total of 5,136,206 gallons of total fluids was recovered by the Pollock Street Horizontal Well Remediation System during the reporting period.

Pollock Street Sewer Outfall – Operation During the First Half of 2019

The Pollock Street Sewer outfall is checked by PES personnel and findings are recorded with PES notifying Evergreen or Evergreen's contractors to take action if significant accumulations or sheening are found. This practice will continue and identified LNAPL will be handled by Evergreen contractors with spill control equipment to minimize or prevent releases to the Schuylkill River. Evergreen has continued to maintain a skimmer system located in the tide gate area. The skimmer discharges to a refinery process sewer (S-13 Sump). The skimmer will be activated if recoverable quantities of LNAPL are observed at the tide gate area. Except for the completion of preventative maintenance and equipment testing, the outfall skimmer remained off for the first half of 2019 due to the absence of recoverable oil in the outfall.

Passyunk Avenue Sewer

The Passyunk Avenue Sewer combined sewer overflow outfall (CSO) is checked by PES personnel if sheens are noticed in the Schuylkill River during routine checks. Evergreen has not been notified of any observed LNAPL at the outfall during the first half of 2019.

**AOI 3 – Point Breeze Refinery, Impoundment Area**

There are no Evergreen groundwater or LNAPL remediation systems active in this area. The AOI 3 SCR/RIR was submitted to the PADEP and the USEPA on September 27, 2010. The SCR/RIR stated that given the limited occurrence and mobility of LNAPL observed in RW-2, the former remediation system in this area will remain offline. A revised RIR for AOI 3 was submitted March 20, 2017, and approved on June 14, 2017. The disposition of remediation systems in AOI 3 will be revisited in the Site Wide Cleanup Plan.

LNAPL was identified in S-414 and with marked increases in thickness in two wells (S-283 and S-382) during the annual site-wide gauging in June 2018. PES was notified of the observations and an underground product line was determined to have released reformate from the UDEX feed line that runs from the 860 Unit in the Point Breeze Refinery to the Girard Point Refinery. PES has installed three active skimming systems located at wells S-283, S-382, and S-429.

#### **AOI 4 – Point Breeze Refinery, No. 4 Tank Farm Area**

##### **Consent Order / Characterization Status**

AOI 1 and AOI 4 were identified by Sunoco as the first areas of the refinery to be investigated in accordance with the Phase II Corrective Action Schedule included in the Current Conditions Report (CCR). Sunoco submitted a SCR to the PADEP and the USEPA for AOI 4 on August 24, 2006. A repackaged SCR/RIR was submitted to the agencies on October 16, 2013. A “Disapproval of Remedial Investigation Report” was received from the PADEP on January 16, 2014. A revised RIR was submitted on March 24, 2017. The revised RIR was disapproved by the PADEP in a letter dated June 21, 2017 due to lack of offsite wells. In 2018, five additional monitoring wells (S-374, S-375, S-376, S-377, and S-378) were installed offsite adjacent to the Penrose Avenue Remediation System. Evaluation of these wells is conducted during quarterly groundwater gauging events.

##### **Penrose Avenue Remediation System – Operation During the First Half of 2019**

Following characterization of AOI 4, Sunoco installed a hydraulic control system on the southern border of AOI 4. This system is permitted for discharge to the Philadelphia Water Department (PWD) and by Philadelphia Air Management Services (AMS). Installation of the Penrose Avenue Remediation System was completed in December 2012. Following minor modifications to the system to facilitate water discharge monitoring in accordance with the PWD groundwater discharge permit, the system was started on March 20, 2013. LNAPL thicknesses are monitored and pumps are turned on/off as needed based on recoverable LNAPL accumulations in each recovery well. On February 21, 2018 pumps were installed in S-221, S-236, and S-237 to address LNAPL in those wells.

During this reporting period, recovery wells RW-700, RW-701, RW-702, RW-703, RW-704, S-221, S-236, and S-237 were active. The system operated during the reporting period with exception to April 2, 2019 through May 2, 2019 during which time the system was turned off for sitewide transmissivity testing. System performance data and operational status can be found in **Appendix 1**. A total of 1,413,210 gallons of groundwater and 210 gallons of LNAPL were recovered by the Penrose Avenue Remediation System during the reporting period.

Additionally, the installation of an in-situ Submerged Oxygen Curtain (iSOC) was initiated during the second half of 2018 and remained active during the first half of 2019. The system consists of seven oxygen injection points located in RW-706, RW-709, RW-711, RW-712, RW-713, RW-714, and RW-715 with the purpose of creating an oxygen barrier to protect offsite receptors from migrating contaminant plume.

##### **S-30 Remediation System – Operation During the First Half of 2019**

On March 19, 2019, recovery well S-30 was activated due to an accumulation of LNAPL. The S-30 remediation system consists of an LNAPL pump, probe assembly, and control panel. The recovered LNAPL is stored in a 2,500-gallon holding tank, the contents of which are recycled by the PES Complex on an as needed basis. System performance data and operational status can be found in **Appendix 1**. A total of 18.6 gallons of LNAPL were recovered by the S-30 LNAPL Remediation System during the reporting period.

#### **AOI 5 – Girard Point Refinery, South Tank Field**

##### **Consent Order / Characterization Status**

In accordance with the Site Wide Approach, a SCR/RIR/Cleanup Plan was submitted to the PADEP and the USEPA on December 13, 2011. Sunoco received a Remedial Investigation Report/Cleanup Plan disapproval letter from the PADEP on March 15, 2012. A revised RIR was submitted on January 16, 2016 and was approved by the PADEP on May 2, 2017.

### **AOI 6 – Girard Point Refinery, Chemicals Processing Area**

#### **Consent Order / Characterization Status**

AOI 6 was identified by Sunoco as the third area of the refinery to be investigated in accordance with the Phase II Corrective Action Schedule included in the CCR. An SCR for AOI 6 was submitted to the PADEP and the USEPA on September 29, 2006. A repackaged SCR/RIR was submitted to the agencies on September 3, 2013. PADEP issued a disapproval letter on November 27, 2013. A revised RIR was submitted on November 21, 2017 and was approved by the PADEP on February 26, 2018.

#### **27 Pump House Area**

The remediation system that existed in the area of the 27 Pump House was turned off September 20, 2010 due to absence of recoverable LNAPL. Passive remediation began on October 10, 2010 with the installation of absorbent socks in wells B-124, B-132, B-137, B-139, B-142, B-143, and B-147. Based on limited recoverable LNAPL in the proximal wells, passive remediation was discontinued on January 26, 2015 and the equipment subsequently removed. Due to continued presence of elevated benzene concentrations in soil and groundwater in this area, remediation alternatives are being evaluated.

#### **Mobile Solar Powered LNAPL Recovery System**

A solar powered LNAPL pump was operated at B-129 to evaluate the LNAPL recovery potential. Between February 14, 2019 and April 24, 2019, 1.6 gallons of LNAPL were recovered from B-129. On April 24, 2019, the pump was moved from B-129 to B-124. The LNAPL pump operated through the remainder of the reporting period at B-124 and recovered 2.9 gallons of LNAPL.

### **AOI 7 – Girard Point Refinery, Fuels Processing Area**

#### **Consent Order / Characterization Status**

In accordance with the Site Wide Approach, a repackaged AOI 7 SCR/RIR was submitted to the PADEP and the USEPA on February 29, 2012. A RIR Addendum was submitted to the agencies on September 19, 2013. On December 18, 2013, Sunoco received comments on the RIR Addendum from the PADEP. These comments were addressed in the revised RIR that was submitted June 9, 2017. The RIR was approved in correspondence dated August 30, 2017.

#### **3 Separator Remediation System – Operation During the First Half of 2019**

On July 12, 2011, Sunoco reported a hydrocarbon sheen on the Schuylkill River to the National Response Center. The sheen was directly adjacent to the Girard Point Refinery No. 3 Separator. In response to the sheen on the river, Sunoco investigated the source of hydrocarbons to the river through the installation of monitoring wells and exploratory excavation around a process sewer junction box associated with the 137 Crude Unit and the No. 3 Separator. The monitoring wells demonstrated measurable oil on the water table and the exploratory excavation

revealed integrity issues with the junction box. The junction box and associated bulkhead penetration were sealed with concrete.

Construction of a ten recovery well hydraulic control system was completed on August 23, 2012 and included RW-801, RW-802, RW-803, RW-804, RW-805, RW-806, RW-807, RW-808, RW-809, and RW-810. Groundwater and LNAPL are extracted using pneumatic submersible pumps and total fluids pass through an oil/water separator. Water is discharged to an onsite process sewer. LNAPL is recovered in a 1,100-gallon holding tank and recycled by the PES Complex. In 2013, PES assumed primary responsibility for the 3 Separator System due to newer PES releases from the sewer system, which connects 137 Unit to the No. 4 separator, in the vicinity of the No. 3 separator.

The 3 Separator Remediation System was operational during the first half of 2019. System operation details and performance data for the system can be found in **Appendix 1**. A total of 1,399,900 gallons of groundwater and 263.7 gallons of LNAPL were recovered by the 3 Separator Remediation System during the first half of 2019.

### **AOI 8 – Point Breeze Refinery, North Yard**

#### **Consent Order / Characterization Status**

An SCR was submitted to the PADEP on September 30, 2008. A repackaged SCR/RIR incorporating the PADEP's comments was submitted to the PADEP and the USEPA on January 31, 2012. Comments from the PADEP on the SCR/RIR were received by email on July 7, 2012. A revised RIR dated December 21, 2017 was submitted to the PADEP. PADEP issued an approval letter on March 22, 2018.

#### **Northern Boundary/Verizon Area**

The northern boundary of AOI 8 near the South District Work Center of Verizon Pennsylvania, LLC (Verizon SDWC) property is being evaluated for offsite impacts and potential system installation. An assessment of vapor intrusion was completed at the Verizon SDWC property during 2016 and 2017 and was reported in the December 2017 RIR. Ambient and indoor air samples collected within AOI 8 and at the adjacent Verizon SDWC property did not exceed the EPA RSLs for any of the site constituents of concern (COC). A vapor intrusion evaluation was completed in and near all occupied buildings in AOI 8, as well as the Verizon SDWC Property.

A test well (N-157) was installed in 2017 and a well performance test was conducted to evaluate the feasibility of LNAPL recovery as a remedial option near the adjacent Verizon SDWC property. Evergreen plans to install a horizontal well along the refinery property boundary in 2019 for the purpose of groundwater and LNAPL recovery. **PGW Border Remediation System – Operation During the First Half of 2019**

The former PGW Border Remediation System was discontinued and the equipment was decommissioned. Evergreen is currently installing 30 new recovery wells and all new remediation system equipment which will allow groundwater and LNAPL recovery along the PGW border in the area of the former system. It is anticipated that installation will be completed and the system operational in 2019.

#### **Jackson Street Sewer Remediation System – Operation During the First Half of 2019**

The Jackson Street Sewer Remediation System consists of two components, an inactive total fluids system with submersible pumps that formerly recovered groundwater and LNAPL (Jackson Street System) and a vapor suppression water curtain installed in the Jackson Street Sewer Remediation system (Jackson Street Water Curtain).

The Jackson Street System is offline. Due to limited LNAPL presence in the area, the system will remain off unless there are significant increases in LNAPL in the proximal wells.

The Jackson Street Water Curtain was operational during the first half of 2019 and is monitored weekly. Vapor readings are collected at the water curtain and at the intercepting chamber along 26<sup>th</sup> Street. System data and operational status for the first half of 2019 is included in **Appendix 1**.

Evergreen will continue to operate the Jackson Street Water Curtain and report performance information in semi-annual Philadelphia Refinery Groundwater Remediation Status Reports. Details regarding plans to maintain this vapor mitigation system will be included in a future Act 2 deliverable. No other vapor intrusion assessment activities are recommended for AOI 8.

Sunoco agreed at a July 30, 2009 meeting to sample the air in the sewer onsite and offsite following notification from the PADEP of a neighborhood (28<sup>th</sup> and McKean Streets) complaint. No complaints regarding sewer odors were received during the first half of 2019.

#### **AOI 9 – Schuylkill River Tank Farm**

There are no groundwater or LNAPL remediation systems operational in AOI 9. A SCR was submitted to the PADEP and the USEPA on October 30, 2009. A revised RIR was submitted to the agencies in December 2015. The RIR was denied and a RIR Addendum to address the deficiencies was submitted on February 8, 2017. On April 18, the PADEP disapproved the RIR Addendum due to lack of offsite wells. Evergreen has obtained information from existing offsite wells, and five additional wells (S-146SRTF, S-147SRTF, S-148SRTF, S-149SRTF, and S-150SRTF) were installed along Essington Avenue, west of Schuylkill River Tank Farm, to evaluate offsite groundwater conditions.

#### **AOI 10 – Point Breeze Refinery, West Yard**

There are no groundwater or LNAPL remediation systems operational in AOI 10. An SCR/RIR was submitted to the PADEP and the USEPA on June 29, 2011. Approval of the RIR was received from the PADEP on January 6, 2012. An ecological assessment was conducted in 2015 and 2016 and an Ecological Risk Assessment Report was submitted in June 2016, which was approved on November 10, 2016.

A Solid Waste Management Unit (SWMU) closure letter which addressed past disposal areas located in AOI 10 and AOI 8 (SWMU 1 and SWMU 2 respectively) was submitted the USEPA on February 16, 2016. On November 29, 2016, the USEPA issued a response letter denying the no further action request for SWMU 1. Evergreen collected additional information in 2017 to address the USEPA letter and 2016 PADEP comments on the 2011 SCR/RIR and the Ecological Risk Assessment Report. Results will be provided in a future submittal.

#### **AOI 11 – Deep Aquifer**

The SCR/RIR was submitted to the PADEP and the USEPA on September 12, 2011. Sunoco received comments to the report by email on December 9, 2011. The Final Report was submitted to the agencies on June 21, 2013. Sunoco received a “Disapproval of Final Report” from the PADEP dated September 26, 2013.



**Groundwater Monitoring**

The current monitoring program consists of quarterly groundwater and LNAPL gauging of select wells, annual groundwater and LNAPL gauging of sitewide wells, and groundwater sampling of select monitoring wells. During the first, third, and fourth quarters, select wells are gauged to monitor LNAPL thicknesses and determine hydraulic effects of targeted remediation systems. The sitewide annual well gauging event is typically conducted during the second quarter of each year with results used to identify the presence of LNAPL and determine groundwater flow patterns. Annual site-wide groundwater sampling typically is performed in the second quarter in conjunction with annual sitewide gauging. Evergreen planned to increase the monitoring program to include quarterly site-wide groundwater gauging and sampling beginning with the second quarter 2019. This schedule may be adjusted again depending on the fate of the facility and remediation goals.

Liquid level measurements collected during the first quarter of 2019 are provided in **Table 1**. The sitewide 2019 annual liquid level measurements are provided in **Table 2** of this report. The following wells were observed to contain a marked increase in LNAPL between the last annual event and the 2019 annual liquid level measurement event. Efforts are being made to determine if changes are due to natural conditions such as season groundwater fluctuation or other factors

AOI	Well	Depth to LNAPL	Depth to Water	LNAPL Thickness (feet)
AOI 1	S-77	8.95	11.95	3.00
AOI 1	S-203	26.64	28.98	2.34
AOI 1	S-405	21.73	22.80	1.07
AOI 2	S-303	18.95	19.11	0.16
AOI 2	S-304	12.11	12.57	0.46
AOI 2	S-357	22.50	24.55	2.05
AOI 4	S-104	14.05	22.07	8.02
AOI 5	SW-5	4.93	9.35	4.42
AOI 7	C-161	9.36	10.95	1.59
AOI 8	N-112	9.86	11.84	1.98
AOI 8	N-116	3.75	7.12	3.37
AOI 9	WPB-5	7.98	9.19	1.21
AOI 9	S-122SRTF	8.56	9.92	1.36

The annual perimeter groundwater samples are analyzed pursuant to Pennsylvania’s Land Recycling Program for leaded and unleaded gasoline and No. 2, 4, 5, and 6 fuel oils. These parameters include benzene, cumene (isopropylbenzene), 1,2-dichloroethane (EDC), ethylbenzene, methyl tert butyl ether (MTBE), toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and total xylenes by USEPA SW846 Method 8260B; 1,2-dibromoethane (EDB) by USEPA SW 846 Method 8011; anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluorene, naphthalene, phenanthrene, and pyrene by USEPA SW846 Method 8270D; dissolved lead by USEPA SW846 Method 6010C. Additional wells were sampled for tert-Butyl alcohol (TBA) analysis during the annual groundwater sampling event for the purposes of fate and transport characterization and groundwater modeling.

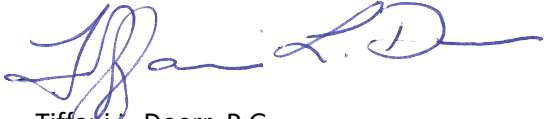
A summary of the annual sitewide groundwater sampling results from the June and July 2019 sampling event is provided in **Table 3**. A summary of the historical groundwater sampling analytical data is provided in **Table 4**. The

laboratory analytical reports for the 2019 annual groundwater sampling event are included electronically in **Appendix 2**.

Please contact me at (302) 477-1305 or [tldoerr@evergreenresmgt.com](mailto:tldoerr@evergreenresmgt.com) with any questions or comments.

Best Regards,

Evergreen Resources Management Operations



Tiffany L. Doerr, P.G.  
Project Manager

Enclosures:     Figure 1 – Site Location Map  
                     Figure 2 – Site Plan  
                     Figure 3 – Apparent LNAPL Thickness Map, June 2019  
                     Figure 4 – Water-Table Groundwater Elevation Map, June 2019  
                     Figure 5 – Lower Aquifer Groundwater Elevation Map, June 2019  
                     Table 1 – First Quarter 2019 Gauging Data  
                     Table 2 – Sitewide 2019 Annual Gauging Data  
                     Table 3 – Sitewide 2019 Annual Groundwater Sampling Analytical Results  
                     Table 4 – Historical Perimeter Groundwater Sampling Analytical Results  
                     Appendix 1 – Remediation System Recovery Data  
                     Appendix 2 – Laboratory Analytical Data Reports (electronic)

cc:     Mr. Paul Gotthold  
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         1650 Arch Street  
         Philadelphia, Pennsylvania 19103-2029

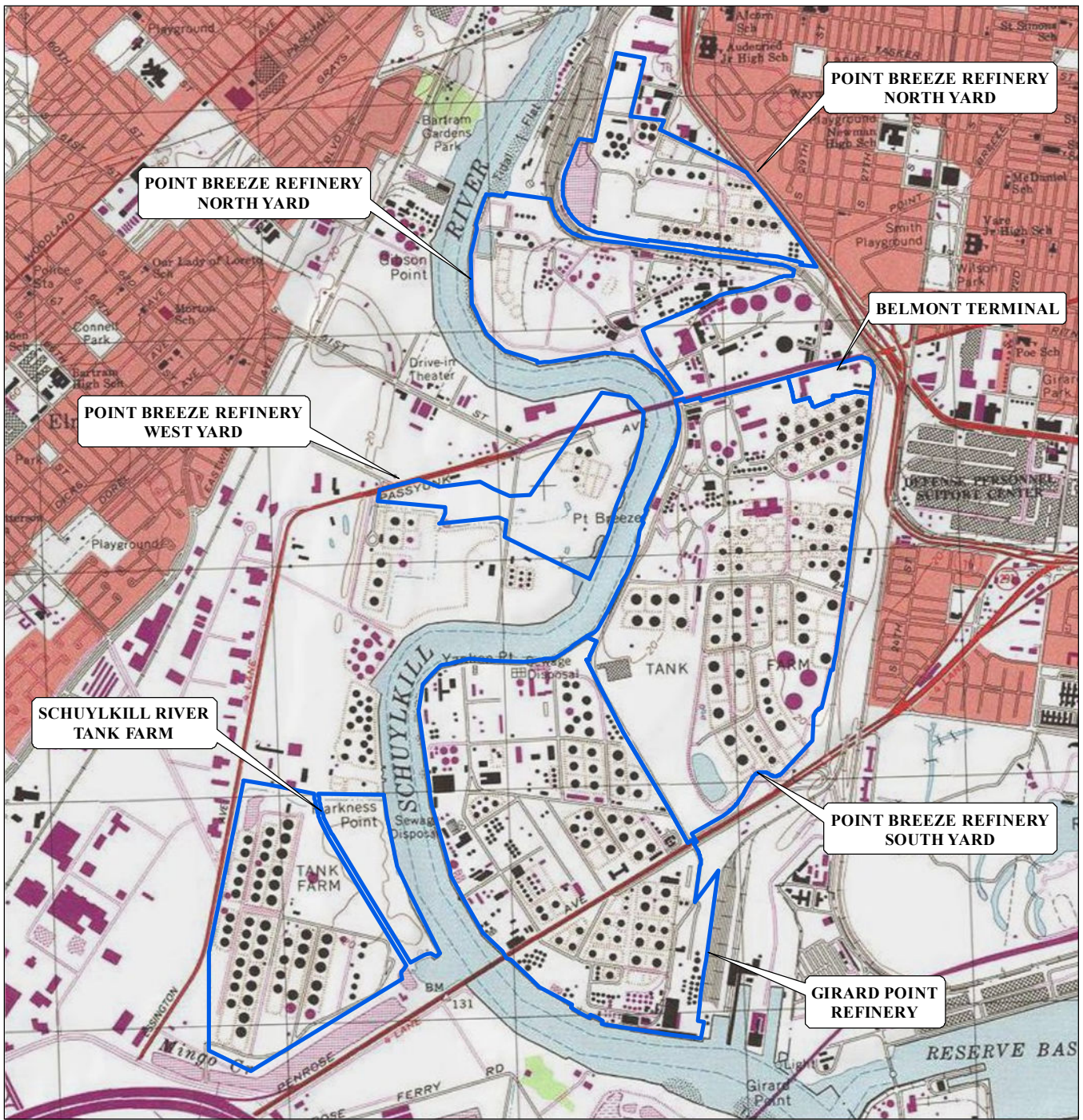
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File:    ENFOS

# FIGURES



POINT BREEZE REFINERY NORTH YARD

POINT BREEZE REFINERY NORTH YARD

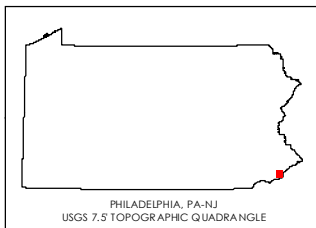
POINT BREEZE REFINERY WEST YARD

BELMONT TERMINAL

SCHUYLKILL RIVER TANK FARM

POINT BREEZE REFINERY SOUTH YARD

GIRARD POINT REFINERY



**Legend**  
 PHILADELPHIA REFINING COMPLEX



Project Location: Philadelphia, Pennsylvania  
 Prepared by GWC on 8/7/2019  
 Technical Review by AJB on 8/26/2019  
 Independent Review by DPH on 8/29/2019

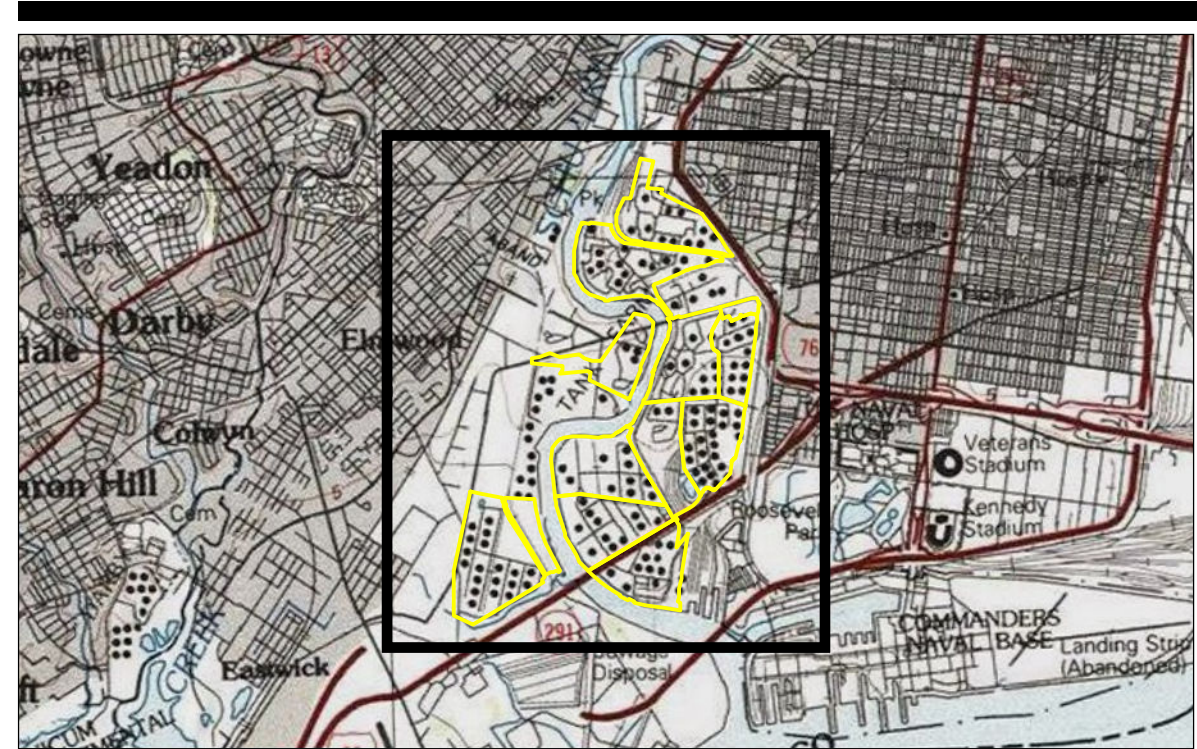
Client/Project: PHILADELPHIA REFINERY OPERATIONS, A SERIES OF EVERGREEN RESOURCES GROUP, LLC  
 PHILADELPHIA REFINING COMPLEX  
 3144 PASSYUNK AVENUE, PHILADELPHIA, PA 19145

Figure No.: 1

Title: **SITE LOCATION MAP**

- Notes**
1. Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
  2. Sources: Stantec, USGS
  3. Service Layer Credits: Copyright © 2013 National Geographic Society, i-cubed

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**Notes**  
 1. Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet  
 2. Source: Stantec  
 3. Aerial & Topo Source: Copyright© 2013 National Geographic Society, i-cubed  
 Pictometry International Corp. Philadelphia Imagery 2018 downloaded from  
 Pennsylvania Spatial Data Access (PASDA)

- Legend**
- ◆ MONITORING WELL
  - ◆ RECOVERY WELL
  - ◆ DAMAGED MONITORING WELL
  - ◆ DESTROYED MONITORING WELL
  - ◆ PIEZOMETER
  - ◆ UNABLE TO ACCESS OR UNABLE TO LOCATE
  - APPROXIMATE LOCATION OF PHILADELPHIA WATER DEPARTMENT SEWER
  - REMEDIATION SYSTEMS DESIGNATED AS CURRENTLY ACTIVE
  - AREA OF INTEREST (AOI)
  - PHILADELPHIA GAS WORKS (PGW) PASSYUNK FACILITY PROPERTY BOUNDARY
  - VERIZON SOUTH DISTRICT WORK CENTER (SDWC) PROPERTY

0 400 800 Feet  
 1:4,800 (At original document size of 36x48)

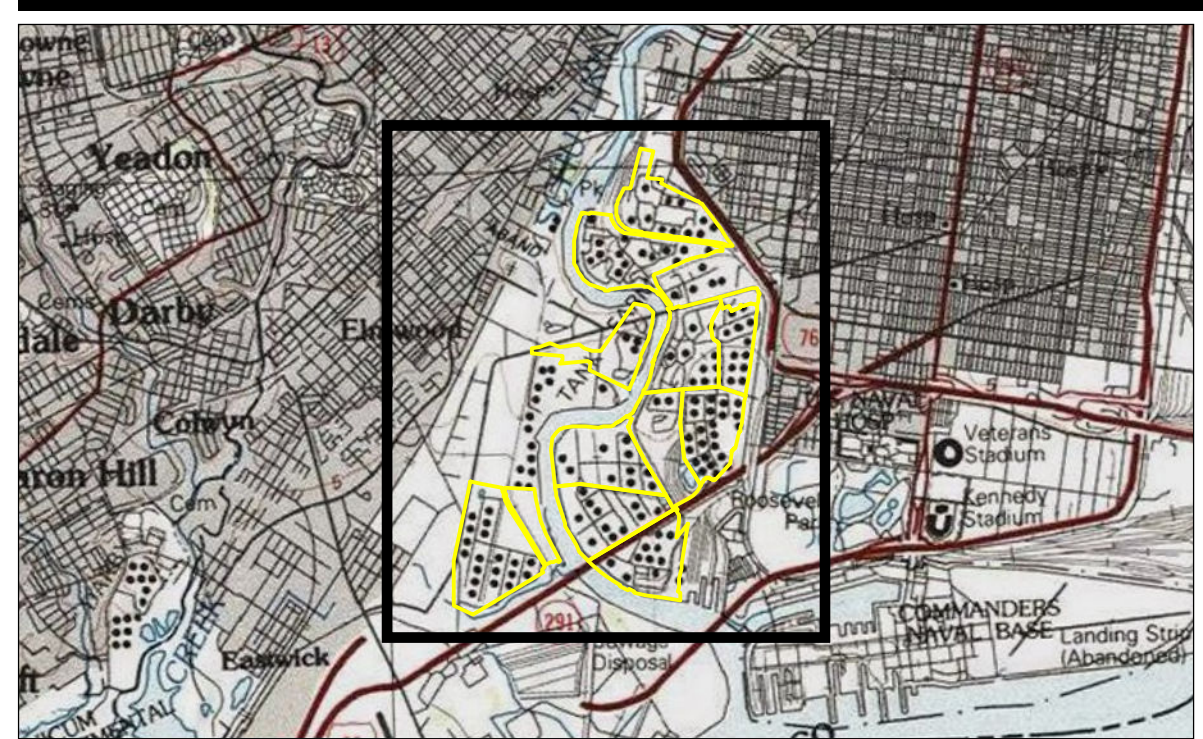


Figure No.  
**2**  
 Title  
**SITE PLAN**

Client/Project  
 PHILADELPHIA REFINERY OPERATIONS, A SERIES OF  
 EVERGREEN RESOURCES GROUP, LLC  
 PHILADELPHIA REFINING COMPLEX  
 3144 PASSYUNK AVENUE, PHILADELPHIA, PA 19145

Project Location  
 City of Philadelphia, Philadelphia County, Pennsylvania  
 Prepared by GWC on 8/7/2019  
 Technical Review by AJB on 8/28/2019  
 Independent Review by DPH on 8/29/2019





**Notes**

1. Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet North American Vertical Datum of 1988 (NAVD 88)
2. Source: Stantec
3. Calculated product thickness measured in feet using an interface probe.
4. Measurements from wells gauged during June 2019 synoptic event are provided. Wells not measured during the event include but not limited to damaged wells, destroyed wells, inaccessible wells, wells with pumps, and wells that were gauged but dry.
5. Aerial & Topo Copyright © 2013 National Geographic Society, I-cubed Pictometry International Corp. Philadelphia imagery 2018 downloaded from Pennsylvania Spatial Data Access (PASDA)

**Legend**

- WELL - LIGHT NON-AQUEOUS PHASE LIQUID (LNAPL) OBSERVED
- WELL - LNAPL NOT OBSERVED
- WELL - NOT MEASURED (SEE NOTE 4)
- APPROXIMATE LOCATION OF PHILADELPHIA WATER DEPARTMENT SEWER
- REMEDATION SYSTEMS DESIGNATED AS CURRENTLY ACTIVE
- AREA OF INTEREST (AOI)
- PHILADELPHIA GAS WORKS (PGW) PASSYUNK FACILITY PROPERTY BOUNDARY
- VERIZON SOUTH DISTRICT WORK CENTER (SDWC) PROPERTY
- 1.12 APPARENT LNAPL THICKNESS (FEET)
- <0.01 SHEEN

0 400 800 Feet  
1:4,800 (At original document size of 36x48)

Figure No.  
**3**

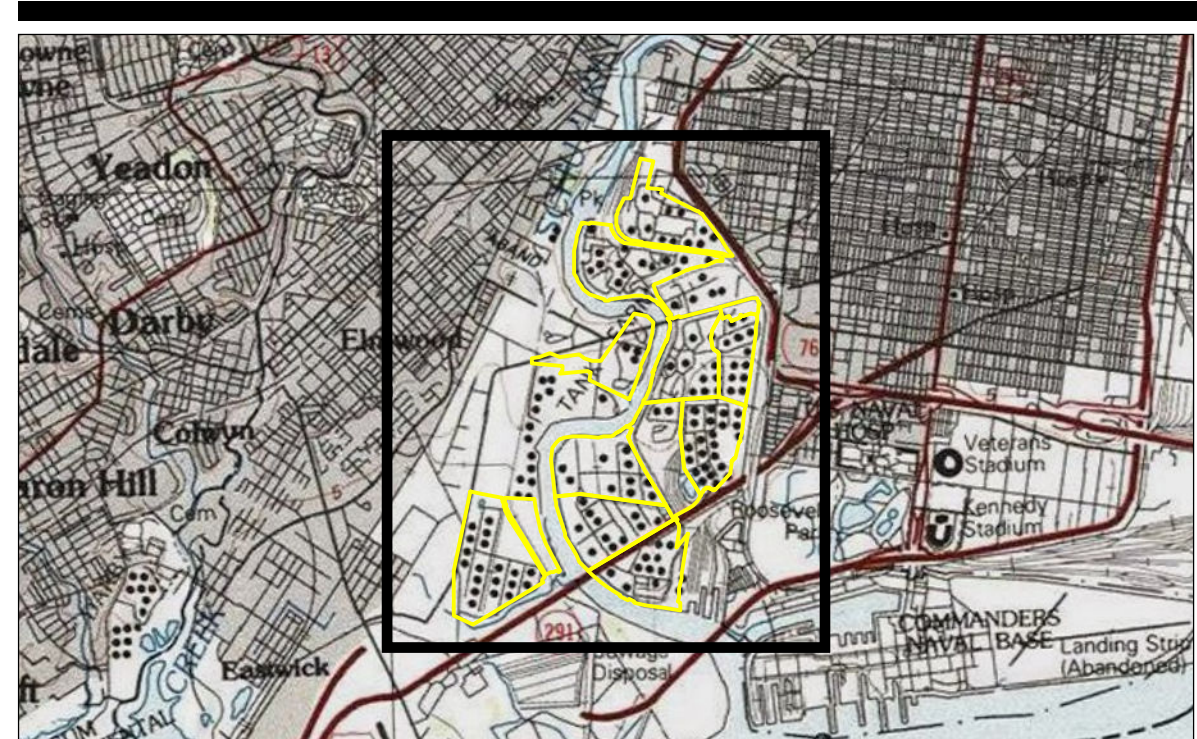
Title  
**APPARENT LNAPL THICKNESS MAP  
JUNE 2019**

Client/Project  
PHILADELPHIA REFINERY OPERATIONS, A SERIES OF  
EVERGREEN RESOURCES GROUP, LLC  
PHILADELPHIA REFINING COMPLEX  
3144 PASSYUNK AVENUE, PHILADELPHIA, PA 19145

Project Location  
City of Philadelphia, Philadelphia County, Pennsylvania

213402429  
Prepared by GWC on 8/15/2019  
Technical Review by ADK on 8/16/2019  
Independent Review by DPH on 8/29/2019

**Stantec**



**Notes**

1. Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet, North American Vertical Datum of 1988 (NAVD 88)
2. Source: Stantec
3. Callouts denote corrected groundwater elevation in feet. Depth to groundwater was measured in each well to the nearest one-hundredth of a foot using an interface probe. PES Complex groundwater remediation systems were not in operation during well gauging.
4. Groundwater elevation data was interpolated using block kriging with a linear variogram model in Surfer.
5. Wells not measured during the June 2017 event are not displayed and include (but not limited to) damaged wells, destroyed wells, inaccessible wells, wells with pumps, and wells that were gauged but dry.
6. Wells gauged during June 2017 but not utilized for water-table contouring include those containing measurable light, non-aqueous phase liquid, wells screened across a fit-supported perched aquifer, wells intersecting more than one water-bearing unit, wells with fouled screens, a subset of the remediation system wells, and wells excluded from contouring in recent Remedial Investigation Reports. Wells not used for contouring are not displayed.
7. Contour interval = 1 foot
8. Aerial & Topo Copyright © 2013 National Geographic Society, Licensed
9. Factories International Corp. Philadelphia Imagery 2018 downloaded from Pennsylvania Spatial Data Access (PASDA)

- Legend**
- ◆ WATER-TABLE MONITORING WELL
  - RECOVERY WELL
  - PIEZOMETER
  - WATER-TABLE ELEVATION CONTOUR (FEET NAVD 88)
  - APPROXIMATE LOCATION OF PHILADELPHIA WATER DEPARTMENT SEWER
  - LIMITS OF WATER-TABLE WELL CONTROL
  - AREA OF INTEREST (AOI)
  - VERIZON SOUTH DISTRICT WORK CENTER (SDWC) PROPERTY
  - PHILADELPHIA GAS WORKS (PGW) PASSYUNK FACILITY PROPERTY BOUNDARY
  - ▲ WATER-TABLE ELEVATION (FEET NAVD 88)

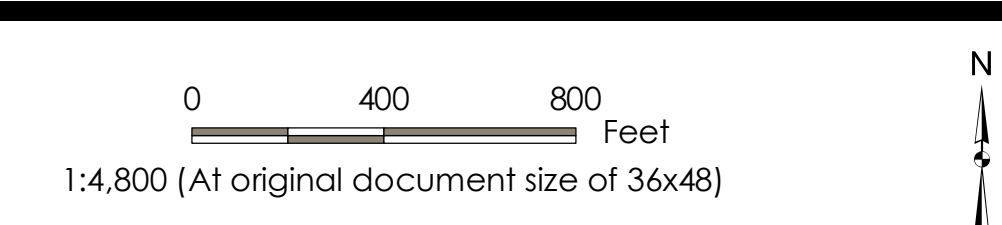
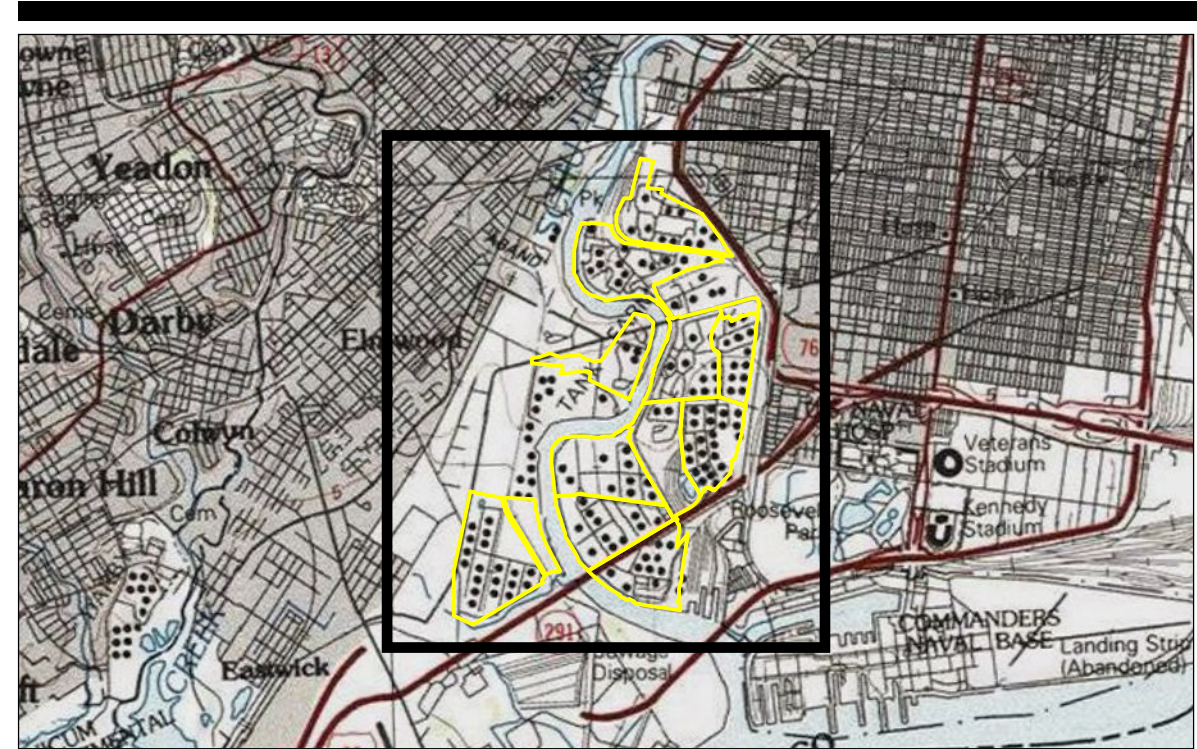


Figure No. 4  
**WATER-TABLE GROUNDWATER ELEVATION MAP**  
**JUNE 2019**  
 Client/Project  
 PHILADELPHIA REFINERY OPERATIONS, A SERIES OF  
 EVERGREEN RESOURCES GROUP, LLC  
 PHILADELPHIA REFINING COMPLEX  
 3144 PASSYUNK AVENUE, PHILADELPHIA, PA 19145

Project Location  
 City of Philadelphia, Philadelphia County, Pennsylvania  
 Prepared by GWC on 8/15/2019  
 Technical Review by ADK on 8/16/2019  
 Independent Review by DPH on 8/29/2019





**Notes**

1. Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet North American Vertical Datum of 1988 (NAVD 88)
2. Source: Stantec
3. Contours denote connected groundwater elevation in feet. Depth to groundwater was measured in each well to the nearest one-hundredth of a foot using an interface probe.
4. Groundwater elevation data was interpolated using block kriging with a linear variogram model in Surfer.
5. Contour Interval: 1 foot
6. Aerial & Topo Copyright © 2013 National Geographic Society, Inc. Used by permission of National Geographic.
7. Aerial & Topo Copyright © 2013 National Geographic Society, Inc. Used by permission of National Geographic.
8. Aerial & Topo Copyright © 2013 National Geographic Society, Inc. Used by permission of National Geographic.

- Legend**
- LOWER AQUIFER MONITORING WELL
  - GROUNDWATER ELEVATION CONTOUR (FEET NAVD 88)
  - APPROXIMATE LOCATION OF PHILADELPHIA WATER DEPARTMENT SEWER
  - LIMITS OF LOWER AQUIFER WELL CONTROL
  - AREA OF INTEREST (AOI)
  - VERIZON SOUTH DISTRICT WORK CENTER (SDWC) PROPERTY
  - PHILADELPHIA GAS WORKS (PGW) PASSYUNK FACILITY PROPERTY BOUNDARY
  - 111 GROUNDWATER ELEVATION (FEET NAVD 88)

0 400 800 Feet  
1:4,800 (At original document size of 36x48)

Figure No.  
**5**  
Title  
**LOWER AQUIFER  
GROUNDWATER ELEVATION MAP  
JUNE 2019**

Client/Project  
PHILADELPHIA REFINERY OPERATIONS, A SERIES OF  
EVERGREEN RESOURCES GROUP, LLC  
PHILADELPHIA REFINING COMPLEX  
3144 PASSYUNK AVENUE, PHILADELPHIA, PA 19145

Project Location  
City of Philadelphia  
Philadelphia County,  
Pennsylvania

213402429  
Prepared by GWC on 8/15/2019  
Technical Review by ADK on 8/16/2019  
Independent Review by DPH on 8/29/2019





# **TABLES**

Table 1  
 First Quarter 2019 Gauging Data  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

AOI	Well ID	Date	Depth to LNAPL (feet btoc)	Depth to Water (feet btoc)	Apparent LNAPL Thickness (feet)	Corrected Groundwater Elevation (ft NAVD 88)	Well Classification	Static or Pumping	Comments
AOI 1	RW-401	13-Feb-19	20.38	20.63	0.25	4.34	NYC	Static	
AOI 1	RW-402	13-Feb-19	---	23.05	---	-1.34	unconfined	Pumping	
AOI 1	RW-403	13-Feb-19	---	20.30	---	3.83	unconfined	Static	
AOI 1	RW-404	13-Feb-19	---	21.87	---	1.87	unconfined	Static	
AOI 1	RW-405	13-Feb-19	24.14	24.31	0.17	-0.06	NYC	Static	
AOI 1	RW-406	13-Feb-19	22.93	23.00	0.07	5.65	NYC	Static	
AOI 1	S-179	13-Feb-19	---	17.11	---	7.42	unconfined	Static	
AOI 1	S-180	13-Feb-19	---	17.56	---	4.64	unconfined	Static	
AOI 1	S-181	13-Feb-19	20.60	20.60	<0.01	2.27	NYC	Static	
AOI 1	S-182	13-Feb-19	---	19.21	---	3.79	unconfined	Static	pump not operational-removed for repair/cleaning
AOI 1	S-183	13-Feb-19	---	26.25	---	-2.77	unconfined	Pumping	
AOI 1	S-184	13-Feb-19	---	23.95	---	-0.47	unconfined	Pumping	
AOI 1	S-185	13-Feb-19	---	19.70	---	4.18	unconfined	Static	pump not operational-removed for repair/cleaning
AOI 1	S-186	13-Feb-19	---	28.70	---	-4.34	unconfined	Pumping	
AOI 1	S-187	13-Feb-19	---	25.70	---	-1.19	unconfined	Pumping	
AOI 1	S-188	13-Feb-19	---	25.00	---	-0.18	unconfined	Pumping	
AOI 1	S-189	13-Feb-19	---	21.33	---	4.46	unconfined	Static	pump not operational-removed for repair/cleaning
AOI 1	S-190	13-Feb-19	---	25.90	---	-0.33	NYC	Pumping	
AOI 1	S-191	13-Feb-19	---	21.28	---	4.55	unconfined	Static	pump not operational-removed for repair/cleaning
AOI 1	S-192	13-Feb-19	---	21.41	---	4.61	unconfined	Static	pump not operational-removed for repair/cleaning
AOI 2	River1	11-Feb-19	---	12.10	---	NM	NYC	Static	measured at 09:50
AOI 2	RW-100	11-Feb-19	19.03	19.42	0.39	1.64	NYC	Static	
AOI 2	RW-101	11-Feb-19	18.80	18.83	0.03	0.97	NYC	Static	
AOI 2	RW-102	11-Feb-19	15.60	15.62	0.02	1.87	NYC	Static	
AOI 2	RW-103	11-Feb-19	18.28	18.31	0.03	1.73	NYC	Static	
AOI 2	RW-104	11-Feb-19	---	8.42	---	0.54	NYC	Static	
AOI 2	RW-105	11-Feb-19	---	8.85	---	-0.17	NYC	Static	
AOI 2	RW-106	11-Feb-19	---	8.01	---	1.29	NYC	Static	
AOI 2	RW-107	11-Feb-19	---	9.80	---	0.75	NYC	Static	
AOI 2	RW-108	11-Feb-19	---	7.70	---	2.20	NYC	Static	
AOI 2	RW-109	11-Feb-19	---	7.18	---	2.67	NYC	Static	
AOI 2	RW-113	11-Feb-19	---	9.36	---	0.87	NYC	Static	
AOI 2	RW-114	11-Feb-19	---	11.98	---	1.03	NYC	Static	
AOI 2	RW-115	11-Feb-19	---	9.11	---	1.09	NYC	Static	
AOI 2	RW-116	11-Feb-19	---	9.63	---	1.18	NYC	Static	
AOI 2	RW-117	11-Feb-19	8.50	8.88	0.38	1.23	NYC	Static	
AOI 2	RW-118	11-Feb-19	---	10.49	---	1.33	NYC	Static	
AOI 2	RW-119	11-Feb-19	---	11.64	---	1.21	NYC	Static	
AOI 2	RW-120	11-Feb-19	---	12.36	---	1.22	NYC	Static	
AOI 2	RW-121	11-Feb-19	---	14.15	---	1.15	NYC	Static	
AOI 2	RW-122	11-Feb-19	---	8.76	---	1.48	NYC	Static	
AOI 2	RW-123	11-Feb-19	---	8.57	---	1.40	NYC	Static	
AOI 2	RW-124	11-Feb-19	---	7.60	---	1.56	NYC	Static	
AOI 2	RW-125	11-Feb-19	---	13.37	---	0.90	NYC	Static	
AOI 2	RW-126	11-Feb-19	---	7.78	---	1.45	NYC	Static	
AOI 2	RW-127	11-Feb-19	---	12.78	---	1.12	NYC	Static	
AOI 2	RW-128	11-Feb-19	8.36	8.69	0.33	0.02	NYC	Static	
AOI 2	RW-129	11-Feb-19	---	9.23	---	0.60	NYC	Static	
AOI 2	S-64	11-Feb-19	---	6.95	---	3.61	NYC	Static	
AOI 2	S-65	11-Feb-19	---	9.59	---	1.03	NYC	Static	
AOI 2	S-93	11-Feb-19	---	16.98	---	1.27	NYC	Static	
AOI 2	S-313	11-Feb-19	---	19.70	---	1.20	NYC	Static	
AOI 2	S-315	11-Feb-19	---	20.53	---	-0.06	NYC	Static	
AOI 2	S-316	11-Feb-19	NM	NM	NM	NM	NYC	Static	could not locate - K90under stone
AOI 2	S-406	11-Feb-19	10.82	10.82	<0.01	1.38	NYC	Static	
AOI 2	S-420	11-Feb-19	---	6.67	---	2.59	NYC	Static	
AOI 3	RW-2	12-Feb-19	10.44	10.45	0.01	0.85	NYC	Static	
AOI 3	S-20	15-Jan-19	---	17.49	---	2.77	unconfined	Static	
AOI 3	S-23	15-Jan-19	---	17.51	---	2.77	NYC	Static	
AOI 3	S-25	15-Jan-19	---	9.34	---	2.77	NYC	Static	
AOI 4	RW-700	12-Feb-19	---	20.90	---	-2.89	unconfined	Pumping	
AOI 4	RW-701	12-Feb-19	---	20.30	---	-2.03	unconfined	Pumping	
AOI 4	RW-702	11-Feb-19	---	33.80	---	-12.85	unconfined	Pumping	
AOI 4	RW-703	12-Feb-19	---	29.70	---	-9.08	unconfined	Pumping	
AOI 4	RW-704	12-Feb-19	---	21.25	---	-1.02	unconfined	Pumping	
AOI 4	RW-705	12-Feb-19	---	12.53	---	3.39	unconfined	Static	
AOI 4	RW-706	12-Feb-19	---	13.69	---	2.20	unconfined	Static	
AOI 4	RW-707	12-Feb-19	---	13.38	---	2.91	unconfined	Static	
AOI 4	RW-708	12-Feb-19	---	13.20	---	2.29	unconfined	Static	
AOI 4	RW-709	12-Feb-19	---	13.02	---	2.28	unconfined	Static	
AOI 4	RW-710	12-Feb-19	---	11.83	---	4.05	unconfined	Static	
AOI 4	RW-711	12-Feb-19	---	13.17	---	2.32	unconfined	Static	
AOI 4	RW-712	12-Feb-19	---	13.21	---	2.35	unconfined	Static	
AOI 4	RW-713	12-Feb-19	---	12.77	---	2.25	unconfined	Static	
AOI 4	RW-714	12-Feb-19	---	12.88	---	2.33	unconfined	Static	
AOI 4	RW-715	12-Feb-19	---	13.07	---	2.30	unconfined	Static	
AOI 4	RW-716	12-Feb-19	---	13.21	---	2.34	unconfined	Static	

Table 1  
 First Quarter 2019 Gauging Data  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

AOI 4	RW-717	12-Feb-19	---	13.23	---	2.38	unconfined	Static	
AOI 4	S-26	15-Jan-19	---	17.98	---	2.78	unconfined	Static	
AOI 4	S-30	12-Feb-19	20.67	21.35	0.68	2.37	unconfined	Static	
AOI 4	S-34	12-Feb-19	---	14.53	---	6.36	unconfined	Static	
AOI 4	S-35	12-Feb-19	---	19.20	---	1.74	unconfined	Static	
AOI 4	S-36	12-Feb-19	22.32	22.32	<0.01	1.92	unconfined	Static	
AOI 4	S-38	15-Jan-19	---	16.13	---	2.82	unconfined	Static	
AOI 4	S-123	15-Jan-19	---	19.30	---	2.83	unconfined	Static	
AOI 4	S-124	15-Jan-19	---	20.54	---	2.66	unconfined	Static	
AOI 4	S-220	15-Jan-19	17.98	18.01	0.03	2.83	unconfined	Static	
AOI 4	S-221	12-Feb-19	---	25.00	---	-2.00	unconfined	Static	
AOI 4	S-222	15-Jan-19	---	13.30	---	2.99	unconfined	Static	
AOI 4	S-223	15-Jan-19	---	13.04	---	2.84	unconfined	Static	
AOI 4	S-224	15-Jan-19	---	13.20	---	2.83	unconfined	Static	
AOI 4	S-233	15-Jan-19	18.42	19.12	0.70	5.85	unconfined	Static	
AOI 4	S-234	15-Jan-19	---	18.73	---	2.50	unconfined	Static	
AOI 4	S-235	15-Jan-19	20.35	20.38	0.03	2.77	unconfined	Static	
AOI 4	S-236	12-Feb-19	---	25.85	---	-2.88	unconfined	Static	
AOI 4	S-237	12-Feb-19	---	26.05	---	-3.24	unconfined	Static	
AOI 4	S-238	15-Jan-19	20.18	20.44	0.26	2.69	unconfined	Static	
AOI 4	S-239	15-Jan-19	---	12.98	---	2.84	unconfined	Static	
AOI 4	S-240	15-Jan-19	---	21.20	---	2.66	unconfined	Static	
AOI 4	S-241	15-Jan-19	23.30	26.04	2.74	2.49	unconfined	Static	
AOI 4	S-242	15-Jan-19	---	19.13	---	2.76	unconfined	Static	
AOI 4	S-243	15-Jan-19	---	12.75	---	2.99	unconfined	Static	
AOI 4	S-245	15-Jan-19	---	19.11	---	3.10	unconfined	Static	
AOI 4	S-278	15-Jan-19	---	18.23	---	2.80	unconfined	Static	
AOI 4	S-279	15-Jan-19	23.43	24.08	0.65	2.88	unconfined	Static	
AOI 4	S-329	15-Jan-19	---	18.33	---	2.59	unconfined	Static	
AOI 4	S-373	15-Jan-19	18.25	18.31	0.06	2.51	unconfined	Static	
AOI 4	S-374	16-Jan-19	---	12.95	---	2.68	NYC	Static	
AOI 4	S-375	16-Jan-19	---	13.33	---	2.63	NYC	Static	
AOI 4	S-376	16-Jan-19	13.07	13.07	<0.01	2.58	NYC	Static	trace LNAPL detected
AOI 4	S-377	16-Jan-19	---	12.28	---	2.41	NYC	Static	
AOI 4	S-378	16-Jan-19	---	9.57	---	2.40	NYC	Static	
AOI 4	S-408	15-Jan-19	---	13.06	---	2.82	unconfined	Static	
AOI 5	RWBH-1	15-Feb-19	2.71	2.88	0.17	2.60	unconfined	Static	
AOI 5	RWBH-2	15-Feb-19	1.39	4.35	2.96	2.45	unconfined	Static	
AOI 6	B-124	15-Feb-19	4.63	6.92	2.29	3.91	NYC	Static	
AOI 6	B-132	15-Feb-19	4.61	4.72	0.11	2.25	NYC	Static	
AOI 6	B-135	15-Feb-19	4.93	4.93	<0.01	1.46	NYC	Static	
AOI 6	B-136	15-Feb-19	4.37	4.37	<0.01	4.79	NYC	Static	
AOI 6	B-137	15-Feb-19	3.92	5.55	1.63	4.59	NYC	Static	
AOI 6	B-142	15-Feb-19	6.46	7.48	1.02	3.14	NYC	Static	
AOI 6	B-143	15-Feb-19	4.13	4.93	0.80	4.74	NYC	Static	
AOI 6	B-147	15-Feb-19	5.02	5.02	<0.01	3.89	NYC	Static	
AOI 7	RW-801	13-Feb-19	---	18.80	---	-12.53	NYC	Pumping	
AOI 7	RW-802	13-Feb-19	---	19.85	---	-14.15	NYC	Pumping	
AOI 7	RW-803	13-Feb-19	---	20.55	---	-14.77	NYC	Pumping	
AOI 7	RW-804	13-Feb-19	---	20.80	---	-15.02	NYC	Pumping	
AOI 7	RW-805	13-Feb-19	---	17.30	---	-11.55	NYC	Pumping	
AOI 7	RW-806	13-Feb-19	---	20.40	---	-14.99	NYC	Pumping	
AOI 7	RW-807	13-Feb-19	---	16.10	---	-9.26	NYC	Pumping	
AOI 7	RW-808	13-Feb-19	---	18.50	---	-12.42	NYC	Pumping	
AOI 7	RW-809	13-Feb-19	NM	NM	NM	NM	NYC	Pumping	no access- equipment on vault lid
AOI 7	RW-810	15-Feb-19	---	14.50	---	-8.06	NYC	Static	
AOI 8	N-137	22-Mar-19	15.25	15.27	0.02	10.34	unconfined	Static	passive bailer was empty
AOI 8	N-138	22-Mar-19	---	24.94	---	10.35	unconfined	Static	passive bailer was empty
AOI 8	N-139	22-Mar-19	24.65	24.70	0.05	10.34	unconfined	Static	passive bailer was full of black product
AOI 8	RW-200	15-Feb-19	---	4.60	---	7.42	unconfined	Static	
AOI 8	RW-201	15-Feb-19	21.73	21.78	0.05	10.25	unconfined	Static	
AOI 8	RW-202	15-Feb-19	---	19.17	---	10.34	unconfined	Static	
AOI 8	RW-203	15-Feb-19	21.25	21.27	0.02	9.85	unconfined	Static	
AOI 8	RW-204	15-Feb-19	17.86	20.44	2.58	10.45	unconfined	Static	
AOI 8	RW-205	15-Feb-19	17.72	20.45	2.73	11.71	unconfined	Static	
AOI 8	RW-206	15-Feb-19	19.48	20.52	1.04	11.35	unconfined	Static	
AOI 8	RW-300	15-Feb-19	13.83	14.45	0.62	7.71	lower aquifer	Static	
AOI 8	RW-301	15-Feb-19	---	11.38	---	11.03	unconfined	Static	
AOI 8	RW-302	15-Feb-19	---	12.60	---	11.49	unconfined	Static	
AOI 8	RW-303	15-Feb-19	---	13.22	---	11.76	unconfined	Static	
AOI 8	RW-304	15-Feb-19	---	14.07	---	11.21	unconfined	Static	
AOI 8	RW-305	15-Feb-19	---	14.17	---	11.10	unconfined	Static	
AOI 8	RW-306	15-Feb-19	---	12.35	---	11.23	unconfined	Static	
AOI 8	RW-307	15-Feb-19	---	14.31	---	8.95	unconfined	Static	
AOI 8	RW-308	15-Feb-19	---	16.15	---	9.46	unconfined	Static	
AOI 8	RW-309	15-Feb-19	---	15.06	---	10.17	unconfined	Static	
AOI 8	RW-500	15-Feb-19	---	1.74	---	5.82	unconfined	Static	
AOI 8	RW-501	15-Feb-19	---	3.94	---	5.85	unconfined	Static	
AOI 8	RW-502	15-Feb-19	8.48	8.81	0.33	3.96	unconfined	Static	
BELMONT	RW-1	14-Feb-19	NM	NM	NM	NM	unconfined	Static	no access-vehicle on vault
BELMONT	RW-4	14-Feb-19	26.20	26.85	0.65	4.11	NYC	Static	

Table 1  
 First Quarter 2019 Gauging Data  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

BELMONT	RW-6	14-Feb-19	---	26.15	---	4.91	unconfined	Static	
BELMONT	RW-7	14-Feb-19	---	23.34	---	4.87	unconfined	Static	
BELMONT	RW-15	14-Feb-19	---	26.28	---	3.77	unconfined	Static	
BELMONT	RW-21	14-Feb-19	---	24.31	---	4.55	unconfined	Static	
BELMONT	RW-22	14-Feb-19	---	22.21	---	4.82	unconfined	Static	
BELMONT	RW-23	14-Feb-19	---	22.37	---	4.76	NYC	Static	
BELMONT	RW-24	14-Feb-19	26.01	26.47	0.46	1.06	unconfined	Pumping	
BELMONT	RW-25	14-Feb-19	29.00	29.32	0.32	1.09	NYC	Pumping	
BELMONT	RW-26	14-Feb-19	---	23.87	---	5.34	unconfined	Static	
BELMONT	RW-27	14-Feb-19	---	25.43	---	4.28	unconfined	Static	
BELMONT	RW-28	14-Feb-19	---	22.08	---	7.66	unconfined	Static	
BELMONT	RW-29	14-Feb-19	---	25.31	---	4.13	unconfined	Static	
BELMONT	RW-30	14-Feb-19	---	25.16	---	4.23	unconfined	Static	
BELMONT	RW-31	14-Feb-19	---	25.14	---	4.24	unconfined	Static	
BELMONT	RW-32	14-Feb-19	---	6.62	---	22.43	unconfined	Static	
BELMONT	RW-400	14-Feb-19	---	27.40	---	0.79	unconfined	Pumping	

Notes:

For product thickness <0.01 ft, the corrected groundwater elevation was calculated using 0.01 foot.

LNAPL = Light non-aqueous phase liquid

ft = Feet

toc = Top of casing

ft btoc = Feet below top of casing

NAVD 88 = North American Vertical Datum of 1988

--- = LNAPL not present

NM = Field reading not measured and/or corrected groundwater elevation not calculated due to lack of surveyed reference elevation or well was dry or presence of down-well pump.

NA = Not Accessible, Not Applicable, or Not Available

NYC = Not yet classified

unconfined\* = Hydrostratigraphic unit was assumed because there was no well construction data available.



Table 2  
 Sitewide 2019 Annual Gauging Data  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

AOI	Well ID	Date	Depth to LNAPL (feet btoc)	Depth to Water (feet btoc)	Apparent LNAPL Thickness (feet)	Corrected Groundwater Elevation (ft NAVD 88)	Well Classification	Static or Pumping	Comments
AOI 1	ARCO-1	6/3/2019	---	25.87	---	1.08	unconfined	Static	
AOI 1	ARCO-1D	6/3/2019	---	25.80	---	1.26	lower aquifer	Static	
AOI 1	ARCO-2	6/3/2019	---	25.04	---	0.96	unconfined	Static	
AOI 1	ARCO-3	6/3/2019	---	23.79	---	0.52	unconfined	Static	
AOI 1	MW-330	03-Jun-19	---	24.75	---	NM	NYC	Static	
AOI 1	MW-331	03-Jun-19	---	25.17	---	NM	NYC	Static	
AOI 1	MW-332	10-Jun-19	NM	NM	NM	NM	NYC	Static	
AOI 1	MWELL-28	03-Jun-19	---	20.77	---	0.88	NYC	Static	
AOI 1	MWELL-29	03-Jun-19	---	21.97	---	0.25	NYC	Static	
AOI 1	MWELL-30	03-Jun-19	---	25.66	---	0.47	NYC	Static	
AOI 1	MWELL-31	03-Jun-19	---	24.95	---	0.97	NYC	Static	
AOI 1	PZ-401	03-Jun-19	19.61	19.67	0.06	4.10	unconfined	Static	
AOI 1	PZ-402	03-Jun-19	19.15	19.23	0.08	4.23	NYC	Static	
AOI 1	PZ-403	03-Jun-19	22.95	22.96	0.01	1.46	NYC	Static	viscous LNAPL
AOI 1	PZ-404	03-Jun-19	---	26.00	---	0.01	NYC	Static	
AOI 1	RW-110	03-Jun-19	---	15.97	---	1.70	unconfined	Static	
AOI 1	RW-111	03-Jun-19	---	14.32	---	3.40	unconfined	Static	
AOI 1	RW-112	03-Jun-19	---	16.01	---	1.60	unconfined	Static	
AOI 1	RW-401	16-Jul-19	20.04	20.75	0.71	4.59	NYC	Static	
AOI 1	RW-402	03-Jun-19	---	23.40	---	-1.69	unconfined	Static	
AOI 1	RW-403	03-Jun-19	---	20.40	---	3.73	unconfined	Static	
AOI 1	RW-404	03-Jun-19	---	21.17	---	2.57	unconfined	Static	
AOI 1	RW-405	03-Jun-19	24.16	24.31	0.15	-0.07	NYC	Static	
AOI 1	RW-406	03-Jun-19	22.45	22.82	0.37	6.07	NYC	Static	
AOI 1	S-41	03-Jun-19	---	24.81	---	0.94	unconfined	Static	
AOI 1	S-42I	03-Jun-19	---	24.11	---	-0.55	lower aquifer	Static	
AOI 1	S-43	03-Jun-19	---	23.11	---	0.11	unconfined	Static	
AOI 1	S-44	03-Jun-19	---	24.53	---	-1.19	unconfined	Static	
AOI 1	S-45	03-Jun-19	---	16.56	---	5.01	unconfined	Static	
AOI 1	S-46	03-Jun-19	---	20.86	---	1.70	unconfined	Static	
AOI 1	S-46D	03-Jun-19	---	13.69	---	2.02	NYC	Static	
AOI 1	S-47I	03-Jun-19	---	20.52	---	1.69	middle clay unit	Static	
AOI 1	S-50	03-Jun-19	---	20.83	---	1.65	unconfined	Static	
AOI 1	S-51	03-Jun-19	---	21.68	---	0.86	unconfined	Static	
AOI 1	S-52	03-Jun-19	---	22.17	---	1.37	unconfined	Static	
AOI 1	S-77	03-Jun-19	8.95	11.95	3.00	21.18	NYC	Static	
AOI 1	S-77P	16-Jul-19	---	28.03	---	5.01	unconfined	Static	
AOI 1	S-78	03-Jun-19	---	25.65	---	5.28	unconfined	Static	
AOI 1	S-80	03-Jun-19	---	27.07	---	5.06	unconfined	Static	
AOI 1	S-80D	03-Jun-19	---	28.94	---	2.80	lower aquifer	Static	
AOI 1	S-82	03-Jun-19	22.38	22.38	<0.01	4.92	NYC	Static	
AOI 1	S-83	03-Jun-19	19.82	20.01	0.19	3.47	NYC	Static	
AOI 1	S-84P	03-Jun-19	---	15.75	---	7.51	unconfined	Static	
AOI 1	S-85	03-Jun-19	---	22.96	---	2.17	unconfined	Static	
AOI 1	S-86	03-Jun-19	25.60	25.61	0.01	1.45	NYC	Static	
AOI 1	S-87I	03-Jun-19	---	23.95	---	1.92	lower aquifer	Static	
AOI 1	S-88	03-Jun-19	---	24.83	---	-0.73	unconfined	Static	
AOI 1	S-88A	03-Jun-19	---	17.15	---	6.65	unconfined	Static	
AOI 1	S-89	03-Jun-19	25.93	26.00	0.07	0.05	unconfined	Static	
AOI 1	S-95	03-Jun-19	---	21.36	---	1.63	unconfined	Static	
AOI 1	S-98	03-Jun-19	22.36	22.36	<0.01	6.45	unconfined	Static	
AOI 1	S-99	03-Jun-19	---	24.37	---	1.03	unconfined	Static	
AOI 1	S-100	03-Jun-19	22.49	23.42	0.93	4.32	NYC	Static	
AOI 1	S-101	03-Jun-19	---	46.51	---	2.61	unconfined	Static	
AOI 1	S-117	03-Jun-19	---	16.40	---	2.01	unconfined	Static	
AOI 1	S-118	03-Jun-19	---	16.48	---	1.42	unconfined	Static	
AOI 1	S-125	03-Jun-19	21.70	21.82	0.12	4.27	NYC	Static	
AOI 1	S-126	16-Jul-19	14.22	14.53	0.31	14.22	NYC	Static	
AOI 1	S-127	03-Jun-19	---	17.61	---	-0.51	unconfined	Static	
AOI 1	S-162	03-Jun-19	---	16.39	---	1.67	unconfined	Static	
AOI 1	S-164	03-Jun-19	---	14.83	---	1.87	unconfined	Static	
AOI 1	S-179	03-Jun-19	---	17.60	---	6.93	unconfined	Static	
AOI 1	S-180	03-Jun-19	---	17.15	---	5.05	unconfined	Static	
AOI 1	S-181	03-Jun-19	---	18.97	---	3.89	NYC	Static	
AOI 1	S-182	03-Jun-19	---	18.65	---	4.35	unconfined	Static	
AOI 1	S-183	03-Jun-19	---	19.01	---	4.47	unconfined	Static	
AOI 1	S-184	03-Jun-19	---	21.53	---	1.95	unconfined	Pumping	
AOI 1	S-185	03-Jun-19	---	19.03	---	4.85	unconfined	Static	
AOI 1	S-186	03-Jun-19	---	19.39	---	4.97	unconfined	Static	
AOI 1	S-187	16-Jul-19	---	19.94	---	4.57	unconfined	Static	
AOI 1	S-188	03-Jun-19	---	19.95	---	4.87	unconfined	Static	

Table 2  
 Sitewide 2019 Annual Gauging Data  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

AOI	Well ID	Date	Depth to LNAPL (feet btoc)	Depth to Water (feet btoc)	Apparent LNAPL Thickness (feet)	Corrected Groundwater Elevation (ft NAVD 88)	Well Classification	Static or Pumping	Comments
AOI 1	S-189	03-Jun-19	---	20.94	---	4.85	unconfined	Static	
AOI 1	S-190	03-Jun-19	---	20.70	---	4.87	NYC	Static	
AOI 1	S-191	03-Jun-19	---	20.96	---	4.87	unconfined	Static	
AOI 1	S-192	03-Jun-19	---	20.15	---	5.87	unconfined	Static	
AOI 1	S-193	03-Jun-19	---	23.21	---	4.89	unconfined	Static	
AOI 1	S-194	03-Jun-19	---	25.15	---	5.89	unconfined	Static	
AOI 1	S-196	03-Jun-19	---	44.95	---	5.10	unconfined	Static	
AOI 1	S-197	03-Jun-19	---	44.32	---	5.46	NYC	Static	
AOI 1	S-198	03-Jun-19	24.19	25.31	1.12	4.91	NYC	Static	
AOI 1	S-199	16-Jul-19	24.34	25.81	1.47	4.54	NYC	Static	
AOI 1	S-200	03-Jun-19	---	24.09	---	4.97	unconfined	Static	
AOI 1	S-201	03-Jun-19	22.90	23.58	0.68	4.90	NYC	Static	
AOI 1	S-202	03-Jun-19	---	27.63	---	4.98	unconfined	Static	
AOI 1	S-203	16-Jul-19	26.64	28.98	2.34	5.01	NYC	Static	
AOI 1	S-205	03-Jun-19	16.83	16.84	0.01	11.34	NYC	Static	
AOI 1	S-206	03-Jun-19	---	26.70	---	5.08	unconfined	Static	
AOI 1	S-207	03-Jun-19	---	13.14	---	14.06	unconfined	Static	
AOI 1	S-208	03-Jun-19	---	18.57	---	2.29	unconfined	Static	
AOI 1	S-209	03-Jun-19	---	25.28	---	1.70	unconfined	Static	
AOI 1	S-210	03-Jun-19	---	23.21	---	0.48	unconfined	Static	
AOI 1	S-211	03-Jun-19	---	13.25	---	2.00	unconfined	Static	
AOI 1	S-213	03-Jun-19	---	13.49	---	1.72	unconfined	Static	
AOI 1	S-214	03-Jun-19	---	17.68	---	2.16	unconfined	Static	
AOI 1	S-215	03-Jun-19	NM	NM	NM	NM	NYC	Static	obstruction at 0.65 feet
AOI 1	S-226	03-Jun-19	---	21.17	---	0.91	unconfined	Static	
AOI 1	S-227	03-Jun-19	---	21.07	---	0.72	unconfined	Static	
AOI 1	S-228	03-Jun-19	---	21.00	---	0.18	unconfined	Static	
AOI 1	S-230	03-Jun-19	---	17.75	---	2.44	unconfined	Static	
AOI 1	S-231	03-Jun-19	---	19.54	---	0.40	unconfined	Static	
AOI 1	S-232	03-Jun-19	---	20.11	---	0.20	unconfined	Static	
AOI 1	S-255	03-Jun-19	---	21.72	---	0.19	unconfined	Static	
AOI 1	S-256	03-Jun-19	---	20.96	---	0.45	unconfined	Static	
AOI 1	S-257	03-Jun-19	---	22.55	---	0.72	unconfined	Static	
AOI 1	S-258	03-Jun-19	---	22.32	---	0.48	unconfined	Static	
AOI 1	S-259	03-Jun-19	---	23.86	---	-1.30	unconfined	Static	
AOI 1	S-260	03-Jun-19	---	22.58	---	-0.88	unconfined	Static	
AOI 1	S-261	03-Jun-19	---	24.63	---	2.78	unconfined	Static	
AOI 1	S-262	03-Jun-19	---	17.89	---	1.55	unconfined	Static	
AOI 1	S-263	03-Jun-19	---	15.45	---	1.33	unconfined	Static	
AOI 1	S-264D	03-Jun-19	---	25.13	---	1.50	lower aquifer	Static	
AOI 1	S-265	03-Jun-19	---	14.81	---	16.37	NYC	Static	
AOI 1	S-266	03-Jun-19	NM	NM	NM	NM	NYC	Static	no access-covered with concrete
AOI 1	S-267	03-Jun-19	---	17.43	---	15.44	unconfined	Static	
AOI 1	S-268	03-Jun-19	---	26.30	---	5.15	unconfined	Static	
AOI 1	S-269	03-Jun-19	---	19.45	---	3.11	unconfined	Static	
AOI 1	S-270	03-Jun-19	---	20.28	---	2.85	unconfined	Static	
AOI 1	S-271	03-Jun-19	---	23.57	---	4.91	unconfined	Static	
AOI 1	S-272	03-Jun-19	---	15.66	---	12.70	unconfined	Static	
AOI 1	S-273	03-Jun-19	---	22.68	---	5.07	unconfined	Static	
AOI 1	S-274	03-Jun-19	---	22.48	---	4.89	unconfined	Static	
AOI 1	S-275	03-Jun-19	---	21.72	---	4.85	unconfined	Static	
AOI 1	S-276	03-Jun-19	21.81	22.12	0.31	4.72	NYC	Static	
AOI 1	S-277	16-Jul-19	20.78	21.43	0.65	4.79	NYC	Static	
AOI 1	S-312	03-Jun-19	---	5.88	---	12.00	unconfined	Static	
AOI 1	S-388D	03-Jun-19	---	24.48	---	1.71	lower aquifer	Static	
AOI 1	S-389D	03-Jun-19	---	24.34	---	1.96	lower aquifer	Static	
AOI 1	S-390D	03-Jun-19	---	24.76	---	1.72	lower aquifer	Static	
AOI 1	S-391D	03-Jun-19	---	28.82	---	2.64	lower aquifer	Static	
AOI 1	S-392D	03-Jun-19	---	18.47	---	1.50	lower aquifer	Static	
AOI 1	S-396	03-Jun-19	---	24.20	---	1.99	upper sand unit	Static	
AOI 1	S-397	03-Jun-19	---	25.00	---	1.60	upper sand unit	Static	
AOI 1	S-398	03-Jun-19	---	23.94	---	1.62	middle clay unit	Static	
AOI 1	S-399	03-Jun-19	---	18.65	---	1.51	lower aquifer	Static	
AOI 1	S-400	03-Jun-19	---	29.54	---	2.15	lower aquifer	Static	
AOI 1	S-401	03-Jun-19	---	28.55	---	3.21	middle clay unit	Static	
AOI 1	S-402	03-Jun-19	---	28.43	---	5.02	NYC	Static	
AOI 1	S-403	03-Jun-19	23.18	23.56	0.38	3.58	NYC	Static	
AOI 1	S-404	03-Jun-19	13.31	13.32	0.01	15.20	NYC	Static	
AOI 1	S-405	03-Jun-19	21.73	22.80	1.07	4.23	NYC	Static	
AOI 1	S-417	03-Jun-19	26.26	26.37	0.11	6.00	NYC	Static	
AOI 1	S-418	19-Jun-19	---	16.81	---	0.48	NYC	Static	

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 Sitewide 2019 Annual Gauging Data  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

AOI	Well ID	Date	Depth to LNAPL (feet btoc)	Depth to Water (feet btoc)	Apparent LNAPL Thickness (feet)	Corrected Groundwater Elevation (ft NAVD 88)	Well Classification	Static or Pumping	Comments
AOI 1	S-419	03-Jun-19	---	14.34	---	1.68	NYC	Static	
AOI 2	C-HEADER	04-Jun-19	---	11.64	---	8.97	NYC	Static	
AOI 2	PGW-MW-8D	04-Jun-19	---	32.80	---	2.31	lower aquifer	Static	
AOI 2	PGW-MW-8S	04-Jun-19	---	29.69	---	5.39	unconfined	Static	
AOI 2	PGW-MW-9D	04-Jun-19	---	30.03	---	2.40	lower aquifer	Static	
AOI 2	PZ-100	04-Jun-19	---	15.53	---	2.54	NYC	Static	
AOI 2	PZ-101	04-Jun-19	---	2.72	---	14.45	NYC	Static	
AOI 2	River1	04-Jun-19	---	7.80	---	NM	NYC	Static	
AOI 2	River3	04-Jun-19	---	7.50	---	NM	NYC	Static	
AOI 2	RW-100	04-Jun-19	17.65	18.06	0.41	3.02	NYC	Static	
AOI 2	RW-101	04-Jun-19	17.15	17.21	0.06	2.61	NYC	Static	
AOI 2	RW-102	04-Jun-19	14.64	14.69	0.05	2.82	NYC	Static	
AOI 2	RW-103	04-Jun-19	17.27	17.55	0.28	2.71	NYC	Static	
AOI 2	RW-104	04-Jun-19	9.29	9.29	<0.01	-0.32	NYC	Static	
AOI 2	RW-105	04-Jun-19	---	7.90	---	0.78	NYC	Static	
AOI 2	RW-106	04-Jun-19	---	6.90	---	2.40	NYC	Static	
AOI 2	RW-107	04-Jun-19	---	10.18	---	0.37	NYC	Static	
AOI 2	RW-108	04-Jun-19	---	7.64	---	2.26	NYC	Static	
AOI 2	RW-109	04-Jun-19	---	6.85	---	3.00	NYC	Static	
AOI 2	RW-113	06-Jun-19	---	8.14	---	2.09	NYC	Pumping	
AOI 2	RW-114	04-Jun-19	---	10.64	---	2.37	NYC	Static	
AOI 2	RW-115	04-Jun-19	---	7.95	---	2.25	NYC	Static	
AOI 2	RW-116	04-Jun-19	---	8.42	---	2.39	NYC	Static	
AOI 2	RW-117	04-Jun-19	7.41	7.47	0.06	2.36	NYC	Static	
AOI 2	RW-118	04-Jun-19	---	9.32	---	2.50	NYC	Static	
AOI 2	RW-119	04-Jun-19	10.38	10.38	<0.01	2.48	NYC	Static	
AOI 2	RW-120	04-Jun-19	---	11.06	---	2.52	NYC	Static	
AOI 2	RW-121	04-Jun-19	---	12.85	---	2.45	NYC	Static	
AOI 2	RW-122	04-Jun-19	---	7.84	---	2.40	NYC	Static	
AOI 2	RW-123	04-Jun-19	---	7.55	---	2.42	NYC	Static	
AOI 2	RW-124	04-Jun-19	---	6.68	---	2.48	NYC	Static	
AOI 2	RW-125	04-Jun-19	---	11.85	---	2.42	NYC	Static	
AOI 2	RW-126	04-Jun-19	16.91	16.91	<0.01	-7.67	NYC	Static	
AOI 2	RW-127	04-Jun-19	---	11.44	---	2.46	NYC	Static	
AOI 2	RW-128	04-Jun-19	8.07	8.07	<0.01	0.37	NYC	Static	
AOI 2	RW-129	04-Jun-19	---	8.32	---	1.51	NYC	Static	
AOI 2	RW-600	04-Jun-19	NM	NM	NM	NM	NYC	Static	obstruction at 6 feet
AOI 2	S-53	16-Jul-19	18.05	18.05	<0.01	3.64	NYC	Static	
AOI 2	S-54	04-Jun-19	NM	NM	NM	NM	NYC	Static	unable to locate
AOI 2	S-61	04-Jun-19	15.57	15.81	0.24	2.67	NYC	Static	
AOI 2	S-62	04-Jun-19	---	18.23	---	3.15	NYC	Static	
AOI 2	S-63	04-Jun-19	18.62	18.63	0.01	2.65	NYC	Static	
AOI 2	S-64	04-Jun-19	---	6.05	---	4.51	NYC	Static	
AOI 2	S-65	04-Jun-19	9.39	9.39	<0.01	1.24	NYC	Static	
AOI 2	S-71	04-Jun-19	---	20.27	---	3.77	NYC	Static	
AOI 2	S-72	04-Jun-19	---	23.25	---	7.81	NYC	Static	
AOI 2	S-72D	04-Jun-19	---	32.30	---	2.21	NYC	Static	
AOI 2	S-91	04-Jun-19	---	18.57	---	4.56	NYC	Static	
AOI 2	S-92	04-Jun-19	9.09	9.52	0.43	10.92	NYC	Static	
AOI 2	S-93	04-Jun-19	---	15.58	---	2.67	NYC	Static	
AOI 2	S-105	04-Jun-19	---	10.30	---	2.23	NYC	Static	
AOI 2	S-107	04-Jun-19	9.20	9.70	0.50	3.00	NYC	Static	
AOI 2	S-108	04-Jun-19	---	6.62	---	4.10	NYC	Static	
AOI 2	S-110	04-Jun-19	---	15.34	---	10.33	NYC	Static	
AOI 2	S-130	16-Jul-19	18.96	18.96	<0.01	3.53	NYC	Static	
AOI 2	S-131	04-Jun-19	---	15.66	---	3.10	NYC	Static	
AOI 2	S-132	04-Jun-19	---	17.93	---	3.10	NYC	Static	
AOI 2	S-133	04-Jun-19	---	19.02	---	3.00	NYC	Static	
AOI 2	S-134	04-Jun-19	---	18.77	---	3.26	NYC	Static	
AOI 2	S-135	04-Jun-19	21.86	23.59	1.73	1.09	NYC	Static	
AOI 2	S-136	04-Jun-19	---	17.64	---	2.95	NYC	Static	
AOI 2	S-137	04-Jun-19	---	16.60	---	3.44	NYC	Static	
AOI 2	S-139	04-Jun-19	---	18.62	---	2.84	NYC	Static	
AOI 2	S-141	04-Jun-19	19.25	19.29	0.04	2.67	NYC	Static	
AOI 2	S-142	04-Jun-19	18.19	18.43	0.24	1.62	NYC	Static	
AOI 2	S-143	04-Jun-19	NM	NM	NM	NM	NYC	Static	obstruction at 9.85 feet
AOI 2	S-150	04-Jun-19	---	17.40	---	3.43	NYC	Static	
AOI 2	S-152	04-Jun-19	---	7.95	---	2.54	NYC	Static	
AOI 2	S-153	04-Jun-19	---	9.70	---	0.11	NYC	Static	
AOI 2	S-154	04-Jun-19	---	11.20	---	-0.58	NYC	Static	
AOI 2	S-156	04-Jun-19	---	18.01	---	2.83	NYC	Static	



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AOI	Well ID	Date	Depth to LNAPL (feet btoc)	Depth to Water (feet btoc)	Apparent LNAPL Thickness (feet)	Corrected Groundwater Elevation (ft NAVD 88)	Well Classification	Static or Pumping	Comments
AOI 2	S-157	04-Jun-19	16.83	17.44	0.61	3.03	NYC	Static	
AOI 2	S-159	04-Jun-19	---	15.62	---	3.25	NYC	Static	
AOI 2	S-165	04-Jun-19	---	15.60	---	2.51	unconfined	Static	
AOI 2	S-166	04-Jun-19	---	15.66	---	2.57	unconfined	Static	
AOI 2	S-174	04-Jun-19	9.19	9.44	0.25	10.40	NYC	Static	
AOI 2	S-175	04-Jun-19	16.24	16.55	0.31	3.75	NYC	Static	
AOI 2	S-177	04-Jun-19	NM	NM	NM	NM	unconfined	Static	no access area around well flooded
AOI 2	S-178	04-Jun-19	NM	NM	NM	NM	unconfined	Static	no access area around well flooded
AOI 2	S-246A	04-Jun-19	---	10.91	---	0.85	NYC	Static	
AOI 2	S-247	04-Jun-19	---	11.10	---	0.99	NYC	Static	
AOI 2	S-248	04-Jun-19	---	9.89	---	0.91	NYC	Static	
AOI 2	S-249	04-Jun-19	---	10.39	---	2.22	NYC	Static	
AOI 2	S-251	04-Jun-19	---	16.55	---	2.72	NYC	Static	
AOI 2	S-252	04-Jun-19	---	16.63	---	2.66	NYC	Static	
AOI 2	S-253	04-Jun-19	---	17.95	---	2.88	NYC	Static	
AOI 2	S-254	04-Jun-19	18.34	18.49	0.15	2.52	NYC	Static	
AOI 2	S-292	04-Jun-19	NM	NM	NM	NM	NYC	Static	dry at 19.44
AOI 2	S-294	04-Jun-19	29.21	29.21	<0.01	5.26	unconfined	Static	
AOI 2	S-294D	04-Jun-19	---	31.76	---	2.92	lower aquifer	Static	
AOI 2	S-295	04-Jun-19	---	23.55	---	9.19	NYC	Static	
AOI 2	S-297	04-Jun-19	---	23.75	---	6.26	NYC	Static	
AOI 2	S-298	04-Jun-19	14.90	15.90	1.00	11.86	NYC	Static	
AOI 2	S-299	04-Jun-19	---	20.63	---	3.37	NYC	Static	
AOI 2	S-300	04-Jun-19	---	20.80	---	4.48	NYC	Static	
AOI 2	S-301	04-Jun-19	---	16.00	---	4.41	NYC	Static	
AOI 2	S-302	04-Jun-19	21.10	21.20	0.10	2.84	NYC	Static	
AOI 2	S-302D	04-Jun-19	---	24.00	---	0.60	NYC	Static	
AOI 2	S-303	16-Jul-19	18.95	19.11	0.16	3.62	NYC	Static	
AOI 2	S-304	16-Jul-19	12.11	12.57	0.46	12.01	unconfined	Static	
AOI 2	S-305	04-Jun-19	---	17.78	---	1.95	unconfined	Static	
AOI 2	S-305D	04-Jun-19	---	19.23	---	1.25	lower aquifer	Static	
AOI 2	S-306	04-Jun-19	---	19.98	---	2.49	NYC	Static	
AOI 2	S-307	04-Jun-19	---	15.35	---	3.22	NYC	Static	
AOI 2	S-308	04-Jun-19	---	22.94	---	5.17	NYC	Static	
AOI 2	S-309	04-Jun-19	---	16.82	---	2.91	NYC	Static	
AOI 2	S-311	04-Jun-19	22.14	22.33	0.19	3.99	NYC	Static	
AOI 2	S-313	04-Jun-19	---	17.94	---	2.96	NYC	Static	
AOI 2	S-314	04-Jun-19	---	18.07	---	2.63	NYC	Static	
AOI 2	S-315	04-Jun-19	18.25	18.25	<0.01	2.23	NYC	Static	
AOI 2	S-316	04-Jun-19	---	16.00	---	4.90	NYC	Static	
AOI 2	S-317	04-Jun-19	---	17.54	---	2.65	NYC	Static	
AOI 2	S-318	04-Jun-19	---	21.39	---	2.36	NYC	Static	
AOI 2	S-328	04-Jun-19	18.50	18.75	0.25	3.44	NYC	Static	
AOI 2	S-333	04-Jun-19	---	12.72	---	1.01	NYC	Static	
AOI 2	S-335	04-Jun-19	---	9.45	---	0.65	NYC	Static	
AOI 2	S-336	04-Jun-19	---	9.15	---	2.37	NYC	Static	
AOI 2	S-337	04-Jun-19	11.70	11.71	0.01	0.51	NYC	Static	
AOI 2	S-338	04-Jun-19	12.50	13.05	0.55	2.91	NYC	Static	
AOI 2	S-346	16-Jul-19	17.07	17.13	0.06	2.41	NYC	Static	
AOI 2	S-347	04-Jun-19	16.97	17.36	0.39	2.11	NYC	Static	
AOI 2	S-348	04-Jun-19	12.47	12.65	0.18	7.09	NYC	Static	
AOI 2	S-349	04-Jun-19	14.65	14.66	0.01	3.96	NYC	Static	
AOI 2	S-350	04-Jun-19	---	26.35	---	5.13	unconfined	Static	
AOI 2	S-351	04-Jun-19	---	30.04	---	5.20	NYC	Static	
AOI 2	S-354	04-Jun-19	---	24.25	---	3.78	NYC	Static	
AOI 2	S-355	04-Jun-19	---	27.10	---	3.72	NYC	Static	
AOI 2	S-357	04-Jun-19	22.50	24.55	2.05	5.24	NYC	Static	
AOI 2	S-359	04-Jun-19	16.22	16.34	0.12	4.04	NYC	Static	
AOI 2	S-360	16-Jul-19	---	17.98	---	5.82	NYC	Static	
AOI 2	S-361	04-Jun-19	---	22.68	---	3.69	NYC	Static	
AOI 2	S-362	04-Jun-19	NM	NM	NM	NM	NYC	Static	obstruction at 10.00 feet
AOI 2	S-363	16-Jul-19	NM	NM	NM	NM	NYC	Static	unable to locate
AOI 2	S-406	04-Jun-19	9.31	9.42	0.11	2.87	NYC	Static	
AOI 2	S-420	04-Jun-19	---	6.56	---	2.70	NYC	Static	
AOI 2	S-422	04-Jun-19	---	13.42	---	3.15	NYC	Static	
AOI 2	S-423	04-Jun-19	---	26.60	---	4.86	NYC	Static	
AOI 2	S-425	04-Jun-19	---	8.37	---	3.43	unconfined	Static	
AOI 2	S-426	04-Jun-19	---	6.10	---	5.50	unconfined	Static	
AOI 2	S-427	04-Jun-19	---	6.35	---	5.61	NYC	Static	
AOI 2	SD-1	04-Jun-19	---	7.19	---	12.31	NYC	Static	
AOI 3	BF-88	05-Jun-19	---	9.28	---	1.33	NYC	Static	

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AOI 3	BF-90	05-Jun-19	---	2.12	---	5.37	NYC	Static	
AOI 3	BF-90D	05-Jun-19	---	9.41	---	0.36	NYC	Static	
AOI 3	BF-99	05-Jun-19	---	9.82	---	1.14	NYC	Static	
AOI 3	BF-100	05-Jun-19	---	11.15	---	1.21	NYC	Static	
AOI 3	BF-101	05-Jun-19	NM	NM	NM	NM	NYC	Static	unable to locate
AOI 3	BF-103R	05-Jun-19	13.60	13.97	0.37	0.86	NYC	Static	
AOI 3	BF-104	05-Jun-19	---	5.48	---	6.26	NYC	Static	
AOI 3	BF-105	05-Jun-19	---	11.02	---	0.89	NYC	Static	
AOI 3	BF-106	05-Jun-19	---	12.77	---	0.85	NYC	Static	
AOI 3	BF-107	05-Jun-19	---	11.25	---	1.11	NYC	Static	
AOI 3	BF-108	05-Jun-19	---	10.61	---	0.37	NYC	Static	
AOI 3	RW-2	05-Jun-19	10.45	10.47	0.02	0.84	NYC	Static	
AOI 3	S-1	05-Jun-19	---	5.63	---	3.12	NYC	Static	
AOI 3	S-2	05-Jun-19	---	3.03	---	4.18	NYC	Static	
AOI 3	S-3	05-Jun-19	---	7.57	---	3.23	NYC	Static	
AOI 3	S-5	05-Jun-19	3.72	3.90	0.18	2.09	NYC	Static	
AOI 3	S-8	05-Jun-19	---	6.97	---	-0.55	NYC	Static	
AOI 3	S-9	05-Jun-19	---	3.90	---	2.68	NYC	Static	
AOI 3	S-10	05-Jun-19	---	4.02	---	2.05	NYC	Static	
AOI 3	S-11	05-Jun-19	---	3.71	---	2.67	NYC	Static	
AOI 3	S-12	05-Jun-19	---	4.20	---	2.03	NYC	Static	
AOI 3	S-13	05-Jun-19	---	6.92	---	-0.56	NYC	Static	
AOI 3	S-14	05-Jun-19	---	2.98	---	2.76	NYC	Static	
AOI 3	S-16	05-Jun-19	---	21.52	---	2.16	NYC	Static	
AOI 3	S-17	05-Jun-19	---	14.54	---	2.15	unconfined	Static	
AOI 3	S-18	05-Jun-19	---	4.03	---	19.46	NYC	Static	
AOI 3	S-19	05-Jun-19	NM	NM	NM	NM	NYC	Static	obstruction at 1 foot
AOI 3	S-20	05-Jun-19	---	18.16	---	2.10	unconfined	Static	
AOI 3	S-21	05-Jun-19	NM	NM	NM	NM	NYC	Static	dry at 14.00
AOI 3	S-22	05-Jun-19	---	18.95	---	-0.29	lower aquifer	Static	
AOI 3	S-23	05-Jun-19	---	18.20	---	2.08	NYC	Static	
AOI 3	S-24	05-Jun-19	NM	NM	NM	NM	NYC	Static	obstruction at 0.85 feet
AOI 3	S-59	05-Jun-19	---	8.83	---	3.66	unconfined	Static	
AOI 3	S-60	05-Jun-19	10.70	11.12	0.42	1.47	NYC	Static	
AOI 3	S-69	05-Jun-19	NM	NM	NM	NM	NYC	Static	obstruction at 1.10 feet
AOI 3	S-69D	05-Jun-19	---	11.25	---	0.10	NYC	Static	
AOI 3	S-113	05-Jun-19	11.12	11.64	0.52	1.46	NYC	Static	
AOI 3	S-280	05-Jun-19	---	23.86	---	2.66	NYC	Static	
AOI 3	S-280D	05-Jun-19	---	25.40	---	0.48	NYC	Static	
AOI 3	S-281	05-Jun-19	---	12.97	---	1.39	NYC	Static	
AOI 3	S-283	05-Jun-19	10.83	11.11	0.28	0.24	NYC	Static	
AOI 3	S-284	05-Jun-19	---	8.12	---	1.38	NYC	Static	
AOI 3	S-284D	05-Jun-19	---	11.17	---	0.95	NYC	Static	
AOI 3	S-285	05-Jun-19	12.31	12.92	0.61	2.84	NYC	Static	
AOI 3	S-288	05-Jun-19	---	14.65	---	4.44	NYC	Static	
AOI 3	S-290	05-Jun-19	---	8.82	---	2.87	NYC	Static	
AOI 3	S-291	05-Jun-19	---	7.47	---	4.52	NYC	Static	
AOI 3	S-372	05-Jun-19	---	17.60	---	2.13	unconfined	Static	
AOI 3	S-382	16-Jul-19	15.84	16.96	1.12	4.17	NYC	Static	
AOI 3	S-383	05-Jun-19	---	11.86	---	0.89	NYC	Static	
AOI 3	S-384	05-Jun-19	---	15.27	---	1.24	NYC	Static	
AOI 3	S-385	05-Jun-19	---	11.31	---	1.60	unconfined	Static	
AOI 3	S-386	05-Jun-19	---	12.07	---	1.68	NYC	Static	
AOI 3	S-387	05-Jun-19	---	4.25	---	2.86	NYC	Static	
AOI 3	S-407	05-Jun-19	---	12.48	---	1.53	NYC	Static	
AOI 3	S-409	05-Jun-19	---	2.81	---	19.48	NYC	Static	
AOI 3	S-410	05-Jun-19	12.64	13.02	0.38	9.62	NYC	Static	
AOI 3	S-411	05-Jun-19	---	25.26	---	1.41	NYC	Static	
AOI 3	S-412	05-Jun-19	---	12.00	---	1.11	NYC	Static	
AOI 3	S-413	05-Jun-19	---	16.62	---	1.29	NYC	Static	
AOI 3	S-414	05-Jun-19	21.05	22.92	1.87	0.97	NYC	Static	
AOI 3	S-428	05-Jun-19	---	9.83	---	1.01	unconfined	Static	
AOI 3	S-429	05-Jun-19	20.25	20.38	0.13	0.92	unconfined	Static	
AOI 3	S-430	05-Jun-19	11.87	12.14	0.27	1.14	unconfined	Static	
AOI 3	S-431	05-Jun-19	16.35	16.66	0.31	1.08	unconfined	Static	
AOI 3	S-432	10-Jun-19	20.80	22.32	1.52	0.80	unconfined	Static	
AOI 3,7	C-95	07-Jun-19	---	5.94	---	6.31	NYC	Static	
AOI 4	AS-9	05-Jun-19	NM	NM	NM	NM	unconfined	Static	well destroyed
AOI 4	PH-66	05-Jun-19	NM	NM	NM	NM	NYC	Static	well destroyed
AOI 4	PH-67	05-Jun-19	NM	NM	NM	NM	NYC	Static	well destroyed
AOI 4	RW-700	05-Jun-19	---	19.00	---	-0.99	unconfined	Pumping	

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AOI 4	RW-701	06-Jun-19	---	20.80	---	-2.53	unconfined	Pumping	
AOI 4	RW-702	06-Jun-19	---	21.90	---	-0.95	unconfined	Pumping	
AOI 4	RW-703	06-Jun-19	---	18.83	---	1.79	unconfined	Pumping	
AOI 4	RW-704	06-Jun-19	---	21.75	---	-1.52	unconfined	Pumping	
AOI 4	RW-705	05-Jun-19	---	14.97	---	0.95	unconfined	Static	
AOI 4	RW-706	05-Jun-19	---	14.16	---	1.73	unconfined	Static	
AOI 4	RW-707	05-Jun-19	---	14.54	---	1.75	unconfined	Static	
AOI 4	RW-708	06-Jun-19	---	13.72	---	1.77	unconfined	Pumping	
AOI 4	RW-709	05-Jun-19	---	13.45	---	1.85	unconfined	Static	
AOI 4	RW-710	05-Jun-19	---	14.31	---	1.57	unconfined	Static	
AOI 4	RW-711	05-Jun-19	---	13.07	---	2.42	unconfined	Static	
AOI 4	RW-712	05-Jun-19	---	13.83	---	1.73	unconfined	Static	
AOI 4	RW-713	05-Jun-19	---	13.18	---	1.84	unconfined	Static	
AOI 4	RW-714	05-Jun-19	---	13.33	---	1.88	unconfined	Static	
AOI 4	RW-715	05-Jun-19	---	13.49	---	1.88	unconfined	Static	
AOI 4	RW-716	05-Jun-19	---	13.62	---	1.93	unconfined	Static	
AOI 4	RW-717	05-Jun-19	---	13.31	---	2.30	unconfined	Static	
AOI 4	S-26	05-Jun-19	---	18.84	---	1.92	unconfined	Static	
AOI 4	S-27	05-Jun-19	NM	NM	NM	NM	unconfined	Static	unable to locate
AOI 4	S-28	05-Jun-19	NM	NM	NM	NM	unconfined	Static	dry at 19.65
AOI 4	S-29	05-Jun-19	22.65	22.68	0.03	0.65	unconfined	Static	
AOI 4	S-30	05-Jun-19	21.01	21.23	0.22	2.09	unconfined	Static	
AOI 4	S-32	05-Jun-19	---	22.34	---	1.86	unconfined	Static	
AOI 4	S-34	06-Jun-19	---	10.90	---	9.99	unconfined	Pumping	
AOI 4	S-35	06-Jun-19	---	18.83	---	2.11	unconfined	Pumping	
AOI 4	S-36	05-Jun-19	22.41	22.42	0.01	1.82	unconfined	Static	
AOI 4	S-38	05-Jun-19	---	16.97	---	1.98	unconfined	Static	
AOI 4	S-38D	05-Jun-19	---	17.36	---	0.34	lower aquifer	Static	
AOI 4	S-38D2	05-Jun-19	---	18.45	---	-0.26	lower aquifer	Static	
AOI 4	S-39	05-Jun-19	---	20.60	---	2.28	unconfined	Static	
AOI 4	S-39D	05-Jun-19	---	23.75	---	0.76	lower aquifer	Static	
AOI 4	S-40	05-Jun-19	---	22.89	---	1.57	unconfined	Static	
AOI 4	S-57	05-Jun-19	---	10.81	---	1.69	unconfined	Static	
AOI 4	S-59D	05-Jun-19	---	15.66	---	1.47	lower aquifer	Static	
AOI 4	S-96	05-Jun-19	17.75	19.11	1.36	1.84	unconfined	Static	
AOI 4	S-97	06-Jun-19	NM	NM	NM	NM	unconfined	Static	unable to locate
AOI 4	S-102	05-Jun-19	---	16.46	---	1.76	unconfined	Static	
AOI 4	S-103	16-Jul-19	23.70	23.98	0.28	2.35	unconfined	Static	
AOI 4	S-104	05-Jun-19	14.05	22.07	8.02	3.54	unconfined	Static	
AOI 4	S-119	05-Jun-19	---	24.78	---	1.82	unconfined	Static	
AOI 4	S-119D	05-Jun-19	---	23.69	---	1.41	lower aquifer	Static	
AOI 4	S-120	05-Jun-19	---	17.58	---	2.24	unconfined	Static	
AOI 4	S-122	16-Jul-19	---	23.24	---	2.47	unconfined	Static	
AOI 4	S-123	05-Jun-19	---	20.06	---	2.07	unconfined	Static	
AOI 4	S-124	05-Jun-19	21.40	21.40	<0.01	1.81	unconfined	Static	
AOI 4	S-216	05-Jun-19	---	13.64	---	2.12	unconfined	Static	
AOI 4	S-218	05-Jun-19	---	23.18	---	2.56	unconfined	Static	
AOI 4	S-218D	05-Jun-19	---	22.23	---	2.29	lower aquifer	Static	
AOI 4	S-219	05-Jun-19	---	20.85	---	2.24	unconfined	Static	
AOI 4	S-220	05-Jun-19	---	18.75	---	2.06	unconfined	Static	
AOI 4	S-221	06-Jun-19	---	21.50	---	1.50	unconfined	Pumping	
AOI 4	S-222	05-Jun-19	---	13.15	---	3.14	unconfined	Static	
AOI 4	S-223	05-Jun-19	---	14.93	---	0.95	unconfined	Static	
AOI 4	S-224	05-Jun-19	---	16.34	---	-0.31	unconfined	Static	
AOI 4	S-225	05-Jun-19	---	15.58	---	-0.59	unconfined	Static	
AOI 4	S-233	05-Jun-19	19.72	19.88	0.16	4.61	unconfined	Static	
AOI 4	S-234	05-Jun-19	---	19.65	---	1.58	unconfined	Static	
AOI 4	S-235	05-Jun-19	21.33	21.35	0.02	1.79	unconfined	Static	
AOI 4	S-236	06-Jun-19	---	25.45	---	-2.48	unconfined	Pumping	
AOI 4	S-237	06-Jun-19	---	21.30	---	1.52	unconfined	Pumping	
AOI 4	S-238	05-Jun-19	21.34	21.98	0.64	1.46	unconfined	Static	
AOI 4	S-239	05-Jun-19	---	13.95	---	1.87	unconfined	Static	
AOI 4	S-240	16-Jul-19	21.69	22.38	0.69	2.10	unconfined	Static	
AOI 4	S-241	05-Jun-19	24.10	25.92	1.82	1.79	unconfined	Static	
AOI 4	S-242	05-Jun-19	---	20.06	---	1.83	unconfined	Static	
AOI 4	S-243	05-Jun-19	---	13.43	---	2.31	unconfined	Static	
AOI 4	S-244	05-Jun-19	---	19.94	---	2.00	unconfined	Static	
AOI 4	S-245	05-Jun-19	---	20.21	---	2.00	unconfined	Static	
AOI 4	S-246	05-Jun-19	---	19.01	---	2.55	unconfined	Static	
AOI 4	S-278	05-Jun-19	---	19.16	---	1.87	unconfined	Static	
AOI 4	S-279	05-Jun-19	23.96	24.61	0.65	2.35	unconfined	Static	

Table 2  
 Sitewide 2019 Annual Gauging Data  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

AOI	Well ID	Date	Depth to LNAPL (feet btoc)	Depth to Water (feet btoc)	Apparent LNAPL Thickness (feet)	Corrected Groundwater Elevation (ft NAVD 88)	Well Classification	Static or Pumping	Comments
AOI 4	S-282	16-Jul-19	18.94	19.73	0.79	1.70	unconfined	Static	
AOI 4	S-329	05-Jun-19	---	19.77	---	1.15	unconfined	Static	
AOI 4	S-364	05-Jun-19	NM	NM	NM	NM	unconfined	Static	obstruction at 5.00 feet
AOI 4	S-365	16-Jul-19	19.17	19.43	0.26	1.69	unconfined	Static	
AOI 4	S-366	16-Jul-19	20.25	20.27	0.02	2.00	unconfined	Static	
AOI 4	S-367	05-Jun-19	---	14.06	---	1.96	unconfined	Static	
AOI 4	S-368	16-Jul-19	15.47	16.23	0.76	2.46	unconfined	Static	
AOI 4	S-369	05-Jun-19	---	28.41	---	1.01	unconfined	Static	
AOI 4	S-370	05-Jun-19	---	10.39	---	1.67	unconfined	Static	
AOI 4	S-371	05-Jun-19	---	19.25	---	2.80	unconfined	Static	
AOI 4	S-373	05-Jun-19	19.29	19.31	0.02	1.48	unconfined	Static	
AOI 4	S-374	05-Jun-19	---	13.68	---	1.95	NYC	Static	
AOI 4	S-375	06-Jun-19	---	14.09	---	1.87	NYC	Pumping	
AOI 4	S-376	16-Jul-19	13.34	13.72	0.38	2.25	NYC	Static	
AOI 4	S-377	06-Jun-19	---	12.87	---	1.82	NYC	Pumping	
AOI 4	S-378	06-Jun-19	---	10.09	---	1.88	NYC	Pumping	
AOI 4	S-379	05-Jun-19	---	24.02	---	1.63	unconfined	Static	
AOI 4	S-380	05-Jun-19	---	19.15	---	2.17	unconfined	Static	
AOI 4	S-381	16-Jul-19	---	23.76	---	2.10	unconfined	Static	
AOI 4	S-408	05-Jun-19	---	13.78	---	2.10	unconfined	Static	
AOI 4	S-415	05-Jun-19	---	17.45	---	1.78	unconfined	Static	
AOI 4	S-416	05-Jun-19	---	11.87	---	7.31	unconfined	Static	
AOI 5	A-1	10-Jun-19	NM	NM	NM	NM	unconfined	Static	unable to locate
AOI 5	A-3	10-Jun-19	---	6.35	---	1.89	unconfined	Static	
AOI 5	A-4	10-Jun-19	---	4.10	---	1.94	unconfined	Static	
AOI 5	A-6	10-Jun-19	---	3.10	---	3.64	unconfined	Static	
AOI 5	A-7	10-Jun-19	4.50	4.85	0.35	2.18	unconfined	Static	
AOI 5	A-8	10-Jun-19	NM	NM	NM	NM	unconfined	Static	unable to locate
AOI 5	A-9	10-Jun-19	NM	NM	NM	NM	unconfined	Static	unable to locate
AOI 5	A-10	10-Jun-19	---	3.66	---	4.62	unconfined	Static	
AOI 5	A-11	10-Jun-19	---	4.53	---	3.24	unconfined	Static	
AOI 5	A-12	10-Jun-19	---	3.36	---	4.21	unconfined	Static	
AOI 5	A-15	07-Jun-19	---	0.36	---	4.75	unconfined	Static	
AOI 5	A-19D	07-Jun-19	---	12.59	---	-1.95	lower aquifer	Static	
AOI 5	A-21	10-Jun-19	2.20	2.40	0.20	5.94	unconfined	Static	
AOI 5	A-21D	16-Jul-19	---	15.62	---	-4.37	lower aquifer	Static	
AOI 5	A-22	10-Jun-19	5.64	5.65	0.01	2.31	unconfined	Static	
AOI 5	A-23	16-Jul-19	---	3.21	---	3.10	unconfined	Static	
AOI 5	A-24	10-Jun-19	---	2.73	---	2.80	unconfined	Static	
AOI 5	A-26	16-Jul-19	---	4.30	---	4.35	unconfined	Static	
AOI 5	A-27	10-Jun-19	---	6.60	---	3.41	unconfined	Static	
AOI 5	A-39	10-Jun-19	NM	NM	NM	NM	unconfined	Static	unable to locate
AOI 5	A-40	10-Jun-19	---	3.75	---	1.97	unconfined	Static	
AOI 5	A-41	10-Jun-19	---	3.66	---	1.97	unconfined	Static	
AOI 5	A-44	10-Jun-19	---	7.90	---	2.11	unconfined	Static	
AOI 5	A-45	10-Jun-19	---	3.70	---	1.02	unconfined	Static	
AOI 5	A-46	10-Jun-19	---	8.37	---	2.45	unconfined	Static	
AOI 5	A-47	10-Jun-19	---	2.57	---	2.33	unconfined	Static	
AOI 5	A-48	10-Jun-19	---	4.38	---	2.07	unconfined	Static	
AOI 5	A-49	10-Jun-19	---	3.35	---	3.85	unconfined	Static	
AOI 5	A-118	07-Jun-19	---	2.59	---	5.71	unconfined	Static	
AOI 5	A-122	10-Jun-19	---	3.94	---	3.50	unconfined	Static	
AOI 5	A-133	10-Jun-19	---	9.25	---	3.77	unconfined	Static	
AOI 5	A-134	10-Jun-19	---	7.85	---	1.29	unconfined	Static	
AOI 5	A-135	10-Jun-19	---	7.70	---	3.06	unconfined	Static	
AOI 5	A-136	10-Jun-19	7.35	7.36	0.01	1.35	unconfined	Static	
AOI 5	A-137	10-Jun-19	---	3.93	---	1.87	unconfined	Static	
AOI 5	A-139	10-Jun-19	---	4.68	---	2.31	unconfined	Static	
AOI 5	A-140	10-Jun-19	NM	NM	NM	NM	unconfined	Static	unable to locate
AOI 5	A-142	10-Jun-19	---	4.40	---	1.00	unconfined	Static	
AOI 5	A-143	10-Jun-19	---	7.43	---	2.07	unconfined	Static	
AOI 5	A-146	07-Jun-19	NM	NM	NM	NM	unconfined	Static	unable to locate
AOI 5	A-147	07-Jun-19	NM	NM	NM	NM	unconfined	Static	unable to locate
AOI 5	A-148	07-Jun-19	---	2.67	---	5.34	unconfined	Static	
AOI 5	A-149	07-Jun-19	---	3.31	---	5.18	unconfined	Static	
AOI 5	A-151	10-Jun-19	---	4.45	---	3.04	unconfined	Static	
AOI 5	A-153	07-Jun-19	NM	NM	NM	NM	unconfined	Static	unable to locate
AOI 5	A-155	10-Jun-19	5.48	5.80	0.32	2.87	unconfined	Static	
AOI 5	A-156	10-Jun-19	---	4.74	---	4.14	unconfined	Static	
AOI 5	A-157	10-Jun-19	---	4.90	---	3.72	unconfined	Static	
AOI 5	A-158	10-Jun-19	---	3.97	---	2.17	unconfined	Static	

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AOI 5	A-163	10-Jun-19	---	6.23	---	4.26	unconfined	Static	
AOI 5	A-164	10-Jun-19	---	4.95	---	3.96	unconfined	Static	
AOI 5	A-166	10-Jun-19	---	8.05	---	3.23	unconfined	Static	
AOI 5	A-167	10-Jun-19	---	5.03	---	4.43	unconfined	Static	
AOI 5	A-168	10-Jun-19	---	5.50	---	5.19	unconfined	Static	
AOI 5	A-169	10-Jun-19	---	4.54	---	4.08	unconfined	Static	
AOI 5	A-170	10-Jun-19	---	2.60	---	2.03	unconfined	Static	
AOI 5	A-171	10-Jun-19	5.95	5.96	0.01	1.69	unconfined	Static	
AOI 5	A-172	10-Jun-19	---	4.25	---	2.07	unconfined	Static	
AOI 5	A-175	10-Jun-19	---	4.18	---	0.55	unconfined	Static	
AOI 5	A-176	10-Jun-19	4.00	4.15	0.15	0.55	unconfined*	Static	
AOI 5	A-177	10-Jun-19	1.65	2.15	0.50	NM	NYC	Static	
AOI 5	A-179	10-Jun-19	3.50	6.25	2.75	4.73	unconfined*	Static	
AOI 5	A-180	10-Jun-19	NM	NM	NM	NM	unconfined*	Static	unable to locate
AOI 5	A-181	10-Jun-19	---	3.75	---	2.77	unconfined	Static	
AOI 5	A-182	10-Jun-19	---	6.72	---	0.18	unconfined	Static	
AOI 5	A-183	10-Jun-19	3.65	4.40	0.75	4.64	unconfined*	Static	
AOI 5	A-186	07-Jun-19	---	5.25	---	3.01	unconfined	Static	
AOI 5	A-187	10-Jun-19	---	6.21	---	3.19	unconfined	Static	
AOI 5	A-188	10-Jun-19	8.30	9.25	0.95	3.08	unconfined	Static	
AOI 5	A-189	16-Jul-19	---	4.27	---	4.24	unconfined	Static	
AOI 5	PZ-2	10-Jun-19	---	5.62	---	5.26	unconfined*	Static	
AOI 5	PZ-3	10-Jun-19	---	7.75	---	2.78	unconfined*	Static	
AOI 5	RW-6S	10-Jun-19	---	5.34	---	2.88	unconfined	Static	
AOI 5	RW16-2	10-Jun-19	NM	NM	NM	NM	unconfined*	Static	unable to locate
AOI 5	RWBH-1	16-Jul-19	2.29	3.03	0.74	2.97	unconfined	Static	
AOI 5	RWBH-2	10-Jun-19	3.60	5.25	1.65	0.37	unconfined	Static	
AOI 5	SW-1	10-Jun-19	7.75	7.95	0.20	1.99	unconfined	Static	
AOI 5	SW-2	10-Jun-19	---	7.29	---	2.65	unconfined	Static	
AOI 5	SW-3	10-Jun-19	---	8.37	---	1.60	unconfined	Static	
AOI 5	SW-4	10-Jun-19	5.10	5.15	0.05	2.05	unconfined	Static	
AOI 5	SW-5	10-Jun-19	4.93	9.35	4.42	5.16	unconfined	Static	
AOI 5	SWR-1	10-Jun-19	6.99	7.00	0.01	1.29	unconfined*	Static	
AOI 5	SWR-2	10-Jun-19	---	7.46	---	2.60	unconfined	Static	
AOI 5	SWR-3	10-Jun-19	---	7.52	---	3.09	unconfined	Static	
AOI 5	WP-8	10-Jun-19	---	5.13	---	1.86	unconfined	Static	
AOI 5	WP9-7	10-Jun-19	---	2.90	---	NM	unconfined	Static	
AOI 5	WP9-8	10-Jun-19	5.10	6.35	1.25	3.65	unconfined*	Static	
AOI 5	WP-14	16-Jul-19	---	6.56	---	2.56	unconfined	Static	
AOI 5	WP16-3	07-Jun-19	---	7.98	---	3.09	unconfined	Static	
AOI 5	WP-A	10-Jun-19	---	4.75	---	4.85	unconfined	Static	
AOI 5	WP-B	16-Jul-19	5.13	5.13	<0.01	4.96	unconfined	Static	
AOI 5	WP-D	10-Jun-19	---	5.64	---	2.62	unconfined	Static	
AOI 5	WP-E	10-Jun-19	---	4.69	---	2.66	unconfined	Static	
AOI 6	B-39	16-Jul-19	1.09	1.09	<0.01	4.40	NYC	Static	
AOI 6	B-43	06-Jun-19	---	2.77	---	4.44	NYC	Static	
AOI 6	B-45	06-Jun-19	---	1.13	---	3.97	NYC	Static	
AOI 6	B-46	06-Jun-19	---	1.39	---	6.64	NYC	Static	
AOI 6	B-47	06-Jun-19	2.87	2.93	0.06	5.43	NYC	Static	
AOI 6	B-48	06-Jun-19	---	0.00	---	6.50	NYC	Static	water to TOC
AOI 6	B-48D	06-Jun-19	---	11.09	---	-1.67	NYC	Static	
AOI 6	B-92	06-Jun-19	---	4.60	---	5.63	NYC	Static	
AOI 6	B-94	06-Jun-19	---	6.74	---	3.61	NYC	Static	
AOI 6	B-95	06-Jun-19	---	3.59	---	5.28	NYC	Static	
AOI 6	B-115	16-Jul-19	---	2.68	---	4.82	NYC	Static	
AOI 6	B-116	06-Jun-19	---	5.17	---	3.12	NYC	Static	
AOI 6	B-117	06-Jun-19	---	7.78	---	1.87	NYC	Static	
AOI 6	B-123	06-Jun-19	---	4.78	---	5.98	NYC	Static	
AOI 6	B-124	06-Jun-19	5.06	6.13	1.07	3.71	NYC	Static	small product pump installed in well
AOI 6	B-125	06-Jun-19	---	4.59	---	3.92	NYC	Static	
AOI 6	B-126	06-Jun-19	---	4.90	---	3.61	NYC	Static	
AOI 6	B-129	06-Jun-19	5.32	5.46	0.14	2.68	NYC	Static	
AOI 6	B-130	06-Jun-19	4.57	4.68	0.11	5.11	NYC	Static	
AOI 6	B-131	06-Jun-19	---	5.10	---	3.62	NYC	Static	
AOI 6	B-132	06-Jun-19	4.65	4.66	0.01	2.22	NYC	Static	
AOI 6	B-132D	06-Jun-19	---	16.07	---	-5.76	NYC	Static	
AOI 6	B-133	06-Jun-19	---	5.00	---	2.33	NYC	Static	
AOI 6	B-133D	06-Jun-19	---	10.25	---	-1.65	NYC	Static	
AOI 6	B-134	06-Jun-19	---	4.60	---	1.92	NYC	Static	
AOI 6	B-134D	06-Jun-19	---	11.66	---	-3.54	NYC	Static	
AOI 6	B-135	06-Jun-19	---	4.79	---	1.59	NYC	Static	

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AOI 6	B-136	06-Jun-19	4.45	4.47	0.02	4.70	NYC	Static	
AOI 6	B-137	06-Jun-19	4.65	6.55	1.90	3.82	NYC	Static	
AOI 6	B-138	06-Jun-19	4.80	4.90	0.10	4.52	NYC	Static	
AOI 6	B-142	06-Jun-19	6.47	7.75	1.28	3.10	NYC	Static	
AOI 6	B-143	06-Jun-19	5.00	5.80	0.80	3.87	NYC	Static	
AOI 6	B-144	06-Jun-19	5.09	5.10	0.01	3.93	NYC	Static	
AOI 6	B-145	06-Jun-19	---	4.97	---	4.84	NYC	Static	
AOI 6	B-146	07-Jun-19	NM	NM	NM	NM	NYC	Static	unable to locate
AOI 6	B-147	06-Jun-19	4.87	4.95	0.08	4.02	NYC	Static	
AOI 6	B-148	06-Jun-19	5.08	6.12	1.04	2.02	NYC	Static	
AOI 6	B-149	06-Jun-19	2.98	3.10	0.12	4.75	NYC	Static	
AOI 6	B-150	06-Jun-19	3.09	5.34	2.25	4.45	NYC	Static	
AOI 6	B-151	06-Jun-19	---	4.16	---	3.58	NYC	Static	
AOI 6	B-152	06-Jun-19	---	1.26	---	3.78	NYC	Static	
AOI 6	B-153	06-Jun-19	---	1.71	---	4.66	NYC	Static	
AOI 6	B-155	07-Jun-19	---	5.39	---	3.15	NYC	Static	
AOI 6	B-156	06-Jun-19	---	5.70	---	3.16	NYC	Static	
AOI 6	B-157	06-Jun-19	---	1.67	---	3.25	NYC	Static	
AOI 6	B-158	06-Jun-19	---	3.48	---	4.73	NYC	Static	
AOI 6	B-160	06-Jun-19	---	4.03	---	4.50	NYC	Static	
AOI 6	B-161	06-Jun-19	4.87	5.10	0.23	3.39	NYC	Static	
AOI 6	B-162	16-Jul-19	NM	NM	NM	NM	NYC	Static	no access-area around well is flooded
AOI 6	B-163	07-Jun-19	---	1.81	---	5.64	NYC	Static	
AOI 6	B-164	06-Jun-19	---	5.03	---	3.79	NYC	Static	
AOI 6	B-165	06-Jun-19	---	1.56	---	4.23	NYC	Static	
AOI 6	B-166	07-Jun-19	NM	NM	NM	NM	NYC	Static	unable to locate
AOI 6	B-167	07-Jun-19	---	3.18	---	3.55	NYC	Static	
AOI 6	B-168	06-Jun-19	---	1.13	---	5.33	NYC	Static	
AOI 6	B-169	06-Jun-19	---	0.74	---	5.38	NYC	Static	
AOI 6	B-170	16-Jul-19	---	0.81	---	5.67	NYC	Static	
AOI 6	B-172	06-Jun-19	---	4.58	---	3.43	NYC	Static	
AOI 6	B-173	06-Jun-19	---	4.60	---	3.58	NYC	Static	
AOI 6	B-174	06-Jun-19	---	3.64	---	4.66	NYC	Static	
AOI 6	B-175	06-Jun-19	4.47	7.82	3.35	3.64	NYC	Static	
AOI 6	PZ-132A	07-Jun-19	---	6.92	---	3.23	NYC	Static	
AOI 6	PZ-135A	07-Jun-19	NM	NM	NM	NM	NYC	Static	well destroyed
AOI 6	RW-9	06-Jun-19	5.04	6.10	1.06	3.52	NYC	Static	
AOI 6	SUMP-1	06-Jun-19	5.35	5.45	0.10	5.34	NYC	Static	
AOI 6	U-1	07-Jun-19	NM	NM	NM	NM	NYC	Static	unable to locate
AOI 6	U-2	06-Jun-19	---	7.25	---	2.14	NYC	Static	
AOI 6	U-3	16-Jul-19	4.55	5.98	1.43	4.98	NYC	Static	
AOI 6	U-4	06-Jun-19	---	5.82	---	3.40	NYC	Static	
AOI 6	U-5	06-Jun-19	---	9.20	---	0.59	NYC	Static	
AOI 6	URS-1	06-Jun-19	---	6.90	---	3.12	NYC	Static	
AOI 6	URS-2	06-Jun-19	---	4.20	---	3.69	NYC	Static	
AOI 6	URS-3	06-Jun-19	---	3.93	---	3.67	NYC	Static	
AOI 6	URS-4	16-Jul-19	---	6.24	---	3.70	NYC	Static	
AOI 6	URS-5	06-Jun-19	---	4.85	---	3.09	NYC	Static	
AOI 6	WP9-4	06-Jun-19	5.07	5.57	0.50	3.88	NYC	Static	
AOI 6	WP11-3	06-Jun-19	---	3.77	---	NM	NYC	Static	
AOI 6	WP11-11	06-Jun-19	---	0.92	---	NM	NYC	Static	
AOI 6	C-134D	07-Jun-19	---	11.00	---	-1.60	NYC	Static	
AOI 7	C-49	06-Jun-19	---	4.58	---	5.00	NYC	Static	
AOI 7	C-50	06-Jun-19	---	7.45	---	5.32	NYC	Static	
AOI 7	C-51	06-Jun-19	---	4.92	---	4.34	NYC	Static	
AOI 7	C-52	07-Jun-19	---	4.62	---	3.01	NYC	Static	
AOI 7	C-53A	06-Jun-19	---	3.98	---	5.49	NYC	Static	
AOI 7	C-54	06-Jun-19	---	0.37	---	6.24	NYC	Static	
AOI 7	C-55	06-Jun-19	---	5.15	---	4.26	NYC	Static	
AOI 7	C-56	06-Jun-19	---	2.46	---	8.26	NYC	Static	
AOI 7	C-57	06-Jun-19	---	2.56	---	5.94	NYC	Static	
AOI 7	C-58	06-Jun-19	---	1.39	---	6.03	NYC	Static	
AOI 7	C-60	06-Jun-19	---	3.69	---	3.75	NYC	Static	
AOI 7	C-61	07-Jun-19	---	3.26	---	4.67	NYC	Static	
AOI 7	C-62	06-Jun-19	---	4.71	---	6.69	NYC	Static	
AOI 7	C-63	06-Jun-19	---	5.58	---	1.83	NYC	Static	
AOI 7	C-64	07-Jun-19	8.91	9.02	0.11	-0.78	NYC	Static	
AOI 7	C-65	06-Jun-19	4.99	5.43	0.44	5.81	NYC	Static	
AOI 7	C-96	06-Jun-19	---	6.14	---	6.74	NYC	Static	
AOI 7	C-97	07-Jun-19	12.84	12.87	0.03	-2.32	NYC	Static	
AOI 7	C-98	06-Jun-19	---	5.10	---	5.45	NYC	Static	

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 Sitewide 2019 Annual Gauging Data  
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AOI	Well ID	Date	Depth to LNAPL (feet btoc)	Depth to Water (feet btoc)	Apparent LNAPL Thickness (feet)	Corrected Groundwater Elevation (ft NAVD 88)	Well Classification	Static or Pumping	Comments
AOI 7	C-104	06-Jun-19	---	6.43	---	3.10	NYC	Static	
AOI 7	C-105	06-Jun-19	---	4.20	---	4.97	NYC	Static	
AOI 7	C-106	06-Jun-19	8.34	8.66	0.32	3.18	NYC	Static	
AOI 7	C-108	06-Jun-19	---	3.95	---	4.32	NYC	Static	
AOI 7	C-109	06-Jun-19	---	4.16	---	5.84	NYC	Static	
AOI 7	C-110	06-Jun-19	---	5.71	---	6.87	NYC	Static	
AOI 7	C-111	06-Jun-19	---	5.23	---	6.94	NYC	Static	
AOI 7	C-112	07-Jun-19	NM	NM	NM	NM	NYC	Static	no access area around well flooded
AOI 7	C-113	06-Jun-19	---	4.61	---	7.04	NYC	Static	
AOI 7	C-114	06-Jun-19	---	3.68	---	7.28	NYC	Static	
AOI 7	C-127	07-Jun-19	---	8.15	---	1.65	NYC	Static	
AOI 7	C-129	07-Jun-19	---	3.43	---	5.51	NYC	Static	
AOI 7	C-129D	07-Jun-19	---	9.41	---	-0.22	NYC	Static	
AOI 7	C-130	06-Jun-19	---	6.81	---	5.17	NYC	Static	
AOI 7	C-131	06-Jun-19	---	3.33	---	6.81	NYC	Static	
AOI 7	C-132	06-Jun-19	NM	NM	NM	NM	NYC	Static	obstruction at 5.35 feet
AOI 7	C-133	06-Jun-19	---	1.50	---	6.23	NYC	Static	
AOI 7	C-136	06-Jun-19	---	4.27	---	4.58	NYC	Static	
AOI 7	C-137	06-Jun-19	---	1.87	---	1.97	NYC	Static	
AOI 7	C-138	06-Jun-19	---	4.66	---	2.29	NYC	Static	
AOI 7	C-139	06-Jun-19	2.74	2.75	0.01	NM	NYC	Static	
AOI 7	C-140	07-Jun-19	---	1.55	---	6.00	NYC	Static	
AOI 7	C-142	07-Jun-19	---	8.08	---	3.27	NYC	Static	
AOI 7	C-143	07-Jun-19	NM	NM	NM	NM	NYC	Static	dry
AOI 7	C-144D	07-Jun-19	---	12.72	---	-3.76	NYC	Static	
AOI 7	C-145	07-Jun-19	---	5.36	---	1.56	NYC	Static	
AOI 7	C-146	07-Jun-19	---	8.79	---	-2.05	NYC	Static	
AOI 7	C-147	07-Jun-19	8.84	9.14	0.30	-2.01	NYC	Static	
AOI 7	C-148	07-Jun-19	---	10.28	---	-0.94	NYC	Static	
AOI 7	C-150	07-Jun-19	10.37	10.41	0.04	-2.19	NYC	Static	
AOI 7	C-152	07-Jun-19	---	9.11	---	0.27	NYC	Static	
AOI 7	C-153	07-Jun-19	---	10.38	---	-2.11	NYC	Static	
AOI 7	C-154	07-Jun-19	---	10.08	---	-2.19	NYC	Static	
AOI 7	C-155	07-Jun-19	---	6.39	---	2.78	NYC	Static	
AOI 7	C-156	07-Jun-19	---	3.34	---	3.38	NYC	Static	
AOI 7	C-157	16-Jul-19	---	1.49	---	5.09	NYC	Static	
AOI 7	C-158	07-Jun-19	NM	NM	NM	NM	NYC	Static	unable to locate
AOI 7	C-159	07-Jun-19	---	3.20	---	3.59	NYC	Static	
AOI 7	C-161	07-Jun-19	9.36	10.95	1.59	-0.49	NYC	Static	
AOI 7	C-162	07-Jun-19	---	11.56	---	-3.06	NYC	Static	
AOI 7	C-163	07-Jun-19	---	3.64	---	3.24	NYC	Static	
AOI 7	C-164	07-Jun-19	---	3.63	---	3.20	NYC	Static	
AOI 7	C-165	07-Jun-19	---	5.18	---	3.28	NYC	Static	
AOI 7	C-168	06-Jun-19	---	7.23	---	0.18	NYC	Static	
AOI 7	C-169	07-Jun-19	8.39	10.37	1.98	-1.67	NYC	Static	
AOI 7	C-170	16-Jul-19	---	1.48	---	10.01	NYC	Static	
AOI 7	C-171	06-Jun-19	---	3.14	---	7.22	NYC	Static	
AOI 7	C-172	06-Jun-19	---	3.29	---	2.62	NYC	Static	
AOI 7	C-174	07-Jun-19	---	11.28	---	0.21	unconfined	Static	
AOI 7	River4	06-Jun-19	---	11.45	---	NM	NYC	Static	
AOI 7	RW-801	06-Jun-19	---	11.46	---	-5.19	NYC	Static	no pump in well
AOI 7	RW-802	06-Jun-19	---	19.85	---	-14.15	NYC	Pumping	
AOI 7	RW-803	06-Jun-19	---	20.55	---	-14.77	NYC	Pumping	
AOI 7	RW-804	06-Jun-19	---	20.80	---	-15.02	NYC	Pumping	
AOI 7	RW-805	06-Jun-19	---	17.30	---	-11.55	NYC	Pumping	
AOI 7	RW-806	06-Jun-19	---	20.40	---	-14.99	NYC	Pumping	
AOI 7	RW-807	06-Jun-19	---	16.61	---	-9.77	NYC	Static	
AOI 7	RW-808	06-Jun-19	---	18.50	---	-12.42	NYC	Pumping	
AOI 7	RW-809	06-Jun-19	---	19.80	---	-13.25	NYC	Pumping	
AOI 7	RW-810	06-Jun-19	---	14.50	---	-8.06	NYC	Pumping	
AOI 7	WP14-2	16-Jul-19	---	8.97	---	-1.06	NYC	Static	
AOI 8	N-1	10-Jun-19	---	10.55	---	11.72	unconfined	Static	
AOI 8	N-2	26-Jun-19	---	15.61	---	10.72	unconfined	Static	
AOI 8	N-3	10-Jun-19	---	16.68	---	9.98	NA	Static	
AOI 8	N-4	10-Jun-19	---	16.60	---	9.76	lower aquifer	Static	
AOI 8	N-5	10-Jun-19	---	9.03	---	16.93	perched aquifer	Static	
AOI 8	N-6	10-Jun-19	---	11.15	---	19.90	perched aquifer	Static	
AOI 8	N-7	10-Jun-19	NM	NM	NM	NM	unconfined	Static	unable to locate
AOI 8	N-8	10-Jun-19	---	25.15	---	12.46	unconfined	Static	
AOI 8	N-9	10-Jun-19	---	38.55	---	-2.65	lower aquifer	Static	
AOI 8	N-10	10-Jun-19	---	4.77	---	15.17	perched aquifer	Static	

Table 2  
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AOI	Well ID	Date	Depth to LNAPL (feet btoc)	Depth to Water (feet btoc)	Apparent LNAPL Thickness (feet)	Corrected Groundwater Elevation (ft NAVD 88)	Well Classification	Static or Pumping	Comments
AOI 8	N-11	10-Jun-19	---	17.75	---	11.99	unconfined	Static	
AOI 8	N-12	16-Jul-19	---	15.14	---	11.85	unconfined	Static	
AOI 8	N-13	10-Jun-19	---	15.19	---	11.58	lower aquifer	Static	
AOI 8	N-14	10-Jun-19	19.75	20.25	0.50	12.20	unconfined	Static	
AOI 8	N-15	10-Jun-19	---	20.03	---	9.32	unconfined	Static	
AOI 8	N-16	10-Jun-19	---	20.85	---	12.13	unconfined	Static	
AOI 8	N-17	10-Jun-19	---	22.30	---	12.12	unconfined	Static	
AOI 8	N-18	10-Jun-19	---	20.95	---	11.95	unconfined	Static	
AOI 8	N-19	10-Jun-19	---	28.30	---	4.48	lower aquifer	Static	
AOI 8	N-20	10-Jun-19	---	16.85	---	11.54	unconfined	Static	
AOI 8	N-21	10-Jun-19	---	21.25	---	6.76	lower aquifer	Static	
AOI 8	N-24	10-Jun-19	---	9.46	---	8.27	unconfined	Static	
AOI 8	N-25	10-Jun-19	3.68	4.77	1.09	15.03	perched aquifer	Static	
AOI 8	N-27	10-Jun-19	---	18.80	---	3.92	lower aquifer	Static	
AOI 8	N-29	10-Jun-19	---	24.77	---	11.67	unconfined	Static	
AOI 8	N-30	10-Jun-19	---	31.76	---	4.54	lower aquifer	Static	
AOI 8	N-33	16-Jul-19	---	9.43	---	4.54	lower aquifer	Static	
AOI 8	N-34	16-Jul-19	---	2.28	---	8.68	unconfined	Static	
AOI 8	N-35	10-Jun-19	---	3.41	---	10.67	unconfined	Static	
AOI 8	N-36	10-Jun-19	---	4.74	---	7.13	unconfined	Static	
AOI 8	N-37	10-Jun-19	---	11.74	---	6.48	lower aquifer	Static	
AOI 8	N-38	10-Jun-19	---	6.50	---	3.59	unconfined	Static	
AOI 8	N-38D	16-Jul-19	---	9.61	---	0.82	lower aquifer	Static	
AOI 8	N-40	10-Jun-19	NM	NM	NM	NM	unconfined	Static	unable to locate
AOI 8	N-42	10-Jun-19	---	6.79	---	8.11	unconfined	Static	
AOI 8	N-46D	16-Jul-19	---	28.28	---	3.70	lower aquifer	Static	
AOI 8	N-47	10-Jun-19	17.70	18.99	1.29	14.07	unconfined	Static	
AOI 8	N-48	10-Jun-19	20.57	20.58	0.01	10.68	unconfined	Static	
AOI 8	N-49	10-Jun-19	22.71	24.87	2.16	10.77	unconfined	Static	
AOI 8	N-50D	10-Jun-19	---	25.23	---	7.92	lower aquifer	Static	
AOI 8	N-51	10-Jun-19	21.77	21.79	0.02	10.08	unconfined	Static	
AOI 8	N-55	10-Jun-19	---	4.04	---	6.24	unconfined	Static	
AOI 8	N-56	10-Jun-19	---	7.00	---	6.37	unconfined	Static	
AOI 8	N-57	10-Jun-19	---	4.91	---	6.00	unconfined	Static	
AOI 8	N-58	10-Jun-19	---	3.53	---	5.70	unconfined	Static	
AOI 8	N-59	10-Jun-19	NM	NM	NM	NM	unconfined	Static	viscous LNAPL
AOI 8	N-61	10-Jun-19	---	3.47	---	5.44	unconfined	Static	
AOI 8	N-64	10-Jun-19	---	4.57	---	4.21	unconfined	Static	
AOI 8	N-67	16-Jul-19	---	3.35	---	14.81	unconfined	Static	
AOI 8	N-68	10-Jun-19	12.25	12.31	0.06	11.95	unconfined	Static	
AOI 8	N-69	10-Jun-19	---	13.93	---	9.27	lower aquifer	Static	
AOI 8	N-70	10-Jun-19	---	13.74	---	8.43	lower aquifer	Static	
AOI 8	N-72	10-Jun-19	---	8.70	---	3.97	unconfined	Static	well damaged
AOI 8	N-73	10-Jun-19	---	7.36	---	1.54	lower aquifer	Static	
AOI 8	N-74	10-Jun-19	---	5.37	---	2.79	unconfined	Static	
AOI 8	N-75	10-Jun-19	---	6.27	---	1.58	lower aquifer	Static	
AOI 8	N-76	16-Jul-19	NM	NM	NM	NM	unconfined	Static	abandoned
AOI 8	N-77	10-Jun-19	---	7.20	---	11.41	unconfined	Static	
AOI 8	N-78	10-Jun-19	NM	NM	NM	NM	unconfined	Static	unable to locate
AOI 8	N-82	16-Jul-19	---	20.75	---	12.74	unconfined	Static	
AOI 8	N-83	10-Jun-19	---	14.66	---	6.79	lower aquifer	Static	
AOI 8	N-84	10-Jun-19	---	14.16	---	11.72	unconfined	Static	
AOI 8	N-85	10-Jun-19	---	13.45	---	11.84	unconfined	Static	
AOI 8	N-86	10-Jun-19	---	14.75	---	11.09	unconfined	Static	
AOI 8	N-87	10-Jun-19	---	14.90	---	11.36	unconfined	Static	
AOI 8	N-89	10-Jun-19	---	13.70	---	9.71	unconfined	Static	
AOI 8	N-92	10-Jun-19	---	7.68	---	13.18	unconfined	Static	
AOI 8	N-93	10-Jun-19	---	14.67	---	10.42	unconfined	Static	
AOI 8	N-94	10-Jun-19	---	6.30	---	14.06	lower aquifer	Static	
AOI 8	N-97	10-Jun-19	---	13.51	---	9.45	unconfined	Static	
AOI 8	N-98	10-Jun-19	---	22.75	---	11.78	unconfined	Static	
AOI 8	N-99	10-Jun-19	---	17.15	---	11.11	unconfined	Static	
AOI 8	N-100	10-Jun-19	---	16.60	---	10.41	unconfined	Static	
AOI 8	N-101	10-Jun-19	---	15.25	---	11.90	unconfined	Static	
AOI 8	N-102	10-Jun-19	20.55	21.75	1.20	12.58	unconfined	Static	
AOI 8	N-103	16-Jul-19	16.43	16.43	<0.01	11.70	unconfined	Static	
AOI 8	N-104	10-Jun-19	---	15.90	---	11.74	unconfined	Static	
AOI 8	N-105	10-Jun-19	---	16.57	---	11.54	unconfined	Static	
AOI 8	N-106	10-Jun-19	---	7.74	---	15.29	unconfined	Static	
AOI 8	N-107	10-Jun-19	13.85	14.50	0.65	12.46	unconfined	Static	
AOI 8	N-109	10-Jun-19	---	11.21	---	7.21	lower aquifer	Static	



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AOI	Well ID	Date	Depth to LNAPL (feet btoc)	Depth to Water (feet btoc)	Apparent LNAPL Thickness (feet)	Corrected Groundwater Elevation (ft NAVD 88)	Well Classification	Static or Pumping	Comments
AOI 8	N-110	10-Jun-19	NM	NM	NM	NM	unconfined	Static	
AOI 8	N-111	10-Jun-19	---	6.04	---	4.72	unconfined	Static	
AOI 8	N-112	10-Jun-19	9.86	11.84	1.98	5.69	lower aquifer	Static	
AOI 8	N-113	10-Jun-19	6.82	10.38	3.56	7.04	unconfined	Static	
AOI 8	N-114	10-Jun-19	---	7.41	---	6.96	lower aquifer	Static	
AOI 8	N-115	10-Jun-19	---	7.13	---	8.20	unconfined	Static	
AOI 8	N-116	10-Jun-19	3.75	7.12	3.37	7.19	unconfined	Static	
AOI 8	N-120	10-Jun-19	NM	NM	NM	NM	unconfined	Static	unable to locate
AOI 8	N-122	10-Jun-19	---	8.54	---	8.51	unconfined	Static	
AOI 8	N-127	10-Jun-19	23.55	24.18	0.63	9.82	unconfined	Static	
AOI 8	N-129	10-Jun-19	18.29	19.00	0.71	10.54	unconfined	Static	
AOI 8	N-130	10-Jun-19	19.77	20.31	0.54	11.71	unconfined	Static	
AOI 8	N-133	10-Jun-19	---	3.29	---	6.07	unconfined	Static	
AOI 8	N-134	10-Jun-19	---	15.97	---	11.52	unconfined	Static	
AOI 8	N-137	10-Jun-19	15.55	16.05	0.50	9.96	unconfined	Static	
AOI 8	N-138	10-Jun-19	25.60	25.66	0.06	9.68	unconfined	Static	
AOI 8	N-139	10-Jun-19	25.28	25.29	0.01	9.72	unconfined	Static	
AOI 8	N-140	10-Jun-19	---	16.02	---	10.72	unconfined	Static	
AOI 8	N-141	10-Jun-19	---	13.04	---	11.35	unconfined	Static	
AOI 8	N-142	10-Jun-19	---	24.98	---	9.58	unconfined	Static	
AOI 8	N-143	10-Jun-19	---	21.80	---	11.22	unconfined	Static	
AOI 8	N-144	10-Jun-19	---	24.55	---	9.73	unconfined	Static	
AOI 8	N-145	10-Jun-19	---	16.35	---	9.64	unconfined	Static	
AOI 8	N-146	10-Jun-19	15.81	17.45	1.64	10.34	unconfined	Static	
AOI 8	N-147D	10-Jun-19	---	11.60	---	3.62	lower aquifer	Static	
AOI 8	N-148D	10-Jun-19	---	28.04	---	3.94	lower aquifer	Static	
AOI 8	N-149D	10-Jun-19	---	11.35	---	-1.06	lower aquifer	Static	
AOI 8	N-150	10-Jun-19	---	5.91	---	4.29	unconfined	Static	
AOI 8	N-151	10-Jun-19	15.96	17.94	1.98	11.50	unconfined	Static	
AOI 8	N-152	10-Jun-19	---	9.10	---	11.76	unconfined	Static	
AOI 8	N-153	10-Jun-19	---	25.94	---	9.77	unconfined	Static	
AOI 8	N-154	10-Jun-19	---	9.33	---	18.20	perched aquifer	Static	
AOI 8	N-155	10-Jun-19	---	24.61	---	9.66	lower aquifer	Static	
AOI 8	N-156	10-Jun-19	---	8.57	---	1.94	unconfined	Static	
AOI 8	N-157	10-Jun-19	---	25.94	---	9.59	lower aquifer	Static	
AOI 8	N-503	10-Jun-19	8.23	9.04	0.81	4.10	unconfined	Static	
AOI 8	N-504	16-Jul-19	8.20	8.23	0.03	4.11	unconfined	Static	
AOI 8	P-21	10-Jun-19	---	4.41	---	8.68	NYC	Static	
AOI 8	PGW-MW-5	16-Jul-19	---	26.08	---	8.00	unconfined	Static	
AOI 8	PGW-MW-6	10-Jun-19	---	10.25	---	-2.24	unconfined	Static	
AOI 8	PGW-MW-7	16-Jul-19	---	14.15	---	8.91	unconfined	Static	
AOI 8	PGW-MW-8	10-Jun-19	---	23.70	---	7.89	unconfined	Static	
AOI 8	PGW-MW-9	16-Jul-19	---	24.57	---	7.84	unconfined	Static	
AOI 8	PGW-MW-20	10-Jun-19	NM	NM	NM	NM	unconfined	Static	obstruction in well
AOI 8	PGW-MW-21	25-Jun-19	---	4.31	---	8.64	unconfined	Static	
AOI 8	PZ-201	10-Jun-19	20.70	20.71	0.01	11.58	unconfined	Static	
AOI 8	PZ-202	10-Jun-19	20.50	20.60	0.10	12.88	unconfined	Static	
AOI 8	PZ-203	10-Jun-19	---	19.85	---	14.26	unconfined	Static	
AOI 8	PZ-204	10-Jun-19	NM	NM	NM	NM	unconfined	Static	viscous LNAPL
AOI 8	PZ-300	10-Jun-19	---	15.10	---	11.67	unconfined	Static	
AOI 8	PZ-500	10-Jun-19	NM	NM	NM	NM	unconfined	Static	abandoned
AOI 8	PZ-501	10-Jun-19	---	3.53	---	5.47	unconfined	Static	
AOI 8	PZ-502	10-Jun-19	2.27	3.91	1.64	5.51	unconfined	Static	
AOI 8	PZ-503	10-Jun-19	---	3.34	---	5.35	unconfined	Static	
AOI 8	PZ-504	10-Jun-19	---	2.33	---	5.30	unconfined	Static	
AOI 8	PZ-505	10-Jun-19	---	3.09	---	5.37	unconfined	Static	
AOI 8	PZ-507	10-Jun-19	---	8.08	---	4.60	unconfined	Static	
AOI 8	RW-200	10-Jun-19	---	5.45	---	6.57	unconfined	Static	
AOI 8	RW-201	10-Jun-19	22.23	22.24	0.01	9.76	unconfined	Static	
AOI 8	RW-202	10-Jun-19	---	18.95	---	10.56	unconfined	Static	
AOI 8	RW-203	10-Jun-19	22.09	22.11	0.02	9.01	unconfined	Static	
AOI 8	RW-204	10-Jun-19	16.75	18.84	2.09	11.61	unconfined	Static	
AOI 8	RW-205	10-Jun-19	18.19	18.60	0.41	11.44	unconfined	Static	
AOI 8	RW-206	10-Jun-19	19.72	22.07	2.35	10.96	unconfined	Static	
AOI 8	RW-300	10-Jun-19	14.00	14.50	0.50	7.56	lower aquifer	Static	
AOI 8	RW-301	10-Jun-19	---	11.51	---	10.90	unconfined	Static	
AOI 8	RW-302	10-Jun-19	---	12.70	---	11.39	unconfined	Static	
AOI 8	RW-303	10-Jun-19	---	13.35	---	11.63	unconfined	Static	
AOI 8	RW-304	10-Jun-19	---	14.25	---	11.03	unconfined	Static	
AOI 8	RW-305	10-Jun-19	---	14.30	---	10.97	unconfined	Static	
AOI 8	RW-306	10-Jun-19	---	12.50	---	11.08	unconfined	Static	

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AOI 8	RW-307	10-Jun-19	---	14.40	---	8.86	unconfined	Static	
AOI 8	RW-308	10-Jun-19	---	16.26	---	9.35	unconfined	Static	
AOI 8	RW-309	10-Jun-19	---	15.20	---	10.03	unconfined	Static	
AOI 8	RW-500	10-Jun-19	---	2.00	---	5.56	unconfined	Static	
AOI 8	RW-501	10-Jun-19	---	4.69	---	5.10	unconfined	Static	
AOI 8	RW-502	10-Jun-19	8.44	8.46	0.02	4.03	unconfined	Static	
AOI 8	V-MW-1	11-Jun-19	---	20.97	---	11.56	NYC	Static	
AOI 8	V-MW-2	10-Jun-19	---	23.92	---	9.68	NYC	Static	
AOI 8	V-MW-3	10-Jun-19	---	22.92	---	9.73	NYC	Static	
AOI 8	V-MW-4	10-Jun-19	---	24.55	---	10.36	NYC	Static	
AOI 8	V-MW-5	10-Jun-19	23.89	23.89	<0.01	9.72	NYC	Static	
AOI 8	V-MW-6	10-Jun-19	---	24.63	---	9.82	NYC	Static	
AOI 8	V-MW-7	10-Jun-19	---	23.87	---	9.70	NYC	Static	
AOI 8	V-MW-8	10-Jun-19	---	23.79	---	9.84	NYC	Static	
AOI 8	V-MW-9	10-Jun-19	---	23.12	---	9.96	NYC	Static	
AOI 8	V-MW-10	10-Jun-19	---	24.47	---	10.01	NYC	Static	
AOI 8	V-MW-11	10-Jun-19	---	25.00	---	10.20	NYC	Static	
AOI 8	V-MW-12	10-Jun-19	---	25.13	---	10.44	NYC	Static	
AOI 8	V-MW-16	10-Jun-19	---	29.17	---	10.37	NYC	Static	
AOI 9	MW-1SRTF	10-Jun-19	1.95	5.05	3.10	4.82	NYC	Static	
AOI 9	MW-2SRTF	10-Jun-19	2.68	2.97	0.29	4.59	NYC	Static	
AOI 9	MW-3SRTF	10-Jun-19	2.25	3.06	0.81	4.53	NYC	Static	
AOI 9	RW-A	10-Jun-19	---	4.21	---	-6.08	NYC	Static	
AOI 9	RW-B	10-Jun-19	2.27	4.17	1.90	4.64	NYC	Static	
AOI 9	RW-B5	10-Jun-19	---	3.26	---	4.58	NYC	Static	
AOI 9	S-74D1SRTF	10-Jun-19	---	21.02	---	-8.21	lower aquifer	Static	
AOI 9	S-74D2SRTF	10-Jun-19	---	15.56	---	-2.48	NYC	Static	
AOI 9	S-74SRTF	10-Jun-19	---	7.80	---	6.74	NYC	Static	
AOI 9	S-75SRTF	10-Jun-19	NM	NM	NM	NM	NYC	Static	
AOI 9	S-76DSRTF	10-Jun-19	---	16.51	---	-7.96	lower aquifer	Static	
AOI 9	S-76SRTF	10-Jun-19	---	5.85	---	1.08	NYC	Static	
AOI 9	S-77SRTF	10-Jun-19	---	11.97	---	-7.62	NYC	Static	
AOI 9	S-78SRTF	10-Jun-19	---	9.71	---	-8.21	NYC	Static	
AOI 9	S-79SRTF	10-Jun-19	---	7.93	---	-6.09	NYC	Static	
AOI 9	S-80SRTF	10-Jun-19	---	3.56	---	-0.99	NYC	Static	
AOI 9	S-81SRTF	10-Jun-19	---	9.47	---	-8.01	NYC	Static	
AOI 9	S-82SRTF	10-Jun-19	---	1.79	---	-0.68	NYC	Static	
AOI 9	S-83SRTF	10-Jun-19	---	4.31	---	-1.93	NYC	Static	
AOI 9	S-105SRTF	10-Jun-19	---	6.22	---	-4.27	NYC	Static	
AOI 9	S-106DSRTF	10-Jun-19	---	18.71	---	-9.25	lower aquifer	Static	
AOI 9	S-106SRTF	10-Jun-19	---	5.71	---	4.31	NYC	Static	
AOI 9	S-108SRTF	10-Jun-19	---	5.07	---	-0.76	NYC	Static	
AOI 9	S-109SRTF	10-Jun-19	---	2.88	---	-0.53	NYC	Static	
AOI 9	S-110DSRTF	10-Jun-19	---	10.64	---	-7.97	NYC	Static	
AOI 9	S-110SRTF	10-Jun-19	NM	NM	NM	NM	NYC	Static	dry at 8.60 feet
AOI 9	S-111SRTF	10-Jun-19	8.46	8.46	<0.01	-7.68	NYC	Static	
AOI 9	S-112SRTF	10-Jun-19	9.86	9.86	<0.01	-8.34	NYC	Static	
AOI 9	S-113SRTF	10-Jun-19	---	11.30	---	-8.28	NYC	Static	
AOI 9	S-114SRTF	10-Jun-19	10.41	10.41	<0.01	-8.24	NYC	Static	
AOI 9	S-115DSRTF	10-Jun-19	---	10.85	---	-8.15	NYC	Static	
AOI 9	S-115SRTF	10-Jun-19	---	11.22	---	-8.47	NYC	Static	
AOI 9	S-116SRTF	10-Jun-19	---	9.41	---	-8.54	NYC	Static	
AOI 9	S-117SRTF	10-Jun-19	---	7.82	---	-4.95	NYC	Static	
AOI 9	S-118DSRTF	10-Jun-19	---	11.85	---	-8.59	NYC	Static	
AOI 9	S-118SRTF	10-Jun-19	---	11.53	---	-7.90	NYC	Static	
AOI 9	S-119SRTF	10-Jun-19	---	3.73	---	-1.38	NYC	Static	
AOI 9	S-120DSRTF	10-Jun-19	---	21.10	---	-8.73	NYC	Static	
AOI 9	S-120SRTF	10-Jun-19	---	8.81	---	3.26	NYC	Static	
AOI 9	S-121SRTF	10-Jun-19	---	7.36	---	-6.35	NYC	Static	
AOI 9	S-122SRTF	10-Jun-19	8.56	9.92	1.36	-6.38	NYC	Static	
AOI 9	S-123SRTF	10-Jun-19	---	9.63	---	-7.22	NYC	Static	
AOI 9	S-124SRTF	10-Jun-19	---	6.57	---	1.31	NYC	Static	
AOI 9	S-125SRTF	10-Jun-19	---	4.74	---	2.44	NYC	Static	
AOI 9	S-126SRTF	10-Jun-19	---	6.94	---	4.89	NYC	Static	
AOI 9	S-127SRTF	10-Jun-19	---	7.42	---	4.71	NYC	Static	
AOI 9	S-128SRTF	10-Jun-19	---	9.20	---	4.11	NYC	Static	
AOI 9	S-129SRTF	10-Jun-19	NM	NM	NM	NM	NYC	Static	no access-area secured
AOI 9	S-130SRTF	10-Jun-19	---	7.45	---	3.09	perched aquifer	Static	
AOI 9	S-131SRTF	10-Jun-19	---	4.94	---	3.87	NYC	Static	
AOI 9	S-132SRTF	10-Jun-19	---	6.47	---	2.23	NYC	Static	
AOI 9	S-133SRTF	10-Jun-19	---	3.54	---	1.14	NYC	Static	

Table 2  
 Sitewide 2019 Annual Gauging Data  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

AOI	Well ID	Date	Depth to LNAPL (feet btoc)	Depth to Water (feet btoc)	Apparent LNAPL Thickness (feet)	Corrected Groundwater Elevation (ft NAVD 88)	Well Classification	Static or Pumping	Comments
AOI 9	S-134SRTF	10-Jun-19	---	7.81	---	2.37	NYC	Static	
AOI 9	S-135SRTF	10-Jun-19	---	10.42	---	-7.44	NYC	Static	
AOI 9	S-136SRTF	10-Jun-19	NM	NM	NM	NM	NYC	Static	unable to locate
AOI 9	S-137SRTF	10-Jun-19	---	19.92	---	-9.96	unconfined	Static	
AOI 9	S-138SRTF	10-Jun-19	---	18.51	---	-8.52	lower aquifer	Static	
AOI 9	S-139SRTF	10-Jun-19	---	17.75	---	-7.70	unconfined	Static	
AOI 9	S-140SRTF	10-Jun-19	---	5.80	---	4.67	unconfined	Static	
AOI 9	S-141SRTF	10-Jun-19	---	20.15	---	-9.69	unconfined	Static	
AOI 9	S-142SRTF	10-Jun-19	---	16.80	---	-9.86	NYC	Static	
AOI 9	S-143SRTF	10-Jun-19	---	15.86	---	-9.09	lower aquifer	Static	
AOI 9	S-144SRTF	10-Jun-19	---	8.35	---	-7.83	unconfined	Static	
AOI 9	S-145SRTF	10-Jun-19	---	9.30	---	-8.08	unconfined	Static	
AOI 9	S-146SRTF	10-Jun-19	---	25.25	---	-8.57	NYC	Static	
AOI 9	S-147SRTF	10-Jun-19	---	23.28	---	-8.15	NYC	Static	
AOI 9	S-148SRTF	10-Jun-19	---	21.13	---	-8.36	NYC	Static	
AOI 9	S-149SRTF	10-Jun-19	---	21.54	---	-8.08	NYC	Static	
AOI 9	S-150SRTF	10-Jun-19	---	15.68	---	-9.28	NYC	Static	
AOI 9	WPA-1	10-Jun-19	---	7.15	---	-4.42	NYC	Static	
AOI 9	WPA-2	10-Jun-19	---	8.36	---	-5.67	NYC	Static	
AOI 9	WPA-3	10-Jun-19	NM	NM	NM	NM	NYC	Static	dry at 7.10 feet
AOI 9	WPA-5	10-Jun-19	---	6.13	---	-3.65	NYC	Static	
AOI 9	WPB-2	10-Jun-19	---	6.89	---	4.41	NYC	Static	
AOI 9	WPB-3	10-Jun-19	2.58	3.05	0.47	4.49	NYC	Static	
AOI 9	WPB-4	10-Jun-19	---	1.73	---	6.31	NYC	Static	
AOI 9	WPB-5	16-Jul-19	7.98	9.19	1.21	4.03	NYC	Static	
AOI 10	W-1	14-Jun-19	---	6.25	---	3.35	NYC	Static	measured DTW at top of steel casing
AOI 10	W-1D	14-Jun-19	---	9.39	---	1.34	NYC	Static	
AOI 10	W-2	14-Jun-19	---	14.90	---	4.55	NYC	Static	
AOI 10	W-5	14-Jun-19	---	3.06	---	4.67	NYC	Static	
AOI 10	W-6	14-Jun-19	---	0.38	---	7.11	NYC	Static	
AOI 10	W-8	14-Jun-19	2.95	2.96	0.01	5.49	NYC	Static	
AOI 10	W-9	14-Jun-19	---	9.65	---	-0.36	NYC	Static	
AOI 10	W-10	14-Jun-19	3.20	3.21	0.01	4.27	NYC	Static	
AOI 10	W-11	14-Jun-19	---	3.93	---	4.13	NYC	Static	
AOI 10	W-12	14-Jun-19	---	3.10	---	4.00	NYC	Static	
AOI 10	W-13	14-Jun-19	---	7.87	---	-1.22	NYC	Static	
AOI 10	W-14	14-Jun-19	---	2.77	---	4.49	NYC	Static	
AOI 10	W-15	14-Jun-19	---	1.93	---	6.85	NYC	Static	
AOI 10	W-16	14-Jun-19	---	2.25	---	4.39	NYC	Static	
AOI 10	W-17	14-Jun-19	---	3.25	---	3.97	NYC	Static	
AOI 10	W-19	14-Jun-19	---	10.91	---	-0.85	NYC	Static	
AOI 10	W-20	14-Jun-19	---	2.62	---	7.49	NYC	Static	
AOI 10	W-22	14-Jun-19	---	1.22	---	5.22	NYC	Static	
AOI 10	W-23	14-Jun-19	---	2.47	---	5.08	NYC	Static	
AOI 10	W-24	14-Jun-19	NM	NM	NM	NM	NYC	Static	area around well flooded; unable to access
AOI 10	W-25	14-Jun-19	---	5.72	---	4.43	NYC	Static	
AOI 10	W-26	14-Jun-19	---	11.93	---	-1.95	NYC	Static	
AOI 10	W-27	14-Jun-19	---	9.68	---	1.18	NYC	Static	
AOI 10	W-28	14-Jun-19	---	3.72	---	4.89	NYC	Static	
AOI 10	W-29	14-Jun-19	---	7.07	---	4.75	NYC	Static	
AOI 10	W-30	14-Jun-19	---	3.49	---	5.16	NYC	Static	
AOI 10	W-31	14-Jun-19	3.23	3.34	0.11	5.04	NYC	Static	
AOI 10	W-32	14-Jun-19	---	10.14	---	4.69	NYC	Static	
AOI 10	W-32D	14-Jun-19	---	14.75	---	-0.05	NYC	Static	
AOI 10	W-33	14-Jun-19	---	11.81	---	5.26	NYC	Static	
AOI 10	W-34	14-Jun-19	---	7.48	---	6.66	NYC	Static	
BELMONT	MW-26	03-Jun-19	21.60	22.13	0.53	5.03	NYC	Static	
BELMONT	MW-27	03-Jun-19	23.64	23.90	0.26	4.96	NYC	Static	
BELMONT	MW-28	03-Jun-19	23.60	23.74	0.14	5.15	unconfined	Static	
BELMONT	MW-29	03-Jun-19	23.51	26.25	2.74	4.89	NYC	Static	
BELMONT	MW-30	03-Jun-19	---	26.64	---	5.06	unconfined	Static	
BELMONT	MW-31	03-Jun-19	25.11	25.11	<0.01	5.46	unconfined	Static	
BELMONT	MW-32	03-Jun-19	---	24.33	---	4.81	unconfined	Static	
BELMONT	MW-33	03-Jun-19	---	24.95	---	5.04	unconfined	Static	
BELMONT	MW-35	03-Jun-19	---	25.29	---	5.36	unconfined	Static	
BELMONT	MW-36	03-Jun-19	---	27.20	---	5.37	unconfined	Static	
BELMONT	MW-37	03-Jun-19	---	26.32	---	5.60	unconfined	Static	
BELMONT	MW-38	03-Jun-19	---	22.68	---	4.94	unconfined	Static	
BELMONT	MW-39	03-Jun-19	---	22.55	---	5.00	unconfined	Static	
BELMONT	MW-40	03-Jun-19	22.82	23.03	0.21	5.02	NYC	Static	
BELMONT	MW-41	03-Jun-19	---	22.30	---	5.05	unconfined	Static	

Table 2  
 Sitewide 2019 Annual Gauging Data  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

AOI	Well ID	Date	Depth to LNAPL (feet btoc)	Depth to Water (feet btoc)	Apparent LNAPL Thickness (feet)	Corrected Groundwater Elevation (ft NAVD 88)	Well Classification	Static or Pumping	Comments
BELMONT	MW-43	03-Jun-19	---	25.62	---	4.99	unconfined	Static	
BELMONT	MW-44	03-Jun-19	---	24.84	---	4.46	unconfined	Static	
BELMONT	OW-2	03-Jun-19	---	26.23	---	5.44	unconfined	Static	
BELMONT	OW-12	03-Jun-19	---	25.12	---	5.10	unconfined	Static	
BELMONT	OW-13	03-Jun-19	---	26.89	---	5.31	unconfined	Static	
BELMONT	OW-14	03-Jun-19	---	27.08	---	5.13	unconfined	Static	
BELMONT	OW-16	03-Jun-19	25.97	26.45	0.48	5.32	unconfined	Static	
BELMONT	OW-17	03-Jun-19	---	25.26	---	4.73	unconfined	Static	
BELMONT	OW-18	03-Jun-19	---	25.31	---	5.53	unconfined	Static	
BELMONT	OW-19	03-Jun-19	---	25.47	---	5.53	unconfined	Static	
BELMONT	OW-20	03-Jun-19	---	26.51	---	5.36	unconfined	Static	
BELMONT	PZ-400	03-Jun-19	---	23.12	---	4.98	unconfined	Static	
BELMONT	RW-1	03-Jun-19	---	24.53	---	5.02	unconfined	Static	
BELMONT	RW-4	03-Jun-19	25.12	25.40	0.28	5.27	NYC	Static	
BELMONT	RW-6	03-Jun-19	---	25.83	---	5.23	unconfined	Static	
BELMONT	RW-7	03-Jun-19	---	22.98	---	5.23	unconfined	Static	
BELMONT	RW-15	03-Jun-19	---	26.00	---	4.05	unconfined	Static	
BELMONT	RW-21	03-Jun-19	23.92	23.92	<0.01	4.95	unconfined	Static	
BELMONT	RW-22	03-Jun-19	---	21.82	---	5.21	unconfined	Static	
BELMONT	RW-23	03-Jun-19	NM	NM	NM	NM	NYC	Static	
BELMONT	RW-24	03-Jun-19	---	22.08	---	5.09	unconfined	Static	
BELMONT	RW-25	03-Jun-19	24.95	24.96	0.01	5.20	NYC	Static	
BELMONT	RW-26	03-Jun-19	---	24.72	---	4.49	unconfined	Static	
BELMONT	RW-27	03-Jun-19	---	25.32	---	4.39	unconfined	Static	
BELMONT	RW-28	03-Jun-19	---	24.68	---	5.06	unconfined	Static	
BELMONT	RW-29	03-Jun-19	---	24.96	---	4.48	unconfined	Static	
BELMONT	RW-30	03-Jun-19	---	24.90	---	4.49	unconfined	Static	
BELMONT	RW-31	03-Jun-19	---	24.92	---	4.46	unconfined	Static	
BELMONT	RW-32	03-Jun-19	---	21.80	---	7.25	unconfined	Static	
BELMONT	RW-400	03-Jun-19	---	28.23	---	-0.04	unconfined	Static	
BELMONT	S-74	03-Jun-19	---	25.10	---	4.94	unconfined	Static	
BELMONT	S-75	03-Jun-19	26.25	26.25	<0.01	4.99	unconfined	Static	
BELMONT	S-76	03-Jun-19	26.13	26.23	0.10	4.89	NYC	Static	
BELMONT	S-330	03-Jun-19	---	24.75	---	5.10	unconfined	Static	
BELMONT	S-331	03-Jun-19	---	25.17	---	6.11	unconfined	Static	
BELMONT	S-332	03-Jun-19	---	25.44	---	4.81	unconfined	Static	
BELMONT	S-393D	03-Jun-19	---	28.84	---	3.22	lower aquifer	Static	
BELMONT	S-394	03-Jun-19	---	28.87	---	3.25	lower aquifer	Static	
BELMONT	S-395	03-Jun-19	---	26.73	---	5.49	unconfined	Static	
BELMONT	TW-3	03-Jun-19	---	26.81	---	5.30	unconfined	Static	
BELMONT	TW-5	03-Jun-19	---	26.48	---	5.59	unconfined	Static	
BELMONT	TW-8	03-Jun-19	---	25.06	---	5.08	unconfined	Static	
BELMONT	TW-9	03-Jun-19	---	26.96	---	5.14	unconfined	Static	
BELMONT	TW-10	03-Jun-19	NM	NM	NM	NM	NYC	Static	no access-vault lid damaged
BELMONT	TW-11	03-Jun-19	---	27.40	---	5.00	unconfined	Static	

Notes:

For product thickness <0.01 ft, the corrected groundwater elevation was calculated using 0.01 foot.

LNAPL = Light non-aqueous phase liquid

ft = Feet

toc = Top of casing

ft btoc = Feet below top of casing

NAVD 88 = North American Vertical Datum of 1988

--- = LNAPL not present

NM = Field reading not measured and/or corrected groundwater elevation not calculated due to lack of surveyed reference elevation or well was dry or presence of down-well pump.

NA = Not Accessible, Not Applicable, or Not Available

NYC = Not yet classified

unconfined\* = Hydrostratigraphic unit was assumed because there was no well construction data available.













Table 4  
 Historical Perimeter Groundwater Sampling Analytical Results  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

Area of Interest	Sample Location	Sample Date	Sample Type	BENZENE µg/L	TOLUENE µg/L	ETHYLBENZENE µg/L	XYLENES, TOTAL (DIMETHYLBENZENE) µg/L	METHYL TERTIARY BUTYL ETHER µg/L	TERT-BUTYL ALCOHOL µg/L	ISOPROPYLBENZENE (CUMENE) µg/L	NAPHTHALENE µg/L	1,2,4-TRIMETHYLBENZENE µg/L	1,3,5-TRIMETHYLBENZENE µg/L	1,2-DICHLOROETHANE (EDC) µg/L	1,2-DIBROMOETHANE (EDB) µg/L	CHRYSENE µg/L	FLUORENE µg/L	PHENANTHRENE µg/L	PYRENE µg/L	ANTHRACENE µg/L	BENZO(A)ANTHRACENE µg/L	BENZO(A)PYRENE µg/L	BENZO(B)FLUORANTHENE µg/L	BENZO(G,H)PERYLENE µg/L	LEAD, Dissolved µg/L		
AOI 1	S-41	19-Oct-04	S-41	70	5.5	ND (1.8)	ND (3.2)	490	-	63	ND (3.6)	-	-	ND (1.5)	ND (0.0020)	ND (0.14)	ND (10)	ND (10)	ND (10)	-	-	-	-	-	ND (5.0)		
		22-Apr-05	S41-042205	65	ND (50)	ND (50)	ND (50)	530	-	ND (50)	ND (10)	-	-	ND (50)	ND (0.029)	ND (10)	ND (10)	ND (10)	ND (10)	-	-	-	-	-	-		
		27-Mar-09	S-41_032709	44	7	12	28	20	-	98	ND (5)	-	-	-	ND (1)	ND (0.03)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	ND (1)	
		23-Jun-09	S-41	15	3	4	4	45	-	100	ND (5)	-	-	-	ND (1)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-	
		17-Sep-09	S-41_091709	37	11	ND (5)	6	28	-	46	ND (5)	-	-	-	ND (5)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	ND (1.0)	
		13-Nov-09	S-41	3	3	3	1 J	56	-	120	ND (1)	ND (0.5)	0.7 J	-	ND (0.5)	ND (0.0098)	ND (0.057)	-	1.9	ND (0.095)	-	-	-	-	-	0.22 J	
		9-Dec-09	S-41_120909	12	5	2	5	40	-	29	ND (5)	-	-	-	ND (1)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	ND (1.0)	
		11-Nov-10	S-41	14	3	2	3	23	-	41	ND (1)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.0095)	ND (1)	2 J	1 J	ND (1)	-	-	-	-	-	0.20 J	
		22-Nov-11	S-41	4	2	3	1	25	-	110	ND (0.95)	0.5 J	0.5 J	-	ND (0.5)	ND (0.0097)	ND (0.076)	5.8	1.4	ND (0.095)	-	-	-	-	-	0.22 J	
		19-Jul-12	S-41_071912	19	3	1 J	3	13	-	35	ND (0.09)	ND (1)	ND (1)	-	ND (1)	ND (0.0097)	ND (0.09)	-	0.8	ND (0.09)	0.1 J	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	0.22 J	
		2-Apr-13	S-41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (1)
		2-Apr-13	S-41_040213	1.3 J	1.1 J	3.1	0.65 J	17.4	-	101	ND (0.10)	ND (4.0)	ND (4.0)	-	ND (2.0)	ND (0.020)	ND (0.10)	1.79	1.33	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	-
		23-May-14	S-41	2.2	1.5	1.1	2.6	9.6	-	47.7	ND (0.10)	ND (2.0)	0.36 J	-	ND (1.0) J	ND (0.020)	ND (0.10)	1.45	0.868	ND (0.10)	0.117	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (3.0)
		8-Dec-14	S-41-20141208	0.93	2.1	1.6	1.3	6.5	-	91.0	ND (0.10)	ND (2.0)	0.23 J	-	ND (1.0)	ND (0.020)	ND (0.10)	2.21	1.77	ND (0.10)	0.192	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	2.2 J
		18-May-15	S-41_20150518	6	2	0.9 J	3	5	-	20	1	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.0097)	ND (0.1)	2	1	ND (0.1)	0.1 J	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.50 J	
	10-May-16	S-41-20160510	ND (5)	ND (5)	ND (5)	ND (5)	6	-	28	2	ND (10)	ND (10)	-	ND (5)	ND (0.029)	ND (0.5)	2	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)		
	16-May-17	S-41-20170516	ND (3)	ND (3)	ND (3)	ND (3)	4 J	-	70	0.8	ND (3)	ND (3)	-	ND (3)	ND (0.0095)	ND (0.1)	0.7	0.3 J	ND (0.1)	0.1 J	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.15 J		
	21-Jun-18	S-41_20180621	ND (1.00)	1.48	ND (1.00)	ND (3.00)	ND (1.00)	-	106	1.38	ND (1.00)	ND (1.00)	-	ND (1.00)	ND (0.0100)	ND (0.0500)	2.49	0.314	0.0519	0.178	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (2.00)		
	S-42I	19-Oct-04	S-42I (formerly S-42)	ND (1.0)	ND (5.0)	ND (5.0)	ND (10)	ND (5.0)	-	ND (5.0)	ND (5.0)	-	-	-	ND (5.0)	ND (0.020)	ND (0.14)	ND (10)	ND (10)	ND (10)	-	-	-	-	-	ND (5.0)	
		15-Apr-05	S42D-041505	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	-	ND (5)	ND (10)	-	-	-	ND (5)	ND (0.028)	ND (10)	ND (10)	ND (10)	ND (10)	-	-	-	-	-	-	
		27-Mar-09	S-42I_032709	25	2	7	19	11	-	ND (2)	ND (5)	-	-	-	3	ND (0.032)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	ND (1)	
		23-Jun-09	S-42I	6	ND (1)	ND (1)	2	14	-	ND (2)	ND (5)	-	-	-	4	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-	
		17-Sep-09	S-42I_091709	78	20	2	10	ND (1)	-	ND (2)	ND (5)	-	-	-	ND (1)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	ND (1.0)	
		9-Dec-09	S-42I_120909	29	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	ND (5)	-	-	-	ND (1)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-	ND (1.0)
		19-Jul-12	S-42I_071912	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	23	-	ND (0.5)	0.2 J	ND (0.5)	ND (0.5)	-	4	ND (0.0097)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.034)
22-May-14		S-42I	ND (0.50)	ND (1.0)	ND (1.0)	ND (1.0)	6.3	-	ND (1.0)	ND (0.10)	ND (2.0)	ND (2.0)	-	0.43 J	ND (0.020)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	2.5 J	
3-Dec-14		S-42I-20141203	0.48 J	ND (1.0)	ND (1.0)	ND (1.0)	9.6	-	ND (1.0)	ND (0.10)	ND (2.0)	ND (2.0)	-	1.7	ND (0.020)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (3.0)	
19-Jun-18		S-42I_20180619	ND (1.00)	ND (1.00)	ND (1.00)	ND (3.00)	13.5	ND (5.00)	ND (1.00)	-	ND (1.00)	ND (1.00)	-	1.01	ND (0.0100) HT	-	-	-	-	-	-	-	-	-	-		
17-Jun-19	S-42I_20190617	0.5 J	ND (0.2)	ND (0.2)	ND (0.5)	7	38	0.7 J	ND (0.09)	ND (0.3)	ND (0.3)	-	ND (2)	ND (0.0095)	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	ND (1.1)		

See notes on last page.

Table 4  
 Historical Perimeter Groundwater Sampling Analytical Results  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

Area of Interest	Sample Location	Sample Date	Sample Type	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES, TOTAL (DIMETHYLBENZENE)	METHYL TERTIARY BUTYL ETHER	TERT-BUTYL ALCOHOL	ISOPROPYLBENZENE (CUMENE)	NAPHTHALENE	1,2,4-TRIMETHYLBENZENE	1,3,5-TRIMETHYLBENZENE	1,2-DICHLOROETHANE (EDC)	1,2-DIBROMOETHANE (EDB)	CHRYSENE	FLUORENE	PHENANTHRENE	PYRENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H)PERYLENE	LEAD, Dissolved		
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L			
AOI 1	S-43	1-Jan-93	DM	S-43	12,000	190	1,300	1,000	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-		
		1-Jan-94	DM	S-43	17,000	1,700	250 J	1,680	-	-	-	-	-	-	-	-	ND (10)	-	-	-	-	ND (10)	ND (10)	ND (10)	-	-	
		28-Dec-95		S-43	12,000	1,200	170	860	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
		1-Jan-96	DM	S-43	2,100	110	120	110	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		19-Nov-97		S-43	13,000	210	1,200	1,000	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		12-Nov-98		S-43	6,700	94 J	720	470	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		2-Dec-99		S-43	3,600	ND (100)	ND (100)	250	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		16-Nov-00		S-43	990	ND (100)	ND (100)	ND (200)	ND (100)	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (2)	ND (3)	-	-	
		14-Nov-01		S-43	6,100	ND (500)	ND (500)	ND (1,000)	ND (500)	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (2)	ND (3)	-	-	
		12-Nov-02		S-43	5,500	170	790	460	-	-	-	-	-	-	-	-	ND (15)	-	-	-	-	-	ND (13)	ND (10)	ND (14)	-	-
		13-Nov-03		S-43	3,600	130	836	489	18.8	-	-	-	-	-	-	-	ND (2.0)	-	-	-	-	-	ND (2.0)	ND (2.0)	ND (2.0)	-	-
		19-Oct-04		S-43	720	31	150	90	ND (4.4)	-	39	50	-	-	11	ND (0.020)	ND (0.14)	ND (10)	ND (10)	ND (10)	-	-	-	-	-	ND (5.0)	
		21-Apr-05		S43-042105		940	41	160	98	10	-	42	28	-	-	ND (5)	ND (0.029)	ND (10)	ND (10)	ND (10)	ND (10)	-	-	-	-	-	-
		2-May-05		S43-050205		820	35	160	100	ND (20)	-	36	35	-	-	ND (20)	ND (0.029)	ND (10)	ND (10)	ND (10)	ND (10)	-	-	-	-	-	-
		14-Sep-05		S-43_091405		740	40	180	89	10	-	42	34	-	-	-	-	-	ND (5)	ND (5)	-	-	-	-	-	-	-
		8-Nov-05		S-43_11_8_2005		5,520 D	212	1,090	716	20	-	-	208	-	-	119	ND (0.02)	ND (0.1)	1.1	1	ND (0.1)	-	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	-
		30-Nov-06		S-43		890	32	48	34	7.0	-	13	9.0	-	-	ND (1.0)	ND (0.0099)	1.0 J	ND (1.0)	2.0 J	3.0 J	-	-	-	-	-	0.2 J
		14-Sep-07		S-43_091407		1,200	69	320	220	ND (10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		5-Dec-07		S-43		15	1.0	3.0	3.0	-	-	2.0 J	1.0 J	-	-	ND (0.5)	ND (0.0096)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	-	-	-	-	0.40 J
		7-Nov-08		S-43_110708		140	15	30	20	4	-	32	6	8	5	ND (0.5)	ND (0.0098)	ND (1)	-	ND (1)	ND (1)	-	-	-	-	-	7.7
		27-Mar-09		S-43_032709		1,300	98	370	290	5	-	42	71	-	-	ND (2)	ND (0.03)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	ND (1)
		23-Jun-09		S-43		1,600	90	520	350	7	-	52	110	-	-	ND (5)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-
		17-Sep-09		S-43_091709		590	34	140	100	ND (5)	-	26	32	-	-	ND (5)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	ND (1.0)
		17-Nov-09		S-43		860	59	200	210	6	-	40	61	140	71	ND (0.5)	ND (0.0098)	0.19	-	0.64	0.44	-	-	-	-	-	0.37 J
		9-Dec-09		S-43_120909		220	21	110	92	1	-	19	21	-	-	ND (1)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	ND (1.0)
		11-Nov-10		S-43		850	91	410	340	9	-	76	110	210	93	ND (1)	ND (0.0096)	ND (10)	ND (10)	ND (10)	ND (10)	-	-	-	-	-	0.29 J
		22-Nov-11		S-43		29	3	19	16	ND (0.5)	-	4	16	11	2 J	ND (0.5)	ND (0.0099)	0.95	2.2	1.9	1.1	-	-	-	-	-	2.6
		19-Jul-12		S-43_071912		260	36	190	110	3	-	30	51	75	38	ND (0.5)	ND (0.0097)	0.4 J	1	1	0.5	0.1 J	0.3 J	0.3 J	0.5 J	0.2 J	8.7
		2-Apr-13		S-43		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (1)
		2-Apr-13		S-43_040213		371	52.7	222	78.9	2.7	-	31.7	28.2	74.5	44.5	ND (2.5)	ND (0.020)	ND (0.10)	0.668	0.330	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	-
27-May-14		S-43		44.3	7.4	13.7	9.5	4.5	-	55.4	1.66	2.9	1.8 J	ND (1.0)	ND (0.020)	ND (0.10)	1.14	0.370	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	1.5 J		
12-Dec-14		S-43-20141212		36.6	15.2	33.0	20.9	4.4	-	69.2	7.52	6.6	5.2	ND (1.0)	ND (0.020)	ND (0.10)	3.27	1.56	0.122	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (3.0)		
18-May-15		S-43_20150518		50	21	52	34	5	-	48	29	19	14	ND (0.5)	ND (0.0097)	0.4 J	5	5	0.6	0.2 J	0.3 J	0.3 J	0.5 J	0.3 J	0.11 J		
10-May-16		S-43-20160510		11	7	3	7	5	-	56	1	ND (2)	ND (2)	ND (1)	ND (0.029)	ND (0.5)	4	2	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)		

See notes on last page.

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 Historical Perimeter Groundwater Sampling Analytical Results  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

Area of Interest	Sample Location	Sample Date	Sample Type	BENZENE µg/L	TOLUENE µg/L	ETHYLBENZENE µg/L	XYLENES, TOTAL (DIMETHYLBENZENE) µg/L	METHYL TERTIARY BUTYL ETHER µg/L	TERT-BUTYL ALCOHOL µg/L	ISOPROPYLBENZENE (CUMENE) µg/L	NAPHTHALENE µg/L	1,2,4-TRIMETHYLBENZENE µg/L	1,3,5-TRIMETHYLBENZENE µg/L	1,2-DICHLOROETHANE (EDC) µg/L	1,2-DIBROMOETHANE (EDB) µg/L	CHRYSENE µg/L	FLUORENE µg/L	PHENANTHRENE µg/L	PYRENE µg/L	ANTHRACENE µg/L	BENZO(A)ANTHRACENE µg/L	BENZO(A)PYRENE µg/L	BENZO(B)FLUORANTHENE µg/L	BENZO(G,H)PERYLENE µg/L	LEAD, Dissolved µg/L		
AOI 1	S-44	18-Oct-04	S-44	1,700	37	16	28	19	-	51	ND (10)	-	-	ND (5.0)	0.058	ND (0.16)	ND (11)	ND (11)	ND (11)	-	-	-	-	-	ND (5.0)		
		21-Apr-05	S44-042105	2,100	52	16	44	34	-	38	ND (10)	-	-	-	ND (5)	ND (0.029)	ND (10)	ND (10)	ND (10)	ND (10)	-	-	-	-	-	-	
		14-Sep-05	S-44_091405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (5)	ND (5)	-	-	-	-	-	-	-	
		14-Sep-07	S-44_091407	1,100	24	28	58	210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		27-Mar-09	S-44_032709	620	22	25	65	310	-	23	ND (5)	-	-	-	ND (1)	ND (0.03)	ND (5)	ND (5)	5	ND (5)	-	-	-	-	-	ND (1)	
		23-Jun-09	S-44	1,300	27	18	37	290	-	37	ND (5)	-	-	-	ND (5)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-	-
		17-Sep-09	S-44_091709	2,300	130	40	110	250	-	59	ND (5)	-	-	-	ND (10)	ND (0.030)	ND (5)	5	5	ND (5)	-	-	-	-	-	ND (1.0)	
		18-Nov-09	S-44	1,100	27	7	38	270	-	17	ND (1)	0.8 J	4	-	ND (0.5)	ND (0.0097)	ND (40)	-	2.5	ND (0.099)	-	-	-	-	-	0.14 J	
		9-Dec-09	S-44_120909	1,200	25	18	37	260	-	46	ND (5)	-	-	-	ND (2)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	ND (1.0)	
		11-Nov-10	S-44	660	20	10	20	260	-	30	ND (1)	ND (5)	ND (5)	ND (5)	ND (5)	ND (0.0096)	ND (1)	2 J	1 J	ND (1)	-	-	-	-	-	0.25 J	
		21-Nov-11	S-44	850	20	14	24	180	-	38	ND (1.1)	ND (5)	6 J	ND (5)	ND (5)	ND (0.0096)	ND (0.089)	3.4	0.95	ND (0.11)	-	-	-	-	-	0.17 J	
		20-Jul-12	S-44_072012	590	13	5	12	180	-	23	1	ND (3)	ND (3)	ND (3)	ND (3)	ND (0.0096)	0.2 J	3	2	0.3 J	0.3 J	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	0.38 J	
		3-Apr-13	S-44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (1)
		3-Apr-13	S-44_040313	450	14.3	7.8	16.5	146	-	53.3	ND (0.10)	37.1	1.8 J	ND (4.0)	ND (0.020)	ND (0.10)	1.33	0.611	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	-	
		27-May-14	S-44	575	22.5	9.1	28.6	144	-	44.8	ND (0.10)	0.68 J	2.4	ND (1.0)	ND (0.020)	ND (0.10)	1.18	0.687	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (3.0)
		15-Dec-14	S-44-20141215	260	11.6	3.6	17.2	134	-	23.0	ND (0.10)	0.45 J	2.3	ND (1.0)	ND (0.020)	ND (0.10)	1.47	0.956	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (3.0)
		18-May-15	S-44_20150518	340	16	5	20	110	-	34	3	0.6 J	2	ND (0.5)	ND (0.0097)	0.2 J	4	4	0.3 J	0.6	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.26 J
		11-May-16	S-44-20160511	310	14	ND (5)	19	120	-	14	1	ND (10)	ND (10)	ND (10)	ND (5)	ND (0.029)	ND (0.5)	2	0.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
		11-May-16	S-44-20160511DUP	Field Duplicate	310	14	ND (5)	17	120	-	14	1	ND (10)	ND (10)	ND (5)	ND (0.029)	ND (0.5)	2	0.7	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)
		16-May-17	S-44-20170516	130	7	3 J	7	78	-	27	ND (0.1)	ND (3)	23	ND (3)	ND (0.0095)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.19 J
22-Jun-18	S-44_20180622	231	11.2	4.34	16.6	94.3	-	51.3	0.794	ND (1.00)	1.64	ND (1.00)	ND (0.0100)	ND (0.0500)	2.08	1.42	ND (0.0500)	0.0841	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (2.00)			
18-Jun-19	S-44_20190618	220	12	4	19	84	3,000	38	ND (0.09)	0.4 J	2 J	ND (2)	ND (0.0096)	ND (0.09)	1	1	ND (0.09)	0.1 J	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	ND (1.1)			

See notes on last page.

Table 4  
 Historical Perimeter Groundwater Sampling Analytical Results  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

Area of Interest	Sample Location	Sample Date	Sample Type	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES, TOTAL (DIMETHYLBENZENE)	METHYL TERTIARY BUTYL ETHER	TERT-BUTYL ALCOHOL	ISOPROPYLBENZENE (CUMENE)	NAPHTHALENE	1,2,4-TRIMETHYLBENZENE	1,3,5-TRIMETHYLBENZENE	1,2-DICHLOROETHANE (EDC)	1,2-DIBROMOETHANE (EDB)	CHRYSENE	FLUORENE	PHENANTHRENE	PYRENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	LEAD, Dissolved		
AOI 1	S-50	1-Jan-85	DM	S-50	23,000	ND	5,400	23,000	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-		
		1-Jan-86	DM	S-50	24,000	ND	2,300	1,520	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
		1-Jan-88	DM	S-50	24,000	ND	ND	ND	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
		1-Jan-94	DM	S-50	290	20 J	160 J	40 J	-	-	-	-	-	-	-	-	ND (10)	-	-	-	-	ND (10)	ND (10)	ND (10)	-	-	
		28-Dec-95		S-50	17,000	1,600	98 J	3,000	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
		1-Jan-96	DM	S-50	14	ND (0.3)	ND (0.4)	ND (0.6)	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		19-Nov-97		S-50	21,000	210	1,300	2,200	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		12-Nov-98		S-50	18,000	57 J	570	980	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		2-Dec-99		S-50	28,000	ND (1,000)	ND (1,000)	ND (2,000)	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		16-Nov-00		S-50	47,000	ND (100)	240	370	590	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (2)	ND (3)	-	-	
		27-Nov-01		S-50	53,000	1,400	9	1,300	5,200	-	-	-	-	-	-	-	ND (2)	-	-	-	-	ND (2)	ND (2)	ND (3)	-	-	
		30-Nov-06		S-50	42,000	94 J	720	630	99 J	-	ND (50)	170 J	-	-	ND (50)	ND (0.0098)	ND (1.0)	1.0 J	1.0 J	ND (1.0)	-	-	-	-	-	0.15 J	
		4-Dec-07		S-50	31,000	86	420	370	-	-	35 J	93 J	-	-	ND (25)	ND (0.0098)	ND (1.0)	ND (1.0)	1.0 J	ND (1.0)	-	-	-	-	-	0.14 J	
		12-Jun-08		S-50_061208	880	2	17	7	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		10-Nov-08		S-50	16,000	160	400	1,400	390	-	36 J	110 J	260	90 J	ND (25)	ND (0.0096)	ND (1)	-	1 J	ND (1)	-	-	-	-	-	-	0.073 J
		23-Mar-09		S-50_032309	21,000	ND (50)	230	91	ND (50)	-	ND (100)	37	-	-	ND (50)	ND (0.03)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-	ND (1)
		7-May-09		S-50	9,300	ND (20)	120	41	ND (20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		23-Jun-09		S-50	15,000	21	170	63	26	-	ND (40)	41	-	-	ND (20)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-	-
		21-Jul-09		S-50_072109	32,000	55	340	210	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		18-Aug-09		S-50_081809	5,300	ND (10)	120	37	ND (10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		16-Sep-09		S-50_091609	12,000	ND (20)	140	52	28	-	ND (40)	33	-	-	ND (20)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-	ND (1.0)
		22-Oct-09		S-50_102209	8,200	ND (20)	140	37	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		19-Nov-09		S-50	4,700	10	75	22	45	-	10 J	37 J	42	17 J	ND (5)	ND (0.0097)	0.18 J	-	0.66	ND (0.098)	-	-	-	-	-	-	ND (0.050)
		25-Nov-09		S-50_112509	9,500	ND (20)	140	36	59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		10-Dec-09		S-50_121009	12,000	18	140	62	78	-	ND (20)	50	-	-	ND (10)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-	ND (1.0)
		17-Mar-10		S-50_031710	580	6	18	25	3	-	6	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		7-Sep-10		S-50_090710	1,200	5	18	6	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		9-Nov-10		S-50_110910	5,500	13	28	12	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		11-Nov-10		S-50	7,600	12	34	11	39	-	7 J	13	8 J	5 J	ND (5)	ND (0.0097)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	0.083 J
		14-Mar-11		S-50_031411	73	45	1	6	ND (1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		16-May-11		S-50-05162011	120	11	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		21-Jul-11		S-50_07212011	3,000	7	18	ND (5)	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		21-Nov-11		S-50	190	1	1	0.5 J	1	-	2	3.7	ND (0.5)	0.5 J	ND (0.5)	ND (0.0097)	ND (0.076)	0.20 J	0.083 J	ND (0.095)	-	-	-	-	-	-	ND (0.080)
		21-Dec-11		S-50_12212011	870	ND (10)	ND (10)	ND (10)	ND (10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		24-Jul-12		S-50_072412	130	2	ND (0.5)	2	ND (0.5)	-	2 J	1	1 J	0.9 J	ND (0.5)	ND (0.0098)	ND (0.09)	0.2 J	0.3 J	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.034)
9-Aug-12		S-50_080912	4,700	32	35	ND (10)	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
18-Oct-12		S-50_101812	6,700	20	59	ND (10)	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
15-Jan-13		S-50_011513	671	8.6	20.4	3.7	ND (2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
3-Apr-13		S-50_040313	0.46 J	ND (1.0)	ND (1.0)	0.29 J	ND (1.0)	-	ND (2.0)	ND (0.11)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	0.090 J		
20-May-14		S-50	509	2.2 J	13.5	1.2 J	ND (5.0)	-	4.2 J	2.46	1.2 J	3.1 J	ND (5.0)	ND (0.020)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (3.0)		
15-Dec-14		S-50-20141215	2,390	9.8	19.7	ND (5.0)	5.7	-	6.1	4.53	ND (10)	3.9 J	ND (5.0)	ND (0.020)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (3.0)		
18-May-15		S-50_20150518	2,000	8	34	ND (3)	3 J	-	9 J	16	ND (3)	5 J	ND (3)	ND (0.0097)	ND (0.1)	0.1 J	0.1 J	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.092 J		
10-May-16		S-50-20160510	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	ND (0.5)	ND (2)	ND (2)	ND (1)	ND (0.029)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)		
16-May-17		S-50-20170516	5	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0096)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.090)		
26-Jun-18		S_50_20180626	ND (1.00)	ND (1.00)	ND (1.00)	ND (3.00)	ND (1.00)	-	ND (1.00)	ND (0.250)	ND (1.00)	ND (1.00)	ND (1.00)	ND (0.0100)	ND (0.0500)	0.0590	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (2.00)		
11-Jul-19		S-50_20190711	8,300	18	170	15 J	3 J	ND (100)	23 J	99	6 J	10 J	ND (20)	ND (0.0094)	ND (0.09)	0.6	0.7	0.1 J	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	0.1 J	ND (1.1)		

See notes on last page.









Table 4  
 Historical Perimeter Groundwater Sampling Analytical Results  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

Area of Interest	Sample Location	Sample Date	Sample Type	BENZENE µg/L	TOLUENE µg/L	ETHYLBENZENE µg/L	XYLENES, TOTAL (DIMETHYLBENZENE) µg/L	METHYL TERTIARY BUTYL ETHER µg/L	TERT-BUTYL ALCOHOL µg/L	ISOPROPYLBENZENE (CUMENE) µg/L	NAPHTHALENE µg/L	1,2,4-TRIMETHYLBENZENE µg/L	1,3,5-TRIMETHYLBENZENE µg/L	1,2-DICHLOROETHANE (EDC) µg/L	1,2-DIBROMOETHANE (EDB) µg/L	CHRYSENE µg/L	FLUORENE µg/L	PHENANTHRENE µg/L	PYRENE µg/L	ANTHRACENE µg/L	BENZO(A)ANTHRACENE µg/L	BENZO(A)PYRENE µg/L	BENZO(B)FLUORANTHENE µg/L	BENZO(G,H)PERYLENE µg/L	LEAD, Dissolved µg/L	
AOI 1	S-197	18-Mar-04	S-197	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		7-Nov-05	S-197	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (1)	ND (1)	-	-	ND (1)	ND (0.02)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	-	-	-	-	-	-	ND (10)
		10-Nov-05	S-197_11_10_2005	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	ND (1)	-	-	ND (1)	ND (0.02)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	-	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	-
	S-199	17-Aug-18	S-199_20180817	10,800 SL	412 SL	872 SL	3,770 SL	20,200 SL	-	ND (200) SL	1,890 SL	998 SL	297 SL	ND (200) SL	ND (0.0100) SL	1.25 SL	21.0 SL	26.0 SL	3.67 SL	5.06 SL	1.13 SL	0.731 SL	0.915 SL	0.399 SL	6.57 SL	
		11-Jul-19	S-199-SL_20190711	8,000 SL	1,300 SL	770 SL	2,700 SL	21,000 SL	47,000 SL	68 SL	5,400 SL	690 SL	220 SL	ND (20) SL	ND (0.0094) SL	8 J SL	76 SL	120 SL	27 SL	22 J SL	8 J SL	5 J SL	7 J SL	ND (5) SL	2.6 J SL	
	S-230	18-Apr-06	S-230	890	180	79	180	ND (5)	-	10	20 *	-	-	-	-	-	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	ND (6)	-
		14-Sep-07	S-230_091407	2,600	ND (5)	32	64	ND (5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		25-Mar-09	S-230_032509	8,000	ND (20)	51	52	ND (20)	-	ND (40)	14	-	-	ND (20)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-	ND (1)
		7-May-09	S-230	400	ND (1)	2	5	ND (1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		25-Jun-09	S-230	1,200	6	23	23	ND (2)	-	5	ND (50)	-	-	ND (2)	ND (0.030)	ND (50)	ND (50)	ND (50)	ND (50)	-	-	-	-	-	-	ND (1.0)
		21-Jul-09	S-230_072109	1,900	120	12	41	ND (2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		18-Aug-09	S-230_081809	1,000	3	11	15	ND (2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		17-Sep-09	S-230_091709	340	2	8	10	ND (1)	-	6	ND (50)	-	-	ND (1)	ND (0.029)	ND (50)	ND (50)	ND (50)	ND (50)	-	-	-	-	-	-	ND (1.0)
		22-Oct-09	S-230_102209	490	9	12	37	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		25-Nov-09	S-230_112509	540	8	7	17	ND (2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		17-Mar-10	S-230_031710	230	2	8	11	ND (1)	-	ND (2)	ND (4)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		1-Jun-10	S-230_060110	610	3	19	17	ND (1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		7-Sep-10	S-230_090710	800	5	11	10	ND (1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		9-Nov-10	S-230_110910	51	ND (1)	3	3	ND (1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		14-Mar-11	S-230_031411	14	10	ND (1)	2	ND (1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		16-May-11	S-230-05162011	81	28	ND (1)	3	ND (1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		21-Jul-11	S-230_07212011	8,700	13	63	44	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		21-Dec-11	S-230_12212011	85	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		25-Jul-12	S-230_072512	3,700	9 J	12	7 J	ND (5)	-	ND (5)	0.9	ND (5)	ND (5)	ND (5)	ND (5)	ND (0.0098)	0.2 J	0.3 J	0.2 J	0.3 J	ND (0.1)	0.1 J	0.1 J	0.3 J	0.1 J	9.2
		9-Aug-12	S-230_080912	3,900	ND (10)	10	ND (10)	ND (10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		18-Oct-12	S-230_101812	57,000	98	180	140	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		15-Jan-13	S-230_011513	1,190	1.4	7.7	3.8	ND (1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		21-May-14	S-230	8,680	26.2	24.2	14.1 J	7.0 J	-	ND (20)	2.47	ND (40)	ND (40)	ND (20)	ND (0.020)	ND (0.10)	0.313	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	1.4 J
		17-Dec-14	S-230-20141217	1,720	ND (10)	5.1 J	ND (10)	ND (10)	-	ND (10)	0.758	ND (20)	ND (20)	ND (10)	ND (0.020)	ND (0.10)	0.417	0.272	0.213	0.126	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (3.0)
		26-Jun-18	S_230_20180626	3,380	4.24	18.0	12.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19-Jun-19		S-230_20190619	3,200	150	9	11 J	ND (1)	ND (50)	ND (2)	0.2 J	3 J	ND (2)	ND (10)	ND (0.0095)	0.5 J	0.1 J	0.3 J	0.7	ND (0.1)	0.3 J	0.3 J	0.5	0.3 J	ND (1.1)		

See notes on last page.

Table 4  
 Historical Perimeter Groundwater Sampling Analytical Results  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

Area of Interest	Sample Location	Sample Date	Sample Type	BENZENE µg/L	TOLUENE µg/L	ETHYLBENZENE µg/L	XYLENES, TOTAL (DIMETHYLBENZENE) µg/L	METHYL TERTIARY BUTYL ETHER µg/L	TERT-BUTYL ALCOHOL µg/L	ISOPROPYLBENZENE (CUMENE) µg/L	NAPHTHALENE µg/L	1,2,4-TRIMETHYLBENZENE µg/L	1,3,5-TRIMETHYLBENZENE µg/L	1,2-DICHLOROETHANE (EDC) µg/L	1,2-DIBROMOETHANE (EDB) µg/L	CHRYSENE µg/L	FLUORENE µg/L	PHENANTHRENE µg/L	PYRENE µg/L	ANTHRACENE µg/L	BENZO(A)ANTHRACENE µg/L	BENZO(A)PYRENE µg/L	BENZO(B)FLUORANTHENE µg/L	BENZO(G,H)PERYLENE µg/L	LEAD, Dissolved µg/L		
AOI 1	S-231	14-Sep-07	S-231_091407	8,000	270	120	690	ND (20)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		12-Jun-08	S-231_061208	33,000	170	280	1,100	ND (50)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		25-Mar-09	S-231_032509	60,000	ND (200)	400	1,100	ND (200)	-	ND (400)	70	-	-	-	ND (200)	ND (0.03)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	ND (1)	
		7-May-09	S-231	42,000	84	75	640	ND (50)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		22-Jun-09	S-231_062209	28,000	ND (50)	140	600	ND (50)	-	ND (100)	-	-	-	-	ND (50)	ND (0.029)	-	-	-	-	-	-	-	-	-	-	ND (1.0)
		23-Jun-09	S-231	42,000	84	75	640	ND (50)	-	-	76	-	-	-	-	-	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-	-
		21-Jul-09	S-231_072109	31,000	67	190	750	ND (25)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		18-Aug-09	S-231_081809	22,000	ND (50)	150	560	ND (50)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		16-Sep-09	S-231_091609	3,900	11	24	170	ND (5)	-	ND (10)	16	-	-	-	ND (5)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-	ND (1.0)
		22-Oct-09	S-231_102209	5,300	21	63	340	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		25-Nov-09	S-231_112509	9,600	43	96	350	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		10-Dec-09	S-231_121009	12,000	50	75	300	17	-	ND (20)	28	-	-	-	ND (10)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-	ND (1.0)
		17-Mar-10	S-231_031710	12,000	ND (50)	71	240	ND (50)	-	ND (100)	ND (200)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		7-Sep-10	S-231_090710	7,800	25	99	280	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		9-Nov-10	S-231_110910	6,700	22	82	260	ND (10)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		11-Nov-10	S-231	9,500	460	86	280	16	-	14 J	54	110	75	ND (5)	ND (0.0096)	ND (10)	ND (10)	ND (10)	ND (10)	-	-	-	-	-	-	0.61 J	
		14-Mar-11	S-231_031411	190,000	76,000	910	5,400	ND (500)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		23-Nov-11	S-231	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.96)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0094)	0.28	ND (0.096)	0.32	0.39	-	-	-	-	-	-	ND (0.080)
		2-Apr-13	S-231	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (1)
		2-Apr-13	S-231_040213	1,570	33.7	105	1,560	ND (5.0)	-	21.7	30.4	479	200	ND (5.0)	ND (0.020)	ND (0.11)	0.780	0.834	0.321	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	-	
21-May-14	S-231	24.3	5.8	26.5	24.0	ND (1.0)	-	18.7	6.02	41.5	27.4	ND (1.0)	ND (0.020)	ND (0.10)	0.324	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	2.7 J			
12-Dec-14	S-231-20141212	232	7.4	22.5	22.3	1.1	-	14.9	9.51	36.4	27.2	ND (1.0)	ND (0.020)	ND (0.10)	0.230	0.132	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	1.9 J			
18-May-15	S-231_20150518	25	8	15	10	2	-	22	3	15	10	ND (0.5)	ND (0.0097)	0.4 J	0.3 J	0.6	0.5	ND (0.1)	0.3 J	0.2 J	0.3 J	0.2 J	0.11 J	0.11 J			
10-May-16	S-231-20160510	29	15	11	18	4	-	29	4	10	16	ND (1)	ND (0.029)	ND (0.5)	0.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)			

See notes on last page.

















Table 4  
 Historical Perimeter Groundwater Sampling Analytical Results  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

Area of Interest	Sample Location	Sample Date	Sample Type	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES, TOTAL (DIMETHYLBENZENE)	METHYL TERTIARY BUTYL ETHER	TERT-BUTYL ALCOHOL	ISOPROPYLBENZENE (CUMENE)	NAPHTHALENE	1,2,4-TRIMETHYLBENZENE	1,3,5-TRIMETHYLBENZENE	1,2-DICHLOROETHANE (EDC)	1,2-DIBROMOETHANE (EDB)	CHRYSENE	FLUORENE	PHENANTHRENE	PYRENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	LEAD, Dissolved		
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L		
AOI 3	S-1	1-Jan-85	DM	S-1	ND	ND	ND	ND	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-		
		1-Jan-86	DM	S-1	ND	ND	ND	ND	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
		1-Jan-88	DM	S-1	ND	ND	ND	ND	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND (10)	ND (10)	ND (10)	-	-	
		1-Jan-93	DM	S-1	ND	ND	ND	ND	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
		1-Jan-94	DM	S-1	ND (50)	ND (50)	ND (50)	ND (100)	-	-	-	-	-	-	-	-	ND (10)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		28-Dec-95		S-1	2.7	ND	ND	0.8 J	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		1-Jan-96	DM	S-1	ND (0.3)	ND (0.3)	ND (0.4)	ND (0.6)	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		19-Nov-97		S-1	ND (1)	ND (1)	ND (1)	2	-	-	-	-	-	-	-	-	ND (10)	-	-	-	-	1	1	ND (1)	-	-	
		12-Nov-98		S-1	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	-	-	ND (10)	-	-	-	-	1.2	ND (2)	ND (3)	-	-	
		2-Dec-99		S-1	ND (1)	ND (1)	ND (1)	ND (2)	-	-	-	-	-	-	-	-	1	-	-	-	-	ND (10)	ND (20)	ND (30)	-	-	
		16-Nov-00		S-1	ND (1)	ND (1)	ND (1)	ND (2)	10	-	-	-	-	-	-	-	1.4	-	-	-	-	-	-	-	-	-	-
		14-Nov-01		S-1	ND (1)	ND (1)	ND (1)	3	38	-	-	-	-	-	-	-	12	-	-	-	-	1.0 J	1.0 J	0.88 J	-	-	
		13-Nov-03		S-1	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	-	-	-	-	-	-	1.1 J	-	-	-	-	-	-	-	-	-	-
		21-Oct-04		S-1	ND (1.0)	ND (5.0)	ND (5.0)	ND (10)	ND (5.0)	-	ND (5.0)	ND (5.0)	-	-	ND (5.0)	ND (0.020)	ND (0.14)	ND (9.8)	ND (9.8)	ND (9.8)	-	-	-	-	-	-	ND (5.0)
		8-Nov-05		S-1_11_8_2005	ND (1)	ND (1)	ND (1)	ND (1)	23	-	-	ND (1)	-	-	ND (1)	ND (0.02)	0.5	ND (0.3)	ND (0.3)	1.5	-	0.5	0.5	1	ND (0.3)	-	-
		30-Nov-06		S-1	ND (0.5)	0.8 J	ND (0.8)	ND (0.8)	ND (0.5)	-	ND (1.0)	2.0 J	-	-	ND (1.0)	ND (0.0097)	1.0 J	ND (1.0)	ND (1.0)	2.0 J	-	ND	ND	ND	-	0.44 J	
		11-Dec-07		S-1	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (1.0)	-	-	ND (0.5)	ND (0.0095)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND	ND	ND	-	0.63 J	
		4-Nov-08		S-1_110408	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0098)	ND (1)	-	ND (1)	ND (1)	-	-	-	-	-	-	0.067 J
		12-Nov-09		S-1	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	1.4	-	0.78	3.2	-	-	-	-	-	-	1.9
		1-Dec-09		S-1_120109	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	ND (47)	ND (2)	ND (2)	ND (1)	ND (0.029)	ND (47)	ND (47)	ND (47)	ND (47)	-	-	-	-	-	-	3.5
		21-Jul-10		S-1_072110	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	ND (5)	ND (2)	ND (2)	ND (1)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-	ND (1.0)
		15-Nov-10		S-1	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.96)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0096)	0.7	0.94	0.33	2.1	-	-	-	-	-	-	0.10 J
		18-Nov-11		S-1	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (9.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	6.9	1.6 J	ND (0.76)	6.1	-	-	-	-	-	-	0.24 J
		4-Apr-13		S-1_040413	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (2.0)	ND (0.10)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	0.242	0.502	ND (0.10)	0.678	0.282	0.233	0.258	0.227	0.260	-	0.52 J
		29-Aug-13		AOI3_S-1_082913	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (2.0)	ND (0.10)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (3.0)
30-May-14		S-1	ND (0.50)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (0.10)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	0.118	0.235	ND (0.10)	0.251	ND (0.10)	0.110	0.150	0.204	ND (0.10)	-	11.6		
15-Jun-15		AOI3_S-1_061515	ND (1.0)	541	ND (1.0)	ND (3.0)	ND (1.0)	-	ND (1.0)	0.093 J	ND (1.0)	ND (1.0)	ND (1.0)	0.097	0.26	0.76	0.18	0.82	0.67	0.30	0.32	0.53	0.18	-	ND (5.0)		
31-Dec-15		AOI3_S-1_123115	ND (0.50)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (0.11)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.018)	0.239	ND (0.11)	ND (0.11)	0.317	0.316	0.157	0.261	0.311	0.254	-	ND (3.0)		
12-May-16		S-1-20160512	ND (1)	1	ND (1)	ND (1)	ND (1)	-	ND (2)	ND (0.5)	ND (2)	ND (2)	ND (1)	ND (0.029)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (1.0)		

See notes on last page.





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 Historical Perimeter Groundwater Sampling Analytical Results  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

Area of Interest	Sample Location	Sample Date	Sample Type	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES, TOTAL (DIMETHYLBENZENE)	METHYL TERTIARY BUTYL ETHER	TERT-BUTYL ALCOHOL	ISOPROPYLBENZENE (CUMENE)	NAPHTHALENE	1,2,4-TRIMETHYLBENZENE	1,3,5-TRIMETHYLBENZENE	1,2-DICHLOROETHANE (EDC)	1,2-DIBROMOETHANE (EDB)	CHRYSENE	FLUORENE	PHENANTHRENE	PYRENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	LEAD, Dissolved		
AOI 3	S-66	1-Jan-85	DM	S-66	ND	ND	ND	ND	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-		
		1-Jan-86	DM	S-66	ND	ND	ND	ND	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
		1-Jan-88	DM	S-66	ND	ND	ND	ND	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND (10)	ND (10)	ND (10)	-	-	
		1-Jan-93	DM	S-66	ND	ND	ND	ND	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		1-Jan-94	DM	S-66	ND (5)	ND (5)	ND (5)	ND (10)	-	-	-	-	-	-	-	-	ND (10)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		1-Jan-96	DM	S-66	ND (0.3)	ND (0.3)	ND (0.4)	ND (0.6)	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		19-Nov-97		S-66	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		12-Nov-98		S-66	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (2)	ND (3)	-	-	
		2-Dec-99		S-66	ND (1)	ND (1)	ND (1)	ND (2)	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (2)	ND (3)	-	-	
		16-Nov-00		S-66	ND (1)	ND (1)	ND (1)	ND (2)	10	-	-	-	-	-	-	-	ND (4)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		14-Nov-01		S-66	ND (1)	ND (1)	ND (1)	ND (2)	1	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (2.0)	ND (2.0)	ND (2.0)	-	-	
		13-Nov-02		S-66	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	-	ND (2)	-	-	-	-	-	-	-	-	-	
		12-Nov-03		S-66	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	-	-	-	-	-	-	ND (2.0)	-	-	-	-	ND	ND	ND	-	-	
		19-Oct-04		S-66	ND (1.0)	ND (5.0)	ND (5.0)	ND (10)	ND (5.0)	-	ND (5.0)	ND (5.0)	-	-	-	ND (5.0)	ND (0.020)	ND (0.14)	ND (9.8)	ND (9.8)	ND (9.8)	-	ND	ND	ND	-	ND (5.0)
		15-Nov-10		S-66	DR	DR	DR	DR	DR	-	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR
	18-Nov-11		S-66	DR	DR	DR	DR	DR	-	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	
	2-Apr-13		S-66	DR	DR	DR	DR	DR	-	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	DR	
	29-May-14		S-66	ND (0.50)	0.88 J	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	-	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	-	-	-	-	-	-	-	-	-	-	-	
	30-May-14		S-66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (3.0)	
	S-69	1-Jan-85	DM	S-69	ND	ND	ND	ND	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
		1-Jan-86	DM	S-69	ND	ND	ND	ND	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
		1-Jan-88	DM	S-69	ND	ND	ND	ND	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND (10)	ND (10)	ND (10)	-	-	
		1-Jan-93	DM	S-69	ND	ND	ND	1	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
		1-Jan-94	DM	S-69	21	ND (5)	ND (5)	ND (10)	-	-	-	-	-	-	-	-	ND (10)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		28-Dec-95		S-69	ND	ND	ND	ND	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		1-Jan-96	DM	S-69	ND (0.3)	ND (0.3)	ND (0.4)	ND (0.6)	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		19-Nov-97		S-69	ND (1)	16	7	27	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		12-Nov-98		S-69	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (2)	ND (3)	-	-	
		2-Dec-99		S-69	ND (1)	ND (1)	ND (1)	ND (2)	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (2)	ND (3)	-	-	
		16-Nov-00		S-69	ND (1)	ND (1)	ND (1)	ND (2)	6.8	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
14-Nov-01			S-69	ND (1)	ND (1)	ND (1)	ND (2)	3	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (2.0)	ND (2.0)	ND (2.0)	-	-		
13-Nov-02			S-69	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	-	ND (2)	-	-	-	-	-	-	-	-	-		
12-Nov-03			S-69	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	1.9	-	-	-	-	-	-	-	ND (2.0)	-	-	-	-	-	-	-	-	-		
19-Oct-04			S-69	ND (1.0)	ND (5.0)	ND (5.0)	ND (10)	ND (5.0)	-	ND (5.0)	ND (5.0)	-	-	-	ND (5.0)	ND (0.020)	ND (0.14)	ND (9.9)	ND (9.9)	ND (9.9)	-	-	-	-	ND (5.0)		

See notes on last page.















Table 4  
 Historical Perimeter Groundwater Sampling Analytical Results  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

Area of Interest	Sample Location	Sample Date	Sample Type	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES, TOTAL (DIMETHYLBENZENE)	METHYL TERTIARY BUTYL ETHER	TERT-BUTYL ALCOHOL	ISOPROPYLBENZENE (CUMENE)	NAPHTHALENE	1,2,4-TRIMETHYLBENZENE	1,3,5-TRIMETHYLBENZENE	1,2-DICHLOROETHANE (EDC)	1,2-DIBROMOETHANE (EDB)	CHRYSENE	FLUORENE	PHENANTHRENE	PYRENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H)PERYLENE	LEAD, Dissolved		
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L			
AOI 4	S-223	1-Aug-05	S-223-080105		6,100	9,600	1,300	6,900	ND (50)	-	ND (50)	430	-	-	ND (50)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-		
		29-Nov-06	S-223		4,300	2,800	930	4,400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		14-Dec-07	S-223		4,700	2,000	900	4,500	-	-	33	380	-	-	ND (5.0)	ND (0.0094)	ND (1.0)	2.0 J	2.0 J	ND (1.0)	-	-	-	-	-	0.060 J	
		5-Nov-08	S-223_110508		8,100	1,700	1,100	5,100	ND (5)	-	38	380	1,000	330	ND (5)	ND (0.010)	ND (1)	-	1 J	ND (1)	-	-	-	-	-	0.10 J	
		12-Nov-09	S-223		3,900	460	850	3,700	ND (3)	-	36	330	1,000	360	ND (3)	ND (0.0099)	0.47	-	2.3	ND (0.095)	-	-	-	-	-	0.098 J	
		15-Nov-10	S-223		3,300	410	890	3,800	ND (3)	-	32	170	920	360	ND (3)	ND (0.0097)	0.14 J	3.4	0.86	1.1	-	-	-	-	-	0.095 J	
		18-Nov-11	S-223		1,100	110	440	1,900	ND (5)	-	25	170	780	350	ND (5)	ND (0.0096)	ND (0.077)	3.7	1.4	ND (0.096)	-	-	-	-	-	ND (0.080)	
		14-Dec-12	S-223_12142012		6,270	408	1,250	5,490	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (3.0)
		3-Apr-13	S-223_040313		5,530	337	866	4,040	ND (40)	-	29.3 J	130	1,070	351	ND (40)	ND (0.020)	ND (0.10)	0.625	0.601	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	0.26 J
		18-Jun-13	S-223_06_18_2013		7,400	2,850	709	2,930	ND (50)	-	23.3 J	159	766	269	ND (50)	ND (0.02)	ND (0.1)	0.772	0.663	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (3)
		15-Jan-14	S-223_010714		6,280	2,030	960	3,860	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		4-Apr-14	S223_040414		2,320	1,020	259	1,370	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		30-May-14	S-223		1,470	108	396	1,300	ND (10)	-	23.0	38.6	812	314	ND (10)	ND (0.020)	ND (0.10)	0.940	0.770	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	6.8
		12-Aug-14	S223_081214		4,240	294	713	2,820	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		6-Oct-14	S-223_100614		3,000	219	642	2,870	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		6-Jan-15	S-223-20150106		11,400	5,410	871	3,980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		16-Apr-15	S-223-20150416		1,100	190	330	1,200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		21-Jul-15	S-223_20150721		3,600	570	400	1,900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		19-Oct-15	S-223-20151019		5,900	1,700	440	2,100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		8-Feb-16	S-223-20160208		1,300	200	250	940	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		26-Apr-16	S-223-20160426		2,300	480	380	1,600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		19-May-16	S-223-20160519		2,200	330	440	1,500	ND (10)	-	16 J	87	490	170	ND (10)	ND (0.0097)	ND (0.1)	0.8	0.2 J	ND (0.1)	0.1 J	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.13)
		17-Aug-16	S-223-20160817-WG		1,520	183	496	1,500	ND (5.00)	-	17.7	34.2	533	187	ND (5.00)	ND (0.0100) *	ND (0.0500)	0.764	0.170	ND (0.0500)	0.0978	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (2.00)
		13-Oct-16	S-223-20161013-WG		401	69.1	193	550	ND (10.0)	-	ND (10.0)	1.41	280	105	ND (10.0)	ND (0.0100) *	ND (0.0500)	0.171	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (2.00)
		17-May-17	S-223-20170517		37	9	26	87	ND (0.5)	-	1 J	0.1 J	50	21	ND (0.5)	ND (0.0096)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.40 J
		25-Jan-18	S-223_20180125		1,700	190	400	1,100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		2-Apr-18	S-223-20180402		1,800	150	530	1,500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		27-Jun-18	S-223_20180627		1,830	136	739	1,740	ND (1.00)	-	25.5	56.6	822	241	ND (1.00)	ND (0.0100)	ND (0.0500)	0.701	ND (0.0500)	ND (0.0500)	0.0826	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (2.00)
		27-Jun-18	S-223_DUP_20180627	Field Duplicate	1,850	145	764	1,790	ND (1.00)	-	27.1	78.1	807	245	ND (1.00)	ND (0.0100)	ND (0.0500)	0.707	0.0986	ND (0.0500)	0.0799	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (2.00)
		28-Nov-18	S-223_20181128		1,500	220	370	980	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18-Jan-19	S-223-20190118-WG		1,680	221	601	1,400	ND (50.0)	ND (250)	ND (50.0)	-	664	232	ND (50.0)	ND (0.0100)	-	-	-	-	-	-	-	-	-	-	-		
28-Jun-19	S-223_20190628		2,200	310	410	990	ND (2)	170 J	15 J	99	600	210	ND (20)	0.014 J	ND (0.1)	1	0.6	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (1.1)		

See notes on last page.











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 Historical Perimeter Groundwater Sampling Analytical Results  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

Area of Interest	Sample Location	Sample Date	Sample Type	BENZENE µg/L	TOLUENE µg/L	ETHYLBENZENE µg/L	XYLENES, TOTAL (DIMETHYLBENZENE) µg/L	METHYL TERTIARY BUTYL ETHER µg/L	TERT-BUTYL ALCOHOL µg/L	ISOPROPYLBENZENE (CUMENE) µg/L	NAPHTHALENE µg/L	1,2,4-TRIMETHYLBENZENE µg/L	1,3,5-TRIMETHYLBENZENE µg/L	1,2-DICHLOROETHANE (EDC) µg/L	1,2-DIBROMOETHANE (EDB) µg/L	CHRYSENE µg/L	FLUORENE µg/L	PHENANTHRENE µg/L	PYRENE µg/L	ANTHRACENE µg/L	BENZO(A)ANTHRACENE µg/L	BENZO(A)PYRENE µg/L	BENZO(B)FLUORANTHENE µg/L	BENZO(G,H,I)PERYLENE µg/L	LEAD, Dissolved µg/L	
AOI 5	RWBH-2	12-Jul-19	RWBH-2-SL_20190712	2 J SL	ND (1) SL	ND (1) SL	ND (3) SL	ND (1) SL	-	5 J SL	ND (0.1) SL	ND (2) SL	2 J SL	ND (10) SL	ND (0.0095) SL	0.4 J SL	7 SL	6 SL	1 SL	1 SL	0.3 J SL	ND (0.1) SL	ND (0.1) SL	ND (0.1) SL	ND (1.1) SL	
	WP-14	8-May-07	WP-14_050807	ND (5)	ND (5)	ND (5)	ND (5)	0.69 J	-	-	ND (5)	ND (1)	-	-	ND (5)	ND (0.05)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	2.3
		17-Nov-10	WP-14	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	-	ND (0.5)	ND (100)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	40	16 J	53	100	-	-	-	-	-	0.45 J
		28-Nov-11	WP-14	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	-	ND (0.5)	ND (9.8)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.010)	ND (4.5)	1.7 J	2.3	7.4	-	-	-	-	-	0.34 J
		8-Apr-13	WP-14_040813	ND (1)	ND (1)	ND (1)	ND (1)	0.26 J	-	-	ND (2)	0.228	ND (2)	ND (2)	ND (1)	ND (0.02)	0.576	0.228	0.54	1.17	0.249	0.586	0.463	0.432	0.27	ND (3)
		2-Jun-14	WP-14	ND (5.0)	ND (10)	ND (10)	ND (10)	ND (10)	-	-	ND (10)	ND (0.10)	ND (20)	ND (20)	ND (10)	ND (0.020)	ND (0.10)	4.94	1.65	1.34	0.631	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	2.0 J
		25-Jul-14	WP-14_072514	ND (0.50)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	-	ND (1.0)	1.03	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	2.78	1.16	1.84	6.16	1.12	3.47	2.18	2.96	1.20	6.2
		9-Oct-14	WP-14_100914	ND (0.50)	ND (1.0)	ND (1.0)	ND (1.0)	0.32 J	-	-	ND (1.0)	0.154	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	0.269	0.297	0.345	1.15	0.264	0.398	0.167	0.210	ND (0.10)	ND (3.0)
		21-May-15	WP-14_20150521	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	-	ND (0.5)	0.2 J	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0095)	0.7	0.1 J	0.5 J	0.8	0.2 J	0.6	0.7	0.7	0.5	0.97 J
		20-May-16	WP-14_20160520	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	-	ND (0.5)	0.4 J	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	0.7	0.5	0.6	1	0.3 J	0.6	0.7	0.7	0.6	0.31 J
		22-May-17	WP-14_20170522	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	-	ND (0.5)	0.5	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	1	0.4 J	1	2	0.5 J	1	2	2	1	0.40 J
	27-Jun-18	WP-14_20180627	ND (1.00)	ND (1.00)	ND (1.00)	ND (3.00)	ND (1.00)	-	-	ND (1.00)	ND (0.250)	ND (1.00)	ND (1.00)	ND (1.00)	ND (0.0100)	ND (0.0500)	0.724	0.767	0.245	0.109	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (2.00)	
	WP-A	9-Nov-05	WP-A_11_9_2005	ND (1)	ND (1)	ND (1)	ND (1)	21	-	-	ND (1)	-	-	-	ND (1)	ND (0.02)	9	38.2	13.2	51.5	-	14.7	13.4	17.9	18.1	-
		4-Dec-06	WP-A	ND (0.5)	ND (0.7)	ND (0.8)	ND (0.8)	1.0 J	-	-	ND (1.0)	ND (1.0)	-	-	ND (1.0)	ND (0.0097)	1.0 J	4.0 J	ND (1.0)	7.0	-	-	-	-	-	0.20 J
		7-May-07	WP-A_050707	ND (5)	ND (5)	ND (5)	ND (5)	0.62 J	-	-	ND (5)	ND (1)	-	-	ND (5)	ND (0.05)	3.6	ND (1)	ND (1)	11	-	-	-	-	-	1.5 J
		31-Jul-14	WP-A-073114	ND (0.50) SL	ND (1.0) SL	ND (1.0) SL	ND (1.0) SL	ND (1.0) SL	-	-	ND (1.0) SL	ND (0.50) SL	ND (2.0) SL	ND (2.0) SL	ND (1.0) SL	ND (0.020) SL	23.4 SL	2.34 SL	1.83 SL	65.2 SL	6.75 SL	9.79 SL	18.5 SL	18.2 SL	23.8 SL	3.9 SL
		21-Jan-16	AOI5_WPA_012116	ND (0.50) SL	ND (1.0) SL	ND (1.0) SL	ND (1.0) SL	ND (1.0) SL	-	-	ND (1.0) SL	ND (0.11) SL	ND (2.0) SL	ND (2.0) SL	ND (1.0) SL	ND (0.019) SL	2.99 SL	0.133 SL	0.153 SL	8.73 SL	0.720 SL	1.62 SL	2.26 SL	2.21 SL	2.65 SL	ND (3.0) SL
		11-Jul-19	WP-A_SL_20190711	ND (0.2) SL	ND (0.2) SL	ND (0.2) SL	ND (0.5) SL	ND (0.2) SL	-	-	0.6 J SL	ND (0.1) SL	ND (0.3) SL	ND (0.3) SL	ND (2) SL	ND (0.0094) SL	1 SL	ND (0.1) SL	ND (0.1) SL	4 SL	ND (0.1) SL	0.6 SL	0.9 SL	0.9 SL	0.4 J SL	ND (1.1) SL
	WP-C	3-May-07	WP-C_050307	ND (5)	ND (5)	ND (5)	0.95 J	ND (5)	-	-	2 J	ND (1)	-	-	ND (5)	ND (0.05)	ND (1)	1.1	ND (1)	ND (1)	-	-	-	-	-	ND (0.8)
		6-Dec-07	WP-C	ND (0.5)	ND (0.5)	ND (0.5)	2.0	-	-	-	4.0	ND (1.0)	-	-	ND (0.5)	ND (0.0097)	3.0 J	4.0 J	ND (1.0)	4.0 J	-	-	-	-	-	2
	B-39	8-Jan-13	B39_010813	44.0	3.1	ND (1.0)	3.8	ND (1.0)	-	-	30.1	ND (0.10)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	6.78	36.6	74.9	24.1	14.2	8.27	6.03	6.09	2.89	5.7
		11-May-16	GW-11109613-B39-05-11-16-MM-043	3	0.7 J	ND (1)	4	ND (1)	-	-	11	8.0	ND (2)	ND (2)	ND (1)	ND (0.029)	2.6	14	25	6.4	5.8	3.0	2.5	3.1	1.5	16.7
		24-Aug-16	GW-11109613-B-39-082416-AC-022	4	2	ND (1)	5	ND (1)	-	-	26	4.4	1 J	ND (2)	ND (1)	0.057	0.43	5.5	6.0	1.1	1.6	0.48	0.34	0.47	0.16	2.1
		24-Aug-16	GW-11109613-B-39-082416-KC-023	3	2	ND (1)	4	ND (1)	-	-	17	ND (0.064)	0.6 J	ND (2)	ND (1)	ND (0.028)	0.090	3.0	0.86	0.35	0.41	0.086	0.071	0.083	0.057	4.7
		8-Jul-19	B-39-SL_20190708	5 SL	3 SL	0.6 J SL	5 J SL	ND (0.2) SL	-	-	31 SL	2 SL	0.4 J SL	ND (0.3) SL	ND (2) SL	ND (0.0094) SL	2 SL	9 SL	13 SL	4 SL	4 SL	2 SL	1 SL	2 SL	0.7 SL	272 SL
	B-43	23-May-16	B-43-20160523	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	-	4	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	3	0.9	ND (0.1)	7	0.7	2	2	2	1	ND (0.13)
		22-Aug-16	GW-11109613-B-43-082216-KC-005	ND (1)	ND (1)	ND (1)	0.6 J	ND (1)	-	-	6	ND (0.063)	ND (2)	ND (2)	ND (1)	ND (0.028)	1.0	0.34	0.24	2.9	0.22	0.89	0.66 J	0.75 J	0.32 J	2.8
		22-May-17	B-43-20170522	ND (0.5)	ND (0.5)	ND (0.5)	2	ND (0.5)	-	-	7	1	0.8 J	ND (0.5)	ND (0.5)	ND (0.020)	0.3 J	0.3 J	1	2	0.4 J	0.4 J	0.3 J	0.3 J	0.1 J	ND (0.090)
		27-Jun-18	B-43_20180627	ND (1.00)	ND (1.00)	ND (1.00)	ND (3.00)	ND (1.00)	-	-	2.35	ND (0.250)	ND (1.00)	ND (1.00)	ND (1.00)	ND (0.0100)	0.326	ND (0.0500)	ND (0.0500)	1.52	ND (0.0500)	0.327	0.253	0.311	0.160	ND (2.00)
		27-Jun-19	B-43_20190627	8	0.5 J	ND (0.2)	ND (0.5)	ND (0.2)	-	-	3 J	ND (0.09)	ND (0.3)	ND (0.3)	ND (2)	ND (0.0095)	ND (0.09)	ND (0.09)	ND (0.09)	0.6	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	ND (1.1)
	B-45	25-May-05	B45-052505	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	5	ND (1)	-	-	ND (5)	ND (0.029)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-
		10-Nov-05	B-45_11_10_2005	3	ND (1)	1	8	ND (1)	-	-	-	2	-	-	ND (1)	ND (0.02)	0.2	ND (0.2)	ND (0.2)	0.4	-	0.2	0.2	0.3	ND (0.2)	-
		8-Jun-06	B45-060806	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	ND (5)	ND (5)	-	-	ND (5)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-
		18-Dec-07	B-45	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	-	-	ND (0.5)	ND (1.0)	-	-	ND (0.5)	ND (0.0097)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND	ND	ND	-	ND (0.047)
		4-Nov-08	B-45_110408	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.010)	ND (1)	-	ND (1)	ND (1)	-	-	-	-	-	ND (0.050)
		7-Jan-13	B-45_010713	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	-	ND (2.0)	ND (0.10)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	ND (0.10)	ND (0.10)	ND (0.10)	0.115	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (3.0)
	5-May-16	GW-11109613-B45-05-05-16-RM-014	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	ND (2)	ND (0.061)	ND (2)	ND (2)	ND (1)	ND (0.029)	0.050 J	0.042 J	0.065	0.085	0.042 J	0.021 J	0.030 J	0.043 J	0.033 J	0.14 J	
	B-95	8-Jun-11	B-95 GP U 677-MW	ND (0.5)	ND (0.5)	ND (0.5)	0.5 J	ND (0.5)	-	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0099)	0.18 J	-	0.18 J	1.2	-	-	-	-	-	ND (0.052)
		23-May-16	B-95-20160523	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	-	ND (0.5)	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	0.4 J	ND (0.1)	ND (0.1)	0.7	ND (0.1)	0.2 J	0.3 J	0.2 J	0.2 J	ND (0.13)

See notes on last page.

Table 4  
 Historical Perimeter Groundwater Sampling Analytical Results  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

Area of Interest	Sample Location	Sample Date	Sample Type	BENZENE	TOUENE	ETHYLBENZENE	XYLENES, TOTAL (DIMETHYLBENZENE)	METHYL TERTIARY BUTYL ETHER	TERT-BUTYL ALCOHOL	ISOPROPYLBENZENE (CUMENE)	NAPHTHALENE	1,2,4-TRIMETHYLBENZENE	1,3,5-TRIMETHYLBENZENE	1,2-DICHLOROETHANE (EDC)	1,2-DIBROMOETHANE (EDB)	CHRYSENE	FLUORENE	PHENANTHRENE	PYRENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H)PERYLENE	LEAD, Dissolved		
AOI 6	B-131	1-Jan-95	DM	B-131	ND	ND	ND	ND	-	-	-	-	-	-	-	ND	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-		
		1-Jan-96	DM	B-131	ND (0.3)	ND (0.3)	ND (0.4)	ND (0.6)	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	-	-	-	-	-	
		1-Jan-97	DM	B-131	12	1	2	11	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		1-Jan-98	DM	B-131	ND (1)	ND (1)	ND (1)	1	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		1-Jan-99	DM	B-131	19	ND (1)	ND (1)	1	-	-	-	-	-	-	-	-	1	-	-	-	-	1	ND (1)	ND (1)	-	-	
		1-Jan-00	DM	B-131	ND (1)	ND (1)	ND (1)	ND (1)	1.1	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (2)	ND (3)	-	-	
		1-Jan-01	DM	B-131	ND (1)	ND (1)	ND (1)	ND (1)	2	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (2)	ND (3)	-	-	
		1-Jan-02	DM	B-131	5	1	ND (1)	2	ND (1)	-	-	-	-	-	-	-	ND (2)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		13-Nov-03		B-131	4.2	ND (1.0)	ND (1.0)	0.93 J	ND (1.0)	-	-	-	-	-	-	-	ND (2.0)	-	-	-	-	0.60 J	ND (2.0)	ND (2.0)	-	-	
		21-Oct-04		B-131	ND (1.0)	ND (5.0)	ND (5.0)	ND (10)	ND (5.0)	-	10	ND (5.0)	-	-	-	ND (5.0)	ND (0.020)	0.35 J	ND (9.8)	ND (9.8)	ND (9.8)	-	-	-	-	-	ND (5.0)
		24-May-05		B131-052405	20	ND (5)	ND (5)	ND (5)	ND (5)	-	13	ND (10)	-	-	-	ND (5)	ND (0.029)	ND (10)	ND (10)	ND (10)	ND (10)	-	-	-	-	-	-
		9-Nov-05		B-131_11_9_2005	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	ND (1)	-	-	-	ND (1)	ND (0.02)	0.4	0.5	0.4	3.3	-	0.3	ND (0.1)	0.1	ND (0.1)	-
		6-Jun-06		B131-060606	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	-	17	ND (5)	-	-	-	ND (5)	ND (0.029)	ND (5)	ND (5)	ND (5)	6	-	-	-	-	-	-
		4-Dec-06		B-131	4.0 J	ND (0.7)	ND (0.8)	ND (0.8)	ND (0.5)	-	11	ND (1.0)	-	-	-	ND (1.0)	ND (0.0098)	2.0 J	2.0 J	1.0 J	8.0	-	-	-	-	-	0.14 J
		18-Dec-07		B-131	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	-	9.0	ND (1.0)	-	-	-	ND (0.5)	ND (0.0096)	ND (1.0)	2.0 J	ND (1.0)	4.0 J	-	-	-	-	-	0.091 J
		4-Nov-08		B-131_110408	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	6	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0098)	ND (1)	-	ND (1)	5	-	-	-	-	-	ND (0.050)
		9-Nov-10		B-131	ND (0.5)	ND (0.5)	ND (0.5)	0.5 J	ND (0.5)	-	10	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0098)	ND (1)	3 J	ND (1)	5	-	-	-	-	-	ND (0.052)
		16-Nov-11		B-131	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	5	ND (0.96)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	5.4	4.0	0.65	19	-	-	-	-	-	ND (0.080)
		8-Jan-13		B131_010813	19.7	ND (1.0)	ND (1.0)	1.1	ND (1.0)	-	10.6	ND (0.10)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	0.331	1.41	0.496	3.00	0.916	0.356	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	3.5
		8-Apr-13		B-131_040813	1.1	0.61 J	0.32 J	0.62 J	ND (1)	-	13	ND (0.1)	ND (2)	ND (2)	ND (1)	ND (0.02)	0.132	1.08	0.43	1.13	0.477	0.169	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (3)
	2-Jun-14		B-131	0.29 J	0.30 J	ND (1.0)	0.56 J	ND (1.0)	-	12.1	ND (0.10)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	0.206	1.74	0.333	2.51	0.747	0.258	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	1.6 J	
	20-May-15		B-131_20150520	2	0.9 J	ND (0.5)	0.6 J	ND (0.5)	-	11	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0096)	0.4 J	2	0.4 J	3	0.7	0.4 J	0.2 J	0.2 J	ND (0.1)	ND (0.1)	0.13 J	
	5-May-16		GW-11109613-B131-05-05-16-RM-012	1	ND (1)	ND (1)	0.6 J	ND (1)	-	8	ND (0.061)	ND (2)	ND (2)	ND (1)	ND (0.029)	0.29	1.9	0.66	2.3	0.76	0.37	0.090	0.12	0.021 J	ND (1.0)	ND (1.0)	
	B-132D	11-Apr-11		B-132D_04112011	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	1	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	
		11-Apr-11		B-132D_04112011 FILTERED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (1.0)	
		1-Jul-11		B-132D_07012011	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	1	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0096)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	
		1-Jul-11		B-132D_07012011 FILTERED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (1.0)	
		31-May-12		B-132D_53112	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	2	-	ND (0.5)	ND (0.09)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0098)	ND (0.09)	ND (0.09)	0.3 J	ND (0.09)	-	-	-	-	-	-	ND (1.0)
		20-Aug-12		B-132D_082012	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	2	-	ND (0.5)	0.1 J	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	ND (0.1)	ND (0.1)	0.3 J	0.1 J	0.2 J	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (1.0)
		1-Nov-12		B-132D_11112	ND (0.50)	ND (1.0)	ND (1.0)	ND (1.0)	2.0	-	ND (5.0)	0.047 J	ND (5.0)	ND (5.0)	ND (1.0)	ND (0.015) *	ND (0.10)	ND (0.10)	0.17	ND (0.10)	0.055 J	ND (0.051)	ND (0.10)	ND (0.051)	ND (0.10)	ND (5.0)	
		29-Mar-13		B-132D_32913	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	2.1	-	ND (2.0)	ND (0.10)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	ND (0.10)	ND (0.10)	0.180	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	6.4
		3-May-16		GW-11109613-B132D-05-03-16-RM-002	ND (1)	ND (1)	ND (1)	ND (1)	2	-	ND (2)	0.082	ND (2)	ND (2)	ND (1)	ND (0.028)	0.015 J	0.018 J	0.18	0.033 J	0.088	0.018 J	0.017 J	0.018 J	0.013 J	0.013 J	ND (1.0)
		27-Jun-19		B-132DAOI6_20190627	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.5)	2	11 J	ND (0.3)	ND (0.1)	ND (0.3)	ND (0.3)	ND (2)	ND (0.0094)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (1.1)
	B-150	17-Oct-02		MW-3	610,000	59,000	ND (5,000)	ND (5,000)	ND (5,000)	-	ND (5,000)	ND (5,000)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		19-Nov-02		MW-3	500,000	62,000	ND (5,000)	ND (5,000)	ND (5,000)	-	ND (5,000)	ND (5,000)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		11-May-16		GW-11109613-B150-05-11-16-AC-046	480,000	55,000	320	1,400	ND (200)	-	12,000	52	ND (400)	ND (400)	ND (200)	ND (0.029)	0.53	2.8	4.5	0.93	0.86	0.52	0.40 J	0.53	0.22 J	ND (1.0)	
		24-Aug-16		GW-11109613-B-150-082416-AC-019	320,000	33,000	270	1,100	ND (50)	-	7,500	31	76 J	31 J	ND (50)	ND (0.028)	ND (0.50)	0.90	1.2	0.15 J	0.15 J	0.10 J	ND (0.50)	ND (0.50)	ND (0.50)	0.12 J	
		5-Jul-18		B-150_20180705	436,000 SL	55,600 SL	ND (1,000) SL	ND (3,000) SL	ND (1,000) SL	-	10,600 SL	175 SL	ND (1,000) SL	ND (1,000) SL	ND (1,000) SL	ND (0.0100) SL	6.60 SL	23.7 SL	44.5 SL	13.6 SL	7.75 SL	6.31 SL	4.43 SL	5.53 SL	2.34 SL	ND (2.00) SL	
	11-Jul-19		B-150-SL_20190711	170,000 SL	23,000 SL	320 SL	1,100 SL	ND (20) SL	-	8,000 SL	77 SL	150 J SL	56 J SL	ND (200) SL	ND (0.0095) SL	0.1 J SL	1 SL	2 SL	0.4 J SL	0.3 J SL	0.1 J SL	ND (0.1) SL	ND (0.1) SL	ND (0.1) SL	ND (0.1) SL	ND (1.1) SL	
	B-153	9-Jun-06		B153-060906	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	-	9	ND (5)	-	-	ND (5)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-	
4-Jan-13			B-153_010413	ND (1.0)	ND (1.0)	ND (1.0)	1.4	ND (1.0)	-	ND (2.0)	0.466	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	ND (0.10)	0.192	ND (0.10)	0.213	0.190	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (3.0)		
4-May-16		GW-11109613-B153-05-04-16-RM-010	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	ND (0.061)	ND (2)	ND (2)	ND (1)	ND (0.029)	0.058	0.018 J	0.043 J	0.27	0.099	0.052	0.038 J	0.040 J	0.018 J	ND (1.0)			
B-156	8-Jun-06		B156-060806	390	22	6	39	ND (5)	-	84	ND (5)	-	-	ND (5)	ND (0.029)	ND (5)	16	17	ND (5)	-	-	-	-	-	-		
	7-Jan-13		B-156_010713	301	21.0	5.5	33.2	ND (1.0)	-	101	1.65	5.5	5.6	ND (1.0)	ND (0.020)	0.161	8.16	9.87	0.883	1.79	0.184	ND (0.10)	ND (0.10)	ND (0.10)	ND (3.0)		
	10-May-16		GW-11109613-B156-05-10-16-MM-036	49	13	4	22	ND (1)	-	120	3.3	4	5	ND (1)	ND (0.029)	1.4	10	17	3.4	4.7	1.7	1.4	1.5	0.50	ND (1.0)		
28-Jun-19		B-156AOI6_20190628	99	21	6	30	ND (0.2)	-	110	ND (0.1)	7	6	ND (2)	ND (0.0094)	0.2 J	7	6	1	2	0.3 J	ND (0.1)	ND (0.1)	ND (0.1)	ND (1.1)			

See notes on last page.

Table 4  
Historical Perimeter Groundwater Sampling Analytical Results  
Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

Area of Interest	Sample Location	Sample Date	Sample Type	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES, TOTAL (DIMETHYLBENZENE)	METHYL TERTIARY BUTYL ETHER	TER-BUTYL ALCOHOL	ISOPROPYLBENZENE (CUMENE)	NAPHTHALENE	1,2,4-TRIMETHYLBENZENE	1,3,5-TRIMETHYLBENZENE	1,2-DICHLOROETHANE (EDC)	1,2-DIBROMOETHANE (EDB)	CHRYSENE	FLUORENE	PHENANTHRENE	PYRENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H)PERYLENE	LEAD, Dissolved		
AOI 6	B-158	8-Jun-06	B158-060806		ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	-	ND (5)	ND (5)	-	-	ND (5)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-	
		9-Nov-10	B-158		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	ND (1)	ND (1)	ND (1)	1 J	-	-	-	-	-	0.072 J	
		16-Nov-11	B-158		180	250	13	130	ND (1)	-	2 J	ND (0.96)	4 J	3 J	ND (1)	ND (0.0096)	0.35	0.23 J	0.19 J	0.80	-	-	-	-	-	0.10 J	
		7-Jan-13	B-158_010713		ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (2.0)	0.155	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	ND (0.10)	ND (0.10)	ND (0.10)	0.196	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (3.0)	
		8-Apr-13	B-158_040813		ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	ND (0.1)	ND (2)	ND (2)	ND (1)	ND (0.02)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (3)	
		2-Jun-14	B-158		ND (0.50)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (0.10)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	ND (0.10)	ND (0.10)	ND (0.10)	0.126	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	1.7 J
		20-May-15	B-158_20150520		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0095)	ND (0.1)	ND (0.1)	ND (0.1)	0.2 J	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.14 J
		9-May-16	GW-11109613-B158-05-09-16-AC-033		ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	0.042 J	ND (2)	ND (2)	ND (1)	ND (0.029)	0.051	0.064	0.040 J	0.22	0.027 J	0.058	0.045 J	0.051	0.029 J	1.2	
	22-Aug-16	GW-11109613-B-158-082216-AC-002		ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	0.078	ND (2)	ND (2)	ND (1)	ND (0.028)	0.045 J	0.094	0.043 J	0.31	0.037 J	0.055	0.042 J	0.046 J	0.027 J	0.89 J		
	B-165	4-Jan-13	B-165_010413		ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	3.0	1.29	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	0.148	2.03	0.446	1.65	0.790	0.223	ND (0.10)	ND (0.10)	ND (0.10)	ND (3.0)	
		3-Jun-14	B-165		ND (0.50)	ND (1.0)	ND (1.0)	ND (1.0)	0.34 J	-	3.4	ND (0.10)	0.23 J	ND (2.0)	ND (1.0)	ND (0.020)	0.134	1.67	0.223	1.14	0.416	0.196	ND (0.10)	0.124	ND (0.10)	1.4 J	
		20-May-15	B-165_20150520		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	0.6 J	-	6	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0096)	0.2 J	2	0.1 J	2	0.6	0.2 J	ND (0.1)	0.1 J	ND (0.1)	0.11 J	
		5-May-16	GW-11109613-B165-05-05-16-AC-015		4	ND (1)	ND (1)	ND (1)	2	-	5	ND (0.063)	ND (2)	ND (2)	ND (1)	ND (0.029)	0.13	1.4	0.37	1.2	0.48	0.17	0.039 J	0.050 J	0.025 J	1.0	
		27-Jun-19	B-165AOI6_20190627		13	ND (0.2)	ND (0.2)	ND (0.5)	0.2 J	-	0.7 J	ND (0.1)	ND (0.3)	ND (0.3)	ND (2)	ND (0.0095)	ND (0.1)	2	ND (0.1)	1	0.5	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (1.1)	
	B-169	4-Jan-13	B-169_010413		5.2	2.0	1.8	6.3	ND (1.0)	-	8.3	41.7	4.7	ND (2.0)	ND (1.0)	ND (0.020)	0.131	1.98	1.44	0.646	0.377	0.197	ND (0.10)	ND (0.10)	ND (0.10)	ND (3.0)	
		9-Jan-13	B-169_010913		6.4	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (2.0)	0.165	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	0.268	0.527	0.296	0.587	0.217	0.187	0.223	0.222	0.173	ND (3.0)	
		9-May-16	GW-11109613-B169-05-09-16-MM-024		0.7 J	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	0.071	ND (2)	ND (2)	ND (1)	ND (0.029)	0.17	0.043 J	0.069	0.27	0.084	0.17	0.17	0.19	0.12	33.8	
		22-Aug-16	GW-11109613-B-169-082216-KC-001		ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	ND (0.069)	ND (2)	ND (2)	ND (1)	ND (0.028)	0.017 J	ND (0.057)	ND (0.069)	0.035 J	ND (0.057)	0.013 J	0.015 J	0.020 J	0.016 J	6.5	
		10-Jul-19	B-169_20190710		ND (0.2)	ND (0.2)	ND (0.2)	ND (0.5)	ND (0.2)	-	ND (0.3)	ND (0.1)	ND (0.3)	ND (0.3)	ND (2)	ND (0.0095)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (1.1)	
	B-170	5-May-16	GW-11109613-B170-05-05-16-AC-017		5	ND (1)	ND (1)	2	ND (1)	-	6	2.3	ND (2)	ND (2)	ND (1)	ND (0.029)	0.11	2.5	1.3	0.35	0.36	0.10	0.11	0.12	0.047 J	ND (1.0)	
		5-May-16	GW-11109613-DUP2-05-05-16-AC-019	Field Duplicate	5	ND (1)	ND (1)	1	ND (1)	-	5	4.8	ND (2)	ND (2)	ND (1)	ND (0.029)	0.11	2.3	1.8	0.34	0.37	0.10	0.090	0.088	0.043 J	ND (1.0)	
		22-Aug-16	GW-11109613-B-170-082216-KC-003		3	ND (1)	ND (1)	0.7 J	ND (1)	-	5	ND (0.068)	ND (2)	ND (2)	ND (1)	ND (0.029)	0.069	0.61	0.99	0.31	0.26	0.065	0.043 J	0.044 J	0.020 J	ND (1.0)	
		10-Jul-19	B-170_20190710		2	0.4 J	0.3 J	1 J	ND (0.2)	-	6	49	ND (0.3)	ND (0.3)	ND (2)	ND (0.0095)	ND (0.1)	4	4	0.2 J	0.4 J	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (1.1)	
	B-172	5-May-16	GW-11109613-B172-05-05-16-AC-021		13	ND (1)	ND (1)	0.6 J	ND (1)	-	7	0.27	ND (2)	ND (2)	ND (1)	ND (0.029)	0.51	0.42	0.38	1.4	0.33	0.49	0.45	0.50	0.19	0.18 J	
		23-Aug-16	GW-11109613-B-172-082316-AC-009		160	ND (5)	ND (5)	ND (5)	ND (5)	-	ND (10)	ND (0.061)	ND (10)	ND (10)	ND (5)	ND (0.028)	0.25	0.56 J	0.26 J	1.0	0.33 J	0.27 J	0.18 J	0.18 J	0.085 J	0.30 J	
		23-Aug-16	GW-11109613-B-172D-082316-AC-011	Field Duplicate	160	ND (5)	ND (5)	ND (5)	ND (5)	-	ND (10)	ND (0.064)	ND (10)	ND (10)	ND (5)	ND (0.028)	0.15	0.23 J	0.036 J	0.86	0.10 J	0.13 J	0.092 J	0.094 J	0.041 J	0.25 J	
		28-Jun-19	B-172AOI6_20190628		ND (0.2)	ND (0.2)	ND (0.2)	ND (0.5)	ND (0.2)	-	ND (0.3)	ND (0.1)	ND (0.3)	ND (0.3)	ND (2)	ND (0.0094)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (1.1)	
	URS-5	6-Jun-06	URS5-060606		5,900	4,900	600	2,900	ND (25)	-	37	270	-	-	140	ND (0.029)	ND (5)	17	25	ND (5)	-	-	-	-	-	-	
		10-May-16	GW-11109613-URS5-05-10-16-MM-040		4,000	8,600	560	3,000	ND (25)	-	22 J	260	190	56	ND (25)	ND (0.029)	0.53	14	20	3.5	5.6	0.96	0.27 J	0.24 J	ND (0.51)	ND (1.0)	
		24-Aug-16	GW-11109613-URS-5-082416-AC-020		2,300	1,500	280	1,500	ND (10)	-	13 J	150	92	27	ND (10)	0.089	0.11	1.5	12	1.7	3.3	0.23	0.058	0.056	0.017 J	ND (1.0)	
		24-Aug-16	GW-11109613-URS-5-082416-KC-021		4,900	6,500	530	2,800	ND (20)	-	31 J	220	230	72	ND (20)	ND (0.040)	0.25 J	14	21	2.8	4.8	0.46 J	0.15 J	0.14 J	ND (0.51)	0.14 J	
		29-Jun-18	URS-5_20180629		3,260	6,140	664	3,050	ND (1.00)	-	27.3	355	212	64.9	ND (1.00)	ND (0.0100)	0.110	24.3	38.7	3.21	6.50	0.174	ND (0.0500)	0.0716	ND (0.0500)	ND (2.00)	
		29-Jun-18	URS-5_HS_20180629	Hydra Sleeve	3,430	2,570	539	2,360	ND (100)	-	ND (100)	414	186	ND (100)	ND (100)	ND (0.0100)	0.107	21.3	41.7	3.54	6.63	0.168	ND (0.0500)	0.0571	ND (0.0500)	ND (2.00)	
		29-Jun-18	URS-5_DUP_20180629	Field Duplicate	3,980	4,960	613	2,770	ND (25.0)	-	25.4	359	219	65.0	ND (25.0)	ND (0.0100)	0.108	23.0	40.6	3.46	6.82	0.180	ND (0.0500)	0.0693	ND (0.0500)	ND (2.00)	
	1-Jul-19	URS-5_20190701		3,300	4,400	530	2,300	ND (1)	-	26	180	240	73	ND (10)	ND (0.0095)	ND (0.1)	14	25	4	4	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (1.1)		
	C-134D	20-Jul-10	C-134D_072010		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	1	-	ND (0.5)	ND (1)	0.5 J	ND (0.5)	ND (0.5)	ND (0.0097)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	ND (0.050)	
		8-Apr-11	C-134D_04082011		ND (1)	ND (1)	ND (1)	ND (1)	1	-	ND (2)	ND (5)	ND (2)	ND (2)	ND (1)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-	
		8-Apr-11	C-134D_04082011 FILTERED		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (1.0)	
		1-Jul-11	C-134D_07012011		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	0.7 J	-	ND (0.5)	1 J	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0096)	ND (1)	2 J	2 J	ND (1)	-	-	-	-	-	-	
		1-Jul-11	C-134D_07012011 FILTERED		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (1.0)	
31-May-12		C-134D_53112		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	0.5 J	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0098)	ND (0.09)	0.3 J	0.2 J	0.1 J	-	-	-	-	-	-		
20-Aug-12		C-134D_082012		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	0.2 J	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	0.2 J	0.1 J	0.3 J	0.4 J	ND (0.1)	0.1 J	ND (0.1)	ND (0.1)	ND (0.1)	ND (1.0)		
2-Nov-12		C-134D_110212		ND (0.50)	ND (1.0)	ND (1.0)	ND (1.0)	2.3	-	ND (5.0)	0.099 J	ND (5.0)	ND (5.0)	ND (1.0)	ND (0.015) *	ND (0.10)	0.075 J	0.062	0.053 J	ND (0.10)	ND (0.050)	ND (0.10)	ND (0.050)	ND (0.10)	ND (5.0)		
1-Apr-13		C-134D_40113		ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	0.92 J	-	ND (2.0)	ND (0.10)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	6.0		
20-Jul-16		GW-11109614-C-134D-072016-AC-002		ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	ND (0.061)	ND (2)	ND (2)	ND (1)	ND (0.029)	ND (0.051)	0.075	ND (0.061)	0.033 J	0.011							

Table 4  
Historical Perimeter Groundwater Sampling Analytical Results  
Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

Area of Interest	Sample Location	Sample Date	Sample Type	BENZENE µg/L	TOLUENE µg/L	ETHYLBENZENE µg/L	XYLENES, TOTAL (DIMETHYLBENZENE) µg/L	METHYL TERTIARY BUTYL ETHER µg/L	TERT-BUTYL ALCOHOL µg/L	ISOPROPYLBENZENE (CUMENE) µg/L	NAPHTHALENE µg/L	1,2,4-TRIMETHYLBENZENE µg/L	1,3,5-TRIMETHYLBENZENE µg/L	1,2-DICHLOROETHANE (EDC) µg/L	1,2-DIBROMOETHANE (EDB) µg/L	CHRYSENE µg/L	FLUORENE µg/L	PHENANTHRENE µg/L	PYRENE µg/L	ANTHRACENE µg/L	BENZO(A)ANTHRACENE µg/L	BENZO(A)PYRENE µg/L	BENZO(B)FLUORANTHENE µg/L	BENZO(G,H,I)PERYLENE µg/L	LEAD, Dissolved µg/L		
AOI 7	C-51	9-Nov-05	C-51_11_9_2005	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	ND (1)	-	-	ND (1)	ND (0.02)	0.1	2.3	0.1	0.8	-	ND (0.1)	ND (0.1)	0.1	ND (0.1)	-		
		5-Dec-06	C-51	ND (0.5)	ND (0.7)	ND (0.8)	ND (0.8)	ND (0.5)	-	ND (1.0)	ND (1.0)	-	-	ND (1.0)	ND (0.0097)	4.0 J	1.0 J	2.0 J	8.0	-	-	-	-	-	-	0.16 J	
		17-Dec-07	C-51	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	-	ND (0.5)	ND (1.0)	-	-	ND (0.5)	ND (0.0097)	ND (1.0)	2.0 J	ND (1.0)	2.0 J	-	-	-	-	-	-	-	0.11 J
		5-Nov-08	C-51_110508	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	ND (1)	-	ND (1)	2 J	-	-	-	-	-	-	0.059 J
		11-Nov-09	C-51	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	0.6	-	0.65	3.0	-	-	-	-	-	-	ND (0.050)
		12-Jan-10	C-51_011210	ND (0.5)	ND (0.5)	0.6 J	2	ND (0.5)	-	ND (0.5)	ND (1)	0.7 J	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0098)	ND (1)	2 J	ND (1)	2 J	-	-	-	-	-	-	ND (0.050)
		14-Jul-10	C-51_071410	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	ND (1)	3 J	ND (1)	2 J	-	-	-	-	-	-	ND (0.050)
	27-Jul-16	GW-11109614-C-51-072716-JM-024	Field Duplicate	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	0.041 J	ND (2)	ND (2)	ND (1)	ND (0.028)	0.059	0.99	0.096	0.87	0.15	0.060	0.019 J	0.031 J	0.015 J	0.015 J	ND (1.0)	
	27-Jul-16	GW-11109614-C-51D-072716-JM-026	Field Duplicate	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	0.070	ND (2)	ND (2)	ND (1)	ND (0.028)	0.13	1.8	0.22	1.7	0.32	0.12	0.053	0.071	0.041 J	0.041 J	ND (1.0)	
	15-Jan-10	C-62_011510		ND (0.5)	ND (0.5)	ND (0.5)	2	ND (0.5)	-	0.9 J	ND (0.9)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0098)	ND (0.9)	ND (0.9)	2 J	ND (0.9)	-	-	-	-	-	-	0.076 J	
	20-Jul-10	C-62_072010		ND (0.5)	ND (0.5)	ND (0.5)	0.6 J	ND (0.5)	-	0.5 J	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	ND (1)	1 J	2 J	1 J	-	-	-	-	-	-	0.17 J	
	27-Jul-16	GW-11109614-C-62-072716-JM-028		ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	-	ND (10)	ND (0.061)	ND (10)	ND (10)	ND (5)	ND (0.028)	0.28	0.64	1.2	0.46	0.33	0.26	0.30	0.34	0.22	0.22	0.19 J	
	23-May-17	C-62-20170523		ND (0.5)	ND (0.5)	ND (0.5)	0.8 J	ND (0.5)	-	0.9 J	9	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0095)	0.4 J	0.9	1	0.7	0.4 J	0.4 J	0.5 J	0.5 J	0.4 J	0.4 J	0.29 J	
	26-Jun-18	C-62_20180626		ND (1.00)	ND (1.00)	ND (1.00)	ND (3.00)	ND (1.00)	-	ND (1.00)	6.58	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (0.0100)	ND (0.0500)	0.515	0.344	0.0542	0.113	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (2.00)	
	1-Jan-95	DM	C-104	ND	ND	ND	1.3 J	-	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
	1-Jan-96	DM	C-104	ND (0.3)	ND (0.3)	3.8	ND (0.6)	-	-	-	-	-	-	-	-	-	4	-	-	-	-	2	ND (1)	ND (1)	-	-	
	1-Jan-97	DM	C-104	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	-	-	-	6	-	-	-	-	4	2	3	-	-	
	1-Jan-98	DM	C-104	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
	1-Jan-99	DM	C-104	ND (1)	ND (1)	ND (1)	1	-	-	-	-	-	-	-	-	-	2	-	-	-	-	1	ND (1)	ND (1)	-	-	
	1-Jan-00	DM	C-104	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (2)	ND (3)	-	-	
	1-Jan-01	DM	C-104	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	-	-	20	-	-	-	-	17	12	9	-	-	
	1-Jan-02	DM	C-104	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	-	-	ND (2)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
	13-Nov-03		C-104	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	-	-	-	-	-	-	-	ND (2.0)	-	-	-	-	ND (2.0)	ND (2.0)	ND (2.0)	-	-	
	21-Oct-04		C-104	ND (1.0)	ND (5.0)	ND (5.0)	ND (10)	ND (5.0)	-	ND (5.0)	ND (5.0)	-	-	-	ND (5.0)	ND (0.020)	2.8 J	ND (9.9)	ND (9.9)	ND (9.9)	-	-	-	-	-	ND (5.0)	
	9-Nov-05		C-104_11_9_2005	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	ND (1)	-	-	-	ND (1)	ND (0.02)	0.5	3.7	0.3	2.4	-	0.6	0.2	0.3	ND (0.1)	-	
	5-Dec-06		C-104	ND (0.5)	ND (0.7)	ND (0.8)	ND (0.8)	ND (0.5)	-	ND (1.0)	ND (1.0)	-	-	-	ND (1.0)	ND (0.0096)	7.0 J	9.0 J	ND (5.0)	15.0 J	-	-	-	-	-	0.13 J	
	12-Dec-07		C-104	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	0.7 J	ND (1.0)	-	-	-	ND (0.5)	ND (0.0095)	13	12	5.0	34	-	-	-	-	-	0.12 J	
	5-Nov-08		C-104_110508	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	0.6 J	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.010)	15 J	-	ND (10)	39 J	-	-	-	-	-	0.51 J	
	11-Nov-09		C-104	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	-	ND (3.0)	ND (5.0)	ND (3.0)	ND (3.0)	ND (3.0)	ND (3.0)	ND (0.0096)	0.20 J	-	0.14 J	1.7	-	-	-	-	-	0.076 J	
	14-Jan-10		C-104_011410	ND (0.5)	ND (0.5)	ND (0.5)	0.6 J	ND (0.5)	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0099)	1 J	6	ND (1)	5 J	-	-	-	-	-	ND (0.050)	
	19-Jul-10		C-104_071910	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	0.5 J	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0096)	ND (1)	9	1 J	3 J	-	-	-	-	-	-	ND (0.050)	
	9-Nov-10		C-104	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	0.5 J	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	ND (1)	8	ND (1)	2 J	-	-	-	-	-	-	0.078 J	
	16-Nov-11		C-104	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.97)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0096)	0.17 J	0.24 J	ND (0.078)	1.7	-	-	-	-	-	3.8	
	8-Apr-13		C-104_040813	ND (1)	ND (1)	ND (1)	0.62 J	ND (1)	-	ND (2)	ND (0.1)	ND (2)	ND (2)	ND (1)	ND (0.02)	ND (0.1)	2.35	0.633	0.641	0.364	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (3)	
	3-Jun-14		C-104	ND (0.50)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (0.10)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	0.202	ND (0.10)	0.161	0.429	ND (0.10)	0.260	0.201	0.240	0.122	2.3 J		
	21-May-15		C-104_20150521	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	0.2 J	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0096)	1	7	3	3	1	0.8	0.6	0.5 J	0.3 J	ND (0.082)	
24-May-16		C-104_20160524	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0096)	0.1 J	6	0.3 J	2	0.5 J	0.1 J	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.13)		
26-Jul-16		GW-11109614-C-104-072616-AC-015	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	ND (0.061)	ND (2)	ND (2)	ND (1)	ND (0.028)	0.17	3.2	0.25	1.9	0.47	0.15	0.036 J	0.044 J	0.014 J	0.014 J	ND (1.0)		
23-May-17		C-104_20170523	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0098)	0.3 J	5	1	2	0.6	0.2 J	0.2 J	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.090)		
26-Jun-18		C-104_20180626	ND (1.00)	ND (1.00)	ND (1.00)	ND (3.00)	ND (1.00)	-	ND (1.00)	ND (0.250)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (0.0100)	0.103	3.39	0.285	1.56	0.480	0.0909	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (2.00)		
1-Aug-16		GW-11109614-C-106-080116-AC-042	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	0.15	ND (2)	ND (2)	ND (1)	ND (0.029)	0.33	0.76	1.5	0.93	0.40	0.26	0.19	0.27	0.049 J	0.10 J	ND (1.1) SL		
9-Jul-19		C-106-SL_20190709	ND (0.2) SL	ND (0.2) SL	ND (0.2) SL	ND (0.5) SL	ND (0.2) SL	-	ND (0.3) SL	ND (0.1) SL	ND (0.3) SL	ND (0.3) SL	ND (2) SL	ND (0.0094) SL	0.8 SL	1 SL	0.9 SL	2 SL	0.5 SL	0.7 SL	0.4 J SL	0.5 SL	0.3 J SL	0.3 J SL	ND (1.1) SL		

See notes on last page.

Table 4  
 Historical Perimeter Groundwater Sampling Analytical Results  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

Area of Interest	Sample Location	Sample Date	Sample Type	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES, TOTAL (DIMETHYLBENZENE)	METHYL TERTIARY BUTYL ETHER	TERT-BUTYL ALCOHOL	ISOPROPYLBENZENE (CUMENE)	NAPHTHALENE	1,2,4-TRIMETHYLBENZENE	1,3,5-TRIMETHYLBENZENE	1,2-DICHLOROETHANE (EDC)	1,2-DIBROMOETHANE (EDB)	CHRYSENE	FLUORENE	PHENANTHRENE	PYRENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H)PERYLENE	LEAD, Dissolved	
																										µg/L
AOI 7	C-127	1-Jan-95	DM	C-127	ND	ND	ND	ND	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
		1-Jan-96	DM	C-127	ND (0.3)	ND (0.3)	ND (0.4)	ND (0.6)	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		1-Jan-97	DM	C-127	ND (1)	1	ND (1)	ND (1)	-	-	-	-	-	-	-	11	-	-	-	-	6	3	4	-	-	
		1-Jan-98	DM	C-127	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		1-Jan-99	DM	C-127	ND (1)	ND (1)	ND (1)	1	-	-	-	-	-	-	-	4	-	-	-	-	3	2	2	-	-	
		1-Jan-00	DM	C-127	ND (1)	ND (1)	ND (1)	ND (1)	10	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (2)	ND (3)	-	-	
		1-Jan-01	DM	C-127	ND (1)	1	2	2	8	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (2)	ND (3)	-	-	
		13-Nov-03		C-127	ND (1)	ND (1)	ND (1)	ND (1)	16	-	-	-	-	-	-	ND (2)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		21-Oct-04		C-127	ND (1.0)	ND (5.0)	ND (5.0)	ND (10)	23	-	7.1	ND (5.0)	-	-	ND (5.0)	ND (0.020)	ND (0.14)	ND (9.8)	ND (9.8)	ND (9.8)	-	-	-	-	-	ND (5.0)
		9-Nov-05		C-127_11_9_2005	ND (1)	ND (1)	ND (1)	ND (1)	21	-	-	ND (1)	-	-	ND (1)	ND (0.02)	0.2	2.3	0.4	1.5	-	0.4	0.1	0.2	ND (0.1)	-
		5-Dec-06		C-127	ND (0.5)	ND (0.7)	ND (0.8)	ND (0.8)	27.0	-	5.0	ND (1.0)	-	-	ND (1.0)	ND (0.0096)	3.0 J	8.0	2.0 J	9.0	-	-	-	-	-	0.13 J
		12-Dec-07		C-127	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	22	-	3.0	ND (1.0)	-	-	ND (0.5)	ND (0.0096)	1.0 J	5.0	ND (0.9)	4.0 J	-	-	-	-	-	0.18 J
		5-Nov-08		C-127_110508	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	19	-	3	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0098)	3 J	-	ND (1)	9	-	-	-	-	-	0.51 J
		11-Nov-09		C-127	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	10	-	6.0	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0098)	0.46	-	0.93	3.3	-	-	-	-	-	ND (0.050)
		13-Jan-10		C-127_011310	ND (0.5)	ND (0.5)	ND (0.5)	0.7 J	5	-	3	ND (0.9)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0098)	ND (0.9)	4 J	ND (0.9)	3 J	-	-	-	-	-	0.070 J
		15-Jul-10		C-127_071510	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	6	-	7	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0098)	ND (1)	5	ND (1)	2 J	-	-	-	-	-	ND (0.050)
		9-Nov-10		C-127	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	12	-	10	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	ND (1)	6	ND (1)	2 J	-	-	-	-	-	0.073 J
		16-Nov-11		C-127	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	10	-	9	ND (0.96)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0095)	ND (0.90)	7.9	ND (0.75)	2.5	-	-	-	-	-	ND (0.080)
		8-Apr-13		C-127_040813	ND (1)	ND (1)	ND (1)	0.57 J	7.5	-	2.2	ND (0.1)	ND (2)	ND (2)	ND (1)	ND (0.02)	ND (0.1)	1.64	ND (0.1)	0.59	0.285	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (3)
		3-Jun-14		C-127	ND (0.50)	ND (1.0)	ND (1.0)	0.22 J	4.4	-	3.6	ND (0.10)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	ND (0.10)	2.15	0.225	0.440	0.281	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (3.0)
	21-May-15		C-127_20150521	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	6	-	2	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	0.2 J	4	0.1 J	1	0.5 J	0.1 J	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.082)	
	24-May-16		C-127-20160524	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	5	-	4	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	ND (0.1)	3	0.3 J	0.7	0.4 J	0.1 J	0.1 J	ND (0.1)	0.6	ND (0.13)	
	26-Jul-16		GW-11109614-C-127-072616-AC-020	ND (1)	ND (1)	ND (1)	ND (1)	5	-	6	ND (0.063)	ND (2)	ND (2)	ND (1)	ND (0.028)	0.13	1.1	0.30	0.92	0.59	0.11	0.079	0.058	0.36	ND (1.0)	
	23-May-17		C-127-20170523	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	5	-	3	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0095)	ND (0.1)	3	0.1 J	0.9	0.5 J	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.090)	
	26-Jun-18		C-127_20180626	ND (1.00)	ND (1.00)	ND (1.00)	ND (3.00)	4.11	-	1.37	ND (0.250)	ND (1.00)	ND (1.00)	ND (1.00)	ND (0.0100)	0.0880	3.14	ND (0.0500)	1.07	0.456	0.0591	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (2.00)	
	C-129	12-Jul-10		C-129_071210	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0095)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	2.5	
		9-Nov-10		C-129	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	0.082 J	
		17-Nov-11		C-129	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.97)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	0.73	ND (0.097)	0.24	0.34 J	-	-	-	-	1.0	
		8-Apr-13		C-129_040813	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	ND (0.1)	ND (2)	ND (2)	ND (1)	ND (0.02)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (3)	
		3-Jun-14		C-129	ND (0.50)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (0.10)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	2.2 J
		21-May-15		C-129_20150521	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0096)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.13 J
		24-May-16		C-129-20160524	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.13)
		1-Aug-16		GW-11109614-C-129-080116-AC-041	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	0.18	ND (2)	ND (2)	ND (1)	ND (0.029)	0.015 J	ND (0.051)	ND (0.061)	0.040 J	0.031 J	0.014 J	ND (0.051)	0.013 J	0.011 J	0.42 J
		23-May-17		C-129-20170523	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	0.1 J	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0095)	0.5 J	0.1 J	0.4 J	0.6	0.2 J	0.4 J	0.4 J	0.5 J	0.4 J	0.39 J
		26-Jun-18		C-129_20180626	ND (1.00)	ND (1.00)	ND (1.00)	ND (3.00)	ND (1.00)	-	ND (1.00)	ND (0.250)	ND (1.00)	ND (1.00)	ND (1.00)	ND (0.0100)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (2.00)
	C-129D	12-Jul-10		C-129D_071210	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	0.7 J	-	ND (0.5)	1 J	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0096)	ND (1)	ND (1)	2 J	ND (1)	-	-	-	-	ND (0.050)	
		8-Apr-11		C-129D_04082011	ND (1)	ND (1)	ND (1)	ND (1)	2	-	ND (2)	ND (5)	ND (2)	ND (2)	ND (1)	ND (0.028)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	
		8-Apr-11		C-129D_04082011 FILTERED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (1.0)	
		29-Jun-11		C-129D_06292011	ND (1)	ND (1)	ND (1)	ND (1)	2	-	ND (2)	ND (5)	ND (2)	ND (2)	ND (1)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	
		29-Jun-11		C-129D_06292011 FILTERED	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (1.0)	
31-May-12			C-129D_53112	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	2	-	ND (0.5)	0.2 J	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0098)	ND (0.09)	0.1 J	2	0.3 J	-	-	-	-	-	ND (1.0)	
21-Aug-12			C-129D_082112	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	2	-	ND (0.5)	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	ND (0.1)	ND (0.1)	1	0.3 J	0.1 J	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (1.0)	
1-Nov-12			C-129D_110112	ND (0.50)	ND (1.0)	ND (1.0)	ND (1.0)	2.0	-	ND (5.0)	ND (0.10)	ND (5.0)	ND (5.0)	ND (1.0)	ND (0.015) *	ND (0.10)	ND (0.10)	0.22	0.11	0.043 J	ND (0.050)	ND (0.10)	ND (0.050)	ND (0.10)	ND (5.0)	
2-Apr-13			C-129D_40213	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	0.82 J	-	ND (2.0)	ND (0.10)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	ND (0.10)	0.207	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	2.5 J	
21-Jul-16			GW-11109614-C-129D-072116-AC-004	ND (1)	ND (1)	ND (1)	ND (1)	1	-	ND (2)	ND (0.061)	ND (2)	ND (2)	ND (1)	ND (0.029)	ND (0.051)	0.035 J	ND (0.061)	0.14	0.016 J	ND (0.051)	ND (0.051)	ND (0.051)	ND (0.051)	ND (1.0)	
19-Aug-16		GW-11109614-C129D-081916-AC-01	0.6 J	ND (1)	ND (1)	ND (1)	0.6 J	-	ND (2)	0.095	ND (2)	ND (2)	ND (1)	ND (0.028)	ND (0.050)	0.11	0.13	0.071	0.041 J	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.050)	ND (1.0)		
26-Feb-19		C-129D_20190226	0.2 J	ND (0.2)	ND (0.2)	ND (0.5)	0.3 J	-	ND (0.3)	-	-	-	ND (2)	ND (0.3)	-	-	-	-	-	-	-	-	-	-		
11-Jul-19		C-129D_20190711	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.5)	0.5 J	54	ND (0.3)	ND (0.1)	ND (0.3)	ND (0.3)	ND (2)	ND (0.0095)	ND (0.1)	0.1 J	0.2 J	0.2 J	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (1.1)		

See notes on last page.



Table 4  
 Historical Perimeter Groundwater Sampling Analytical Results  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

Area of Interest	Sample Location	Sample Date	Sample Type	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES, TOTAL (DIMETHYLBENZENE)	METHYL TERTIARY BUTYL ETHER	TERT-BUTYL ALCOHOL	ISOPROPYLBENZENE (CUMENE)	NAPHTHALENE	1,2,4-TRIMETHYLBENZENE	1,3,5-TRIMETHYLBENZENE	1,2-DICHLOROETHANE (EDC)	1,2-DIBROMOETHANE (EDB)	CHRYSENE	FLUORENE	PHENANTHRENE	PYRENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H,I)PERYLENE	LEAD, Dissolved	
AOI 8	N-2	4-Apr-13	N-2_040413	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	12.3	-	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	-	-	-	-	-	-	-	-	-	-	0.39 J
		2-Jun-14	N-2	ND (0.50)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	1.8	0.117	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	0.766	0.268	0.394	1.27	0.498	0.807	0.959	1.34	1.43	4.1	
		19-May-15	N-2_20150519	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	0.7	0.2 J	0.2 J	1	0.3 J	0.6	0.8	0.8	0.9	ND (0.082)	
		17-Mar-16	N-2-20160317	ND (1)	ND (5)	ND (1)	ND (3)	ND (1)	-	ND (1)	ND (1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (0.01)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
		23-May-16	N-2-20160523	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0096)	0.4 J	0.6	0.1 J	1	0.2 J	0.4 J	0.5 J	0.5 J	0.4 J	ND (0.13)
		22-Aug-16	N-2-20160822-WG	ND (1.00)	ND (5.00)	ND (1.00)	ND (3.00)	ND (1.00)	-	ND (1.00)	ND (0.500)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (0.0100) *	0.485	0.504	0.377	1.38	0.492	0.601	0.803	0.913	0.950	ND (2.00)
		7-Sep-16	N-2-20160907-WG	ND (1.00)	ND (5.00)	ND (1.00)	ND (3.00)	ND (1.00)	-	1.19	0.277	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (0.0100) *	0.263	1.42	0.482	1.20	1.00	0.308	0.225	0.274	0.162	ND (2.00)
		14-Oct-16	N-2-20161014-WG	ND (1.00)	ND (5.00)	ND (1.00)	ND (3.00)	ND (1.00)	-	ND (1.00)	0.252	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (0.0100) *	0.102	0.828	0.171	0.669	0.502	0.128	0.0703	0.0811	ND (0.0500)	ND (2.00)
		23-May-17	N-2-20170523	4	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	0.9 J	0.3 J	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0096)	9	2	3	15	3	9	10	11	6	0.18 J
		29-Jun-18	N-2_20180629	ND (1.00)	ND (1.00)	ND (1.00)	ND (3.00)	ND (1.00)	-	ND (1.00)	ND (0.250)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (0.0100)	ND (0.0500)	0.526	0.115	0.509	0.218	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (2.00)
		26-Jun-19	N-2_20190626	ND (0.2)	0.2 J	ND (0.2)	ND (0.5)	ND (0.2)	-	4 J	0.4 J	ND (0.3)	ND (0.3)	ND (2)	ND (0.0095)	ND (0.09)	1	0.4 J	0.8	0.3 J	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	ND (0.09)	ND (1.1)
		20-Oct-04	N-3	ND (1.0)	ND (5.0)	ND (5.0)	ND (10)	ND (5.0)	-	ND (5.0)	ND (5.0)	-	-	ND (5.0)	ND (0.020)	ND (0.14)	ND (10)	ND (10)	ND (10)	-	-	-	-	-	-	-
	7-Feb-08	N-3_2/7/2008	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	ND (50)	-	-	ND (1)	ND (0.029)	ND (50)	ND (50)	ND (50)	170	-	-	-	-	-	-	-	ND (1)
	15-Jul-08	N-3_7/15/2008	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	ND (5)	-	-	ND (1)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	-	-	1.1
	17-Nov-09	N-3	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0098)	0.86	-	0.65	2.1	-	-	-	-	-	-	0.15 J
	8-Nov-10	N-3	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	10	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0098)	10	3 J	11	33	-	-	-	-	-	-	0.24 J
	20-Sep-11	N-3_09-20-2011	7.2	7	6.5	52	ND (2.0)	-	ND (2.0)	13	17	7	ND (1.0)	ND (0.05)	-	-	-	-	-	-	-	-	-	-	-	2.2
	17-Nov-11	N-3	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (4.8)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	ND (1.9)	0.90 J	2.1	1.8 J	-	-	-	-	-	-	0.13 J
	4-Apr-13	N-3_040413	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (2.0)	-	ND (2.0)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	-	-	-	-	-	-	-	-	-	-	30.5
	2-Jun-14	N-3	ND (0.50)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	2.23	ND (2.0)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	2.69	0.297	0.662	6.08	1.59	2.43	1.53	2.26	0.971	2.4 J	
	19-May-15	N-3_20150519	3	3	0.9 J	4	ND (0.5)	-	0.6 J	5	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0096)	10	1	2	13	5	7	6	6	2	2.4	
	17-Mar-16	N-3-20160317	ND (1)	ND (5)	ND (1)	ND (3)	ND (1)	-	ND (1)	ND (1) *	ND (1)	ND (1)	ND (1)	ND (1)	ND (0.01)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (2)
	27-May-16	N-3-20160527	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	1	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0095)	0.9	0.3 J	0.7	1	0.5	0.7	0.9	0.8	0.6	1.6	
	22-Aug-16	N-3-20160822-WG	24.0	32.8	7.17	42.7	ND (1.00)	-	6.53	6.53	ND (1.00)	4.27	ND (1.00)	ND (0.0100) *	0.572	0.293	0.380	1.94	0.883	0.585	0.496	0.533	0.341	ND (2.00)		
	17-Oct-16	N-3-20161017-WG	11.5	16.7	2.01	27.8	ND (1.00)	-	ND (1.00)	1.92	ND (1.00)	2.92	ND (1.00)	ND (0.0100) *	0.132	0.128	0.153	0.577	0.230	0.138	0.105	0.109	0.0818	ND (2.00)		
	23-May-17	N-3-20170523	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	0.8	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	2	0.5 J	1	2	0.8	1	1	1	1	0.87 J	
	29-Jun-18	N-3_20180629	6.75	9.30	3.36	8.84	ND (1.00)	-	4.42	ND (0.250)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (0.0100)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (2.00)	
	26-Jun-19	N-3_20190626	ND (0.2)	0.4 J	0.7 J	1 J	ND (0.2)	-	0.6 J	1	ND (0.3)	1 J	ND (2)	ND (0.0095)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (1.1)	
	1-Jan-93	DM N-7	ND	ND	ND	8	-	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
	1-Jan-94	DM N-7	ND (250)	ND (250)	480	ND (500)	-	-	-	-	-	-	-	-	-	ND (10)	-	-	-	-	ND (10)	ND (10)	ND (10)	-	-	
	1-Jan-95	DM N-7	ND	ND	ND	ND	-	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
	4-Jan-96	N-7	ND (0.3)	ND (0.3)	ND (0.4)	ND (0.6)	-	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
1-Jan-97	DM N-7	1	3	4	3	-	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-		
1-Jan-98	DM N-7	ND (10)	ND (10)	ND (10)	ND (10)	-	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-		
1-Dec-99	N-7	ND (1)	ND (1)	ND (1)	ND (2)	-	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-		
15-Nov-00	N-7	ND (1)	1.7	ND (1)	ND (2)	1.2	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (2)	ND (3)	-	-		
15-Nov-01	N-7	28	4	2	6	ND (1)	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (2)	ND (3)	-	-		
12-Nov-02	N-7	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	-	-	ND (2)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-		
13-Nov-03	N-7	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	-	-	-	-	-	-	-	ND (2.0)	-	-	-	-	ND (2.0)	ND (2.0)	ND (2.0)	-	-		
20-Oct-04	N-7	ND (1.0)	ND (5.0)	ND (5.0)	ND (10)	ND (5.0)	-	ND (5.0)	ND (5.0)	-	-	ND (5.0)	ND (0.020)	ND (0.14)	ND (10)	ND (10)	ND (10)	-	-	-	-	-	-	-	ND (5.0)	
7-Nov-05	N-7_11_7_2005	ND (1)	ND (1)	ND (1)	2	ND (1)	-	-	ND (1)	-	-	ND (1)	ND (0.02)	ND (0.1)	1.1	0.7	ND (0.1)	-	-	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	-	-	

See notes on last page.







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 Historical Perimeter Groundwater Sampling Analytical Results  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

Area of Interest	Sample Location	Sample Date	Sample Type	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES, TOTAL (DIMETHYLBENZENE)	METHYL TERTIARY BUTYL ETHER	TERT-BUTYL ALCOHOL	ISOPROPYLBENZENE (CUMENE)	NAPHTHALENE	1,2,4-TRIMETHYLBENZENE	1,3,5-TRIMETHYLBENZENE	1,2-DICHLOROETHANE (EDC)	1,2-DIBROMOETHANE (EDB)	CHRYSENE	FLUORENE	PHENANTHRENE	PYRENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H)PERYLENE	LEAD, Dissolved		
AOI 8	N-37	1-Jan-85	DM	N-37	ND	ND	ND	ND	-	-	-	-	-	-	-	62	-	-	-	-	55	49	32	-	-		
		1-Jan-86	DM	N-37	ND	ND	ND	ND	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
		1-Jan-88	DM	N-37	ND	ND	ND	ND	-	-	-	-	-	-	-	-	21	-	-	-	-	28	ND	ND	-	-	
		1-Jan-93	DM	N-37	ND	ND	ND	ND	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
		1-Jan-94	DM	N-37	ND (50)	ND (50)	ND (50)	ND (100)	-	-	-	-	-	-	-	-	ND (10)	-	-	-	-	2 J	1 J	ND (10)	-	-	
		1-Jan-95	DM	N-37	ND	ND	ND	0.9 J	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
		4-Jan-96		N-37	ND (0.3)	ND (0.3)	7.8	ND (0.6)	-	-	-	-	-	-	-	-	7	-	-	-	-	8	6	4	-	-	
		1-Jan-97	DM	N-37	ND (1)	1	ND	2	-	-	-	-	-	-	-	-	5	-	-	-	-	8	4	2	-	-	
		1-Jan-98	DM	N-37	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	-	-	3	-	-	-	-	4	4	2	-	-	
		1-Dec-99		N-37	ND (1)	ND (1)	ND (1)	ND (2)	-	-	-	-	-	-	-	-	2	-	-	-	-	2	2	1	-	-	
		15-Nov-00		N-37	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (2)	ND (3)	-	-	
		15-Nov-01		N-37	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	-	-	-	-	-	-	-	4	-	-	-	-	7	5	ND (3)	-	-	
		12-Nov-02		N-37	2	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	-	ND (2)	-	-	-	-	3	3	ND (1)	-	-	
		14-Nov-03		N-37	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	-	-	-	-	-	-	ND (2.0)	-	-	-	-	ND (2.0)	ND (2.0)	ND (2.0)	-	-	
		19-Oct-04		N-37	ND (1.0)	ND (5.0)	ND (5.0)	ND (10)	ND (5.0)	-	ND (5.0)	ND (5.0)	-	-	-	ND (5.0)	ND (0.020)	ND (0.14)	ND (9.9)	ND (9.9)	ND (9.9)	-	-	-	-	ND (5.0)	
		7-Nov-05		N-37_11_7_2005	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	ND (1)	-	-	-	ND (1)	ND (0.02)	0.1	ND (0.1)	ND (0.1)	0.1	-	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	-
		1-Dec-06		N-37	ND (0.5)	ND (0.7)	ND (0.8)	ND (0.8)	ND (0.5)	-	ND (1.0)	ND (1.0)	-	-	-	ND (1.0)	ND (0.0097)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	-	-	-	0.12 J	
		5-Dec-07		N-37	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	-	ND (0.5)	ND (1.0)	-	-	-	ND (0.5)	ND (0.0095)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	-	-	-	0.13 J	
		7-Feb-08		N-37_2/7/2008	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	ND (5)	-	-	-	ND (1)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	ND (1)	
		24-Jul-08		N-37_7/24/2008	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	ND (5)	-	-	-	ND (1)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	ND (1)	
		3-Nov-08		N-37_110308	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0098)	ND (0.9)	-	ND (0.9)	ND (0.9)	-	-	-	-	0.19 J	
		11-Nov-09		N-37	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	0.55	-	ND (0.40)	0.8	-	-	-	-	0.075 J	
		8-Nov-10		N-37	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0098)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	ND (0.052)	
		17-Nov-11		N-37	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.95)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	ND (0.076)	0.21 J	ND (0.076)	ND (0.13)	-	-	-	-	2.6	
		4-Apr-13		N-37_040413	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	0.25 J	-	ND (2.0)	ND (0.10)	ND (2.0)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	0.048 J
		4-Jun-14		N-37	ND (0.50)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	ND (1.0)	ND (0.10)	ND (2.0)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	2.1 J
		20-May-15		N-37_20150520	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0096)	ND (0.1)	ND (0.1)	ND (0.1)	0.2 J	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.082)
		26-May-16		N-37-20160526	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0096)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.13)
25-Aug-16		N-37-20160825-WG	ND (1.00)	ND (5.00)	ND (1.00)	ND (3.00)	ND (1.00)	-	ND (1.00)	ND (0.250)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (0.0100) *	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (2.00)		
18-Oct-16		N-37-20161018-WG	ND (1.00)	ND (5.00)	ND (1.00)	ND (3.00)	ND (1.00)	-	ND (1.00)	ND (0.250)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (0.0100) *	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	0.0590	ND (2.00)		
24-May-17		N-37-20170524	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	0.1 J	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0095)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.090)		
27-Jun-18		N-37_20180627	ND (1.00)	ND (1.00)	ND (1.00)	ND (3.00)	ND (1.00)	-	ND (1.00)	ND (0.250)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (0.0100)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (2.00)		

See notes on last page.

Table 4  
 Historical Perimeter Groundwater Sampling Analytical Results  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

Area of Interest	Sample Location	Sample Date	Sample Type	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES, TOTAL (DIMETHYLBENZENE)	METHYL TERTIARY BUTYL ETHER	TERT-BUTYL ALCOHOL	ISOPROPYLBENZENE (CUMENE)	NAPHTHALENE	1,2,4-TRIMETHYLBENZENE	1,3,5-TRIMETHYLBENZENE	1,2-DICHLOROETHANE (EDC)	1,2-DIBROMOETHANE (EDB)	CHRYSENE	FLUORENE	PHENANTHRENE	PYRENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H)PERYLENE	LEAD, Dissolved		
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L			
AOI 8	N-57	1-Jan-85	DM	N-57	330	ND	2,100	17,100	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-		
		1-Jan-86	DM	N-57	300	ND	1,300	10,900	-	-	-	-	-	-	-	-	21	-	-	-	-	14	16	16	-	-	
		1-Jan-88	DM	N-57	ND	ND	ND	1,600	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
		1-Jan-93	DM	N-57	20	2	4	567	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
		1-Jan-94	DM	N-57	110 J	ND (250)	720	4,140	-	-	-	-	-	-	-	-	5 J	-	-	-	-	ND (10)	2 J	ND (10)	-	-	
		1-Jan-95	DM	N-57	89	ND	ND	3,040	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
		4-Jan-96		N-57	190	2.8	13	2,000	-	-	-	-	-	-	-	-	1	-	-	-	-	1	2	ND (1)	-	-	
		1-Jan-97	DM	N-57	180	ND (100)	ND (100)	1,900	-	-	-	-	-	-	-	-	2	-	-	-	-	2	2	1	-	-	
		1-Jan-98	DM	N-57	82 J	ND (100)	ND (100)	1,600	-	-	-	-	-	-	-	-	8	-	-	-	-	8	12	3	-	-	
		1-Dec-99		N-57	120	ND (100)	ND (100)	660	-	-	-	-	-	-	-	-	13	-	-	-	-	10	15	9	-	-	
		15-Nov-00		N-57	110	ND (100)	ND (100)	440	260	-	-	-	-	-	-	-	12	-	-	-	-	9	14	7	-	-	
		15-Nov-01		N-57	75	ND (10)	ND (10)	240	ND (10)	-	-	-	-	-	-	-	3	-	-	-	-	2	ND (2)	ND (3)	-	-	
		12-Nov-02		N-57	6	ND (1)	2	203	ND (1)	-	-	-	-	-	-	-	2	-	-	-	-	1	3	ND (1)	-	-	
		14-Nov-03		N-57	24.1	1.1	1.1	32.3	ND (1.0)	-	-	-	-	-	-	-	0.63 J	-	-	-	-	ND (2.0)	0.70 J	0.58 J	-	-	
		19-Oct-04		N-57	38	ND (5.0)	ND (5.0)	140	ND (5.0)	-	ND (5.0)	ND (5.0)	-	-	-	ND (5.0)	ND (0.020)	ND (0.14)	ND (9.8)	ND (9.8)	ND (9.8)	-	-	-	-	ND (5.0)	
		7-Nov-05		N-57_11_7_2005	2	ND (1)	1	57	ND (1)	-	-	ND (1)	-	-	-	ND (1)	ND (0.02)	7.9	5.2	ND (1.2)	14.5	-	16.9	22.4	20.3	17.1	-
		1-Dec-06		N-57	ND (0.5)	ND (0.7)	ND (0.8)	24	ND (0.5)	-	2.0 J	ND (1.0)	-	-	-	ND (1.0)	ND (0.0097)	1.0 J	ND (1.0)	ND (1.0)	1.0 J	-	-	-	-	-	0.14 J
		5-Dec-07		N-57	ND (0.5)	ND (0.5)	0.5 J	19	-	-	1.0 J	ND (1.0)	-	-	-	ND (0.5)	ND (0.0096)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	-	-	-	-	0.21 J
		7-Feb-08		N-57_2/7/2008	2	ND (1)	2	230	ND (1)	-	4	ND (5)	-	-	-	ND (1)	ND (0.03)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	ND (1)
		25-Jul-08		N-57_7/25/2008	ND (5)	ND (5)	ND (5)	120	ND (5)	-	ND (10)	ND (24)	-	-	-	ND (5)	ND (0.029)	ND (24)	ND (24)	ND (24)	ND (24)	-	-	-	-	-	ND (1)
		4-Nov-08		N-57_110408	ND (0.5)	0.6 J	0.6 J	93	ND (0.5)	-	3	ND (1)	3	0.5 J	-	ND (0.5)	ND (0.0097)	1 J	-	ND (0.9)	ND (0.9)	-	-	-	-	-	0.11 J
		11-Nov-09		N-57	ND (0.5)	0.7 J	ND (0.5)	230	ND (0.5)	-	2	ND (1)	8.0	1 J	-	ND (0.5)	ND (0.0098)	ND (0.20)	-	ND (0.20)	ND (0.50)	-	-	-	-	-	0.090 J
		8-Nov-10		N-57	0.5 J	1	0.7 J	600	ND (0.5)	-	4	2 J	13	4	-	ND (0.5)	ND (0.0099)	ND (1)	1 J	ND (1)	ND (1)	-	-	-	-	-	0.070 J
		17-Nov-11		N-57	ND (0.5)	ND (0.5)	ND (0.5)	280	ND (0.5)	-	1 J	ND (4.8)	3	1 J	-	ND (0.5)	ND (0.0096)	ND (0.38)	ND (0.48)	ND (0.38)	ND (0.48)	-	-	-	-	-	ND (0.080)
		4-Apr-13		N-57_040413	ND (5.0)	ND (5.0)	ND (5.0)	384	ND (5.0)	-	ND (10)	ND (0.10)	5.6 J	ND (10)	-	ND (5.0)	ND (0.020)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	0.064 J
		2-Jun-14		N-57	ND (0.50)	0.54 J	ND (1.0)	267	ND (1.0)	-	1.2	ND (0.10)	5.8	2.0	-	ND (1.0)	ND (0.020)	0.313	ND (0.10)	ND (0.10)	0.357	ND (0.10)	0.180	0.739	0.283	1.34	ND (3.0)
		20-May-15		N-57_20150520	ND (5)	ND (5)	ND (5)	250	ND (5)	-	ND (5)	0.2 J	ND (5)	ND (5)	-	ND (5)	ND (0.0096)	1	0.4 J	0.3 J	0.9	0.2 J	0.6	2	1	2	0.30 J
		26-May-16		N-57-20160526	ND (0.5)	ND (0.5)	ND (0.5)	56	ND (0.5)	-	0.7 J	ND (0.1)	1 J	ND (0.5)	-	ND (0.5)	ND (0.0097)	0.3 J	ND (0.1)	0.1 J	0.3 J	ND (0.1)	0.2 J	0.4 J	0.3 J	0.5 J	0.23 J
24-Aug-16		N-57-20160824-WG	ND (1.00)	ND (5.00)	ND (1.00)	250	ND (1.00)	-	1.61	ND (0.250)	3.83	ND (1.00)	-	ND (1.00)	ND (0.0100) *	ND (0.0500)	0.188	0.101	0.439	0.163	0.127	0.479	0.238	0.678 J+	ND (2.00)		
19-Oct-16		N-57-20161019-WG	ND (1.00)	ND (5.00)	ND (1.00)	118	ND (1.00)	-	1.63	ND (0.250)	2.67	ND (1.00)	-	ND (1.00)	ND (0.0100) *	0.0562	0.120	ND (0.0500)	0.234	0.0702	0.0689	0.168	0.0793	0.329	ND (2.00)		
24-May-17		N-57-20170524	ND (5)	ND (5)	ND (5)	290	ND (5)	-	ND (5)	0.1 J	ND (5)	ND (5)	-	ND (5)	ND (0.0096)	0.9	0.4 J	0.2 J	1	ND (0.1)	0.6	1	0.7	2	0.091 J		
13-Jul-18		N-57_20180713	ND (1.00)	ND (1.00)	ND (1.00)	36.4	ND (1.00)	-	ND (1.00)	ND (0.250)	ND (1.00)	ND (1.00)	-	ND (1.00)	0.0684	ND (0.0500)	0.201	ND (0.0500)	0.0903	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (2.00)		

See notes on last page.

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 Historical Perimeter Groundwater Sampling Analytical Results  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

Area of Interest	Sample Location	Sample Date	Sample Type	BENZENE µg/L	TOLUENE µg/L	ETHYLBENZENE µg/L	XYLENES, TOTAL (DIMETHYLBENZENE) µg/L	METHYL TERTIARY BUTYL ETHER µg/L	TERT-BUTYL ALCOHOL µg/L	ISOPROPYLBENZENE (CUMENE) µg/L	NAPHTHALENE µg/L	1,2,4-TRIMETHYLBENZENE µg/L	1,3,5-TRIMETHYLBENZENE µg/L	1,2-DICHLOROETHANE (EDC) µg/L	1,2-DIBROMOETHANE (EDB) µg/L	CHRYSENE µg/L	FLUORENE µg/L	PHENANTHRENE µg/L	PYRENE µg/L	ANTHRACENE µg/L	BENZO(A)ANTHRACENE µg/L	BENZO(A)PYRENE µg/L	BENZO(B)FLUORANTHENE µg/L	BENZO(G,H)PERYLENE µg/L	LEAD, Dissolved µg/L	
AOI 8	N-60	1-Jan-85	DM	N-60	ND	ND	ND	ND	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
		1-Jan-86	DM	N-60	6	ND	ND	ND	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-
		1-Jan-88	DM	N-60	96	ND	ND	ND	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-
		1-Jan-93	DM	N-60	13	ND	ND	ND	-	-	-	-	-	-	-	-	13	-	-	-	-	ND	ND	ND	-	-
		1-Jan-94	DM	N-60	ND (250)	ND (250)	ND (250)	ND (500)	-	-	-	-	-	-	-	-	ND (10)	-	-	-	-	ND (10)	ND (10)	ND (10)	-	-
		1-Jan-95	DM	N-60	ND	ND	ND	ND	-	-	-	-	-	-	-	-	2 J	-	-	-	-	2 J	ND	ND	-	-
		11-Jan-96		N-60	16	ND (0.3)	ND (0.4)	ND (0.6)	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-
		1-Jan-97	DM	N-60	7	5	ND (1)	ND (1)	-	-	-	-	-	-	-	-	6	-	-	-	-	3	2	2	-	-
		1-Jan-98	DM	N-60	9	3	ND (1)	6	-	-	-	-	-	-	-	-	10	-	-	-	-	8	7	5	-	-
		1-Dec-99		N-60	ND (100)	ND (100)	ND (100)	ND (200)	-	-	-	-	-	-	-	-	3	-	-	-	-	3	2	1	-	-
		15-Nov-00		N-60	ND (1)	ND (1)	ND (1)	ND (2)	960	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (2)	ND (3)	-	-
		15-Nov-01		N-60	4	1	ND (1)	ND (2)	ND (1)	-	-	-	-	-	-	-	9	-	-	-	-	8	4	3	-	-
		12-Nov-02		N-60	3	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	-	2	-	-	-	-	2	2	ND (1)	-	-
		14-Nov-03		N-60	0.99 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	-	-	-	-	-	-	ND (2.0)	-	-	-	-	ND (2.0)	ND (2.0)	ND (2.0)	-	-
		19-Oct-04		N-60	ND (1.0)	ND (5.0)	ND (5.0)	ND (10)	ND (5.0)	-	ND (5.0)	ND (5.0)	-	-	ND (5.0)	ND (0.020)	1.9 J	ND (9.9)	ND (9.9)	ND (9.9)	-	-	-	-	-	ND (5.0)
		7-Nov-05		N-60_11_7_2005	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	ND (1)	-	-	ND (1)	ND (0.02)	7.8	3.3	2.2	8.6	-	17.4	ND (1.2)	9.3	ND (1.2)	-
		1-Dec-06		N-60	ND (0.5)	ND (0.7)	ND (0.8)	ND (0.8)	ND (0.5)	-	ND (1.0)	ND (1.0)	-	-	ND (1.0)	ND (0.0096)	9.0	2.0 J	ND (1.0)	8.0	-	-	-	-	-	0.18 J
		5-Dec-07		N-60	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	-	ND (0.5)	ND (1.0)	-	-	ND (0.5)	ND (0.0096)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	-	-	-	-	0.42 J
		7-Feb-08		N-60_2/7/2008	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	ND (5)	-	-	ND (1)	ND (0.029)	11	ND (5)	ND (5)	11	-	-	-	-	-	ND (1)
		25-Jul-08		N-60_7/25/2008	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	ND (5)	-	-	ND (1)	ND (0.03)	14	ND (5)	ND (5)	12	-	-	-	-	-	ND (1)
4-Nov-08		N-60_110408	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	5	-	ND (1)	4 J	-	-	-	-	-	0.24 J		
11-Nov-09		N-60	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0098)	4.0	-	0.56	3.8	-	-	-	-	-	0.095 J		
8-Nov-10		N-60	0.6 J	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0098)	4 J	1 J	ND (1)	3 J	-	-	-	-	-	0.57 J		
17-Nov-11		N-60	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (4.8)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0095)	6.0	0.81 J	0.50 J	2.2	-	-	-	-	-	3.9		
4-Apr-13		N-60_040413	ND (2.0)	0.66 J	ND (2.0)	ND (2.0)	2.9	-	ND (4.0)	ND (0.10)	ND (4.0)	ND (4.0)	ND (2.0)	ND (0.020)	ND (0.10)	0.263	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	0.072 J		

See notes on last page.

Table 4  
 Historical Perimeter Groundwater Sampling Analytical Results  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

Area of Interest	Sample Location	Sample Date	Sample Type	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES, TOTAL (DIMETHYLBENZENE)	METHYL TERTIARY BUTYL ETHER	TERT-BUTYL ALCOHOL	ISOPROPYLBENZENE (CUMENE)	NAPHTHALENE	1,2,4-TRIMETHYLBENZENE	1,3,5-TRIMETHYLBENZENE	1,2-DICHLOROETHANE (EDC)	1,2-DIBROMOETHANE (EDB)	CHRYSENE	FLUORENE	PHENANTHRENE	PYRENE	ANTHRACENE	BENZO(A)ANTHRACENE	BENZO(A)PYRENE	BENZO(B)FLUORANTHENE	BENZO(G,H)PERYLENE	LEAD, Dissolved		
AOI 8	N-64	1-Jan-93	DM	N-64	ND	ND	ND	ND	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-		
		1-Jan-94	DM	N-64	ND (250)	ND (250)	90 J	ND (500)	-	-	-	-	-	-	-	-	ND (10)	-	-	-	-	ND (10)	ND (10)	ND (10)	-	-	
		1-Jan-95	DM	N-64	ND	ND	ND	ND	-	-	-	-	-	-	-	-	ND	-	-	-	-	ND	ND	ND	-	-	
		11-Jan-96		N-64	ND (0.3)	ND (0.3)	ND (0.4)	ND (0.6)	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		1-Jan-97	DM	N-64	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		1-Jan-98	DM	N-64	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	-	-	1	-	-	-	-	1	ND (1)	ND (1)	ND (1)	-	-
		1-Dec-99		N-64	ND (1)	ND (1)	ND (1)	ND (2)	-	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		15-Nov-00		N-64	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	-	-	-	-	-	-	-	ND (1)	-	-	-	-	ND (1)	ND (2)	ND (3)	-	-	
		15-Nov-01		N-64	ND (1)	ND (1)	ND (1)	ND (2)	ND (1)	-	-	-	-	-	-	-	4	-	-	-	-	3	3	ND (3)	-	-	
		12-Nov-02		N-64	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	-	-	-	-	-	-	ND (2)	-	-	-	-	ND (1)	ND (1)	ND (1)	-	-	
		14-Nov-03		N-64	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	-	-	-	-	-	-	ND (2.0)	-	-	-	-	ND (2.0)	ND (2.0)	ND (2.0)	-	-	
		19-Oct-04		N-64	ND (1.0)	ND (5.0)	ND (5.0)	ND (10)	ND (5.0)	-	ND (5.0)	ND (5.0)	-	-	ND (5.0)	ND (0.020)	-	-	-	-	-	-	-	-	-	ND (5.0)	
		7-Nov-05		N-64_11_7_2005	ND (1)	ND (1)	ND (1)	1	ND (1)	-	-	ND (1)	-	-	ND (1)	ND (0.02)	ND (0.1)	2.7	0.5	0.5	-	0.2	ND (0.1)	ND (0.1)	ND (0.1)	-	-
		1-Dec-06		N-64	ND (0.5)	ND (0.7)	ND (0.8)	ND (0.8)	ND (0.5)	-	ND (1.0)	ND (1.0)	-	-	ND (1.0)	ND (0.0097)	ND (1.0)	6.0	2.0 J	2.0 J	-	-	-	-	-	0.18 J	
		5-Dec-07		N-64	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	-	ND (0.5)	ND (1.0)	-	-	ND (0.5)	ND (0.0096)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	-	-	-	-	2.9	
		8-Feb-08		N-64_2/8/2008	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	ND (5)	-	-	ND (1)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	ND (1)	
		23-Jul-08		N-64_7/23/2008	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	ND (5)	-	-	ND (1)	ND (0.029)	ND (5)	ND (5)	ND (5)	ND (5)	-	-	-	-	-	ND (1)	
		3-Nov-08		N-64_110308	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	ND (0.9)	-	ND (0.9)	ND (0.9)	-	-	-	-	-	18.1	
		16-Nov-09		N-64	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	0.14 J	-	0.85	0.96	-	-	-	-	-	0.36 J	
		8-Nov-10		N-64	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.9)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0097)	ND (0.9)	2 J	ND (0.9)	ND (0.9)	-	-	-	-	-	12.8	
17-Nov-11		N-64	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.98)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0096)	0.12 J	7.6	1.7	0.74	-	-	-	-	-	0.37 J			
5-Apr-13		N-64_040513	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	-	ND (2)	ND (0.1)	0.22 J	ND (2)	ND (1)	ND (0.02)	ND (0.1)	3.16	0.873	0.177	0.738	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (3)			
2-Jun-14		N-64	ND (0.50)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	-	0.43 J	ND (0.10)	ND (2.0)	ND (2.0)	ND (1.0)	ND (0.020)	0.113	4.92	1.02	0.493	1.08	0.112	ND (0.10)	0.127	ND (0.10)	11.8			
20-May-15		N-64_20150520	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0096)	ND (0.1)	3	0.8	0.3 J	0.8	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.082)			
26-May-16		N-64-20160526	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	-	ND (0.5)	ND (0.1)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.0094)	0.3 J	4	2	0.6	1	0.3 J	0.2 J	0.2 J	0.1 J	0.14 J			
25-Aug-16		N-64-20160825-WG	ND (1.00)	ND (5.00)	ND (1.00)	ND (3.00)	ND (1.00)	-	ND (1.00)	ND (0.250)	ND (1.00)	ND (1.00)	ND (1.00)	ND (0.0100) *	ND (0.0500)	4.08	1.56	0.359	1.21	0.0526	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (2.00)			
19-Oct-16		N-64-20161019-WG	ND (1.00)	ND (5.00)	ND (1.00)	ND (3.00)	ND (1.00)	-	ND (1.00)	0.395	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (0.0100) *	ND (0.0500)	4.61	1.61	0.248	1.00	ND (0.0500)	ND (0.0500)	ND (0.0500)	ND (2.00)			

See notes on last page.























Table 4  
 Historical Perimeter Groundwater Sampling Analytical Results  
 Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC

Area of Interest	Sample Location	Sample Date	Sample Type	BENZENE µg/L	TOUENE µg/L	ETHYLBENZENE µg/L	XYLENES, TOTAL (DIMETHYLBENZENE) µg/L	METHYL TERTIARY BUTYL ETHER µg/L	TERT-BUTYL ALCOHOL µg/L	ISOPROPYLBENZENE (CUMENE) µg/L	NAPHTHALENE µg/L	1,2,4-TRIMETHYLBENZENE µg/L	1,3,5-TRIMETHYLBENZENE µg/L	1,2-DICHLOROETHANE (EDC) µg/L	1,2-DIBROMOETHANE (EDB) µg/L	CHRYSENE µg/L	FLUORENE µg/L	PHENANTHRENE µg/L	PYRENE µg/L	ANTHRACENE µg/L	BENZO(A)ANTHRACENE µg/L	BENZO(A)PYRENE µg/L	BENZO(B)FLUORANTHENE µg/L	BENZO(G,H)PERYLENE µg/L	LEAD, Dissolved µg/L	
BELMONT	TW-8	15-Oct-04	TW-8	1,500	ND (80)	2,100	1,800	290	-	210	14,000	-	-	ND (74)	ND (0.020)	270	800	1,800	740	-	-	-	-	-	ND (5.0)	
		25-Apr-05	TW-8-042505	480	ND (250)	2,100	2,800	ND (250)	-	280	22,000	-	-	ND (250)	ND (0.029)	200	620	ND (2,500)	500	-	-	-	-	-	-	-
		5-Dec-06	TW-8	150	5.0	2,100	1,700	17	-	290	13,000	-	-	ND (1.0)	ND (0.0099)	580	2,100	4,300	1,700	-	-	-	-	-	-	0.15 J
		18-Dec-07	TW-8	660	12 J	1,400	870	-	-	190	12,000	-	-	ND (10)	ND (0.0094)	240	700	1,500	570	-	-	-	-	-	-	0.15 J
		7-Nov-08	TW-8_110708	240	ND (5)	1,600	790	31	-	170	13,000	1,100	140	ND (5)	ND (0.0097)	12	-	96	24	-	-	-	-	-	-	ND (0.050)
		18-Nov-09	TW-8	240	ND (10)	1,000	510	ND (10)	-	230	9,100	1,200	130	ND (10)	ND (0.0097)	16	-	180	63	-	-	-	-	-	-	ND (0.050)
		10-Nov-10	TW-8	84	2	1,300	430	8	-	180	9,200	1,200	91	ND (1)	ND (0.0097)	14 J	75	120	35 J	-	-	-	-	-	-	0.20 J
		29-Nov-11	TW-8	37	ND (3)	1,100	280	8	-	200	11,000	960	78	ND (3)	ND (0.0097)	ND (29)	120	180	68	-	-	-	-	-	-	0.84 J
		18-Jul-12	TW-8_071812	80	ND (5)	1,900	330	6 J	-	270	16,000	1,800	120	ND (5)	ND (0.0098)	26	110	180	59	44	25	18	22	8	0.74 J	
		3-Apr-13	TW-8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (1)
		3-Apr-13	TW-8_040313	224	ND (20)	874	192	ND (20)	-	216	2,400	902	52.8	ND (20)	ND (0.020)	1.92	37.8	43.2	8.63	8.65	2.08	1.39	1.52	0.592	-	-
		27-May-14	TW-8	39.3	0.60 J	1,100	136	5.3	-	346	5,970	1,620	68.4	ND (1.0)	ND (0.020)	0.946	21.3	16.9	3.01	4.80	0.849	0.552	0.641	0.256	ND (3.0)	
		11-Dec-14	TW-8-20141211	8.4	ND (10)	184	18.8	ND (10)	-	61.8	3,150	269	15.4 J	ND (10)	ND (0.020)	4.43	40.9	62.1	17.0	13.7	6.39	3.62	5.02	1.55	ND (3.0)	
		19-May-15	TW-8_20150519	63	ND (3)	670	68	4 J	-	180	7,300	880	48	5	ND (0.0096)	5	56	57	11	12	4	3	3	1	0.089 J	
		16-May-16	TW-8-20160516	500	0.9 J	560	89	4	-	150	6,000	530	52	2	ND (0.0097)	9	56	67	18	15	7	5	6	3	ND (0.13)	
		16-May-17	TW-8-20170516	330	3 J	560	69	ND (3)	-	180	4,400	670	63	ND (3)	ND (0.0095)	18	83	140	41	32	17	12	14	7	ND (0.090)	
3-Aug-18	TW-8_20180803	307	25.9	526	82.0	2.54	8.15	129	6,530	466	43.8	ND (1.00)	ND (0.0100)	1.91	44.4	36.6	6.69	7.90	1.79	1.29	1.46	0.853	ND (2.00)			

**Notes:**

- 15.2 Concentration was detected.
- ND (0.5) Analyte was not detected at a concentration greater than the laboratory reporting limit.
- B Indicates the analyte is detected in the associated blank as well as in the sample.
- D Indicates an identified compound in an analysis that has been diluted. This flag alerts the data user to any differences between the concentrations reported in the two analyses.
- DR Dry
- E Indicates compounds whose concentrations exceed the calibration range of the instrument.
- ED EDB was analyzed under SW8011. Laboratory work order and laboratory sample ID may be different for this result.
- DM Date missing from original field records. Date of completion estimated. If only month and year are available, the default will be the first day of the month.
- HT Sample(s) received past/too close to holding time expiration
- J Indicates an estimated value above the method detection limit but below the laboratory reporting limit or limit of quantitation.
- J- Indicates an estimated value that is biased low.
- J+ Indicates an estimated value that is biased high.
- MI Matrix Interference
- ND Not Detected
- OE The associated batch QC was outside the established quality control range for precision/accuracy.
- R The data are failed the usability assessment (data validation) and are unusable. The analyte may or may not be present in the sample.
- SH The sample concentration is too high to evaluate accurate spike recoveries.
- SL Sample was collected below LNAPL
- WI Well Inaccessible
- µg/L Micrograms per liter
- Not analyzed
- \* Indicates that the analyte was reported by two different methods. For 1,2-Dibromoethane (EDB), the SW8011 method result is shown. For Naphthalene, the SW8270 result is shown.



**APPENDIX 1**  
**Remediation System Recovery Data**

**Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC**  
**Groundwater and LNAPL Recovery Systems Operational Data**  
**Belmont Terminal**  
**Loading Rack Remediation System**  
**First Half 2019**

Date	Total Flow (gallons)	Period Total Flow (gallons)	Average Flow Rate (gpm)	LNAPL Recovered in Period (gallons)	Total LNAPL Recovered (gallons)
4-Jan-19	100,881,549	137,226	10.59	0.0	255,139
10-Jan-19	101,018,775	137,226	15.88	8.8	255,148
18-Jan-19	101,185,815	167,040	14.50	0.0	255,148
22-Jan-19	101,269,335	83,520	14.50	0.0	255,148
31-Jan-19	101,457,255	187,920	14.50	0.0	255,148
8-Feb-19	101,624,295	167,040	14.50	11.1	255,159
14-Feb-19	101,749,575	125,280	14.50	0.0	255,159
22-Feb-19	101,916,615	167,040	14.50	4.6	255,164
1-Mar-19	101,976,389	59,774	5.93	4.5	255,168
7-Mar-19	102,005,074	28,685	3.32	0.0	255,168
15-Mar-19	102,043,320	38,246	3.32	0.0	255,168
22-Mar-19	102,116,199	72,878	7.23	0.0	255,168
28-Mar-19	102,178,666	62,467	7.23	9.3	255,178
2-Apr-19	102,178,666	0	0.00	0.0	255,178
9-Apr-19	102,178,666	0	0.00	0.0	255,178
16-Apr-19	102,178,666	0	0.00	0.0	255,178
23-Apr-19	102,178,666	0	0.00	0.0	255,178
30-Apr-19	102,178,666	0	0.00	0.0	255,178
7-May-19	102,178,666	0	0.00	0.0	255,178
14-May-19	102,178,666	0	0.00	0.0	255,178
21-May-19	102,178,666	0	0.00	0.0	255,178
28-May-19	102,178,666	0	0.00	0.0	255,178
4-Jun-19	102,178,666	0	0.00	0.0	255,178
11-Jun-19	102,178,666	0	0.00	0.0	255,178
18-Jun-19	102,178,666	0	0.00	0.0	255,178
25-Jun-19	102,178,666	0	0.00	0.0	255,178

**Notes:**

gpm: gallons per minute

LNAPL: Light Non-Aqueous Phase Liquid

The Belmont Terminal Remediation System consist of the Loading Rack System (RW-4 and RW-21 through RW-25) and the Frontage Road system (RW-15 and RW-26 through RW-32). Both systems have a dedicated totalizer.

On August 30, 2012, the Frontage Road system was turned off and remained off for the reporting period. The system will remain offline unless there is a significant increase of LNAPL in the recovery wells. The recovery wells are routinely gauged and no product was detected during the reporting period.

The Loading Rack system was operational during the reporting period with the following exceptions:

On April 2, the system was turned off for site wide LNAPL transmissivity testing. The groundwater recovery portion of the system was returned to service on June 25. The LNAPL pumps remained off to observe LNAPL recovery potential.

**Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC**  
**AOI 1: Shunk Street Sewer Ventilation System and Biofilter**  
**Organic Vapor Concentrations**  
**First Half 2019**

Date	Flow Rate (CFM)	Sewer Air PID (ppm)	Total Flow PID (ppm)	Treatment Cell Effluent PID (ppm)			Treatment Cell Media Temperature (°F)		
				Cell #1	Cell #2	Cell #3	Cell #1	Cell #2	Cell #3
1/4/2019	3700	2.00	2.00	0.00	0.00	0.00	60	60	60
1/10/2019	3700	3.00	3.00	0.00	0.00	0.00	60	60	60
1/18/2019	3700	3.00	3.00	0.00	0.00	0.00	60	60	60
1/22/2019	3700	2.00	2.00	0.00	0.00	0.00	60	60	60
1/31/2019	3700	3.00	3.00	0.00	0.00	0.00	48	48	48
2/8/2019	3200	3.00	3.00	0.00	0.00	0.00	56	56	56
2/14/2019	3400	3.00	3.00	0.00	0.00	0.00	58	58	58
2/22/2019	3200	2.00	2.00	0.00	0.00	0.00	56	56	56
3/1/2019	3200	2.00	2.00	0.00	0.00	0.00	50	50	50
3/7/2019	3000	3.00	3.00	0.00	0.00	0.00	53	53	53
3/15/2019	3000	1.00	1.00	0.00	0.00	0.00	65	65	65
3/22/2019	3700	3.00	3.00	0.00	0.00	0.00	52	52	52
3/28/2019	3700	2.00	2.00	0.00	0.00	0.00	68	68	68
4/2/2019	3700	1.00	1.00	0.00	0.00	0.00	64	64	64
4/9/2019	3700	3.00	3.00	0.00	0.00	0.00	74	74	74
4/16/2019	NM	NM	NM	NM	NM	NM	NM	NM	NM
4/23/2019	NM	NM	NM	NM	NM	NM	NM	NM	NM
4/30/2019	NM	NM	NM	NM	NM	NM	NM	NM	NM
5/7/2019	NM	NM	NM	NM	NM	NM	NM	NM	NM
5/14/2019	NM	NM	NM	NM	NM	NM	NM	NM	NM
5/21/2019	NM	NM	NM	NM	NM	NM	NM	NM	NM
5/28/2019	NM	NM	NM	NM	NM	NM	NM	NM	NM
6/4/2019	NM	NM	NM	NM	NM	NM	NM	NM	NM
6/11/2019	NM	NM	NM	NM	NM	NM	NM	NM	NM
6/18/2019	NM	NM	NM	NM	NM	NM	NM	NM	NM
6/25/2019	NM	NM	NM	NM	NM	NM	NM	NM	NM

**Notes:**

CFM = cubic feet per minute

NM = not measured

ppm = parts per million

°F = Degrees Fahrenheit

Vapor concentrations are collected using a MultiRAE Lite Photoionization Detector (PID).

The Sewer Air reading is collected from the Shunk Street sewer air stream only.

The air stripper was taken offline on June 17, 2004; therefore, the Total Flow is equal to the Sewer Air reading.

The system was operational for the reporting period with the following exceptions:

On April 9, the blower was removed for repairs and the biofilter system remained off through the end of the reporting period.

**Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC  
AOI 1: Shunk Street Sewer Ventilation System and Biofilter  
pH Data**

**First Half 2019**

Date	Leachate pH	Biofilter Treatment Cell - Soil pH		
		Cell 1	Cell 2	Cell 3
22-Jan-19	7.03	NM	NM	NM
22-Feb-19	6.89	6.96	7.00	6.78
22-Mar-19	6.88	NM	NM	NM
23-Apr-19	7.07	NM	NM	NM
28-May-19	6.88	NM	NM	NM
4-Jun-19	NM*	NM*	NM*	NM*

**NOTES:**

Leachate pH readings are collected on a monthly basis.

Media pH readings are collected on a quarterly basis.

NM = Not Measured

NM\* = Not Measured due to the system not operating

The system was operational for the reporting period with the following exceptions:

On April 9, the blower was removed for repairs and the system remained off through the end of the reporting period.

**Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC  
Total Fluids Recovery System Operational Data  
AOI 1: 26th Street North Remediation System**

**First Half 2019**

Date	Total Flow (gallons)	Period Total Flow (gallons)	Calculated System Flow Rate (gpm)	LNAPL Recovered in Period (gallons)*	Total LNAPL Recovered (gallons)*
2-Jan-19	101,381,335	416,002	41.27	NA	9,148.60
10-Jan-19	101,976,458	595,123	51.66	NA	9,148.60
17-Jan-19	102,497,191	520,733	51.66	NA	9,148.60
24-Jan-19	102,982,241	485,050	48.12	NA	9,148.60
29-Jan-19	103,356,785	374,544	52.02	NA	9,148.60
7-Feb-19	104,134,385	777,600	60.00	NA	9,148.60
13-Feb-19	104,470,135	335,750	38.86	NA	9,148.60
22-Feb-19	104,972,465	502,330	38.76	NA	9,148.60
27-Feb-19	105,226,985	254,520	35.35	NA	9,148.60
8-Mar-19	105,685,121	458,136	35.35	NA	9,148.60
15-Mar-19	105,968,873	283,752	28.15	NA	9,148.60
18-Mar-19	106,084,951	116,078	26.87	NA	9,148.60
29-Mar-19	106,643,153	558,202	35.24	NA	9,148.60
2-Apr-19	106,643,153	0	0.00	NA	9,148.60
9-Apr-19	106,643,153	0	0.00	NA	9,148.60
16-Apr-19	106,643,153	0	0.00	NA	9,148.60
23-Apr-19	106,643,153	0	0.00	NA	9,148.60
30-Apr-19	106,643,153	0	0.00	NA	9,148.60
9-May-19	106,643,153	0	0.00	NA	9,148.60
16-May-19	106,643,153	0	0.00	NA	9,148.60
23-May-19	107,141,710	498,557	49.46	NA	9,148.60
29-May-19	107,381,470	239,760	27.75	NA	9,148.60
5-Jun-19	107,665,625	284,155	28.19	NA	9,148.60
12-Jun-19	107,949,780	284,155	28.19	NA	9,148.60
19-Jun-19	108,233,935	284,155	28.19	NA	9,148.60
26-Jun-19	108,730,274	496,339	49.24	NA	9,148.60

**Notes:**

gpm: gallons per minute

LNAPL: Light Non-Aqueous Phase Liquid

gpm: gallons per minute

\*The system discharges directly to a process sewer; therefore, the volume of recoverable LNAPL cannot be quantified.

The Total Flow and Total LNAPL Recovered includes historical totals from former recovery wells RW-400 through RW-406.

The 26th Street North Remediation system consists of 20 total fluids recovery wells [15 active wells onsite along 26th Street (S-180, S-181, S-182, S-183, S-184, S-185, S-186, S-187, S-188, S-189, S-190, S-191, S-192, RW-400, and RW-402) and five inactive wells offsite on CSX property (S-193, S-194, S-265, S-267, & S-268)]. The offsite wells on the CSX property have not been activated.

The system was operational for the first half of 2019 with the following exceptions:

On February 13, S-182, S-185, S-189, S-191 and S-192 were not operational. The pumps were removed for maintenance

On April 2, the system was turned off during LNAPL transmissivity testing. On May 23, the system was returned to service.

On April 16, S-182, S-185, S-189, and S-191 pumps were reinstalled.

On March 9, S-192 was reinstalled.

On June 26, RW-400, S-182 and S-186 were not operational. The pumps were removed for maintenance and repairs.

**Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC**  
**AOI 1: 26th Street & Packer Avenue Sewers Biofilter Remediation System**  
**pH Data**

**First Half 2019**

Date	Leachate pH	Biofilter Bed - Soil pH			
		Cell 1	Cell 2	Cell 3	Cell 4
23-Jan-19	7.16	NM	NM	NM	NM
21-Feb-19	7.01	6.65	7.03	NM	NM
19-Mar-19	7.01	NM	NM	NM	NM
23-Apr-19	7.15	NM	NM	NM	NM
20-May-19	6.89	6.76	6.98	NM	NM
24-Jun-19	7.13	NM	NM	NM	NM

**Notes:**

Media pH readings are collected on a quarterly basis.

NM: not measured

Cells 3 and 4 were shut off on June 18, 2010 and remained off for the reporting period as they are not currently needed for vapor treatment.

The system was operational during the reporting period.

**Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC**  
**AOI 1: 26th Street & Packer Avenue Sewers Biofilter Remediation System**  
**Organic Vapor Concentrations**  
**First Half 2019**

Date	Biofilter Influent			Biofilter Effluent							
	Packer Ave. (ppm)	26 <sup>th</sup> Street (ppm)	ST-1 (Combined Influent) (ppm)	Cell-1N	Cell-1S	Cell-2N	Cell-2S	Cell-3N	Cell-3S	Cell-4N	Cell-4S
1/2/2019	0.0	1.0	0	0.0	0.0	0.0	0.0	NA	NA	NA	NA
1/10/2019	77.0	59.0	29	0.0	0.0	0.0	0.0	NA	NA	NA	NA
1/17/2019	49.0	33.0	18	0.0	0.0	0.0	0.0	NA	NA	NA	NA
1/23/2019	85.0	63.0	62.6	0.0	0.0	0.0	0.0	NA	NA	NA	NA
1/30/2019	12.0	21.0	10	0.0	0.0	0.0	0.0	NA	NA	NA	NA
2/6/2019	0.0	5.0	1	0.0	0.0	0.0	0.0	NA	NA	NA	NA
2/12/2019	41.0	12.0	7	0.0	0.0	0.0	0.0	NA	NA	NA	NA
2/21/2019	17.0	13.0	11	0.0	0.0	0.0	0.0	NA	NA	NA	NA
2/26/2019	18.0	9.0	14	0.0	0.0	0.0	0.0	NA	NA	NA	NA
3/6/2019	28.0	21.0	17	0.0	0.0	0.0	0.0	NA	NA	NA	NA
3/13/2019	1.0	2.0	2	0.0	0.0	0.0	0.0	NA	NA	NA	NA
3/19/2019	3.0	9.0	8	0.0	0.0	0.0	0.0	NA	NA	NA	NA
3/27/2019	32.0	36.0	21	0.0	0.0	0.0	0.0	NA	NA	NA	NA
4/3/2019	48.0	37.0	35	0.0	0.0	0.0	0.0	NA	NA	NA	NA
4/9/2019	2.0	2.0	5	0.0	0.0	0.0	0.0	NA	NA	NA	NA
4/17/2019	2.0	4.0	3	0.0	0.0	0.0	0.0	NA	NA	NA	NA
4/23/2019	2.0	4.0	3	0.0	0.0	0.0	0.0	NA	NA	NA	NA
4/30/2019	3.0	7.0	9	0.0	0.0	0.0	0.0	NA	NA	NA	NA
5/6/2019	20.0	25.0	7	0.0	0.0	0.0	0.0	NA	NA	NA	NA
5/16/2019	5.0	6.0	15	0.0	0.0	0.0	0.0	NA	NA	NA	NA
5/20/2019	9.0	7.0	14	0.0	0.0	0.0	0.0	NA	NA	NA	NA
5/28/2019	2.0	2.0	2	0.0	0.0	0.0	0.0	NA	NA	NA	NA
6/13/2019	9.0	2.0	8	0.0	0.0	0.0	0.0	NA	NA	NA	NA
6/18/2019	30.0	16.0	23	0.0	0.0	0.0	0.0	NA	NA	NA	NA
6/24/2019	9.0	11.0	9	0.0	0.0	0.0	0.0	NA	NA	NA	NA

**Notes:**

ppm: parts per million

NA: Not applicable

Vapor concentrations are collected using a MultiRAE Lite Photoionization Detector (PID).

The system was operational for the reporting period.

**Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC**  
**Total Fluids Recovery System Operational Data**  
**AOI 2: Pollock Street Horizontal Wells**

**First Half 2019**

Actual Dates in Period	Reporting Period (Internal)	Days in Period	HW-1 Days of Operation Within Period	HW-1 Water Recovered During Period (gallons)	HW-2 Days of Operation Within Period	HW-2 Water Recovered During Period (gallons)	HW-3 Days of Operation Within Period	HW-3 Water Recovered During Period (gallons)	Total Fluids Extracted During Period (gallons)	Total Fluids Extracted (gallons)	LNAPL Recovered During Period (gallons)*
12/25/2018 - 1/22/2019	Jan 2019	29	Totalizer	413,000	Totalizer	0	29	642,269	1,055,268.8	114,597,433	NA
1/23/2019 - 2/19/2019	Feb 2019	28	Totalizer	422,700	Totalizer	17,821	28	620,122	1,060,642.6	115,658,075	NA
2/20/2019 - 3/25/2019	Mar 2019	34	Totalizer	507,700	Totalizer	29,869	34	753,005	1,290,573.8	116,948,649	NA
3/26/2019 - 3/31/2019	end Q1 2019	5	Totalizer	73,714	Totalizer	4,622	5	110,736	189,072.4	117,137,722	NA
3/26/2019 - 4/23/2019	Apr 2019	29	Totalizer	119,000	Totalizer	8,060	8	177,178	304,237.6	117,252,887	NA
4/24/2019 - 5/23/2019	May 2019	30	Totalizer	400	Totalizer	0	1	22,147	22,547.2	117,275,434	NA
5/24/2019 - 6/24/2019	Jun 2019	31	Totalizer	498,200	Totalizer	0	31	686,563	1,184,763.2	118,460,197	NA
6/25/2019 - 6/30/2019	end Q2 2019	5	Totalizer	107,438	Totalizer	0	5	110,736	218,173.5	118,678,371	NA

**Notes:**

LNAPL: Light Non-Aqueous Phase Liquid

NA: Not Applicable

gpm: gallons per minute

\*The system discharges directly to a process sewer; therefore, the volume of recoverable LNAPL cannot be quantified.

The estimated flow rate for HW-3 as determined by pump testing is 15.38 gpm

The system was operational during the reporting period with the following exceptions:

On December 17, 2018, HW-2 was turned off pending line jetting. HW-2 was returned to service on January 28, 2019.

On April 2, the HW-1, HW-2, and HW-3 pumps were turned off during LNAPL transmissivity testing. The pumps were restarted and the system was returned to service on May 23.

From May 29 through the end of the reporting period, the flow meter for HW-2 was not functional.



**Philadelphia Refinery Operations, a series of Evergreen  
Resources Group, LLC  
LNAPL Recovery System Operational Data  
AOI 4: S-30 Remediation System**

**First Half 2019**

Date	LNAPL Recovered in Period (gallons)	Total LNAPL Recovered (gallons)
7-Jan-19	0.0	40,009
17-Jan-19	0.0	40,009
23-Jan-19	0.0	40,009
30-Jan-19	0.0	40,009
6-Feb-19	0.0	40,009
12-Feb-19	0.0	40,009
21-Feb-19	0.0	40,009
26-Feb-19	0.0	40,009
6-Mar-19	0.0	40,009
13-Mar-19	0.0	40,009
19-Mar-19	9.3	40,018
26-Mar-19	9.3	40,028
2-Apr-19	0.0	40,028
9-Apr-19	0.0	40,028
16-Apr-19	0.0	40,028
23-Apr-19	0.0	40,028
30-Apr-19	0.0	40,028
7-May-19	0.0	40,028
14-May-19	0.0	40,028
21-May-19	0.0	40,028
28-May-19	0.0	40,028
4-Jun-19	0.0	40,028
11-Jun-19	0.0	40,028
18-Jun-19	0.0	40,028
25-Jun-19	0.0	40,028

**NOTES:**

LNAPL: Light Non-Aqueous Phase Liquid

The reported volume recovered for total fluids accounts for the historical recovery for the S-30 Remediation System.

There is no groundwater recovery at S-30; it is a product skimming system.

During the reporting period, the S-30 Remediation System was operational with the following exceptions:

From February 6 through March 13, the S-30 pump was removed for repairs.

From April 2 through May 20, the system was not operational during LNAPL transmissivity testing.

**Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC**  
**Groundwater and LNAPL Recovery System Operational Data**  
**AOI 4: Penrose Avenue Remediation System**  
**First Half 2019**

Date	Period Total Flow (gallons)	Total Flow (gallons)	Average Daily Flow (gpd)	LNAPL Recovered in Period (gallons)	Total LNAPL Recovered (gallons)
07-Jan-19	23,650	20,050,320	3,379	0.0	5777.7
17-Jan-19	73,810	20,124,130	7,381	0.0	5777.7
23-Jan-19	91,050	20,215,180	15,175	3.1	5780.8
30-Jan-19	91,010	20,306,190	13,001	1.0	5781.8
05-Feb-19	70,990	20,377,180	11,832	0.0	5781.8
12-Feb-19	80,450	20,457,630	11,493	0.0	5781.8
21-Feb-19	58,880	20,516,510	6,542	0.0	5781.8
26-Feb-19	55,120	20,571,630	11,024	0.0	5781.8
06-Mar-19	126,650	20,698,280	15,831	0.0	5781.8
13-Mar-19	89,800	20,788,080	12,829	0.0	5781.8
19-Mar-19	49,400	20,837,480	8,233	0.0	5781.8
27-Mar-19	300	20,837,780	38	0.0	5781.8
02-Apr-19	71,100	20,908,880	11,850	0.6	5782.4
09-Apr-19	0	20,908,880	0	0.0	5782.4
16-Apr-19	0	20,908,880	0	0.0	5782.4
23-Apr-19	0	20,908,880	0	0.0	5782.4
02-May-19	400	20,909,280	44	13.3	5795.7
06-May-19	39,200	20,948,480	9,800	45.5	5841.2
15-May-19	60,600	21,009,080	6,733	0.0	5841.2
20-May-19	63,900	21,072,980	12,780	17.8	5859.0
28-May-19	90,500	21,163,480	11,313	0.0	5859.0
04-Jun-19	137,600	21,301,080	19,657	0.0	5859.0
13-Jun-19	137,500	21,438,580	15,278	86.0	5945.0
18-Jun-19	500	21,439,080	100	42.5	5987.5
27-Jun-19	800	21,439,880	89	0.0	5987.5

**Note:**

gpd: gallons per day

LNAPL: Light Non-Aqueous Phase Liquid

The Penrose Avenue Remediation System consisting of 18 recovery wells (RW-700 through RW-717) was started on March 20, 2013. On February 21, 2018, pumps were installed in S-221, S-236, and S-237 to address LNAPL in those wells. Groundwater and LNAPL are extracted using pneumatic pumps, and total fluids pass through an oil/water separator (OWS). The groundwater is discharged to the Philadelphia Water Department (PWD) sanitary sewer system along Penrose Avenue, and LNAPL is recovered in a 550-gallon storage tank.

The system was operational during the reporting period with the following exceptions:

- On January 7, the system was turned off during OWS cleaning activities.
- On January 30, RW-700 was not operational due to cold weather. The pump was adjusted and returned to service.
- On February 26, RW-700 and S-237 were not operational. RW-700 was adjusted and returned to service.
- From April 2 through May 2, the system was not operational during LNAPL transmissivity testing.
- On May 2, S-221 was not operational.
- On May 15, RW-700 and RW-703 were not operational. The pumps were adjusted and returned to service.
- On May 20, S-237 was returned to service.
- On May 28, S-221 was returned to service.
- On June 13, the system was turned off for OWS repair.
- On June 18, the separator was cleaned and the system was returned to service.

**Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC**  
**Recovery System Operational Data**  
**AOI 7: 3 Separator Remediation System**  
**First Half 2019**

Date	Total Flow (gallons)	Period Total Flow (gallons)	Calculated System Flow Rate (gpm)	LNAPL Recovered in Period (gallons)	Total LNAPL Recovered (gallons)
8-Jan-19	23,126,678	127,500	6.81	7.7	113,547.1
15-Jan-19	23,179,578	52,900	5.25	2.0	113,549.1
24-Jan-19	23,248,278	68,700	5.30	10.0	113,559.0
28-Jan-19	23,287,278	39,000	6.77	2.0	113,561.1
5-Feb-19	23,365,723	78,445	6.81	8.2	113,569.3
13-Feb-19	23,420,978	55,255	4.80	2.1	113,571.4
19-Feb-19	23,424,778	3,800	0.44	0.0	113,571.4
26-Feb-19	23,533,778	109,000	10.81	10.6	113,582.0
4-Mar-19	23,596,278	62,500	7.23	4.3	113,586.3
11-Mar-19	23,634,078	37,800	3.75	6.5	113,592.8
18-Mar-19	23,667,878	33,800	3.35	17.8	113,610.6
25-Mar-19	23,706,578	38,700	3.84	27.8	113,638.5
4-Apr-19	23,810,278	103,700	7.20	21.6	113,660.1
8-Apr-19	23,838,878	28,600	4.97	4.9	113,665.0
17-Apr-19	23,892,278	53,400	4.12	24.9	113,689.9
25-Apr-19	23,943,478	51,200	4.44	23.0	113,712.9
30-Apr-19	23,976,778	33,300	4.63	7.8	113,720.6
7-May-19	24,023,578	46,800	4.64	0.0	113,720.6
17-May-19	24,098,578	75,000	5.21	28.9	113,749.6
24-May-19	24,140,878	42,300	4.20	10.7	113,760.3
29-May-19	24,169,778	28,900	4.01	5.4	113,765.6
13-Jun-19	24,242,278	72,500	3.36	8.1	113,773.7
17-Jun-19	24,262,578	20,300	3.52	5.4	113,779.1
25-Jun-19	24,399,078	136,500	11.85	23.9	113,803.0

**Notes:**

gpm: gallons per minute

LNAPL: Light Non-Aqueous Phase Liquid

The 3 Separator Remediation System is a hydraulic control system constructed of ten recovery wells (RW-801 through RW-810) which was started on August 23, 2012. Groundwater and LNAPL are extracted using pneumatic submersible pumps and total fluids pass through an oil/water separator (OWS). Water is discharged to an onsite process sewer. LNAPL is recovered in a tank and recycled by the PES Complex.

The system was operational for the reporting period with the following exceptions:

On February 19, the system shut down due to a high OWS alarm. The system was reset and restarted. RW-800 was not operational after the system was restarted.

On April 4, RW-801 and RW-807 were removed for maintenance.

On March 24, the RW-807 line was fouled. RW-807 was not returned to service during the reporting period.

On June 17, RW-801 was returned to service.

On June 25, the system shut down due to a holding tank alarm.

On June 27, the holding tank was cleaned out and the system was returned to service.

**Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC**  
**AOI 8: Jackson Street Water Curtain**  
**First Half 2019**

Date	PID readings (ppm)			Comments
	Blower	Water Curtain	Interceptor Chamber	
03-Jan-19	NA	0.0	0.0	
11-Jan-19	NA	0.0	0.0	
24-Jan-19	NA	0.0	0.0	
31-Jan-19	NA	0.0	0.0	
08-Feb-19	NA	0.0	0.0	
14-Feb-19	NA	0.0	0.0	
22-Feb-19	NA	0.0	0.0	
01-Mar-19	NA	0.0	0.0	
08-Mar-19	NA	0.0	0.0	
14-Mar-19	NA	0.0	0.0	
22-Mar-19	NA	0.0	0.0	
29-Mar-19	NA	0.0	0.0	
05-Apr-19	NA	0.0	0.0	
10-Apr-19	NA	0.0	0.0	
17-Apr-19	NA	0.0	0.0	
25-Apr-19	NA	0.0	0.0	
03-May-19	NA	0.0	0.0	
10-May-19	NA	0.0	0.0	
17-May-19	NA	0.0	0.0	
23-May-19	NA	0.0	0.0	
29-May-19	NA	0.0	0.0	
13-Jun-19	NA	0.0	0.0	
18-Jun-19	NA	0.0	0.0	
25-Jun-19	NA	0.0	0.0	

**NOTES:**

PID: Photoionization detector  
ppm: parts per million  
NA: Not Available (PID readings are not collected at the blower.)  
Vapor concentrations are collected using a MultiRAE Lite PID.  
The totalizer was removed on December 11, 2009.  
The system was operational during the reporting period.

**APPENDIX 2**  
**Laboratory Analytical Data Reports**  
(electronic copy only; provided on CD included with report)