TETRA TECH

2016-2017 ANNUAL GROUNDWATER MONITORING REPORT

(JULY 2016 - JUNE 2017)

HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, HAVERTOWN TOWNSHIP,
DELAWARE COUNTY, PENNSYLVANIA

Contract No. [redacted]
Task Order [redacted]

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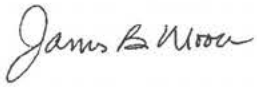
PRESENTED TO

Pennsylvania Department of Environmental Protection
Hazardous Sites Cleanup Program
Southeast Regional Office
2 East Main Street
Norristown, Pennsylvania 19401

PRESENTED BY

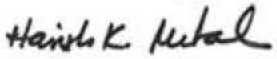
Tetra Tech
240 Continental Drive, Suite 200
Newark, DE 19713
TETRA TECH

Prepared by:



Name: JB Moore
Title: Project Engineer | Tetra Tech

Reviewed and Approved by:



Name: Harish Mital
Title: Project Manager
Tetra Tech

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ACRONYMS

ARAR	Applicable, Relevant, or Appropriate Requirement
bgs	Below Ground Surface
BOL	Bureau of Laboratories
CCA	Chromium Copper Arsenate
COC	Contaminant of Concern
CTR	Collection Trench
CW	Cluster Well
CZA	Capture Zone Analyses
DEP	Pennsylvania Department of Environmental Protection
DO	Dissolved Oxygen
EPA	U.S. Environmental Protection Agency Region 3
ft	Feet
GES	Groundwater & Environmental Services, Inc.
gpm	Gallons per Minute
HAV	Havertown Well
IW	Injection Well
J	Estimated Data Qualifier Value
lb	Pound
LTRA	Long Term Response Action
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
mV	Millivolts
MW	Monitoring Well
NA	Not Available
ND	Non-Detect
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NW	National Wood (Preservers) Well
NWP	National Wood Preservers
O&M	Operation and Maintenance
ORP	Oxidation Reduction Potential
OSWER	Office of Solid Waste and Emergency Response
OU	Operable Unit
PAH	Polynuclear Aromatic Hydrocarbon
PCG	Philadelphia Chewing Gum Company
PCP	Pentachlorophenol
PCRR	Penn Central Railroad
PDU	Peroxide Destruction Unit

ACRONYMS (CONTINUED)

PE	Polyethylene
Pg/L	Picogram per Liter
PZ	Piezometer
RA	Remedial Action
RAO	Remedial Action Objective
RD	Remedial Design
RG	Remediation Goal
ROD	Record of Decision
ROS	Recreation and Open Space
RR ROW	Railroad Right-of-Way
RW	Recovery Well
SAP	Sampling and Analysis Plan
SMCL	Secondary Maximum Contaminant Level
SVOC	Semi-Volatile Organic Compound
TCE	Trichloroethene
TEQ	Toxicity Equivalent Quotient
µg/L	Micrograms per Liter
U	Non-Detected Laboratory Value
USACE	U.S. Army Corps of Engineers
VOC	Volatile Organic Compound
YMCA	Young Men's Christian Association

1.0 INTRODUCTIONS

Tetra Tech, Inc. (Tetra Tech) was tasked by the Pennsylvania Department of Environmental Protection (DEP), under Contract Number [redacted] to perform operation and maintenance (O&M) services under Operable Unit 2 (OU-2) and OU-3 for the groundwater treatment facility at the Havertown PCP Superfund Site located in Haverford Township, Pennsylvania.

Activities performed for OU-2 O&M are to operate and maintain the groundwater treatment facility, optimize the facility's performance, perform all required monitoring (groundwater and surface water discharge) associated with this facility, and maintain the cap in accordance with the selected remedy and Remedial Action Objectives (RAOs). Activities conducted for OU-3 O&M are to contain the contaminated deep groundwater plume that is migrating from the site in conjunction with the OU-2 remedy, operate and maintain the OU-3 extraction and monitoring wells in the Recreation and Open Space (ROS) Area, maintain the ROS pumping system through the Railroad Right-of-Way (RR ROW), and operate the in-situ flushing system in conjunction with the OU-2 groundwater treatment system.

This report covers the groundwater monitoring period from July 2016 to June 2017, which includes long-term performance monitoring for the OU-2 and OU-3 remedies. Analytical data collected during monitoring period were used to evaluate efficacy and capacity of the groundwater collection system; update the site-wide historical database; and present conclusions and recommendations regarding future groundwater sampling. The treatment system's operational performance (including plant discharge monitoring results) is presented in a separate report.

1.1 SITE BACKGROUND

The Havertown PCP Superfund Site (the Site) is located in southeastern Pennsylvania approximately 10 miles west of Philadelphia (**Figure 1**). Commercial establishments, industries, parks, schools, and residential homes surround the Site.

The Site covers approximately 12 to 15 acres and is defined by the extent of contamination attributable to the site. It is roughly delineated by Lawrence Road and Rittenhouse Circle to the south, the former Penn Central Railroad (PCRR) tracks to the north, and the fence on the Continental Motors property to the west, and Naylors Run to the east.

The Havertown PCP site is located in the Piedmont Uplands section of the Piedmont Physiographic Province. Consolidated rock in the vicinity of the site consists of metamorphic schist and gneiss of the Wissahickon Formation. Regionally the unconsolidated deposits that overlay the bedrock consist of saprolite (in-situ weathered bedrock), and occasional sand and gravel terrace deposits, and artificial fill. In the vicinity of the bed of Naylors Run, thicker unconsolidated gravel deposits have been identified above Wissahickon Schist. Groundwater at the Havertown site flows in a southeasterly direction and occurs in two major zones. The upper zone consists of surficial soils and saprolite (heavily weathered rock). The movement of water in the saprolite zone is influenced by the degree of saprolite weathering, relict bedrock structures, compositional variations, and the thickness of the weathered zone. The lower zone consists of fractured schist bedrock, with water movement occurring along interconnected fractures. Vertical hydraulic gradients are small, suggesting that the aquifer at the site is well connected by porous/fracture flow.

Upward flow occurs within the saturated saprolite and presumably provides observed seepage/base flow to Naylors Run southeast of Rittenhouse Circle. The depth to groundwater below the site ranges from approximately 23 feet below ground surface in the vicinity of former Young's Produce Store to seepage as springs at ground surface in the ROS Area southeast of Rittenhouse Circle. These permeable zones are closely interconnected, and typically represent one aquifer. Semi-confining layers may locally reduce aquifer interconnection — but are not widespread.

Historically, the Site consisted of a number of distinct properties, including a former wood treatment facility owned by National Wood Preservers (NWP), a bubble gum manufacturing plant owned by the Philadelphia Chewing Gum Company (PCG), and neighboring residential and commercial areas. Former structures on the NWP property (lying north of the intersection of Eagle Road and Lawrence Road) consisted of a sheet metal building with multiple aboveground chemical storage tanks. The two-acre NWP property has since been capped and enclosed within a chain-link fence. The PCG facility consisted of a single, large former gum production building located due east of NWP (northeast of the intersection of Eagle Road and Lawrence Road). Residential areas bordering Rittenhouse Circle and Naylors Run comprise the remainder of the study area (**Figure 2**).

From approximately 1947 to 1963, the NWP property was used to treat wood products using pentachlorophenol (PCP) dissolved in diesel fuel. NWP allegedly disposed of waste materials into a well reportedly located in the vicinity of the former Young's Produce Market, at the corner of Lawrence and Eagle Road. However, the exact location of the well was not identified. In 1977, the NWP facility discontinued the use of PCP and oil to treat wood products and began treating wood using metal salts.

The metal salts consisted of chromium copper arsenate (CCA) in a 0.4% or 0.6% water solution. Other metals used included chromated zinc chloride (a fire retardant) and tributyl tin oxide (an anti-fouling compound). All three water-soluble chemicals were used in pressure treatment of wood products.

The Site was placed on the National Priorities List (NPL) in 1982. The Site was divided into three OUs. OU-1 addressed the discharge to Naylors Run and the on-site wastes at the NWP facility. OU-2 addressed shallow groundwater, and OU-3 addressed deep groundwater in the source area and the groundwater and soil contamination in the ROS Area.

Major contaminants attributable to the Site include volatile organic compounds (VOCs), PCP, polynuclear aromatic hydrocarbons (PAHs), and dioxins/furans.

EPA issued the first Record of Decision (ROD) for the Site in September 1989. The 1989 ROD for OU-1 included provisions for an interim remedial action. It called for the installation of an oil-water separator to address the continued release of contaminants from the Site into the surface water of Naylors Run. In addition, this ROD called for the removal and disposal of the on-site waste.

During a soil investigation, EPA learned that the contamination on the NWP facility was more extensive than originally anticipated. The soil contamination was addressed in a 1996-1997 Superfund Removal Action, during which a synthetic geo-membrane cap was installed over three acres of the Site. The installation of the cap removed the potential for exposure to soils contaminated with arsenic and dioxins/furans by providing an impermeable synthetic barrier and 18 inches of soil cover over the areas of contamination. In the fall of 1997, EPA covered the capped area with an additional 4 feet of fill and planted the fill with a mixture of seed mulch and fertilizer.

EPA issued the ROD for OU-2 on September 30, 1991, which defined the interim remedy. The RAOs of the OU-2 remedy were as follows:

- Design and implement an interim remedial action to protect human health and the environment by removing free product and contaminated groundwater from the shallow groundwater aquifer.
- Collect data on the aquifer and contaminant response to remedial measures.

The primary purpose of the OU-2 ROD is to contain the entire contaminated shallow groundwater plume migrating from the Site under Eagle Road and to treat and discharge it into Naylors Run. The extraction/recovery wells are intended to reduce the size of the oil plume floating on the water table.

Tetra Tech completed the conceptual design for OU-2 (shallow groundwater) in 1994. The Remedial Design (RD) for OU-2 was completed during the period 1997-2000 by several contractors under direction from the U.S. Army Corps of Engineers (USACE). Treatment plant construction was completed in 2001, and the plant became fully operational in August 2001, with treated water being discharged to Naylors Run in accordance with National Pollutant Discharge Elimination System (NPDES) permit limits. Groundwater & Environmental Services, Inc. (GES) operated the plant on behalf of USACE until August 15, 2002. Between 2002 and 2013, Tetra Tech performed O&M activities at the plant on behalf of EPA.

EPA issued the ROD for OU-3 in April 2008. OU-3 was further divided into OU-3A and OU-3B. OU-3A addressed contamination related to deep groundwater in the source area, whereas OU-3B addressed contamination in Haverford Township's ROS Area, located below Rittenhouse Circle and adjacent to Washington Avenue in Havertown. The RAOs for the OU-3 remedy were as follows:

Groundwater

- Mitigate contamination to Applicable, Relevant or Appropriate Requirements (ARARs) and/or risk-based cleanup levels to protect human health and the environment.
- Discharge treated groundwater to surface water (Naylors Run) in concentrations that meet NPDES regulations.
- Prevent exposure to contaminated groundwater in the future.
- Prevent discharge of groundwater to surface water at concentrations of contaminants that would result in exceedances of water quality criteria.
- Contain the contamination plume in the source area and the ROS Area to prevent further off-site migration and to ensure that downgradient groundwater is not impacted.
- Restore groundwater quality at the Site.

Soils of ROS Area

- Eliminate current exposure of human and ecological receptors to contaminated soils.
- Prevent further migration of contaminants in soil to groundwater.
- Prevent transport of contaminants in surface soils via surface water runoff.
- Prevent potential future exposure to contaminants through ingestion and dermal contact by human and ecological receptors.

The purposes of the OU-3 remedy are to contain the contaminated deep groundwater plume migrating from the site in conjunction with the OU-2 remedy, operate and maintain the OU-3 shallow extraction and monitoring wells in the ROS, maintain the ROS pumping system through the RR ROW, and operate the

in-situ flushing system in conjunction with the OU-2 groundwater treatment system. The OU-2 remedy was incorporated into the OU-3 as a final groundwater remedy. The OU-3 remedy consisted of the following elements:

- Installation of an additional groundwater recovery well and associated piping in the Source area of the site.
- Operate and maintain the existing groundwater treatment facility. Upgrade or retrofit the existing groundwater treatment facility to increase the capacity of the facility to process 60 to 70 gallons per minute (gpm) of contaminated water.
- Treat collected groundwater as necessary to meet discharge requirements.
- In-situ flushing in the Source area of the Site, with treated water from the groundwater treatment facility.
- Excavation of an area approximately 50 ft. by 50 ft. around wells SW-8 and SW-9 in the ROS Area, and a narrow zone along the abandoned sewer line about 200 ft. long and 20 ft. wide. The portion of the abandoned sewer line that has not been sealed will be removed. All excavated material will be properly disposed of off-site.
- Backfilling of the excavated area with clean fill, restoration of sidewalks, curbs, utilities, etc. and planting of appropriate vegetation.
- Installation of three groundwater recovery wells and associated piping in the ROS Area to extract groundwater and transport it to the site's groundwater treatment facility for remediation.
- Demonstrate recovery of benthic macroinvertebrate and fish communities, to examine the efficacy of the ROS Area excavation and groundwater treatment to reduce or eliminate the contaminant releases that are the major source of risk to aquatic organisms in Naylors Run.
- Perform groundwater monitoring.
- Implement institutional controls to protect the integrity of the remedy and to prevent the installation of groundwater wells, through groundwater use restrictions and notices for the site and surrounding area, as appropriate.

In November 2008, EPA began work to increase the capacity and optimize the existing groundwater treatment facility and to meet the 2008 OU-3 ROD requirements. EPA redesigned the pretreatment portion of the facility to increase the amount of water being treated. This portion of the Remedial Action (RA) was completed in February 2009 as part of the OU-2 long-term response action (LTRA). The facility currently treats 70 gpm of contaminated groundwater. From March through August 2010, the OU-3 remedy was implemented. Construction involved converting an existing monitoring well (CW-31D) to a deep recovery well (RW-7), adding three new shallow recovery wells (RW 8, RW-9, and RW-10) and three new monitoring wells (CW-32, CW-33, and CW-34) in the ROS Area, and converting three existing shallow recovery wells (RW-1, RW-2, and RW-4) into injection wells (IW-1, IW-2, and IW-3) with an associated pumping system as part of the in-situ flushing system. The treatment plant remained operational during construction.

The groundwater extraction and treatment system consists of six recovery wells, one collection trench (CTR), and an on-site treatment system. The CTR has been online since 2001; RW-5 and RW-6 have been online since February 2006; RW-7 was fully online in October 2010; and RW-8, RW-9, and RW-10 were online in August 2010. Four original recovery wells (RW-1, RW-2, RW-3, and RW-4) have been offline since February 2006. In 2010, the former RW-1, RW-2, and RW-4 were converted into injection

wells (IW-1, IW-2, and IW-3) and placed into service in August 2010. Since IW-1, IW-2, and IW-3 started plugging, two additional wells, IW-4 (formerly CW-29D) and IW-5 (formerly CW-30D), were placed online in July and October 2011, respectively.

To restore contaminated groundwater to beneficial use, remediation implemented under the remedies will operate until remediation goals (RGs) or groundwater clean-up goals are achieved. The RGs for groundwater OU-2 and OU-3 are presented in Table 1.

1.2 GROUNDWATER WELL NETWORK DESCRIPTION

The groundwater well network consists of recovery wells, injection wells, monitoring wells, and the CTR. Well construction data is provided in **Table 2**. These wells are also located on **Figure 2**.

There are six active recovery wells currently including RW-5, RW-6, RW-7, RW-8, RW-9, and RW-10. Four original recovery wells RW-1, RW-2, RW-3, and RW-4 have been offline since February 2006.

There are five injection wells (IW-1 through IW-5) in or near the source area. The injection wells IW-1, IW-2, and IW-3 were placed into service in August 2010. The former monitoring well CW-29D was converted into injection well IW-4 and placed online in July 2011, and the former monitoring well CW-30D was converted into injection well IW-5 and placed online in October 2011.

After IW well redevelopment in June 2013, three IW wells (IW-1, IW-2, and IW-3) were shut down. The injection system remains active with IW-4 and IW-5.

Four piezometers (PZ-1 through PZ-4) are used to monitor water levels in the CTR.

1.3 MONITORING PROGRAM

Presently, there are 60 wells included in the O&M groundwater monitoring program. These wells can be classified as shallow wells above bedrock [about 5 ft. to 30 ft. below ground surface (bgs)] and deep wells in the bedrock (up to 120 ft. deep). In 2010 and 2011, six wells were deleted from the program but remain available. In mid-2012, due to construction of the Young Men's Christian Association (YMCA) building, four monitoring wells (HAV-02, CW-6S, CW-6I, and CW-6D) were abandoned.

The purpose of this sampling is to monitor treatment system performance and migration of the PCP plume. Sampling is performed per the revised Sampling and Analysis Plan (SAP) (Tetra Tech, 2016b). Groundwater samples are collected on periodic as follows:

- Quarterly sampling to determine recovery system water quality and extraction system's effectiveness.
- Semi-annual sampling to determine recovery well water quality and effectiveness.
- Bi-annual sampling to monitor the edge of the shallow contaminant capture zone.
- Annual sampling to update the historical database.

Groundwater samples are analyzed for VOCs, semi-volatile organic compounds (SVOCs), metals, and dioxin/furans. During well sampling, other parameters are also collected [e.g., pH, temperature, dissolved oxygen (DO), specific conductivity and oxidation-reduction potential (ORP)].

During the July 2016 to June 2017 period, all samples were sent to the DEP-designated laboratory for analysis.

2.0 GROUNDWATER MONITORING ACTIVITIES

2.1 SAMPLING METHODS

Groundwater samples were collected from the monitoring wells and injection wells through polyethylene (PE) tubing that was attached to a peristaltic pump with medical-grade flexible silicon tubing. The PE tubing was inserted down the well and set at the approximate midpoint of the screen. Geochemical parameters (DO, specific conductivity, pH, temperature, and ORP) were measured during purging using an YSI 556 water quality meter equipped with an in-line flow through cell. Turbidity was measured using a LaMotte 2020e turbidimeter during purging. The purging rate was set at between 0.1 to 0.4 liter/minute, and water levels were monitored to assure that the static water level was not drawn down into the well screen.

Purged water was monitored for pH, specific conductivity, temperature, turbidity, ORP, and dissolved oxygen (DO) every five minutes. When levels of these parameters stabilized, and a minimum of two saturated screen volumes had been removed from the well, the purging was considered complete and the groundwater samples were obtained. Parameter stabilization was defined as three successive readings (taken at least 5 minutes apart) within 0.1 unit for pH, 3% for specific conductivity, 10% for turbidity and DO, and 10 mV for ORP. All monitored parameter measurements (including time, water level, purge rate, temperature, pH, specific conductance, turbidity, DO, and ORP) were recorded on low-flow purge data sheets. Groundwater samples were collected in laboratory-supplied containers after three consistent readings of pH, specific conductivity, temperature, and turbidity (±10%), immediately placed on ice, and delivered under proper chain-of-custody protocol to ALS Environmental.

Groundwater samples of the recovery wells were collected from sampling ports located in the well vaults. After purging 5 gallons of the groundwater from sampling port, the groundwater sample was obtained. Temperature, pH, specific conductance, turbidity, DO and ORP, were measured and recorded on sampling logs.

2.2 GROUNDWATER SAMPLING EVENTS

2.2.1 September 2016 Sampling Event

A quarterly groundwater sampling event was performed on September 13 and 14, 2016. A total of 20 locations were sampled and analyzed as follows. The analytical results are provided in **Appendix A-1**. **Table 4A** summarizes the contaminants of concern (COCs) detected in well samples during the September 2016 sampling event and compares them to groundwater remediation goals (RGs) (**Table 1**).

- Seven groundwater extraction wells (RW-5 thru 10 and collection trench (CTR)), six downgradient monitoring wells (CW-12D, CW-13D, CW-22S & 22D, MW-1, and MW-2) and three Recreation and Open Space (ROS) area monitoring wells were analyzed for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs).
- Four upgradient monitoring wells (MW-1S, MW-1I, MW-2S, and MW-2I) were analyzed for TAL metals only.
- Six ROS area wells (CW-32, CW-33, CW-34, RW-8, RW-9, and RW-10) were additionally analyzed for low pentachlorophenol (PCP) detection limit and TAL metals.

- Two groundwater extraction wells (RW-5 and CTR) were also analyzed for Dioxins and Furans.

2.2.2 December 2016 Sampling Event

A quarterly groundwater sampling event was conducted on December 20 and 21, 2016. A total of 12 locations were sampled and analyzed as follows. The analytical results are provided in **Appendix A-2. Table 4B** summarizes the contaminants of concern (COCs) detected in well samples during the December 2016 sampling event and compares them to groundwater remediation goals (RGs) (**Table 1**).

- Three ROS area extraction wells (RW-8, RW-9, and RW-10) were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), low pentachlorophenol (PCP) detection limit and Dieldrin.
- Three ROS area monitoring wells (CW-32, CW-33, and CW-34) were analyzed for Dieldrin only.
- Six downgradient monitoring wells (CW-12D, CW-13D, CW-22S & 22D, MW-1, and MW-2) were analyzed for VOCs and SVOCs.

2.2.3 March 2017 Sampling Event

The annual groundwater sampling event was performed from March 20 through March 24, 2017. A total of 56 wells were sampled and analyzed for TCL VOCs and SVOCs. A total of 54 wells were sampled and analyzed for TAL metals. A total of 8 wells were sampled and analyzed for dioxins/furans. Six ROS area were also analyzed for low pentachlorophenol (PCP) detection limit and Dieldrin. Injection wells IW-3 and monitoring well CW-3S were dry and were not sampled. **Figure 2** presents sample locations. The analytical results are provided in **Appendix A-3**. **Table 4C** summarizes the contaminants of concern (COCs) detected in well samples during the March 2017 sampling event and compares them to groundwater remediation goals (RGs) (**Table 1**).

On March 21 and 22, 2017, split samples for analysis by PADEP Bureau of Laboratories (BOL) were taken at 14 wells primarily in the source area and downstream of source area. The samples were analyzed for TCL SVOCs. The analytical results are provided in **Appendix A-4**.

2.2.4 June 2017 Sampling Event

A quarterly groundwater sampling event was conducted on June 13 and 14, 2017. A total of 19 locations were sampled and analyzed as follows. The analytical results are provided in **Appendix A-5**. **Table 4D** summarizes the contaminants of concern (COCs) detected in well samples during the June 2017 sampling event and compares them to groundwater remediation goals (RGs) (**Table 1**).

- Three ROS area extraction wells (RW-8, RW-9, and RW-10) were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), low pentachlorophenol (PCP) detection limit and Dieldrin.
- Three ROS area monitoring wells (CW-32, CW-33, and CW-34) were analyzed for Dieldrin only.
- Eight downgradient monitoring wells (CW-12D, CW-13D, CW-22S & 22D, MW-1, MW-2, HAV-04, and HAV-05) were analyzed for VOCs and SVOCs. Monitoring well CW-22S was also analyzed for Dieldrin.
- Wells CW-1S, CW-27D, RW-5, RW-7, and NW1-81 were analyzed for Dieldrin only.

2.3 WATER-LEVEL MEASUREMENTS

Water-level measurements were collected from 70 wells and a collection trench sump on March 6, 2017. Elevation measurements were obtained during a day of no precipitation, and at least 48 hours after the conclusion of any precipitation event. Static water levels were measured in all available wells using an electronic water-level indicator and were recorded to the nearest 0.01 foot. The static water levels in the flowing artesian monitoring wells were obtained by extending the casing stick-up of the wells and measuring the height of the water above the reference point elevation. Groundwater level data are provided in **Table 3**.

Figure 3 shows groundwater contours for the shallow zone/overburden while the system was operational. **Figure 4** displays groundwater contours for the deep zone/bedrock while the system was operational.

3.0 DATA EVALUATION

3.1 GROUNDWATER LEVELS

Table 3 presents water-level data. **Figures 3** and **4** indicate a measurable drawdown near the RW wells and CTR. Pumping at recovery well RW-5 screened at 36 to 46 ft bgs continued to draw down water levels in surrounding deep wells CW-24, CW-26 and CW-16 S/I/D, and to impact the water level in downgradient wells CW 27D, and CW-4S/I/D. Pumping at RW-7 (screened from 90 to 120 ft bgs) draws down the water tables in surrounding wells CW-28, NW-1, CW-4S/I/D, and CW-17D, and impacts water levels in downgradient wells CW-3S/I/D, CW-5S/I/D, CW-18D, and CW-19D.

The pumping systems at the CTR (8 to 18 ft bgs) and RW-6 (screened from 25 to 35 ft bgs) continued to draw down water levels in nearby monitoring wells MW-1, MW-2, CW-9S/D, and downgradient wells HAV-07 and CW-21S/D. These two pumping systems also influenced water levels in upgradient wells HAV-04, HAV-05, and MW-3. The ROS Area recovery wells RW-8, RW-9, and RW-10 (all three screened from 7 to 18 ft bgs) drew down water levels in upgradient wells CW-32, CW-33, and CW-34.

3.2 GROUNDWATER CONTAMINANT CONCENTRATIONS AND TRENDS

The shallow aquifer source area encompasses groundwater contamination associated with wells CW-2S, R-2, CW-4S, CW-5S, HAV-02 (now B-1), and HAV-04 (Tetra Tech, 1991). The OU-3 ROD (EPA, 2008) further defined the deep aquifer source area as encompassing wells CW-17D, CW-25D (now RW-5) CW-2I, CW-2D, and CW-31D (now RW-7) by establishing the plume of deep free-product oil containing PCP. This area is considered to represent principal threat waste since it is a continuous source of groundwater contamination. The OU-3 ROD also considered well CW-16S to be representative of the shallow aquifer source area.

The complete sets of analytical data generated during the reporting period are included in **Appendix A**. **Tables 4A** through **4D** summarize the contaminants of concern (COCs) detected in well sampled during the 2016-2017 reporting period and compares them to groundwater remediation goals (RGs) (**Table 1**). **Figures 5** and **6** present the PCP concentrations detected during 2016 annual sampling event as iso-concentration contour maps for shallow overburden and deep bedrock wells, respectively.

Historical trends were evaluated by comparing current PCP concentrations with those detected during previous sampling events. The historical PCP and dioxin concentrations are presented in **Table 5** from September 2010 to June 2017. **Appendix B** graphically represent the historical trends of PCP concentrations during the period February 2008 through June 2017 in the source area wells (recovery wells, injection wells and surrounding wells); recovery trench area wells; plume perimeter wells; and ROS Area recovery wells and surrounding wells.

3.2.1 Recovery Well and Collection Trench PCP Concentrations and Trends

Generally, PCP concentrations in the recovery wells (RW) continued to decline as follows:

Well	March 2013	April 2014	April 2015	March 2016	March 2017
RW-5	5,200 µg/L	2,860 µg/L	3,820 µg/L	3,500 µg/L	650 µg/L
RW-6	700 µg/L	306 µg/L	498 µg/L	418 µg/L	110 µg/L
RW-7	3,200 µg/L	2,580 µg/L	2,110 µg/L	3,050 µg/L	320 µg/L

µg/L = Micrograms per liter

Operation of the three other ROS recovery wells (RW-8, RW-9, and RW-10) continued to contain the shallow plume in this area. Based on the 2016-2017 data, PCP concentrations of RW-8, RW-9 and RW-10 have continued to be non-detect (ND) or below the groundwater RG of 1 µg/L since December 2012.

For CTR samples, PCP concentrations varied from 500 µg/L (March 2013) to 415 µg/L (April 2014) to 255 µg/L (April 2015) to 430 µg/L (March 2016) to 43 µg/L (March 2017). More detailed information may be found in **Table 5**.

3.2.2 Monitoring Well PCP Concentrations and Trends

Operation of deep recovery well RW-5 continued to decrease PCP concentrations in the source area deep groundwater (see **Figures 7** and **8**). During the period of 2013 to 2017, PCP concentrations decreased in deep wells near RW-5. Specifically:

Well	March 2013	April 2014	April 2015	March 2016	March 2017
CW-24D	4,000 µg/L	2,230 µg/L	1,920 µg/L	1,180 µg/L	620 µg/L

PCP concentrations in other adjacent wells near RW-5 fluctuated as follows:

Well	March 2013	April 2014	April 2015	March 2016	March 2017
CW-16D	33 µg/L	29.55 µg/L	3.7 µg/L	7.3 µg/L	ND
CW-26D	1,300 µg/L	3,560 µg/L	4.1 µg/L	3.6 µg/L	ND
CW-27D	4,600 µg/L	1,810 µg/L	1,950 µg/L	1,310 µg/L	490 µg/L
CW-28D	1,800 µg/L	6,830 µg/L	3,230 µg/L	219 µg/L	490 µg/L

Operation of deep extraction well RW-7 continued to affect PCP concentrations in deep wells near RW-7 (**Figures 7, 8, 9,** and **10**). During the period of 2013 to 2017, PCP concentrations in adjacent wells near RW-7 fluctuated as follows:

Well	March 2013	April 2014	April 2015	March 2016	March 2017
CW-3D	140 µg/L	552 µg/L	209 µg/L	215 µg/L	59 µg/L
CW-4D	1,700 µg/L	1,180 µg/L	1,260 µg/L	2,030 µg/L	320 µg/L
CW-5D	16 µg/L	ND	6 µg/L	ND	ND
CW-17D	1,800 µg/L	3,780 µg/L	1,300 µg/L	2,800 µg/L	410 µg/L
CW-18D	ND	52.6 µg/L	59.8 µg/L	ND	ND
CW-19D	1,300 µg/L	1,030 µg/L	554 µg/L	1,040 µg/L	390 µg/L
CW-27D	4,600 µg/L	1,810 µg/L	1,950 µg/L	1,450 µg/L	490 µg/L
CW-28D	1,800 µg/L	6,830 µg/L	3,230 µg/L	219 µg/L	490 µg/L

Due to YMCA building construction, wells HAV-02, CW-6D, CW-6I, and CW-6S were abandoned in mid-2012 and are no longer part of the groundwater monitoring program.

Operation of deep extraction well RW-6 and CTR continued to decrease in PCP concentrations in groundwater around the CTR area and downgradient wells (see **Figure 9**). Specifically:

Well	March 2013	April 2014	April 2015	March 2016	March 2017
MW-3	920 µg/L	1,040 µg/L	599 µg/L	773 µg/L	49 µg/L
CW-21S	1,300 µg/L	833 µg/L	892 µg/L	523 µg/L	450 µg/L
CW-21D	1,300 µg/L	830 µg/L	1,030 µg/L	827 µg/L	530 µg/L
MW-1	2.4 µg/L	ND	ND	ND	ND
MW-2	ND	4.3 µg/L	2.8 µg/L	3 µg/L	ND

PCP concentrations for wells HAV-04 and HAV-05 were as follows:

Well	March 2013	April 2014	April 2015	March 2016	March 2017	June 2017
HAV-04	2,900 µg/L	3,290 µg/L	4,180 µg/L	5,910 µg/L	1,300 µg/L	1,700 µg/L
HAV-05	3,600 µg/L	2,020 µg/L	3,490 µg/L	502 µg/L	190 µg/L	94 µg/L

HAV-4 and HAV-5 were also sampled in June 2017, and PCP concentration were 1,700 µg/L and 94 µg/L respectively. From downgradient of HAV-4 and HAV-5 wells and upgradient of ROS Area, PCP in four deep wells (CW-9D, CW-11D, CW-12D and CW-13D) located southeast of the main groundwater

contaminant plume has been non-detect since March 2015 sampling. PCP in another deep well CW-10D, just north of CW-13D, was non-detect in 2014 and 2015 sampling, 6.2 µg/L in March 2016, and non-detect in March 2017 sampling. The PCP concentrations reported for these wells since 2011 are as follows:

Well	Sept 2011	Sept 2012	April 2014	April 2015	March 2016	March 2017
CW-9D	0.51 µg/L	0.31 µg/L	ND	ND	ND	ND
CW-10D	180 µg/L	6.7 µg/L	ND	ND	6.2 µg/L	ND
CW-11D	ND	1.2 µg/L	ND	ND	ND	ND
CW-12D	0.19 µg/L	0.86 µg/L	4 µg/L	ND	ND	ND
CW-13D	ND	63 µg/L	115 µg/L	ND	ND	ND

Figure 10 presents the historical trends of PCP concentrations detected in the downgradient plume perimeter wells.

In the 2015-16 Annual Groundwater Monitoring Report, a recommendation was to consider sampling of CW-9S and CW-10S to further evaluate shallow groundwater PCP concentrations in the vicinity of HAV-04. In March 2017, CW-9S & 10S were sampled and were non-detect for PCP. Since 2003, both CW-9S and CW-10S had been non-detect for PCP.

3.2.3 In-Situ Flushing System PCP Concentrations and Trends

Operation of the in-situ flushing system continued to influence PCP concentrations in injection wells and deep wells near the injection system. IW-4 and IW-5 were both operational during the monitoring period from March 2013 to July 2017. IW-1, IW-2, and IW-3 were non-operational since June 2013. **Figure 11** presents historical trends of PCP concentrations in the injection wells.

For injection wells IW-4 and IW-5, PCP concentrations were as follows:

Well	2013	April 2014	April 2015	March 2016	March 2017
IW-4	58 µg/L	11 µg/L	97.1 µg/L	47.8 µg/L	50 µg/L
iW-5	2 µg/L	33.2 µg/L	37.5 µg/L	172 µg/L	3 J µg/L

In last 5 years, PCP concentrations for non-operational wells IW-1, IW-2, and IW-3 were variable: Specifically:

Well	March 2013	April 2014	April 2015	March 2016	March 2017
IW-1	ND	358 µg/L	981 µg/L	1,060 µg/L	360 µg/L
IW-2	4,800 µg/L	4,750 µg/L	4,750 µg/L	11 µg/L	2,600 µg/L

Well	March 2012	June 2012	April 2014
IW-3	1,700 µg/L	3,100 µg/L	980 µg/L

Between 2011 and 2017, PCP concentrations for three deep wells were reported as follows:

Well	March 2011	April 2014	April 2015	March 2016	March 2017
CW-26D	88+ µg/L	3,560 µg/L	4.1 µg/L	3.7 µg/L	ND
CW-27D	1,500+ µg/L	4,600 µg/L	1,950 µg/L	1,450 µg/L	490 µg/L
CW-28D	3,000+ µg/L	6,830 µg/L	3,230 µg/L	219 µg/L	490 µg/L

These wells received the majority of injection flow during the period. To compensate for this, the injection pumping system was turned off prior to groundwater sampling events.

3.2.4 Other Groundwater Contaminants

Table 4 provides a summary of the groundwater concentrations detected during the 2017 annual sampling event. Trends for several other contaminants are discussed below.

Trichloroethene (TCE) and Vinyl Chloride: During the reporting period, TCE was detected above the groundwater RG of 5 µg/L in wells CW-1S, CW-1D, CW-13D and RW-5 at concentrations of 230 µg/L, 14 µg/L, 6.2 µg/L and 8.7 µg/L, respectively.

TCE concentrations contained in well cluster CW-1 (upgradient of the site) were as follows:

Well	2013	2014	2015	March 2016	March 2017
Shallow well CW-1S	430 µg/L	160 µg/L	ND	401 µg/L	230 µg/L
Deep well CW-1D	5.8 µg/L	1.7 µg/L	3.6 µg/L	4.4 µg/L	14 µg/L

TCE was also contained in downgradient wells CW-10D, and HAV-04 and source area recovery wells RW-5 and RW-7 as reported below:

Well	2012	2014	2015	March 2016	March 2017
CW-10D	1.5 µg/L	5.8 µg/L	2.9 µg/L	2 µg/L	1.5 µg/L

Well	2013	2014	2015	March 2016	March 2017
HAV-04	6.1 µg/L	3.9 µg/L	7.2 µg/L	2.9 µg/L	Dry
RW-5	6.9 µg/L	10.5 µg/L	7.6 µg/L	9.5 µg/L	8.7 µg/L
RW-7	6.2 µg/L	4.5 µg/L	3.8 µg/L	2.2 µg/L	2.2 µg/L

Vinyl chloride was also detected above the groundwater RG of 5 µg/L in wells CW-1D and CW-1S at concentrations of 23 µg/L and 25 µg/L, respectively.

Benzene: Benzene was detected in wells CW-4D, CW-4I, CW-16S, CW-16D, CW-17D, CW-24D, CW-27D, and RW-5 at concentrations exceeding its RG of 5 µg/L. Benzene concentrations ranged from 6.9 µg/L contained in well CW-16S to 55 µg/L in well CW-16D.

2-Methylnaphthalene was detected above the groundwater RG of 2 µg/L in wells CW-2D, CW-16D, CW-24D, HAV-04, and RW-5 at concentrations of 25 µg/L, 5 µg/L, 38 µg/L, 520 µg/L and 3 µg/L, respectively.

Benzo(a)pyrene was detected above the groundwater RG of 0.2 µg/L in wells CW-16D and HAV-04 at concentrations of 0.8 µg/L and 1 µg/L, respectively.

Dibenzofuran was detected above the groundwater RG of 4 µg/L in wells CW-24D, RW-5 and HAV-04 at concentrations of 5 µg/L, 5 µg/L and 25 µg/L, respectively.

Naphthalene: Naphthalene was detected above the groundwater RG of 3 µg/L in 8 wells. Concentrations were ranging from 4 µg/L for well RW-7 to 310 µg/L for well HAV-04. These wells are part of the same source area and plume as associated with PCP concentrations.

In general, naphthalene concentrations continued to decline in most wells as follows:

Well	2013	2014	2015	March 2016	March 2017
RW-3	630 µg/L	627 µg/L	1.7 µg/L	168 µg/L	1 µg/L
RW-5	710 µg/L	175 µg/L	60.7 µg/L	62 µg/L	27 µg/L
RW-7	255 µg/L	147 µg/L	78.6 µg/L	89.4 µg/L	4 µg/L
CW-2D	6.9 µg/L	53 µg/L	ND	76.9 µg/L	48 µg/L
CW-4I	35 µg/L	2.7 µg/L	1.5 µg/L	9.7 µg/L	ND
CW-4D	150 µg/L	31.1 µg/L	3.4 µg/L	6.9 µg/L	ND
CW-4S	ND	ND	4.2 µg/L	ND	ND
CW-16S	500 µg/L	9.9 µg/L	ND	ND	ND µg/L
CW-17D	24 µg/L	99.9 µg/L	ND	0.39 µg/L	0.2 J µg/L

Well	2013	2014	2015	March 2016	March 2017
CW-24D	1,400 µg/L	415 µg/L	193 µg/L	546 µg/L	180 µg/L
CW-27D	720 µg/L	4.2 µg/L	ND	2.5 µg/L	1 µg/L
HAV-05	52 µg/L	123 µg/L	310 µg/L	3.4 µg/L	0.3 J µg/L

However, more recent naphthalene concentrations increased in the following wells. Specifically:

Well	2013	2014	2015	March 2016	March 2017
CW-26D	110 µg/L	5.9 µg/L	ND	0.6 µg/L	23 µg/L
CW-28D	180 µg/L	698 µg/L	127 µg/L	5.3 µg/L	21 µg/L
HAV-04	39 µg/L	ND	12.4 µg/L	216 µg/L	310 µg/L

Phenanthrene was detected above the groundwater RG of 41 µg/L in well HAV-04 at concentrations of 250 µg/L.

Dioxins/Furans: Total 2,3,7,8-TCDD, reported as Dioxin Toxicity Equivalent Quotient (TEQ), was detected in wells HAV-05 and NW-1 at concentrations exceeding its RG of 30 pg/L. Specifically:

Well	2013	2014	2015	March 2016	March 2017
NW-1	105 pg/L	25 pg/L	35 pg/L	101 pg/L	64.7 pg/L
HAV-05					154 pg/L

3.2.5 ROS Area Wells

Table 6 provides a comparison of groundwater remediation goals to sampling results of ROS wells during the 2012 to 2017 sampling events. Trends for COCs (PCP, TAL metals, and dieldrin) in regards to the ROS Area Shutdown Memo and subsequent EPA comments are as follows:

In March 2017, all six ROS area wells were tested for low PCP reporting detection limits (as herbicide). Based on these results, PCP at all six ROS wells was non-detect (or below RDL). Note that PCP at CW-34 was reported as 0.088 µg/L (J).

Four upgradient wells (MW-1S, MW-1I, MW-2S, and MW-2I) were analyzed for TAL metals. Three metals of concern (Aluminum, Iron and Manganese) at six ROS area wells were compared with the four upgradient wells (as background data) as per the memo. The comparison showed that these metals concentrations in the ROS area wells were comparable with the background wells thus can be attributed to natural occurrence. Note that all metals analyzed at six ROS area wells were below their respective remediation goal standards.

All six ROS area wells were tested for dieldrin (as pesticide) beginning with December 2016 sampling event. Based on these results, dieldrin was detected in all six ROS area wells at concentrations exceeding its remediation goal of 0.038 µg/L.

Well	December 2016	March 2017	June 2017
RW-8	0.24 µg/L	0.42 µg/L	0.29 µg/L
RW-9	0.14 µg/L	0.27 µg/L	0.24 µg/L
RW-10	0.18 µg/L	0.30 µg/L	0.29 µg/L
CW-32	0.54 µg/L	0.74 µg/L	0.66 µg/L
CW-33	0.45 µg/L	0.66 µg/L	0.47 µg/L
CW-34	0.30 µg/L	0.32 µg/L	0.25 µg/L

In June 2017, six upgradient wells (CW-1S, CW-22S, CW-27D, NW-1-81, RW-5, and RW-7) were analyzed for dieldrin. Only well CW-22S exceeded the remediation goal of 0.038 µg/L with a value of 0.17 µg/L.

3.2.6 Conceptual Site Model (CSM)

Per the EPAs request, the Conceptual Site Model (CSM) for the site was updated to include the data from the March 2017 sampling event. The purpose of this updated CSM is to depict current site conditions and compare them with historical conditions. The current CSM is based on the original CSM generated in 2006 and modified in 2014, and updated in 2017.

This updated CSM was generated using ArcGIS technology along with the most recent available aerial photograph as a background. It should be noted that site conditions have changed since this aerial was taken in 2010, and the former Gum Factory has been replaced with a new YMCA. Aerial photographs depicting the new YMCA were not available at the time this CSM update was performed.

New data was added to the map using the ESRI shapefile format for the groundwater levels, PCP concentration levels, and contours. The overhead view of the CSM is shown on **Figure 12**.

The three cross-section alignments generated during the 2014 update were updated with the March 2017 data as well. The alignment locations are shown on **Figure 12**. These cross-sections were generated in AutoCAD to depict the subsurface conditions at key locations and include the following:

- Parallel to the flow direction (cross-section A-A', **Figure 13**);
- Parallel to Eagle Road and perpendicular to the primary flow direction (cross-section B-B', **Figure 14**);
- Perpendicular to primary flow direction in the vicinity of historic groundwater discharge to the stream (cross-section C-C', **Figure 15**).

The electronic files of the surface map and the subsurface cross-sections constitutes the site CSM. Using this electronic resource, a variety of figures depicting different aspects of the CSM can be generated based on the requirements of the user.

Review of the data indicates that the primary contaminant demonstrating the extent of contamination is PCP. While other contaminants, such as naphthalene, are present at levels of concern, they do not have the overall lateral extent nor the consistently high concentrations of PCP. Therefore for mapping and visual interpretation purposes, PCP is the most appropriate/conservative site chemical to depict the extent of contamination.

Historical CSM interpretation of the site is that that there are two distinct zones of contamination, a shallow zone and a deep zone. While it is possible to separate out the contamination into these zones, comparison of the two indicates that with the exception of the occasional hot spots, plume morphology between depths is very similar. This is a result of the local geology which includes overburden, weathered rock which transition to bedrock in a heterogeneous manner across the site. However, with this in mind for the purposes of the CSM, the deep plume (which is the larger of the two plumes) was utilized to depict the overall extent of the contamination. This is considered the most conservative approach to depicting the current conditions of the CSM.

Review of pump test and boring log data at RW-5, RW-6, and RW-7 indicated a zone of vertical fracturing near the area shown on **Figure 12**. At this time, the fracture zone has not been fully delineated, and the approximate alignment shown on the map is the area estimated to have an impact on the wells currently included in the O&M monitoring. Based on the alignment of Naylor's Run, the rocks observed in the creek, and the approximate alignment of the fractures on the historic Naylor's Run stream channel, it is probable that the fracture zone extends further north and south away from the approximate alignment shown on the map.

A review of the updated CSM indicates that the vast majority of the plume is currently being captured by the existing remediation system. While 100% capture may not always occur due to abnormal conditions (such as an excessively rainy season, or technical issues) the remediation system has reduced the overall size of the plume from the 2005 extent and appears to contain it. However, since the 2016 CSM update, there does not appear to have been a significant change in plume volume, though there has been a change in morphology, as seen by the extent of the 2017 plume when compared to the 2016 plume. Unlike in 2016, at the time sampling was performed, the plume appears to be almost entirely within the capture zone. The cause for the 2016 extent beyond the capture zone is still unknown.

Vertically, the extent of the plume is based on the groundwater model and analytical data, and the capture zone analysis indicates that groundwater capture extends below the bottom of the recovery wells. Cross-sections showing the estimated extent of vertical contamination are shown in **Figures 13, 14, and 15**. Overall, there has been little changed in the vertical profile of the plume when comparing the 2016 and 2017 plumes.

Review of the cross-sections B-B' and C-C' indicate that while the contamination is migrating primarily in a northwest to southeast orientation, there is some migration away from the inferred source areas perpendicular to the primary regional flow direction. The CZA indicates that most of this migration is captured by the treatment system. It should also be noted that unlike previous year's plumes, there appears to be influence on the plume morphology being caused by the pumping and re-injection of treated water into the aquifer. In particular, the plume is "pinched" near Eagle Road, with the plume wider to the

northwest under the Source Area, and then again southeast underneath the YMCA. Continuation of this trend could indicate the start of hydraulic isolation between the source area and the downgradient plume.

3.3 DISCUSSION

Based upon a review of the groundwater data generated through June 2017, there has been contaminant reduction in both shallow and deep zones in general. Contaminant concentrations in some wells fluctuated over the past three years and did not indicate a decreasing trend over time. **Appendix B** presents historical PCP concentrations in wells from February 2008 to June 2017.

No major contaminants have been detected in the shallow zone boundary wells (CW-3S, CW-9S, CW-12S, and R-4) since 2002; PCP concentrations in CW-3S, CW-7S, CW-7D, CW-8S, CW-8D, CW-9D, CW-11D, CW-12S, CW-13S, CW-15S, CW-20D, CW-22S, CW-22D, CW-23D, HAV-07, NW-01, and MW-1 continued to be non-detect. Free product was observed at well R-2; however, the floating product depth continued to be non-existent at those wells formerly containing product.

Operation of the three other ROS Area recovery wells (RW-8, RW-9, and RW-10) continued to contain the shallow plume in this area. Based on the 2012-2017 data, PCP concentrations for RW-8, RW-9, and RW-10 and monitoring wells (CW-32, CW-33, and CW-34) continued to be non-detect. In March 2017, these three wells along with ROS area monitoring wells (CW-32, CW-33, and CW-34) were analyzed for SVOC using a reporting limit of 1 µg/L or lower based on EPA and DEP's mutual agreement.

Three metals of concern (Aluminum, Iron and Manganese) at six ROS area wells were compared with four upgradient wells (MW-1S, MW-1I, MW-2S, and MW-2I). The comparison showed that the metals concentrations in the ROS area wells were comparable with the background wells, thus the metals can be attributed to natural occurrence.

All six ROS area wells were tested for dieldrin (as pesticide) in December 2016, March 2017 and June 2017. Based on the results, dieldrin was detected in all six ROS area wells at concentrations exceeding its remediation goal of 0.038 µg/L.

PCP concentrations in HAV-4 and HAV-5 have reduced significantly although it is still >1 mg/L in HAV-4. PCP concentration in downgradient wells (CW-12D and CW 13D) located southeast of the main groundwater contaminant plume has been non-detect in April 2015, March 2016, and March 2017 sampling. PCP in another deep well CW-10D, just north of CW-13D, was non-detect in 2014 and 2015 sampling, 6.2 µg/L in March 2016, and non-detect in March 2017.

Based on the PCP data, it appears there is no connection between HAV-04 and CW-9S and CW-10S.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

The following conclusions have been made based on the analytical and hydrogeologic data collected over the monitoring period:

- Overall, there has been contaminant reduction in both shallow and deep groundwater zones since operation of the treatment plant began.
- The overall areal extent of the PCP plume based on 2017 data is smaller compared to 2016 based on PCP groundwater concentrations. Also, the magnitude of the plume is slightly lower.
- In general, historical trends of PCP concentrations in groundwater indicate a very gradual and uneven decrease in PCP concentrations.
- PCP concentrations for ROS Area recovery wells RW-8, RW-9, and RW-10 and ROS area monitoring wells CW-32, CW-33, and CW-34 continued to be non-detect. Based on a recent EPA and DEP's mutual agreement, starting March 2016, RW-8 thru RW-10 will be sampled for SVOC for eight quarters using a reporting limit of 1 µg/L or lower.
- PCP concentrations in HAV-4 and HAV-5 have reduced significantly in last 4 years although it is still >1 mg/L in HAV-4. And it appears that downgradient wells CW-9S and CW-10S do not have any interconnection with these wells.

4.2 RECOMMENDATIONS

The following recommendations are made with respect to the groundwater monitoring results:

- Continue evaluating analytical and hydrogeologic data to determine the long-term effects of the extraction system on reducing the extent of the contaminant plume and the removal of contaminants.
- Continue monitoring the ROS Area recovery wells and nearby monitoring wells as per recent EPA and DEP agreement.
- Continue sampling HAV-4 and HAV-5 on a quarterly basis.

5.0 REFERENCES

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TABLES

TABLE 1
REMEDIATION GOALS FOR GROUNDWATER
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

CHEMICAL	GOAL	UNIT	OU [1] [2]
Benzene	5 (MCL)	µg/L	2
Benzo(a)pyrene	0.2 (MCL)	µg/L	Both
Dieldrin	0.038 (Risk-Based)	µg/L	3
Bis(2-ethylhexyl)phthalate	6 (MCL)	µg/L	Both
Dibenzofuran	4 (Risk-Based)	µg/L	3
Ethylbenzene	700 (MCL)	µg/L	2
2-Methylnaphthalene	2 (Risk-Based)	µg/L	3
Naphthalene	3 (Risk-Based)	µg/L	3
Pentachlorophenol (PCP)	1 (MCL)	µg/L	Both
Phenanthrene	41 (Risk-Based)	µg/L	Both
Toluene	1,000 (MCL)	µg/L	2
Total 2,3,7,8-TCDD	0.00003 (MCL)	µg/L	Both
TCE	5 (MCL)	µg/L	2
1,2-Trichloroethylene	100 (MCLG)	µg/L	2
1,2,4-Trimethylbenzene	16 (Risk-Based)	µg/L	3
1,3,5-Trimethylbenzene	16 (Risk-Based)	µg/L	3
4,6-Dinitro-2-methylphenol	1.7 (Risk-Based)	µg/L	3
Vinyl chloride	5 (MCL)	µg/L	2
Xylene	10,000 (MCL)	µg/L	2
Aluminum	50-200 (SMCL)	µg/L	3
Arsenic	50 (MCL) (OU-2); 10 (MCL) (OU-3)	µg/L	Both
Chromium	100 (MCL)	µg/L	3
Barium	2,000 (MCL)	µg/L	3
Manganese	50 (SMCL)	µg/L	Both
Iron	300 (SMCL)	µg/L	3
Vanadium	3.1 (Risk-Based)	µg/L	3

References:

[1] Table 23 in OU-2 ROD, dated September 1991.
[2] Table 15 in OU-3 ROD, dated April 2008.

TABLE 2
WELL CONSTRUCTION DETAILS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Well-ID	Well diameter	Top of Casing Elevation	Well depth below top of casing	Screen interval below TOC	Location	Installed	Comments
			ft.	top bot.			
CW-1D	2"	312.70	57.60	52.60 - 57.60	[redacted]	February 1988	Sample annually (March)
CW-1I	2"	312.27	34.10	24.10 - 34.10	[redacted]	February 1988	Deleted from sampling program March 2010
CW-1S	2"	312.17	21.30	11.30 - 21.30	[redacted]	February 1988	Sample annually (March)
CW-2D	2"	316.51	65.20	57.20 - 65.20	GWTP Property, NE corner of cap	February 1988	Sample annually (March)
CW-2I	2"	316.45	41.20	31.20 - 41.20	GWTP Property, NE corner of cap	February 1988	Sample annually (March)
CW-2S	2"	316.38	26.20	16.20 - 26.20	GWTP Property, NE corner of cap	February 1988	Deleted from sampling program March 2010
CW-3D	2"	303.67	45.05	35.05 - 45.05	[redacted]	February 1988	Sample annually (March)
CW-3I	2"	303.66	19.10	14.10 - 19.10	[redacted]	February 1988	Deleted from sampling program March 2010
CW-3S	2"	303.80	15.60	5.60 - 15.60	[redacted]	February 1988	2016 SAP - Sample biennial (March)
CW-4D	2"	304.29	49.25	39.25 - 49.25	[redacted]	February 1988	Sample annually (March)
CW-4I	2"	304.41	34.30	24.30 - 34.30	[redacted]	February 1988	Sample annually (March)
CW-4S	2"	304.53	23.02	8.02 - 23.02	[redacted]	February 1988	Sample annually (March)
CW-5D	2"	301.63	45.30	35.30 - 45.30	[redacted]	February 1988	Sample annually (March)
CW-5I	2"	301.80	30.65	20.65 - 30.65	[redacted]	February 1988	Deleted from sampling program March 2010
CW-5S	2"	302.16	16.93	8.00 - 18.00	[redacted]	February 1988	Sample annually (March)
CW-6D	2"	299.97	46.75	38.50 - 48.50	PCG parking lot, NE building corner	February 1988	Abandoned 2012 by YMCA
CW-6I	2"	299.83	33.90	26.90 - 33.90	PCG parking lot, NE building corner	February 1988	Abandoned 2012 by YMCA
CW-6S	2"	299.60	22.40	8.50 - 24.50	PCG parking lot, NE building corner	February 1988	Abandoned 2012 by YMCA
CW-7D	4"	302.90	49.60	40.00 - 50.00	[redacted]	1991	2016 SAP - Sample every 5 years (Mar 2020)
CW-7S	4"	301.74	29.40	20.00 - 30.00	[redacted]	1991	2016 SAP - Sample every 5 years (Mar 2020)
CW-8D	4"	298.26	53.50	33.50 - 53.50	End of Ralston Ave.	1991	2016 SAP - Sample every 5 years (Mar 2020)
CW-8S	4"	299.11	30.00	20.00 - 30.00	End of Ralston Ave.	1991	2016 SAP - Sample every 5 years (Mar 2020)
CW-9D	4"	293.92	63.14	53.14 - 63.14	Rittenhouse Circle [redacted]	September 2002	2016 SAP - Sample biennial (March 2019)
CW-9S	2"	293.79	35.60	25.60 - 35.60	Rittenhouse Circle [redacted]	September 2002	Sample only if there is an exceedance in CW-9D
CW-10D	4"	279.90	54.28	39.28 - 54.28	Rittenhouse Circle [redacted]	September 2002	Sample annually (March)
CW-10S	2"	280.10	24.30	9.30 - 24.30	Rittenhouse Circle [redacted]	September 2002	Sample only if there is an exceedance in CW-10D
CW-11D	2"	276.92	71.03	56.03 - 71.03	Rittenhouse Circle [redacted]	September 2002	2016 SAP - Sample biennial (March 2019)
CW-11S	2"	276.92	39.70	29.70 - 39.70	Rittenhouse Circle [redacted]	September 2002	Sample only if there is an exceedance in CW-11D
CW-12D	4"	269.70	49.53	39.53 - 49.53	Rittenhouse Circle [redacted]	September 2002	Sample Quarterly (Mar/Jun/Sep/Dec)
CW-12S	4"	269.67	34.80	24.80 - 34.80	Rittenhouse Circle [redacted]	September 2002	Sample only if there is an exceedance in CW-12D
CW-13D	2"	292.12	75.25	60.25 - 75.25	Lawrence Road [redacted]	September 2002	Sample Quarterly (Mar/Jun/Sep/Dec)
CW-13S	4"	292.01	45.14	33.14 - 45.14	Lawrence Road [redacted]	September 2002	Sample only if there is an exceedance in CW-13D
CW-14D	2"	320.74	82.21	67.21 - 82.21	Lawrence Road Park behind rowhomes	September 2002	Deleted from sampling program March 2010
CW-14S	2"	320.43	40.55	25.55 - 40.55	Lawrence Road Park behind rowhomes	September 2002	Deleted from sampling program March 2010
CW-15S	2"	249.26	33.92	23.92 - 33.92	Bailey Park NW end of basketball courts	September 2002	Deleted from sampling program March 2010
CW-16D	2"	314 2	90.00	75 0 - 90.0	[redacted]	August 2004	Sample annually (March)
CW-16I	2"	314 3	68.00	53 0 - 68.0	[redacted]	August 2004	Deleted from sampling program March 2010
CW-16S	6"	314 0	55.00	38 0 - 55.0	[redacted]	March 2005	Sample annually (March)
CW-17D	2"	308 6	78.00	62 0 - 77.0	SW corner PCG near RW-3	August 2004	Sample annually (March)
CW-18D	2"	302 2	68.00	58 0 - 68.0	SE corner PCG near CW-5S	August 2004	Sample annually (March)
CW-19D	2"	299.1	101 00	68 0 - 78.0	rear PCG parking lot near CW-6D	August 2004	Source Area - Sample annually (March)
CW-20D	2"	310 2	66.00	50 0 - 65.0	Lawrence Road [redacted]	August 2004	Sample annually (March)
CW-20S	2"	310.1	35.00	15 0 - 35.0	Lawrence Road [redacted]	August 2004	Sample annually (March)
CW-21D	2"	281 3	65.00	55 0 - 65.0	[redacted] rear yard	April 2005	Sample annually (March)
CW-21S	2"	281 3	40.00	30 0 - 40.0	[redacted] rear yard	April 2005	Sample annually (March)
CW-22D	2"	295 9	55.00	48 0 - 58.0	rear PCG R.O.W.	March 2005	Sample Quarterly (Mar/Jun/Sep/Dec)
CW-22S	2"	297 0	28.30	18 0 - 28.0	rear PCG R.O.W.	January 2005	Sample Quarterly (Mar/Jun/Sep/Dec)
CW-23D	2"	314 3	50.00	35 0 - 50.0	[redacted] near R-4	March 2005	2016 SAP - Sample every 5 years (Mar 2020)
CW-24D	6"	315 0	50.00	35 0 - 50.0	[redacted]	March 2005	Source Area - Sample annually (March)
CW-25D	6"	313 3	46.00	36 0 - 46.0	[redacted]	April 2005	Converted to RW-5 12/21/2005
CW-26D	6"	312.7	45.00	35 0 - 45.0	[redacted] near RW-4	April 2005	Source Area - Sample annually (March)
CW-27D	6"	311 5	45.00	35 0 - 45.0	[redacted] front yard	April 2005	Source Area - Sample annually (March)
CW-28D	6"	310.1	45.00	35 0 - 45.0	[redacted] front yard	April 2005	Source Area - Sample annually (March)
CW-29D	6"	310 8	45.00	30 0 - 45.0	Cap area rear of [redacted]	April 2005	Converted to IW-4 June 2011
CW-30D	6"	311.4	45.00	35 0 - 45.0	Cap area rear of [redacted]	April 2005	Converted to IW-5 September 2011
CW-31D	4"	307.34	120 00	90 0 - 120 0	Loading Dock area of PCG	Former B-2 (converted November 2008)	Converted to RW-7 April 2005

TABLE 2
WELL CONSTRUCTION DETAILS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Well-ID	Well diameter	Top of Casing Elevation	Well depth below top of casing	Screen interval below TOC	Location	Installed	Comments
			ft.	top bot.			
EW-1	6"	303.09	80.00	40.00 - 80.00	PCG behind rear parking lot	December 1995	Abandoned May 2005
EW-2	6"	301.74	75.00	40.00 - 75.00	PCG behind rear parking lot	December 1995	Converted to MW-3 May 2005
EW-3	6"	298.07	82.00	44.00 - 82.00	PCG rear parking lot	December 1995	Abandoned May 2005
CW-32	2"	261.47	23.00	13.00 - 23.00	ROS area	April 2010	ROS area monitoring well - sample semi-annually
CW-33	2"	260.31	16.00	6.00 - 16.00	ROS area	April 2010	ROS area monitoring well - sample semi-annually
CW-34	2"	260.78	26.00	16.00 - 26.00	ROS area	April 2010	ROS area monitoring well - sample semi-annually
HAV-02	2"	305.70	28.30	18.30 - 28.30	PCG property, outside office entrance	July 1981	Abandoned 2012 by YMCA
HAV-04	2"	292.62	6.77	3 00 - 6.77	[redacted] rear yard	July 1981	Per EPA - Sample Quarterly (Mar/Jun/Sep/Dec)
HAV-05	2"	292.56	10.05	6.50 - 11.50	[redacted] rear yard	July 1981	Per EPA - Sample Quarterly (Mar/Jun/Sep/Dec)
HAV-07	2"	281.59	8.82	6 00 - 11.00	[redacted] rear yard	July 1981	2016 SAP - Sample biennial (March 2019)
NW-1-81	4"	306.56	26.00	14.50 - 26.00	Along Eagle Road near GWTP	November 1981	2016 SAP - Sample biennial (March 2019)
NW-6-81	4"	308.19	24.00	14.00 - 24.00	[redacted] off Lawrence Road	November 1981	Sample annually (March)
R-2	4"	311.36	29.00	9.00 - 29.00	[redacted] near RW-2	November 1981	Sample annually (March)
R-4	4"	314.76	33.83	20.33 - 33.83	[redacted] Pizza	November 1981	Deleted from sampling program March 2010
MW-1	2"	283.96	21.65	4.50 - 24.50	Collection Trench	prior to 1999?	Sample Quarterly (Mar/Jun/Sep/Dec)
MW-2	2"	284.29	11.30	1.50 - 11.50	[redacted] rear yard	prior to 1999?	Sample Quarterly (Mar/Jun/Sep/Dec)
MW-3	2"	301.37	63.00	53 0 - 63.0	[redacted] rear parking lot	Former EW-2	Sample annually (March)
RW-1	6"	307.05	28.71	8.00 - 28.04	west side Eagle Road	August 1998	Offline March 2006; Converted to IW-1 June 2010
RW-2	6"	309.60	26.10	6.50 - 26.10	west side Eagle Road, [redacted]	August 1998	Offline December 2005; Converted to IW-2 June 2010
RW-3	6"	306.59	25.75	9.10 - 25.75	east side Eagle Road, [redacted]	August 1998	Sample annually (March)
RW-4	6"	311.22	26.10	6.52 - 26.10	west side Eagle Road, [redacted]	August 1998	Offline August 2005; Converted to IW-3 June 2010
RW-5	6"	~309 80	46.00	36 00 - 46.00	[redacted] exit lane	Former CW-25D (online Feb 2006)	Sample semi-annually (Mar/Sep)
RW-6	6"	283.25	35.00	25.00 - 35.00	downgradient of Collection Trench	2005 (online Apr 2006)	Sample semi-annually (Mar/Sep)
RW-7	4"	306.84	120 00	90.00 - 120 00	In front of [redacted]	Former CW-31D (converted 2010)	Sample semi-annually (Mar/Sep)
RW-8	4"	256.32	17.00	7.00 - 17.00	ROS area	April 2010	Sample Quarterly (Mar/Jun/Sep/Dec)
RW-9	4"	256.78	18.00	8.00 - 18.00	ROS area	April 2010	Sample Quarterly (Mar/Jun/Sep/Dec)
RW-10	4"	257.87	18.00	8.00 - 18.00	ROS area	April 2010	Sample Quarterly (Mar/Jun/Sep/Dec)
IW-1	6"	307.05	28.71	8.00 - 28.04	west side Eagle Road	Former RW-1 (converted June 2010)	Online August 2010 Sample annually (March)
IW-2	6"	309.60	26.10	6.50 - 26.10	west side Eagle Road, [redacted]	Former RW-2 (converted June 2010)	Online August 2010 Sample annually (March)
IW-3	6"	311.22	26.10	6.52 - 26.10	west side Eagle Road, [redacted]	Former RW-4 (converted June 2010)	Online August 2010 Sample annually (March)
IW-4	6"	310 8	45.00	30.00 - 45.00	Cap area rear of [redacted]	Former CW-29D (converted June 2011)	Online July 2011 Sample annually (March)
IW-5	6"	311.4	45.00	35.00 - 45.00	Cap area rear of [redacted]	Former CW-30D (converted September 2011)	Online October 2011 Sample annually (March)
B-1	4"	306.84	120 00	open borehole	In front of [redacted]	October 2008	Observation Well
B-2/CW-31D	4"	307.34	120 00	open borehole	In front of PCG loading dock	October 2008	Converted to CW-31D November 2008
B-3	4"	306.84	120 00	open borehole	In front of [redacted]	October 2008	Observation Well
PZ-1	1"	286.49	8.97	n/a	Collection Trench	1999	Piezometer
PZ-2	1"	291.60	13.70	n/a	Collection Trench	1999	Piezometer
PZ-3	1"	285.26	11.92	n/a	Collection Trench	1999	Piezometer
PZ-4	1"	285.60	11.94	n/a	Collection Trench	1999	Piezometer - not found
TCE MW-1S	2"	308.30	15.00	5.00 - 15.00	SE corner [redacted]	July 2011 TCE Study well - Weston	Site background well
TCE MW-1I	2"	308.13	25.00	15.00 - 25.00	SE corner [redacted]	July 2011 TCE Study well - Weston	Site background well
TCE MW-2S	2"	307.31	16.00	6.00 - 16.00	rear of [redacted]	July 2011 TCE Study well - Weston	Site background well
TCE MW-2I	2"	307.32	30.00	20.00 - 30.00	rear of [redacted]	July 2011 TCE Study well - Weston	Site background well

Table 3
March 2016 Well Groundwater Level Data

	System Status >>		OFF/OFF	OFF/OFF	ON/OFF	ON/OFF	
Well ID	Total Depth	Top of Well Elev	DTW (3/6/17)	GW Elev (3/6/17)	DTW (3/20-24/16)	GW Elev (3/20-24/16)	Draw Down
	ft	msl					ft
CW-1D	57.60	312.70	17.05	295 65	17.15	295.55	0.10
CW-1S	21.30	312.17	16.51	295 66	16 53	295.64	0 02
CW-2D	65.20	316.51	26.15	290 36	29.40	287.11	3 25
CW-2I	41.20	316.45	25.85	290 60	29 07	287.38	3 22
CW-2S	26.20	316.38	25.56	290 82	25 95	290.43	0 39
CW-3D	45.05	303.67	14.45	289 22	18 29	285.38	3 84
CW-3S	15.60	303.80	13.85	289 95	15 57	288.23	1.72
CW-4D	49.25	304.29	16.60	287 69	18 85	285.44	2 25
CW-4I	34.30	304.41	nd	#VALUE!	19 22	285.19	#VALUE!
CW-4S	23.02	304.53	17.25	287 28	19 98	284.55	2.73
CW-5D	45.30	301.63	13.50	288.13	15.12	286.51	1 62
CW-5S	16.93	302.16	13.75	288.41	15 63	286.53	1 88
CW-7D	49.60	302.90	13.85	289 05	13.41	289.49	(0.44)
CW-7S	29.40	301.74	12.85	288 89	12 31	289.43	(0.54)
CW-8D	53.50	298.26	14.15	284.11	13 92	284.34	(0.23)
CW-8S	30.00	299.11	13.90	285 21	12 81	286.30	(1.09)
CW-9D	63.14	293.92	6.30	287 62	9.30	284.62	3 00
CW-9S	35.60	293.79	5.85	287 94	6.67	287.12	0 82
CW-10D	54.28	279.90	5.10	274 80	5.00	274.90	(0.10)
CW-10S	24.30	280.10	5.85	274 25	5.45	274.65	(0.40)
CW-11D	71.03	276.92	6.70	270 22	5.05	271.87	(1.65)
CW-11S	39.70	276.92	8.65	268 27	nd	nd	nd
CW-12D	49.53	269.70	5.75	263 95	5.67	264.03	(0.08)
CW-12S	34.80	269.67	6.00	263 67	5.45	264.22	(0.55)
CW-13D	75.25	292.12	18.90	273 22	19 05	273.07	0.15
CW-13S	45.14	292.01	17.75	274 26	17 55	274.46	(0.20)
CW-14D	82.21	320.74	22.10	298 64	22.10	298.64	0 00
CW-14S	40.55	320.43	19.70	300.73	19 52	300.91	(0.18)
CW-15S	33.92	249.26	2.85	246.41	2.78	246.48	(0.07)
CW-16D	90.00	314.18	25.15	289 03	27 20	286.98	2 05
CW-16S	55.00	313.98	23.15	290 83	27.40	286.58	4 25
CW-17D	78.00	308.55	21.20	287 35	27 69	280.86	6.49
CW-18D	68.00	302.17	14.40	287.77	20.40	281.77	6 00
CW-19D	101.00	299.06	13.45	285 61	20 05	279.01	6 60
CW-20D	66.00	310.17	21.90	288 27	22.70	287.47	0 80
CW-20S	35.00	310.14	21.75	288 39	22 59	287.55	0 84
CW-21D	65.00	281.29	0.30	280 99	1.95	279.34	1 65
CW-21S	40.00	281.29	0.40	280 89	2.15	279.14	1.75
CW-22D	55.00	295.85	20.00	275 85	19 87	275.98	(0.13)
CW-22S	28.30	297.04	17.90	279.14	17.77	279.27	(0.13)
CW-23D	50.00	314.28	22.78	291 50	22 92	291.36	0.14
CW-24D	50.00	314.97	25.89	289 08	29 24	285.73	3 35
CW-26D	45.00	312.66	23.55	289.11	27 59	285.07	4 04
CW-27D	45.00	311.49	22.42	289 07	25 93	285.56	3 51
CW-28D	45.00	310.07	20.85	289 22	24.40	285.67	3 55
CW-32	23.00	261.47	4.10	257 37	3.90	257.57	(0.20)
CW-33	16.00	260.31	4.30	256 01	4.11	256.20	(0.19)
CW-34	26.00	260.78	5.10	255 68	5.16	255.62	0 06
HAV-04	6.77	292.62	5.42	287 20	7.00	285.62	1 58
HAV-05	10.05	292.56	4.55	288 01	6.42	286.14	1 87
HAV-07	8 82	281.59	0.50	281 09	2.10	279.49	1 60
MW-1	21.65	283.96	2.65	281 31	5.69	278.27	3 04
MW-2	11.30	284.29	3.00	281 29	4.50	279.79	1 50
MW-3	63.00	301.74	15.30	286.44	19 07	282.67	3.77
NW-1-81	26.60	306.56	14.21	292 35	16.18	290.38	1 97
NW-6-81	24.00	308.19	15.41	292.78	15.45	292.74	0 04
R-2	28.61	311.36	22.15	289 21	26 52	284.84	4 37
R-4	33.83	314.76	23.27	291.49	22 89	291.87	(0.38)
IW-1	28.04	307.05	16.71	290 34	19 84	287.21	3.13
IW-2	26.10	309.60	20.50	289.10	24.10	285.50	3 60
IW-3	26.10	311.22	22.80	288.42	22 21	289.01	(0.59)
IW-4	45.00	310.83	23.41	287.42	27 05	283.78	3 64
IW-5	45.00	311.41	23.21	288 20	26.75	284.66	3 54
RW-3	25.75	306.59	17.80	288.79	22 89	283.70	5 09
RW-5	42.50	309.80	23.90	285 90	18 20	291.60	(5.70)
RW-6	36.75	283.25	2.00	281 25	nd	#VALUE!	#VALUE!
RW-7	120.00	306.84	nd	#VALUE!	nd	#VALUE!	#VALUE!
B-1	120.00	307.19	17.75	289.44	30 99	276.20	13.24
B-3	120.00	307.03	16.75	290 28	21.41	285.62	4 66
RW-8	17.00	256.32	14.30	242 02	9.10	247.22	(5.20)
RW-9	18.00	256.78	15.00	241.78	8.40	248.38	(6.60)
RW-10	18.00	257.87	13.00	244 87	8.10	249.77	(4.90)
Trench Sump	17.50	285.00	14.10	270 90	9.55	275.45	(4.55)

nd = No Data
Recovery System was OFF from 3/14/16 to 3/21/16
Injection System was OFF from 3/14/16 to 3/30/16
OFF/OFF = Recovery OFF / Injection System OFF
ON/OFF = Recovery system ON / Injection System OFF

TABLE 4A
SUMMARY OF SEPTEMBER 2016 QUARTERLY SAMPLING EVENT ANALYTICAL RESULTS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-RW5		HAV-LTR-DUP01		HAV-LTR-RW6		HAV-LTR-RW7		HAV-LTR-CTR	
Sample Date:	**Goals for**	**9/13/2016**		**9/13/2016**		**9/13/2016**		**9/13/2016**		**9/13/2016**	
Duplicate of:	**Groundwater**			**HAV-LTR-RW5**							
INORGANICS	**mg/L**	**mg/L**		**mg/L**		**mg/L**		**mg/L**		**mg/L**	
Aluminum, Total	200	NA		NA		NA		NA		NA	
Arsenic, Total	10	NA		NA		NA		NA		NA	
Barium, Total	2000	NA		NA		NA		NA		NA	
Iron, Total	300	NA		NA		NA		NA		NA	
Manganese, Total	50	NA		NA		NA		NA		NA	
Vanadium, Total	3.1	NA		NA		NA		NA		NA	
VOLATILES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Benzene	5	**5.1**		5		0.4	J	0.59	J	0 5	J
Ethylbenzene	700	7.3		7.2		1	U	1.6		1	U
Toluene	1000	3		2.9		1	U	0.52	J	1	U
Trichloroethene	5	**11.8**		**11.4**		1	U	1 3		1	U
Vinyl Chloride	5	0.95	J	1	J	1	U	1	U	1	U
SEMIVOLATILES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
2-Methyl-4,6-dinitropheno	1.7	5.8	U	6	U	5.6	U	5.7	U	5 8	U
2-Methylnaphthalene	2	**2.5**		**2.5**		1.4	U	**3.1**		1.4	U
Benzo(a)pyrene	0 2	1.4	U	1.5	U	1.4	U	1.4	U	1.4	U
bis(2-Ethylhexyl)phthalat	6	0.32	J	0.39	J	2.8	U	2 9	U	2 9	U
Dibenzofuran	4	3		3.3		0.63	J	2.6	J	0.43	J
Naphthalene	3	**14.3**		**14.4**		1.4	U	**23**		0.46	J
Pentachlorophenol	1	**2050**		**2220**		**436**		**1970**		**575**	
Phenanthrene	41	8.4		8.8		1.4	U	6.6		1.4	U
HERBICIDES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Pentachlorophenol	1	NA		NA		NA		NA		NA	
DIOXINS/FURANS	**pg/L**	**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**	
Toxicity Equivalent Quotient (TEQ)	0.00138	**0.175**		**0.162**		NA		NA		**0.518**	

J Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL)
U Indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL)

TABLE 4A
SUMMARY OF SEPTEMBER 2016 QUARTERLY SAMPLING EVENT ANALYTICAL RESULTS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-RW8		HAV-LTR-RW9		HAV-LTR-DUP02		HAV-LTR-RW10		HAV-LTR-CW32		HAV-LTR-CW33		HAV-LTR-CW34	
Sample Date:	**Goals for**	**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**	
Duplicate of:	**Groundwater**					**HAV-LTR-RW9**									
INORGANICS	**mg/L**	**mg/L**		**mg/L**		**mg/L**		**mg/L**		**mg/L**		**mg/L**		**mg/L**	
Aluminum, Total	200	0.11		0.36		0.18		0.2		0.95		0 089	U	0.055	J
Arsenic, Total	10	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0 003	U	0.003	U
Barium, Total	2000	0.097		0.11		0.098		0.21		0.24		0.15		0.11	
Iron, Total	300	0.43		0.92		0.43		1.3		1.3		0 019	J	0.077	
Manganese, Total	50	0 54		1.7		0.76		3.2		0.077		0 004	J	0.11	
Vanadium, Total	3.1	0.0021	J	0 0029		0.0021	J	0.0027		0.0038		0.00099	J	0 0013	J
VOLATILES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Benzene	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	700	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	1000	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SEMIVOLATILES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
2-Methyl-4,6-dinitropheno	1.7	6	U	5.9	U	6 5	U	5.9	U	5.8	U	5.7	U	5.7	U
2-Methylnaphthalene	2	1.5	U	1.5	U	1.6	U	1.5	U	1.4	U	1.4	U	1.4	U
Benzo(a)pyrene	0.2	1.5	U	1.5	U	1.6	U	1.5	U	1.4	U	1.4	U	1.4	U
bis(2-Ethylhexyl)phthalat	6	3	U	3	U	0.99	J	3	U	0.27	J	2.9	U	2 8	U
Dibenzofuran	4	3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2 8	U
Naphthalene	3	1.5	U	0.72	J	1.6	U	1.5	U	1.4	U	0.4	J	1.4	U
Pentachlorophenol	1	6	U	5.9	U	6 5	U	5.9	U	5.8	U	5.7	U	5.7	U
Phenanthrene	41	1.5	U	0.14	J	1.6	U	1.5	U	1.4	U	1.4	U	1.4	U
HERBICIDES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Pentachlorophenol	1	0.2	U	0.2	U	NA		0.22	U	0.19	U	0.19	U	0.098	J
DIOXINS/FURANS	**pg/L**	**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**	
Toxicity Equivalent Quotient (TEQ)	0.00138	NA		NA		NA		NA		NA		NA		NA	

J Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL)
U Indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL)

TABLE 4A
SUMMARY OF SEPTEMBER 2016 QUARTERLY SAMPLING EVENT ANALYTICAL RESULTS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW12D		HAV-LTR-CW13D		HAV-LTR-CW22D		HAV-LTR-CW22S		HAV-LTR-MW1		HAV-LTR-MW2	
Sample Date:	**Goals for**	**9/14/2016**		**9/14/2016**		**9/13/2016**		**9/13/2016**		**9/13/2016**		**9/13/2016**	
Duplicate of:	**Groundwater**												
INORGANICS	**mg/L**	**mg/L**		**mg/L**		**mg/L**		**mg/L**		**mg/L**		**mg/L**	
Aluminum, Total	200	NA		NA		NA		NA		NA		NA	
Arsenic, Total	10	NA		NA		NA		NA		NA		NA	
Barium, Total	2000	NA		NA		NA		NA		NA		NA	
Iron, Total	300	NA		NA		NA		NA		NA		NA	
Manganese, Total	50	NA		NA		NA		NA		NA		NA	
Vanadium, Total	3.1	NA		NA		NA		NA		NA		NA	
VOLATILES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Benzene	5	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	700	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	1000	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	5	1	U	**6.2**		1	U	1	U	1	U	1	U
Vinyl Chloride	5	1	U	1	U	1	U	1	U	1	U	1	U
SEMIVOLATILES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
2-Methyl-4,6-dinitropheno	1.7	5.8	U	5 9	U	5.7	U	5.8	U	5.8	U	5.7	U
2-Methylnaphthalene	2	1.4	U	1 5	U	1.4	U	1.5	U	1.4	U	1.4	U
Benzo(a)pyrene	0 2	1.4	U	1 5	U	1.4	U	1.5	U	1.4	U	1.4	U
bis(2-Ethylhexyl)phthalat	6	2.9	U	**187**		2.9	U	2.9	U	2.9	U	2.8	U
Dibenzofuran	4	2.9	U	2 9	U	2.9	U	2.9	U	2.9	U	2.8	U
Naphthalene	3	1.4	U	1 5	U	1.4	U	1.5	U	1.4	U	1.4	U
Pentachlorophenol	1	5.8	U	5 9	U	5.7	U	5.8	U	5.8	U	5.7	U
Phenanthrene	41	1.4	U	1 5	U	1.4	U	1.5	U	1.4	U	1.4	U
HERBICIDES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA	
DIOXINS/FURANS	**pg/L**	**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**	
Toxicity Equivalent Quotient (TEQ)	0.00138	NA		NA		NA		NA		NA		NA	

J Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL)
U Indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL)

TABLE 4A
SUMMARY OF SEPTEMBER 2016 QUARTERLY SAMPLING EVENT ANALYTICAL RESULTS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-MW1I		HAV-LTR-MW1S		HAV-LTR-MW2I		HAV-LTR-MW2S		HAV-LTR-FB01		HAV-LTR-TB01	
Sample Date:	**Goals for**	**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/13/2016**		**9/14/2016**	
Duplicate of:	**Groundwater**												
INORGANICS	**mg/L**	**mg/L**		**mg/L**		**mg/L**		**mg/L**		**mg/L**		**mg/L**	
Aluminum, Total	200	1.7		2.7		0 089	U	0.089	U	0.089	U	NA	
Arsenic, Total	10	0.0045		0.0016	J	0 003	U	0.0089		0.003	U	NA	
Barium, Total	2000	0 028		0.069		0 037		0.14		0.0056	U	NA	
Iron, Total	300	0.36		0.26		0 056	J	20.4		0.056	U	NA	
Manganese, Total	50	0.95		0.88		0.21		0.66		0.0056	U	NA	
Vanadium, Total	3.1	0.0014	J	0.0013	J	0.00083	J	0.001	J	0.0022	U	NA	
VOLATILES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Benzene	5	NA		NA		NA		NA		1	U	1	U
Ethylbenzene	700	NA		NA		NA		NA		1	U	1	U
Toluene	1000	NA		NA		NA		NA		1	U	1	U
Trichloroethene	5	NA		NA		NA		NA		1	U	1	U
Vinyl Chloride	5	NA		NA		NA		NA		1	U	1	U
SEMIVOLATILES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
2-Methyl-4,6-dinitropheno	1.7	NA		NA		NA		NA		5.7	U	NA	
2-Methylnaphthalene	2	NA		NA		NA		NA		1.4	U	NA	
Benzo(a)pyrene	0.2	NA		NA		NA		NA		1.4	U	NA	
bis(2-Ethylhexyl)phthalat	6	NA		NA		NA		NA		0.42	J	NA	
Dibenzofuran	4	NA		NA		NA		NA		2.9	U	NA	
Naphthalene	3	NA		NA		NA		NA		1.4	U	NA	
Pentachlorophenol	1	NA		NA		NA		NA		5.7	U	NA	
Phenanthrene	41	NA		NA		NA		NA		1.4	U	NA	
HERBICIDES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA	
DIOXINS/FURANS	**pg/L**	**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**	
Toxicity Equivalent Quotient (TEQ)	0.00138	NA		NA		NA		NA		NA		NA	

J Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL)
U Indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL)

TABLE 4B
SUMMARY OF DECEMBER 2016 QUARTERLY SAMPLING EVENT ANALYTICAL RESULTS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

		ROS AREA WELLS																	
Sample ID:	**Remediation**	**HAV-LTR-RW8**		**HAV-LTR-RW9**		**HAV-LTR-DUP01**		**HAV-LTR-RW10**		**HAV-LTR-CW32**		**HAV-LTR-CW33**		**HAV-LTR-CW34**	
Sample Date:	**Goals for**	**12/21/2016**		**12/21/2016**		**12/21/2016**		**12/21/2016**		**12/21/2016**		**12/21/2016**		**12/21/2016**	
Duplicate of:	**Groundwater**					**HAV-LTR-RW9**									
		Result		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**	
VOLATILES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Benzene	5	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Ethylbenzene	700	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Toluene	1000	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Trichloroethene	5	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Vinyl Chloride	5	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
SEMIVOLATILES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Benzo(a)pyrene	0.2	0.5	U	0.5	U	NA		0.5	U	NA		NA		NA	
Dibenzofuran	4	1	U	1	U	NA		1	U	NA		NA		NA	
4,6-Dinitro-2-methylphenol	1.7	15	U	15	U	NA		16	U	NA		NA		NA	
bis(2-Ethylhexyl)phthalate	6	5	U	5	U	NA		5	U	NA		NA		NA	
2-Methylnaphthalene	2	0.5	U	0.5	U	NA		0.5	U	NA		NA		NA	
Naphthalene	3	0.5	U	0.5	U	NA		0.1	JB	NA		NA		NA	
Pentachlorophenol	1	5	U	5	U	NA		5	U	NA		NA		NA	
Phenanthrene	41	0.5	U	0.5	U	NA		0.5	U	NA		NA		NA	
HERBICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Pentachlorophenol	1	0.048	U	0.099		NA		0.076		NA		NA		NA	
PESTICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Dieldrin	0.038	**0.24**		**0.14**		NA		**0.18**		**0.54**		**0.45**		**0.3**	

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation Limit
5.5 - Exceeds Remediation Goal for GW

TABLE 4B
SUMMARY OF DECEMBER 2016 QUARTERLY SAMPLING EVENT ANALYTICAL RESULTS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

		OTHER SITE WELLS												FIELD QC			
Sample ID:	**Remediation**	**HAV-LTR-MW1**		**HAV-LTR-MW2**		**HAV-LTR-CW22S**		**HAV-LTR-CW22D**		**HAV-LTR-CW12D**		**HAV-LTR-CW13D**		**HAV-LTR-FB01**		**HAV-LTR-TB01**	
Sample Date:	**Goals for**	**12/20/2016**		**12/20/2016**		**12/20/2016**		**12/20/2016**		**12/20/2016**		**12/20/2016**		**12/21/2016**		**12/21/2016**	
Duplicate of:	**Groundwater**																
		Result		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**	
VOLATILES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Benzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	700	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	1000	0.5	U	0.5	U	0.1	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	5	0.1	J	0.5	U	0.5	U	0.5	U	0.1	J	**5.5**		0.5	U	0.5	U
Vinyl Chloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
SEMIVOLATILES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Benzo(a)pyrene	0.2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	NA	
Dibenzofuran	4	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
4,6-Dinitro-2-methylphenol	1.7	15	U	15	U	15	U	15	U	15	U	16	U	17	U	NA	
bis(2-Ethylhexyl)phthalate	6	5	U	5	U	5	U	5	U	5	U	5	U	6	U	NA	
2-Methylnaphthalene	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	NA	
Naphthalene	3	0.5	U	0.5	U	0.5	U	1	B	0.5	U	0.5	U	0.6	U	NA	
Pentachlorophenol	1	5	U	5	U	5	U	5	U	5	U	5	U	6	U	NA	
Phenanthrene	41	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	NA	
HERBICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA		NA		NA	
PESTICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Dieldrin	0.038	NA		NA		NA		NA		NA		NA		0.017	U	NA	

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation Li
5.5 - Exceeds Remediation Goal for GW

TABLE 4C
SUMMARY OF MARCH 2017 ANNUAL SAMPLING EVENT ANALYTICAL RESULTS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CTR		HAV-LTR-CW1S		HAV-LTR-CW1D		HAV-LTR-CW2I		HAV-LTR-CW2D		HAV-LTR-CW3D		HAV-LTR-CW3X		HAV-LTR-CW4S		HAV-LTR-CW4I	
Sample Date:	**Goals for**	**3/22/2017**		**3/24/2017**		**3/24/2017**		**3/21/2017**		**3/21/2017**		**3/23/2017**		**3/23/2017**		**3/22/2017**		**3/22/2017**	
Duplicate of:	**Groundwater**													**HAV-LTR-CW3D**					
INORGANICS		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aluminum	200	ND		32.4	J	**302**		29.2	J	30.1	J	36.8	J	38	J	51 5	J	75.1	J
Arsenic	10	ND		ND		1.2	J	ND		ND		ND		ND		ND		**17.4**	
Barium	2000	224		23.7		83		47		30.6		164		160		75 8		142	
Iron	300	**1410**		**18800**		**71900**		**1680**		**429**		**1440**		**1420**		61 2	J	**25500**	
Manganese	50	**4300**		**6900**		**6040**		**936**		**7090**		**3370**		**3260**		**6900**		**12600**	
Vanadium	3.1	ND		0.38	J	1.5		0.68		0.72		0.36	J	0.38	J	0.42	J	0.3	J
PENTACHLOROPHENOL		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA		NA		NA		NA	
HERBICIDES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Dieldrin	0.038	NA		NA		NA		NA		NA		NA		NA		NA		NA	
DIOXINS/FURANS		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**	
Toxicity Equivalent Quotient (TEQ)	30	0.156		NA		NA		NA		NA		NA		NA		NA		NA	
SEMIVOLATILES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Benzo(a)pyrene	0 2	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Dibenzofuran	4	ND		0.6	J	ND		ND		1		ND		ND		ND		4	
4,6-Dinitro-2-methylphenol	1.7	ND		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Ethylhexyl)phthalate	6	ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Methylnaphthalene	2	ND		ND		ND		ND		**25**		ND		ND		ND		ND	
Naphthalene	3	ND		ND		ND		ND		**48**		ND		ND		ND		ND	
Pentachlorophenol	1	**43**		**210**		**5**	J	**420**		**760**		**59**		**54**		**55**		**420**	
Phenanthrene	41	ND		ND		ND		ND		2		ND		ND		ND		6	
VOLATILES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Benzene	5	0.2	J	0.3	J	ND		ND		ND		ND		ND		ND		**22**	
Ethylbenzene	700	ND		ND		ND		ND		0.2	J	ND		ND		ND		6.3	
Toluene	1000	ND		ND		ND		ND		0.2	J	ND		ND		ND		1.4	
Trichloroethene	5	0 3	J	**230**		**14**		ND		1.6		ND		ND		0.2	J	2.4	
Vinyl Chloride	5	ND		**25**		**23**		ND		0.1	J	ND		ND		ND		0.3	J

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation Limit
5.5 - Exceeds Remediation Goal for GW

TABLE 4C
SUMMARY OF MARCH 2017 ANNUAL SAMPLING EVENT ANALYTICAL RESULTS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW4D		HAV-LTR-CW5S		HAV-LTR-CW5D		HAV-LTR-CW9S		HAV-LTR-CW9D		HAV-LTR-CW10S		HAV-LTR-CW10D		HAV-LTR-CW11D	
Sample Date:	**Goals for**	**3/22/2017**		**3/22/2017**		**3/22/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**	
Duplicate of:	**Groundwater**																
INORGANICS		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aluminum	200	**278**		**6990**		**736**		NA		181		NA		ND		33	J
Arsenic	10	8.4		**16**		1.4	J	NA		ND		NA		ND		ND	
Barium	2000	171		222		20		NA		211		NA		136		129	
Iron	300	**31100**		**28100**		**833**		NA		**1310**		NA		45.5	J	69 3	J
Manganese	50	**11800**		**5560**		16.1		NA		**91.6**		NA		**55.9**		**109**	
Vanadium	3.1	1		**21.5**		**4.2**		NA		1.4		NA		0.33	J	0.62	
PENTACHLOROPHENOL		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA		NA		NA	
HERBICIDES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Dieldrin	0.038	NA		NA		NA		NA		NA		NA		NA		NA	
DIOXINS/FURANS		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**	
Toxicity Equivalent Quotient (TEQ)	30	NA		NA		NA		NA		NA		NA		NA		NA	
SEMIVOLATILES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Benzo(a)pyrene	0 2	ND		0.2	J	ND		ND		ND		ND		ND		ND	
Dibenzofuran	4	3		ND		ND		ND		ND		ND		ND		ND	
4,6-Dinitro-2-methylphenol	1.7	ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Ethylhexyl)phthalate	6	ND		ND		ND		ND		ND		ND		ND		ND	
2-Methylnaphthalene	2	ND		ND		ND		ND		ND		ND		ND		ND	
Naphthalene	3	ND		ND		ND		ND		ND		ND		ND		ND	
Pentachlorophenol	1	**320**		1	J	ND		ND		ND		ND		ND		ND	
Phenanthrene	41	4		0.1	J	ND		ND		ND		ND		ND		ND	
VOLATILES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Benzene	5	**18**		0.2	J	ND		ND		ND		ND		ND		ND	
Ethylbenzene	700	34		ND		ND		ND		ND		ND		ND		ND	
Toluene	1000	1.6		ND		ND		ND		0.4	J	ND		ND		ND	
Trichloroethene	5	2		ND		ND		ND		ND		ND		1.5		1.4	
Vinyl Chloride	5	0.2	J	ND		ND		ND		ND		ND		ND		ND	

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation Limit
5.5 - Exceeds Remediation Goal for GW

TABLE 4C
SUMMARY OF MARCH 2017 ANNUAL SAMPLING EVENT ANALYTICAL RESULTS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW12D		HAV-LTR-CW13S		HAV-LTR-CW13D		HAV-LTR-CW13X		HAV-LTR-CW16S		HAV-LTR-CW16D		HAV-LTR-CW17D		HAV-LTR-CW18D	
Sample Date:	**Goals for**	**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/21/2017**		**3/21/2017**		**3/22/2017**		**3/22/2017**	
Duplicate of:	**Groundwater**							**HAV-LTR-CW13D**									
INORGANICS		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aluminum	200	**347**		NA		162		**327**		31.7	J	200		ND		**1560**	
Arsenic	10	ND		NA		ND		ND		ND		ND		3.1		2	J
Barium	2000	60.1		NA		106		101		187		66.3		102		100	
Iron	300	290		NA		**356**		**844**		**424**		**13800**		**2380**		**11800**	
Manganese	50	13.7		NA		24.7		30.5		**792**		**2320**		**7740**		**1070**	
Vanadium	3.1	0.46	J	NA		0.62		1.2		0.32	J	0.81		ND		**4.2**	
PENTACHLOROPHENOL		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA		NA		NA	
HERBICIDES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Dieldrin	0.038	NA		NA		NA		NA		NA		NA		NA		NA	
DIOXINS/FURANS		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**	
Toxicity Equivalent Quotient (TEQ)	30	NA		NA		NA		NA		0.849		NA		NA		NA	
SEMIVOLATILES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Benzo(a)pyrene	0 2	ND		ND		ND		ND		ND		**0.8**		ND		ND	
Dibenzofuran	4	ND		ND		ND		ND		ND		4		2		ND	
4,6-Dinitro-2-methylphenol	1.7	ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Ethylhexyl)phthalate	6	ND		ND		ND		ND		ND		ND		ND		ND	
2-Methylnaphthalene	2	ND		ND		ND		ND		ND		**5**		ND		ND	
Naphthalene	3	ND		ND		ND		ND		ND		**34**		0.2	J	ND	
Pentachlorophenol	1	ND		ND		ND		ND		**3**	J	ND		**410**		ND	
Phenanthrene	41	ND		ND		ND		ND		0.1	J	15		4		ND	
VOLATILES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Benzene	5	ND		ND		ND		ND		**6.9**		**55**		**7.8**		ND	
Ethylbenzene	700	ND		ND		ND		ND		0.6		0.7		ND		ND	
Toluene	1000	ND		ND		ND		ND		ND		2.6		ND		ND	
Trichloroethene	5	ND		ND		**6.1**		**6.2**		ND		ND		1.4		ND	
Vinyl Chloride	5	ND		ND		ND		ND		ND		ND		ND		ND	

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
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TABLE 4C
SUMMARY OF MARCH 2017 ANNUAL SAMPLING EVENT ANALYTICAL RESULTS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW19D		HAV-LTR-CW20S		HAV-LTR-CW20D		HAV-LTR-CW21S		HAV-LTR-CW21D		HAV-LTR-CW21X		HAV-LTR-CW22S		HAV-LTR-CW22D	
Sample Date:	**Goals for**	**3/22/2017**		**3/20/2017**		**3/20/2017**		**3/23/2017**		**3/23/2017**		**3/23/2017**		**3/23/2017**		**3/23/2017**	
Duplicate of:	**Groundwater**											**HAV-LTR-CW21D**					
INORGANICS		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aluminum	200	ND		38.9	J	108		ND		**354**		**357**		142		37.9	J
Arsenic	10	ND		4.4		ND		ND		ND		ND		ND		ND	
Barium	2000	86.7		265		252		70.2		75.6		75.6		603		271	
Iron	300	**41300**		**19900**		**474**		**17400**		**18600**		**19000**		126		ND	
Manganese	50	**3420**		**4790**		6.8		**962**		**952**		**992**		**73.5**		**256**	
Vanadium	3.1	ND		ND		0.8		0.39	J	1.4		1.5		0.41	J	0 25	J
PENTACHLOROPHENOL		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA		NA		NA	
HERBICIDES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Dieldrin	0.038	NA		NA		NA		NA		NA		NA		NA		NA	
DIOXINS/FURANS		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**	
Toxicity Equivalent Quotient (TEQ)	30	NA		NA		NA		NA		NA		NA		NA		NA	
SEMIVOLATILES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Benzo(a)pyrene	0 2	ND		ND		ND		ND		ND		ND		ND		ND	
Dibenzofuran	4	3		ND		ND		1		1		1		ND		ND	
4,6-Dinitro-2-methylphenol	1.7	ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Ethylhexyl)phthalate	6	ND		ND		ND		ND		ND		ND		ND		ND	
2-Methylnaphthalene	2	ND		ND		ND		ND		ND		ND		ND		ND	
Naphthalene	3	0.7		ND		ND		ND		ND		ND		ND		ND	
Pentachlorophenol	1	**390**		1	J	ND		**450**		**530**		**500**		ND		ND	
Phenanthrene	41	2		ND		ND		ND		ND		ND		ND		ND	
VOLATILES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Benzene	5	0 3	J	ND		ND		1.3		2		2		ND		0.3	J
Ethylbenzene	700	0 5	J	ND		ND		0.2	J	0.4	J	0.4	J	ND		ND	
Toluene	1000	0 2	J	ND		ND		ND		0 3	J	0.3	J	ND		ND	
Trichloroethene	5	0 5		ND		ND		0.8		1 2		1.1		ND		0.5	J
Vinyl Chloride	5	ND		ND		ND		ND		ND		ND		ND		ND	

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5.5 - Exceeds Remediation Goal for GW

TABLE 4C
SUMMARY OF MARCH 2017 ANNUAL SAMPLING EVENT ANALYTICAL RESULTS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW24D		HAV-LTR-CW26D		HAV-LTR-CW27D		HAV-LTR-CW27X		HAV-LTR-CW28D		HAV-LTR-CW32		HAV-LTR-CW33		HAV-LTR-CW34	
Sample Date:	**Goals for**	**3/21/2017**		**3/21/2017**		**3/21/2017**		**3/21/2017**		**3/21/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**	
Duplicate of:	**Groundwater**							**HAV-LTR-CW27D**									
INORGANICS		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aluminum	200	42.1	J	ND		ND		ND		ND		**628**		ND		**682**	
Arsenic	10	**31.3**		2		3		3.2		1.4	J	ND		ND		ND	
Barium	2000	243		2.8		62.3		62.4		50.5		241		167		122	
Iron	300	**48500**		**6520**		**11300**		**11200**		**10400**		**740**		68.9	J	**1020**	
Manganese	50	**5000**		**91.8**		**4310**		**4220**		**3710**		**66.1**		3.9		**368**	
Vanadium	3.1	ND		ND		0.25	J	ND		0.53		1.7		0.43	J	1.9	
PENTACHLOROPHENOL		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Pentachlorophenol	1	NA		NA		NA		NA		NA		ND		ND		0.088	
HERBICIDES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Dieldrin	0.038	NA		NA		NA		NA		NA		**0.74**		**0.66**		**0.32**	
DIOXINS/FURANS		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**	
Toxicity Equivalent Quotient (TEQ)	30	29.6		NA		NA		NA		NA		NA		NA		NA	
SEMIVOLATILES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Benzo(a)pyrene	0 2	ND		ND		ND		ND		ND		ND		ND		ND	
Dibenzofuran	4	**5**		ND		2		1		0.6	J	ND		ND		ND	
4,6-Dinitro-2-methylphenol	1.7	ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Ethylhexyl)phthalate	6	ND		ND		ND		ND		ND		ND		ND		ND	
2-Methylnaphthalene	2	**38**		ND		ND		ND		2		ND		ND		ND	
Naphthalene	3	**180**		**23**		1		1		**21**		ND		ND		ND	
Pentachlorophenol	1	**620**		ND		**490**		**540**		**490**		ND		ND		ND	
Phenanthrene	41	16		ND		0.3	J	0.3	J	0.7		ND		ND		ND	
VOLATILES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Benzene	5	**14**		0.2	J	**9.6**		**9.3**		ND		ND		ND		ND	
Ethylbenzene	700	3 3		0.1	J	1.6		1.5		1.7		ND		ND		ND	
Toluene	1000	1 2		ND		2.1		2.1		2.7		ND		ND		ND	
Trichloroethene	5	0 3	J	ND		4.7		4.6		0.1	J	ND		ND		ND	
Vinyl Chloride	5	ND		ND		0.4	J	0.4	J	ND		ND		ND		ND	

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation Limit
5.5 - Exceeds Remediation Goal for GW

TABLE 4C
SUMMARY OF MARCH 2017 ANNUAL SAMPLING EVENT ANALYTICAL RESULTS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-RW3		HAV-LTR-RW5		HAV-LTR-RW5X		HAV-LTR-RW6		HAV-LTR-RW7		HAV-LTR-RW8		HAV-LTR-RW8X		HAV-LTR-RW9		HAV-LTR-RW10	
Sample Date:	**Goals for**	**3/22/2017**		**3/21/2017**		**3/21/2017**		**3/23/2017**		**3/22/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**	
Duplicate of:	**Groundwater**					**HAV-LTR-RW5**								**HAV-LTR-RW8**					
INORGANICS		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aluminum	200	**676**		ND		ND		ND		ND		**8580**		**10400**		52.8	J	ND	
Arsenic	10	3.3		7.7		6.7		ND		1.5	J	2.4		2.6		ND		ND	
Barium	2000	75.3		60		61.1		117		69.2		251		284		107		125	
Iron	300	**7150**		**17000**		**16900**		**2300**		**12000**		**15900**		**21700**		232		262	
Manganese	50	**5140**		**9320**		**9480**		**2440**		**7800**		**333**		**497**		**991**		**1100**	
Vanadium	3.1	2.6		0.25	J	ND		0.27	J	ND		**21.5**		**28.8**		0.77		0.31	J
PENTACHLOROPHENOL		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Pentachlorophenol	1	NA		NA		NA		NA		NA		ND		ND		0.14		ND	
HERBICIDES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Dieldrin	0.038	NA		NA		NA		NA		NA		**0.42**		**0.56**		**0.27**		**0.3**	
DIOXINS/FURANS		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**	
Toxicity Equivalent Quotient (TEQ)	30	NA		0.398		0.47		NA		NA		NA		NA		NA		NA	
SEMIVOLATILES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Benzo(a)pyrene	0 2	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Dibenzofuran	4	3		**5**		**5**		ND		3		ND		ND		ND		ND	
4,6-Dinitro-2-methylphenol	1.7	ND		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Ethylhexyl)phthalate	6	ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Methylnaphthalene	2	ND		**3**		**3**		ND		ND		ND		ND		ND		ND	
Naphthalene	3	1		**27**		**25**		ND		**4**		ND		ND		ND		ND	
Pentachlorophenol	1	**610**		**650**		**470**		**110**		**320**		ND		ND		ND		ND	
Phenanthrene	41	6		13		13		ND		7		ND		ND		ND		ND	
VOLATILES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Benzene	5	0.2	J	**21**		**20**		ND		2.1		ND		ND		ND		ND	
Ethylbenzene	700	3.8		6.6		7.2		ND		1.4		ND		ND		ND		ND	
Toluene	1000	1		2.7		2.9		ND		0.5	J	ND		ND		ND		ND	
Trichloroethene	5	0.6		**7.3**		**8.7**		ND		2.2		ND		ND		ND		ND	
Vinyl Chloride	5	ND		0.7		0.8		ND		0.1	J	ND		ND		ND		ND	

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µg/L - Micrograms per Liter
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TABLE 4C
SUMMARY OF MARCH 2017 ANNUAL SAMPLING EVENT ANALYTICAL RESULTS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-IW1		HAV-LTR-IW2		HAV-LTR-IW4		HAV-LTR-IW5		HAV-LTR-HAV04		HAV-LTR-HAV05		HAV-LTR-HAV07		HAV-LTR-MW1		HAV-LTR-MW2	
Sample Date:	**Goals for**	**3/21/2017**		**3/21/2017**		**3/24/2017**		**3/24/2017**		**3/24/2017**		**3/21/2017**		**3/23/2017**		**3/23/2017**		**3/23/2017**	
Duplicate of:	**Groundwater**																		
INORGANICS		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aluminum	200	187		**1480**		ND		73.1	J	**79400**		**23700**		42.8	J	33	J	160	
Arsenic	10	1.3	J	3.5		0.75	J	0.82	J	**15.6**		**20.4**		ND		ND		1.2	J
Barium	2000	30.6		115		35.6		66 3		1550		467		175		151		122	
Iron	300	**3940**		**47900**		**2390**		**6420**		**118000**		**183000**		55	J	128		278	
Manganese	50	**1280**		**4060**		**230**		**1400**		**27100**		**12900**		10.1		38.7		13.5	
Vanadium	3.1	**3.3**		**6.4**		1.2		0.9		**289**		**64.9**		0.38	J	0.54		**13.8**	
PENTACHLOROPHENOL		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA		NA		NA		NA	
HERBICIDES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Dieldrin	0.038	NA		NA		NA		NA		NA		NA		NA		NA		NA	
DIOXINS/FURANS		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**	
Toxicity Equivalent Quotient (TEQ)	30	NA		NA		NA		NA		NA		**154**		NA		NA		NA	
SEMIVOLATILES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Benzo(a)pyrene	0 2	ND		ND		ND		ND		**1**		0.1	J	ND		ND		ND	
Dibenzofuran	4	ND		ND		ND		ND		**25**		ND		ND		ND		ND	
4,6-Dinitro-2-methylphenol	1.7	ND		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Ethylhexyl)phthalate	6	ND		ND		ND		ND		4	J	ND		ND		ND		ND	
2-Methylnaphthalene	2	ND		ND		ND		ND		**520**		ND		ND		ND		ND	
Naphthalene	3	ND		3		ND		ND		**310**		0.3	J	ND		ND		ND	
Pentachlorophenol	1	**360**		**2600**		**50**		**3**	J	**1300**		**190**		ND		ND		ND	
Phenanthrene	41	ND		ND		ND		ND		**250**		1		ND		ND		ND	
VOLATILES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Benzene	5	ND		0.1	J	ND		ND		NA		0.8		ND		ND		ND	
Ethylbenzene	700	ND		1.6		ND		ND		NA		2.2		ND		ND		ND	
Toluene	1000	ND		17		0.2	J	ND		NA		0.2	J	ND		ND		ND	
Trichloroethene	5	ND		0.7		0.4	J	ND		NA		0.4	J	ND		0.1	J	ND	
Vinyl Chloride	5	ND		ND		ND		ND		NA		ND		ND		ND		ND	

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation Limit
5.5 - Exceeds Remediation Goal for GW

TABLE 4C
SUMMARY OF MARCH 2017 ANNUAL SAMPLING EVENT ANALYTICAL RESULTS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-MW3		HAV-LTR-NW01		HAV-LTR-NW06		HAV-LTR-FB01		HAV-LTR-FB02		HAV-LTR-FB03		HAV-LTR-TB01		HAV-LTR-TB02		HAV-LTR-TB03
Sample Date:	**Goals for**	**3/22/2017**		**3/21/2017**		**3/24/2017**		**3/20/2017**		**3/21/2017**		**3/22/2017**		**3/20/2017**		**3/21/2017**		**3/22/2017**
Duplicate of:	**Groundwater**																	
INORGANICS		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**
Aluminum	200	ND		ND		50.4	J	ND		ND		ND		NA		NA		NA
Arsenic	10	ND		ND		2.5		ND		ND		ND		NA		NA		NA
Barium	2000	70.3		74.4		52.9		ND		ND		ND		NA		NA		NA
Iron	300	**18700**		61.3	J	**4060**		ND		ND		ND		NA		NA		NA
Manganese	50	**965**		20.1		**4880**		ND		ND		1.2	J	NA		NA		NA
Vanadium	3.1	ND		ND		0.46	J	ND		ND		ND		NA		NA		NA
PENTACHLOROPHENOL		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**
Pentachlorophenol	1	NA		NA		NA		ND		NA		NA		NA		NA		NA
HERBICIDES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**
Dieldrin	0.038	NA		NA		NA		ND		NA		NA		NA		NA		NA
DIOXINS/FURANS		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**
Toxicity Equivalent Quotient (TEQ)	30	NA		**67.4**		NA		NA		NA		0.272		NA		NA		NA
SEMIVOLATILES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**
Benzo(a)pyrene	0 2	ND		ND		ND		ND		ND		ND		NA		NA		NA
Dibenzofuran	4	ND		ND		ND		ND		ND		ND		NA		NA		NA
4,6-Dinitro-2-methylphenol	1.7	ND		ND		ND		ND		ND		ND		NA		NA		NA
bis(2-Ethylhexyl)phthalate	6	ND		ND		ND		ND		ND		ND		NA		NA		NA
2-Methylnaphthalene	2	ND		ND		ND		ND		ND		ND		NA		NA		NA
Naphthalene	3	ND		ND		1		ND		ND		ND		NA		NA		NA
Pentachlorophenol	1	**49**		ND		**1400**		ND		ND		ND		NA		NA		NA
Phenanthrene	41	ND		ND		ND		ND		ND		ND		NA		NA		NA
VOLATILES		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**
Benzene	5	0.2	J	ND		ND		ND		ND		ND		ND		ND		ND
Ethylbenzene	700	ND		ND		ND		ND		ND		ND		ND		ND		ND
Toluene	1000	ND		ND		ND		ND		ND		ND		ND		ND		ND
Trichloroethene	5	0.6		ND		0.3	J	ND		ND		ND		ND		ND		ND
Vinyl Chloride	5	ND		ND		ND		ND		ND		ND		ND		ND		ND

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation Limit
5.5 - Exceeds Remediation Goal for GW

TABLE 4C
SUMMARY OF MARCH 2017 ANNUAL SAMPLING EVENT ANALYTICAL RESULTS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-TB04		HAV-LTR-TB05	
Sample Date:	Goals for	3/23/2017		3/24/2017	
Duplicate of:	Groundwater				
INORGANICS		ug/L		ug/L	
Aluminum	200	NA		NA	
Arsenic	10	NA		NA	
Barium	2000	NA		NA	
Iron	300	NA		NA	
Manganese	50	NA		NA	
Vanadium	3.1	NA		NA	
PENTACHLOROPHENOL		ug/L		ug/L	
Pentachlorophenol	1	NA		NA	
HERBICIDES		ug/L		ug/L	
Dieldrin	0.038	NA		NA	
DIOXINS/FURANS		pg/L		pg/L	
Toxicity Equivalent Quotient (TEQ)	30	NA		NA	
SEMIVOLATILES		ug/L		ug/L	
Benzo(a)pyrene	0 2	NA		NA	
Dibenzofuran	4	NA		NA	
4,6-Dinitro-2-methylphenol	1.7	NA		NA	
bis(2-Ethylhexyl)phthalate	6	NA		NA	
2-Methylnaphthalene	2	NA		NA	
Naphthalene	3	NA		NA	
Pentachlorophenol	1	NA		NA	
Phenanthrene	41	NA		NA	
VOLATILES		ug/L		ug/L	
Benzene	5	ND		ND	
Ethylbenzene	700	ND		ND	
Toluene	1000	ND		ND	
Trichloroethene	5	ND		ND	
Vinyl Chloride	5	ND		ND	

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation Limit
5.5 - Exceeds Remediation Goal for GW

TABLE 4D
SUMMARY OF JUNE 2017 QUARTERLY SAMPLING EVENT ANALYTICAL RESULTS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

		ROS AREA WELLS																					
Sample ID:	**Remediation**	**HAV-LTR-RW8**		**HAV-LTR-DUP01**		**HAV-LTR-RW9**		**HAV-LTR-RW10**		**HAV-LTR-CW32**		**HAV-LTR-CW33**		**HAV-LTR-CW34**									
Sample Date:	**Goals for**	**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/14/2017**									
Duplicate of:	**Groundwater**			**HAV-LTR-RW8**																			
		Result		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**									
VOLATILES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**									
Benzene	5	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA									
Ethylbenzene	700	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA									
Toluene	1000	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA									
Trichloroethene	5	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA									
Vinyl Chloride	5	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA									
SEMIVOLATILES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**									
Benzo(a)pyrene	0.2	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA									
Dibenzofuran	4	1	U	1	U	1	U	1	U	NA		NA		NA									
4,6-Dinitro-2-methylphenol	1.7	15	U	16	U	15	U	15	U	NA		NA		NA									
bis(2-Ethylhexyl)phthalate	6	5	U	5	U	5	U	5	U	NA		NA		NA									
2-Methylnaphthalene	2	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA									
Naphthalene	3	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA									
Pentachlorophenol	1	5	U	5	U	5	U	5	U	NA		NA		NA									
Phenanthrene	41	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA									
HERBICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**									
Pentachlorophenol	1	0.034	J	NA		0.14		0.048	J	NA		NA		NA									
PESTICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**									
Dieldrin	0.038	**0.29**		**0.31**		**0.24**		**0.29**		**0.66**		**0.47**		**0.25**									

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation Limit
5.5 - Exceeds Remediation Goal for GW

TABLE 4D
SUMMARY OF JUNE 2017 QUARTERLY SAMPLING EVENT ANALYTICAL RESULTS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

		OTHER SITE WELLS																	
Sample ID:	**Remediation**	**HAV-LTR-CW12D**		**HAV-LTR-CW13D**		**HAV-LTR-CW22S**		**HAV-LTR-CW22D**		**HAV-LTR-MW1**		**HAV-LTR-MW2**		**HAV-LTR-RW5**		**HAV-LTR-RW7**	
Sample Date:	**Goals for**	**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**	
Duplicate of:	**Groundwater**																
		Result		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**	
VOLATILES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Benzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA	
Ethylbenzene	700	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA	
Toluene	1000	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA	
Trichloroethene	5	0.2	J	5.1		0.5	U	0.5	U	0.1	J	0.5	U	NA		NA	
Vinyl Chloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA	
SEMIVOLATILES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Benzo(a)pyrene	0.2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA	
Dibenzofuran	4	1	U	1	U	1	U	1	U	1	U	1	U	NA		NA	
4,6-Dinitro-2-methylphenol	1.7	15	U	16	U	15	U	15	U	16	U	15	U	NA		NA	
bis(2-Ethylhexyl)phthalate	6	5	U	5	U	5	U	5	U	5	U	5	U	NA		NA	
2-Methylnaphthalene	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA	
Naphthalene	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA	
Pentachlorophenol	1	5	U	5	U	5	U	5	U	5	U	5	U	NA		NA	
Phenanthrene	41	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA	
HERBICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA		NA		NA	
PESTICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Dieldrin	0.038	NA		NA		**0.17**		NA		NA		NA		0.022		0.012	J

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation L
5.5 - Exceeds Remediation Goal for GW

TABLE 4D
SUMMARY OF JUNE 2017 QUARTERLY SAMPLING EVENT ANALYTICAL RESULTS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

																FIELD QC			
Sample ID:	**Remediation**	**HAV-LTR-NW1-81**		**HAV-LTR-CW27D**		**HAV-LTR-CW1S**		**HAV-LTR-HAV04**		**HAV-LTR-HAV05**		**HAV-LTR-TB01**		**HAV-LTR-FB01**					
Sample Date:	**Goals for**	**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/14/2017**					
Duplicate of:	**Groundwater**																		
		Result		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**					
VOLATILES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**					
Benzene	5	NA		NA		NA		1.8		1.3		0.5	U	0.5	U				
Ethylbenzene	700	NA		NA		NA		2.4		6.7		0.5	U	0.5	U				
Toluene	1000	NA		NA		NA		0.3	J	0.1	J	0.5	U	0.5	U				
Trichloroethene	5	NA		NA		NA		1.7		0.5	J	0.5	U	0.5	U				
Vinyl Chloride	5	NA		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U				
SEMIVOLATILES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**					
Benzo(a)pyrene	0.2	NA		NA		NA		**0.2**	J	0.5	U	NA		0.5	U				
Dibenzofuran	4	NA		NA		NA		0.9	J	0.7	J	NA		1	U				
4,6-Dinitro-2-methylphenol	1.7	NA		NA		NA		16	U	16	U	NA		16	U				
bis(2-Ethylhexyl)phthalate	6	NA		NA		NA		5	U	5	U	NA		5	U				
2-Methylnaphthalene	2	NA		NA		NA		**2**		0.5	U	NA		0.5	U				
Naphthalene	3	NA		NA		NA		0.5	U	1		NA		0.5	U				
Pentachlorophenol	1	NA		NA		NA		**1700**		**94**		NA		5	U				
Phenanthrene	41	NA		NA		NA		16		0.5	U	NA		0.5	U				
HERBICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**					
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA		0.047	U				
PESTICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**					
Dieldrin	0.038	0.016	U	0.016	U	0.016	U	NA		NA		NA		0.016	U				

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation L
5.5 - Exceeds Remediation Goal for GW

TABLE 5
HISTORICAL CONTAMINANT CONCENTRATIONS IN MONITORING WELLS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Well Location	Mar. 11		Jun. 11	Sep. 11		Dec. 11	Mar. 12		Jun. 12	Sep. 12		Dec. 12	Mar. 13		Jun. 13	Nov. 13	Jan. 14	Apr. 14		Jul. 14	Sep. 14		Dec. 14	Apr. 15		Jul. 15	Sep. 15		Dec.15	Mar. 16		Jun. 16	Sep. 16		Dec.16		Mar. 17			Jun. 17		Well Location
	PCP ug/L	Dioxin ppt (ng/l)	PCP ug/L	PCP ug/L	Dioxin ppt (ng/l)	PCP ug/L	PCP ug/L	Dioxin ppt (ng/l)	PCP ug/L	PCP ug/L	Dioxin ppt (ng/l)	PCP ug/L	PCP ug/L	Dioxin ppt (ng/l)	PCP ug/L	PCP ug/L	PCP ug/L	PCP ug/L	Dioxin ppt (ng/l)	PCP ug/L	PCP ug/L	Dioxin ppt (ng/l)	PCP ug/L	PCP ug/L	Dioxin ppt (ng/l)	PCP ug/L	PCP ug/L	Dioxin ppt (ng/l)	PCP ug/L	PCP ug/L	Dioxin ppt (ng/l)	PCP ug/L	PCP ug/L	Dioxin ppt (ng/l)	PCP ug/L	Dieldrin ug/L	PCP ug/L	Dioxin ppt (ng/l)	Dieldrin ug/L	PCP ug/L	Dieldrin ug/L	
CW-1S	180+						13						160					145						97						202							210				ND	CW-1S
CW-1I																																									CW-1I
CW-1D	30	0.00025					20						8.9					11.4	0.00004					7.3						2.7							5.0 J					CW-1D
CW-2S																																									CW-2S
CW-2I	4200						2800+						2500					657						327						1340							420					CW-2I
CW-2D	1800+	0.00132					1700+						1800					2310	0.00038					2675						2260							760					CW-2D
CW-3S			3.1				54						2.3					ND						ND						ND							DRY					CW-3S
CW-3I																																									CW-3I
CW-3D	220+	0.00207					120+						140					552	0.000559					209						215							59{54}					CW-3D
CW-4S	410+						68						1000					807						528						373							55					CW-4S
CW-4I			640				740+						1400					956						1660						2350							420					CW-4I
CW-4D	120+	0.00036					ND						1700					1180	0.000246					1260						2030							320					CW-4D
CW-5S			ND				ND						240					3.3						108						5.9							1.0 J					CW-5S
CW-5I																																									CW-5I
CW-5D	ND	0.00033					ND						16					ND	0.000184					6						ND							ND					CW-5D
CW-6S			ND				ND		*WELL ABANDONED DUE TO YMCA BUILDING*																																	CW-6S
CW-6I									*WELL ABANDONED DUE TO YMCA BUILDING*																																	CW-6I
CW-6D	440+	0.00073					150+		*WELL ABANDONED DUE TO YMCA BUILDING*																																	CW-6D
CW-7S							ND											ND						ND																		CW-7S
CW-7D							ND											ND						ND																		CW-7D
CW-8S	ND												ND											ND																		CW-8S
CW-8D	0.54												ND											ND																		CW-8D
R-2	500+	0.369					6000+	0.297					3300	0.176																												R-2
R-4																																									R-4
HAV-02	3700+	0.356					7800		*WELL ABANDONED DUE TO YMCA BUILDING*																																	HAV-02
HAV-04			4900				4000						2900					3290						4180						5910							1300				1700	HAV-04
HAV-07	0.18		ND	ND		ND	ND		ND	0.48		0.59	ND		ND	ND	ND			ND			ND	ND		ND			ND							ND					HAV-07
HAV-05	660+	0.134	270	860+		360+	3100	0.0244	4600	4500		6000	3600	0.073	3100	5960	4130	2020	0.0188	1800			3920	3490	0.028	2150			502	0.0179						190	0.154		94		HAV-05
NW-01	9.3	0.0866				9.3	ND	0.0525					9.8	0.1060				ND	0.025					ND	0.035				ND	0.101						ND	0.0674		ND		NW-01
NW-06	1100+	0.00051				1100+	1600+						520					891	0.00042					471						504							1400					NW-06
CW-9S							ND																																		CW-9S
CW-9D				0.51						0.31								ND						ND						ND							ND					CW-9D
CW-10S	ND						ND						ND																								ND					CW-10S
CW-10D				180+	0.00022					6.70	0.0000068							ND	0.000068					ND	0.000080				6.2	0.00115							ND					CW-10D
CW-11S	ND												ND																													CW-11S
CW-11D				ND						1.20								ND						ND						ND							ND					CW-11D
CW-12S							ND																	ND																		CW-12S
CW-12D				0.19						0.86								4						ND						ND							ND					CW-12D
CW-13S							ND																	ND																		CW-13S
CW-13D				ND						63		ND						115						ND						ND							ND{ND}					CW-13D
CW-14S	ND						ND						ND																													CW-14S
CW-14D	ND						ND						ND																													CW-14D
CW-15	ND						ND						ND					ND																								CW-15
IW-1(RW-1)	41					130+	430+		210	410		190	ND			643		358					981						1060							360					IW-1(RW-1)
IW-2(RW-2)	5.6					4000+	2400+		6200	5200		5500	4800			10200		4750					4920						DRY							2600					IW-2(RW-2)
RW-3	4300+						5000						3800					8620						4160	0.00230					2540							610					RW-3
IW-3(RW-4)	2.5					510+	1700		3100			*DRY*	*DRY*					980						DRY						DRY							DRY					IW-3(RW-4)
RW-5	1300+	0.00026		2900+			1900	0.000697		2000	0.0017		5200	0.00013		4040		2860	0.00328		2350	0.00016		3820	0.00009		2740	0.00030		3410	0.00259		2050{2220}	0.000175{0.000162}			650{470}	0.000398{0.00047}			0.022	RW-5
RW-6	310+	0.000009		780+			460			470			700			289		306	0.00033		279			498			400			418			436				110					RW-6
RW-7	2300+			3700+			3100+			2300			3200			2850		2580			2680			2110	0.00005		2080			2740			1970				320				0.012 J	RW-7
RW-8							ND			ND		ND	ND		ND	ND	ND	ND		ND	ND		ND	ND	0.056	ND		ND	ND		ND	ND/ND		ND/ND	0.24	ND/ND{ND}		0.42(0.56)	0.034 J	0.29{0.31}	RW-8
RW-9							ND			ND		ND	ND		ND	ND	ND	ND		ND	ND		ND	ND	0.076	0.079 J		0.44 J	ND		ND	ND/ND{ND}		0.099/ND	0.14	0.14/ND		0.27	0.14	0.24	RW-9
RW-10							ND			160		ND	ND		ND	ND	ND	ND		ND	ND		2.4 J	ND	0.062	ND		0.30 J	ND		ND	ND/ND		0.076/ND	0.18	ND/ND		0.30	0.048 J	0.29	RW-10
CTR	330+	0.0040		710+			420+	0.00233		1200	0.000031		500	0.00227		775		415	0.00018		509	0.00959		255	0.00565		287	0.00071		430	0.00048		575	0.000518			43	0.000156				CTR
Plant Inf.	1700	0.00012	1600	3300	0.0019	2200	1900	0.197	3600	1900	0.0000	1800	2400	0.0014	2200	3620		3240	0.00014	2740				1710	0.00012		2010	0.00051	1780	1530	0.00128	1530	1790	0.000381		600		690	0.000127		920		Plant Inf.
MW-1	2.6		5.0	27		8.1	ND		18	81		19	2.4		ND	10.6	3.4	ND		ND	3.3		ND	ND		ND			1.8	ND		ND			ND		ND			ND		MW-1
MW-2	0.50		ND	2.9		3.7	12		ND	0.73		1.3	ND		ND	ND	ND	4.3		ND	1.70		ND	2.8		ND	ND		0.52	3.0 J		ND			ND		ND			ND		MW-2
MW-3	1500+						900+						920					1040		1040				599						773							49					MW-3
CW-16S	1200+						470+	0.00833					2300	0.022				101	0.00274					8.4	0.00310					7.0	0.0166						3.0 J	0.000849				CW-16S
CW-16I																																									CW-16I
CW-16D	48	0.00105					31						33					29.55	0.00048					3.7						7.3							ND					CW-16D
CW-17D	2500+						2700						1800					3780						1300						2800							410					CW-17D
CW-18D	0.30						10						ND					52.6						59.8						ND							ND					CW-18D
CW-19D	2400+						1800+						1300					1030						554						1040							390					CW-19D
CW-20S	9.2						ND						6.5					5.0						2.1						3.7 J							1.0 J					CW-20S
CW-20D	2.2						ND						ND					ND						ND						ND							ND					CW-20D
CW-21S	770+		410	690+		350+	710		990	1000		1700	1300		2000	1340	1370	833		985			883	892		475			523							450					CW-21S
CW-21D	660+		530	610+		370+	590		660	780		1600	1300		2100	1360	1070	830		846			864	1030		496			806							530{500}					CW-21D
CW-22S	ND		ND	0.28		16.0	ND		ND	1.10		ND	ND		ND	ND	ND	ND		ND	ND		ND	ND		ND	ND		ND	ND		ND			ND		ND		0.17	CW-22S
CW-22D	ND		ND	0.22		8.2	ND		ND	54		ND	ND		0.97	ND	ND	ND		ND	8		ND	ND		ND	ND		ND	ND		ND			ND		ND			CW-22D
CW-23D	1.0						ND						ND					ND						ND						ND							ND					CW-23D
CW-24D				3900	0.0093		2700+	0.00503					4000	0.0062				2230	0.00603					1920	0.00147					1180	0.00674						620	0.0296				CW-24D
CW-25D																																									CW-25D
CW-26D	88+					2500	2100+		3400	2800		2900	1300			3260		3560					4.1						3.7 J							ND					CW-26D
CW-27D	1500+					4800	2400		6100	3600		5200	4600			3740		1810					1950						1310							490{540}				ND	CW-27D
CW-28D	3000+					3000+							1800					6830						3230						219							490					CW-28D
IW-4(CW-29D)			4200			430+	73	0.00180	ND	450		250	2.9	0.00087		112		11	0.00025					97.1	0.00031					47.8	0.00075						50					IW-4(CW-29D)
IW-5(CW-30D)	2400+					2800+	ND		46	380		250	ND			3.65		33.2						37.5						172							3.0 J					IW-5(CW-30D)
CW-31D																																									CW-31D
CW-32							ND			ND		ND	ND		ND		ND	ND		ND			ND	ND		ND			ND			ND/ND			0.54	ND/ND		0.74		0.66	CW-32
CW-33							ND			ND		ND	ND		ND		ND	ND		ND			ND	ND		ND			ND			ND/ND			0.45	ND/ND		0.66		0.47	CW-33
CW-34							ND			ND		ND	ND		ND		ND	ND		ND			ND	ND	0.10 J				ND			0.098J/ND			0.30	0.088/ND		0.32		0.25	CW-34

TABLE 6
COMPARISON OF GROUNDWATER REMEDIATION GOALS TO SAMPLING RESULTS OF ROS WELLS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-RW-8																							
Sample Date:	**Goals for Groundwater**	**3/19/2012**	**9/24/2012**	**12/17/2012**	**3/19/2013**	**6/12/2013**	**11/12/2013**	**1/27/2014**	**4/29/2014**	**6/30/2014**	**10/1/2014**	**12/30/2014**	**4/20/2015**	**7/1/2015**	**9/21/2015**	**12/16/2015**	**3/21/2016**	**6/14/2016**	**9/14/2016**	**12/21/2016**	**3/20/2017**	**6/14/2017**
INORGANICS	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
Aluminum	200	200 U	NA	NA	1510	NA	NA	NA	89 U	NA	NA	NA	89 U	NA	NA	NA	NA	NA	0.11	NA	8.58	NA
Arsenic	10	10 U	NA	NA	10 U	NA	NA	NA	3	NA	NA	NA	3 U	NA	NA	NA	NA	NA	0.003 U	NA	0.0024	NA
Barium	2000	90.4 J	NA	NA	231 J	NA	NA	NA	81	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.097	NA	0.251	NA
Iron	300	100 U	NA	NA	6180 J	NA	NA	NA	23	NA	NA	NA	52 J	NA	NA	NA	NA	NA	0.43	NA	15.9	NA
Manganese	50	865	NA	NA	1830	NA	NA	NA	760	NA	NA	NA	4.8 J	NA	NA	NA	NA	NA	0.54	NA	0.333	NA
Vanadium	3.1	50 U	NA	NA	50 U	NA	NA	NA	2.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0021 J	NA	0.0215	NA
SEMIVOLATILES	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**µg/L**	**µg/L**	**µg/L**
2-Methyl-4,6-dinitrophenol	1.7	10 U	10 U	10 U	10 U	10 U	7.6 U	7.5 U	7.5 U	7.5 U	7.6 U	7.5 U	7.6 U	7.5 U	7.7 U	6 U	5.6 U	5.7 U	6 U	5 U	5 U	5 U
2-Methylnaphthalene	2	5 U	5 U	5 U	5 U	5 U	1.9 U	1.9 U	1.4 U	1.4 U	1.9 U	1.4 U	1.4 U	1.4 U	1.4 U	1.5 U	1.4 U	1.4 U	1.5 U	0.1 U	0.1 U	0.1 U
Benzo(a)pyrene	0.2	5 U	5 U	5 U	5 U	5 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.5 U	1.4 U	1.4 U	1.5 U	0.1 U	0.1 U	0.1 U
Bis(2-ethylhexyl)phthalate	6	5 U	5 U	5 U	5 U	5 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.9 U	3 U	2.8 U	2.9 U	3 U	2 U	2 U	2 U
Dibenzofuran	4	5 U	5 U	5 U	5 U	5 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.9 U	3 U	2.8 U	2.9 U	3 U	0.5 U	0.5 U	0.5 U
Naphthalene	3	5 U	5 U	5 U	5 U	5 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.5 U	1.4 U	1.4 U	1.5 U	0.1 U	0.1 U	0.1 U
Pentachlorophenol	1	10 U	10 U	10 U	10 U	10 U	15.2 U	15.1 U	15 U	15.1 U	0.93 U	15.1 U	14.9 U	15 U	0.19 U	0.19 U	5.6 U	0.19 U	6 U	1 U	1 U	1 U
Phenanthrene	41	5 U	5 U	5 U	5 U	5 U	1.4 U	1.4 U	1.4 U	1.4 U	0.018 J	1.4 U	1.4 U	1.4 U	1.4 U	0.1 U	1.4 U	1.4 U	1.5 U	0.1 U	0.1 U	0.1 U
VOLATILES	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**µg/L**	**µg/L**	**µg/L**
Benzene	5	5 U	5 U	5 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.1 U	0.1 U	0.1 U
Ethylbenzene	700	5 U	5 U	5 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.1 U	0.1 U	0.1 U
Toluene	1000	5 U	5 U	5 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.1 U	0.1 U	0.1 U
Trichloroethene	5	5 U	5 U	5 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.1 U	0.1 U	0.1 U
Vinyl Chloride	5	5 U	5 U	5 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.1 U	0.1 U	0.1 U
HERBICIDES	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**
Pentachlorophenol	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES	**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**	**ug/L**	**µg/L**
Dieldrin	0.038	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**0.24**	**0.42**	**0.29**

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation Limit
5.5 - Exceeds Remediation Goal for GW

TABLE 6
COMPARISON OF GROUNDWATER REMEDIATION GOALS TO SAMPLING RESULTS OF ROS WELLS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-RW-9																					
Sample Date:	Goals for Groundwater	3/19/2012	9/24/2012	12/20/2012	3/19/2013	6/12/2013	11/12/2013	1/27/2014	4/29/2014	6/30/2014	10/1/2014	12/30/2014	4/20/2014	7/1/2015	9/21/2015	12/16/2015	12/16/2015	3/21/2016	6/14/2016	9/14/2016	12/21/2016	3/20/2017	6/14/2017
INORGANICS	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
Aluminum	200	200 U	NA	NA	200 U	NA	NA	NA	89 U	NA	NA	NA	590	NA	NA	NA	NA	NA	NA	0.36	NA	0.0528 J	NA
Arsenic	10	10 U	NA	NA	10 U	NA	NA	NA	3	NA	NA	NA	3 U	NA	NA	NA	NA	NA	NA	0.003 U	NA	0.003 U	NA
Barium	2000	85.5 J	NA	NA	200 U	NA	NA	NA	82	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.11	NA	0.107	NA
Iron	300	100 U	NA	NA	100 U	NA	NA	NA	19	NA	NA	NA	220	NA	NA	NA	NA	NA	NA	0.92	NA	0.232	NA
Manganese	50	1940	NA	NA	364	NA	NA	NA	730	NA	NA	NA	35	NA	NA	NA	NA	NA	NA	1.7	NA	0.991	NA
Vanadium	3.1	50 U	NA	NA	50 U	NA	NA	NA	2.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0029	NA	0.00077	NA
SEMIVOLATILES	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**µg/L**	**µg/L**	**µg/L**
2-Methyl-4,6-dinitrophenol	1.7	10 U	10 U	10 U	10 U	10 U	7.6 U	7.6 U	7.4 U	7.7 U	8.1 U	7.6 U	7.4 U	7.6 U	7.5 U	5.9 U	5.9 U	5.6 U	5.6 U	5.9 U	5 U	5 U	5 U
2-Methylnaphthalene	2	5 U	5 U	5 U	5 U	5 U	1.4 U	1.4 U	1.4 U	1.4 U	1.5 U	1.4 U	1.4 U	1.4 U	1.4 U	1.5 U	1.5 U	1.4 U	1.4 U	1.5 U	0.1 U	0.1 U	0.1 U
Benzo(a)pyrene	0.2	5 U	5 U	5 U	5 U	5 U	1.4 U	1.4 U	1.4 U	1.4 U	1.5 U	1.4 U	1.4 U	1.4 U	1.4 U	1.5 U	1.5 U	1.4 U	1.4 U	1.5 U	0.1 U	0.1 U	0.1 U
Bis(2-ethylhexyl)phthalate	6	5 U	5 U	5 U	5 U	5 U	2.9 U	2.8 U	2.8 U	2.9 U	3 U	2.8 U	2.8 U	2.8 U	2.8 U	2.9 U	3 U	2.8 U	2.8 U	3 U	2 U	2 U	2 U
Dibenzofuran	4	5 U	5 U	5 U	5 U	5 U	2.9 U	2.8 U	2.8 U	2.9 U	3 U	2.8 U	2.8 U	2.82.9 U	2.8 U	2.9 U	3 U	2.8 U	2.8 U	3 U	0.5 U	0.5 U	0.5 U
Naphthalene	3	5 U	5 U	5 U	5 U	5 U	1.4 U	1.4 U	1.4 U	1.4 U	1.5 U	1.4 U	1.4 U	1.4 U	1.4 U	1.5 U	0.75 J	1.4 U	1.4 U	0.72 J	0.1 U	0.1 U	0.1 U
Pentachlorophenol	1	10 U	10 U	10 U	10 U	10 U	15.2 U	15.2 U	14.8 U	15.5 U	16.2 U	15.2 U	14.9 U	15 U	0.079 J	0.41	0.43	5.6 U	0.19 U	5.9 U	1 U	1 U	1 U
Phenanthrene	41	5 U	5 U	5 U	5 U	5 U	1.4 U	1.4 U	1.4 U	1.4 U	1.5 U	1.4 U	1.4 U	1.4 U	1.4 U	0.098 U	0.099 U	1.4 U	1.4 U	0.14 J	0.1 U	0.1 U	0.1 U
VOLATILES	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**µg/L**	**µg/L**	**µg/L**
Benzene	5	0.5 U	5 U	5 U	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.1 U	0.1 U	0.1 U
Ethylbenzene	700	0.5 U	5 U	5 U	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.1 U	0.1 U	0.1 U
Toluene	1000	0.5 U	5 U	0.75 J	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.1 U	0.1 U	0.1 U
Trichloroethene	5	0.5 U	5 U	5 U	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.1 U	0.1 U	0.1 U
Vinyl Chloride	5	0.5 U	5 U	5 U	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.1 U	0.1 U	0.1 U
HERBICIDES	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**
Pentachlorophenol	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PESTICIDES	**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**	**ug/L**	**µg/L**
Dieldrin	0.038	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**0.14**	**0.27**	**0.24**

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation l
5.5 - Exceeds Remediation Goal for GW

TABLE 6
COMPARISON OF GROUNDWATER REMEDIATION GOALS TO SAMPLING RESULTS OF ROS WELLS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-RW-10																													
Sample Date:	Goals for Groundwater	3/19/2012		10/2/2012		12/20/2012		3/19/2013		6/12/2013		11/12/2013		1/27/2014		4/29/2014		6/30/2014		10/1/2014		12/30/2014		4/20/2015		7/1/2015		9/21/2015		12/16/2015		3/21/2016	
INORGANICS	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aluminum	200	200	U	NA		NA		200	U	NA		NA		NA		44	U	NA		NA		NA		180		NA		NA		NA		0.2	
Arsenic	10	10	U	NA		NA		10	U	NA		NA		NA		3		NA		NA		NA		3	U	NA		NA		NA		0.003	U
Barium	2000	85.8	J	NA		NA		200	U	NA		NA		NA		110		NA		NA		NA		NA		NA		NA		NA		0.21	
Iron	300	100	U	NA		NA		2850	J	NA		NA		NA		390		NA		NA		NA		540		NA		NA		NA		1.3	
Manganese	50	1600		NA		NA		1240		NA		NA		NA		1400		NA		NA		NA		480		NA		NA		NA		3.2	
Vanadium	3.1	50	U	NA		NA		50	U	NA		NA		NA		0.85	U	NA		NA		NA		NA		NA		NA		NA		0.0027	
SEMIVOLATILES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**µg/L**	
2-Methyl-4,6-dinitrophenol	1.7	10	U	10	U	10	U	10	U	10	U	7.5	U	7.6	U	7.5	U	7.5	U	7.5	U	7.7	U	7.6	U	7.4	U	7.7	U	5.7	U	6.2	U	5.8	U	5.9	U	5	U
2-Methylnaphthalene	2	5	U	2.7	J	5	U	5	U	5	U	1.9	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.5	U	1.4	U	1.5	U	0.1	U
Benzo(a)pyrene	0.2	5	U	5	U	5	U	5	U	5	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.5	U	1.4	U	1.5	U	0.1	U
Bis(2-ethylhexyl)phthalate	6	5	U	5	U	5	U	5	U	5	U	2.8	U	2.9	U	2.8	U	2.8	U	2.8	U	2.9	U	2.8	U	2.8	U	2.9	U	2.8	U	3.1	U	2.9	U	3	U	2	U
Dibenzofuran	4	5	U	0.21	J	5	U	5	U	5	U	2.8	U	2.9	U	2.8	U	2.8	U	2.8	U	2.9	U	2.8	U	2.8	U	2.9	U	2.8	U	3.1	U	2.9	U	3	U	0.5	U
Naphthalene	3	5	U	13		5	U	5	U	5	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.4	U	1.5	U	1.4	U	1.5	U	0.1	JB
Pentachlorophenol	1	10	U	160	J	10	U	10	U	10	U	15.1	U	15.2	U	15	U	15.1	U	0.94	U	2.4	J	15.2	U	14.9	U	0.19	U	0.19	U	6.2	U	0.19	U	5.9	U	1	U
Phenanthrene	41	5	U	0.5	J	5	U	5	U	5	U	1.4	U	1.4	U	1.4	U	1.4	U	0.094	U	1.4	U	1.4	U	1.4	U	1.4	U	0.095	U	1.5	U	1.4	U	1.5	U	0.1	U
VOLATILES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**µg/L**	
Benzene	5	0.5	U	5	U	5	U	1	U	5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	0.1	U
Ethylbenzene	700	0.5	U	5	U	5	U	1	U	5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	0.1	U
Toluene	1000	0.5	U	5	U	1.2	J	1	U	5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2.0		1	U	1	U	0.1	U
Trichloroethene	5	0.5	U	5	U	5	U	1	U	5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	0.1	U
Vinyl Chloride	5	0.5	U	5	U	5	U	1	U	5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	0.1	U
HERBICIDES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
PESTICIDES	**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**	
Dieldrin	0.038	**NA**		**NA**		**NA**		**NA**		**NA**		**NA**		**NA**		**NA**		**NA**		**NA**		**NA**		**NA**		**NA**		**NA**		**NA**		**NA**		**0.18**		**0.3**		**0.29**	

Sample ID:	Remediation	HAV-LTR-RW-10																													
Sample Date:	Goals for Groundwater	6/14/2016		9/14/2016		12/21/2016		3/20/2017		6/14/2017																					
INORGANICS	**ug/L**	**ug/L**		**mg/L**		**mg/L**		**mg/L**		**mg/L**																					
Aluminum	200	NA		0.2		NA		0.1	U	NA																					
Arsenic	10	NA		0.003	U	NA		0.003	U	NA																					
Barium	2000	NA		0.21		NA		0.125		NA																					
Iron	300	NA		1.3		NA		0.262		NA																					
Manganese	50	NA		3.2		NA		1.1		NA																					
Vanadium	3.1	NA		0.0027		NA		0.00031	J	NA																					
SEMIVOLATILES	**ug/L**	**ug/L**		**ug/L**		**µg/L**		**µg/L**		**µg/L**																					
2-Methyl-4,6-dinitrophenol	1.7	5.8	U	5.9	U	5	U	5	U	5	U																				
2-Methylnaphthalene	2	1.4	U	1.5	U	0.1	U	0.1	U	0.1	U																				
Benzo(a)pyrene	0.2	1.4	U	1.5	U	0.1	U	0.1	U	0.1	U																				
Bis(2-ethylhexyl)phthalate	6	2.9	U	3	U	2	U	2	U	2	U																				
Dibenzofuran	4	2.9	U	3	U	0.5	U	0.5	U	0.5	U																				
Naphthalene	3	1.4	U	1.5	U	0.1	JB	0.1	U	0.1	U																				
Pentachlorophenol	1	6.2	U	5.9	U	1	U	1	U	1	U																				
Phenanthrene	41	1.4	U	1.5	U	0.1	U	0.1	U	0.1	U																				
VOLATILES	**ug/L**	**ug/L**		**ug/L**		**µg/L**		**µg/L**		**µg/L**																					
Benzene	5	1	U	1	U	0.1	U	0.1	U	0.1	U																				
Ethylbenzene	700	1	U	1	U	0.1	U	0.1	U	0.1	U																				
Toluene	1000	1	U	1	U	0.1	U	0.1	U	0.1	U																				
Trichloroethene	5	1	U	1	U	0.1	U	0.1	U	0.1	U																				
Vinyl Chloride	5	1	U	1	U	0.1	U	0.1	U	0.1	U																				
HERBICIDES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**																					
Pentachlorophenol	1	NA		NA		NA		NA		NA																					
PESTICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**ug/L**		**µg/L**																					
Dieldrin	0.038	**NA**		**NA**		**0.18**		**0.3**		**0.29**																					

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation l
5.5 - Exceeds Remediation Goal for GW

TABLE 6
COMPARISON OF GROUNDWATER REMEDIATION GOALS TO SAMPLING RESULTS OF ROS WELLS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW32																												
Sample Date:	Goals for	10-May		10-Dec		3/19/2012		9/24/2012		12/17/2012		3/19/2013		6/12/2013		1/27/2014		4/29/2014		6/30/2014		12/30/2014		4/20/2015		7/1/2015		3/21/2016		9/14/2016		12/21/2016		3/20/2017		6/14/2017	
	Groundwater																																		
INORGANICS	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aluminum	200	NA		NA		70.7	J	NA		NA		200	U	NA		NA		150		NA		NA		69	J	NA		NA		**950**		NA		628		NA	
Arsenic	10	NA		NA		10	U	NA		NA		10	U	NA		NA		3	U	NA		NA		3	U	NA		NA		3	U	NA		ND		NA	
Barium	2000	NA		NA		180	J	NA		NA		200	UJ	NA		NA		200		NA		NA		NA		NA		NA		240		NA		241		NA	
Iron	300	NA		NA		100	U	NA		NA		100	UJ	NA		NA		150		NA		NA		56	U	NA		NA		**1300**		NA		**740**		NA	
Manganese	50	NA		NA		48.6		NA		NA		42.9		NA		NA		49		NA		NA		**51**		NA		NA		**77**		NA		**66.1**		NA	
Vanadium	3.1	NA		NA		50	U	NA		NA		50	U	NA		NA		1		NA		NA		NA		NA		NA		**3.8**		NA		1.7		NA	
SEMIVOLATILES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
2-Methyl-4,6-dinitrophenol	1.7	10	U	9	U	9.9	U	10	U	10	U	10	U	10	U	7.5	U	7.5	U	7.4	U	8.4	U	7.6	U	7.8	U	5.8	U	5.8	U	NA		ND		NA	
2-Methylnaphthalene	2	5	U	4	U	5	U	5	U	5	U	5	U	5	U	1.9	U	1.4	U	1.4	U	1.6	U	1.4	U	1.5	U	1.5	U	1.4	U	NA		ND		NA	
Benzo(a)pyrene	0.2	5	U	4	U	5	U	5	U	5	U	5	U	5	U	1.4	U	1.4	U	1.4	U	1.6	U	1.4	U	1.5	U	1.5	U	1.4	U	NA		ND		NA	
Bis(2-ethylhexyl)phthalate	6	5	U	4	B	5	U	5	U	5	U	5	U	5	U	2.8	U	2.8	U	2.8	U	3.2	U	2.8	U	2.9	U	2.9	U	0.27	J	NA		ND		NA	
Dibenzofuran	4	5	U	4	U	5	U	5	U	5	U	5	U	5	U	2.8	U	2.8	U	2.8	U	3.2	U	2.8	U	2.9	U	2.9	U	2.9	U	NA		ND		NA	
Naphthalene	3	5	U	4	U	5	U	5	U	5	U	5	U	5	U	1.4	U	1.4	U	1.4	U	1.6	U	1.4	U	1.5	U	1.5	U	1.4	U	NA		ND		NA	
Pentachlorophenol	1	10	U	**1**	J	9.9	UJ	10	U	10	U	10	U	10	U	15.1	U	15.1	U	14.8	U	16.8	U	15.2	U	0.19	U	5.8	U	5.8	U	NA		ND		NA	
Phenanthrene	41	5	U	4	U	5	U	5	U	5	U	5	U	5	U	1.4	U	1.4	U	1.4	U	1.6	U	1.4	U	1.5	U	1.5	U	1.4	U	NA		ND		NA	
VOLATILES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Benzene	5	5	U	5	U	0.5	UJ	5	U	5	U	5	U	5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		ND		NA	
Ethylbenzene	700	5	U	5	U	0.5	UJ	5	U	5	U	5	U	5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		ND		NA	
Toluene	1000	5	U	5	U	0.5	UJ	5	U	5	U	5	U	5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		ND		NA	
Trichloroethene	5	5	U	5	U	0.5	UJ	5	U	5	U	5	U	5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		ND		NA	
Vinyl Chloride	5	5	U	5	U	0.5	UJ	5	U	5	U	5	U	5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		ND		NA	
HERBICIDES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**µg/L**		**ug/L**		**µg/L**	
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		0.19	U	NA		ND		NA	
PESTICIDES	**µg/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**µg/L**		**ug/L**		**µg/L**	
Dieldrin	0.038	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		**0.54**		**0.74**		**0.66**	

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation l
5.5 - Exceeds Remediation Goal for GW

TABLE 6
COMPARISON OF GROUNDWATER REMEDIATION GOALS TO SAMPLING RESULTS OF ROS WELLS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Sample ID:	**Remediation**	**HAV-LTR-CW33**																	
Sample Date:	**Goals for**	**10-May**	**10-Dec**	**3/19/2012**	**9/24/2012**	**12/17/2012**	**3/19/2013**	**6/12/2013**	**1/27/2014**	**4/29/2014**	**6/30/2014**	**12/30/2014**	**4/20/2015**	**7/1/2015**	**3/21/2016**	**9/14/2016**	**12/21/2016**	**3/20/2017**	**6/14/2017**
	Groundwater																		
INORGANICS	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**
Aluminum	200	NA	NA	117 J	NA	NA	200 U	NA	NA	89 U	NA	NA	89 U	NA	NA	89 U	NA	ND	NA
Arsenic	10	NA	NA	10 U	NA	NA	10 U	NA	NA	3 U	NA	NA	3 U	NA	NA	3 U	NA	ND	NA
Barium	2000	NA	NA	125 J	NA	NA	200 UJ	NA	NA	140	NA	NA	NA	NA	NA	150	NA	167	NA
Iron	300	NA	NA	188	NA	NA	100 UJ	NA	NA	25	NA	NA	34 J	NA	NA	19 J	NA	68.9 J	NA
Manganese	50	NA	NA	16.8	NA	NA	15 U	NA	NA	6.1	NA	NA	7.2	NA	NA	4 J	NA	3.9	NA
Vanadium	3.1	NA	NA	50 U	NA	NA	50 U	NA	NA	2.2 U	NA	NA	NA	NA	NA	0.99 J	NA	0.43 J	NA
SEMIVOLATILES	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**
2-Methyl-4,6-dinitrophenol	1.7	10 U	10 U	9.9 U	10 U	10 U	10 U	10 U	7.5 U	7.5 U	7.6 U	8.9 U	7.9 U	7.6 U	5.8 U	5.7 U	NA	ND	NA
2-Methylnaphthalene	2	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1.9 U	1.4 U	1.4 U	1.7 U	1.5 U	1.4 U	1.4 U	1.4 U	NA	ND	NA
Benzo(a)pyrene	0.2	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1.4 U	1.4 U	1.4 U	1.7 U	1.5 U	1.4 U	1.4 U	1.4 U	NA	ND	NA
Bis(2-ethylhexyl)phthalate	6	5 U	5 B	5 U	5 U	5 U	5 U	5 U	2.8 U	2.8 U	2.9 U	3.3 U	3 U	2.8 U	2.9 U	2.9 U	NA	ND	NA
Dibenzofuran	4	5 U	5 U	5 U	5 U	5 U	5 U	5 U	2.8 U	2.8 U	2.9 U	3.3 U	3 U	2.8 U	2.9 U	2.9 U	NA	ND	NA
Naphthalene	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1.4 U	1.4 U	1.4 U	1.7 U	1.5 U	1.4 U	1.4 U	0.4 J	NA	ND	NA
Pentachlorophenol	1	10 U	0 J	9.9 UJ	10 U	10 U	10 U	10 U	15.1 U	15 U	15.2 U	17.8 U	15.8 U	0.19 U	5.8 U	5.7 U	NA	ND	NA
Phenanthrene	41	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1.4 U	1.4 U	1.4 U	1.7 U	1.5 U	1.4 U	1.4 U	1.4 U	NA	ND	NA
VOLATILES	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**
Benzene	5	5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	ND	NA
Ethylbenzene	700	5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	ND	NA
Toluene	1000	5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	ND	NA
Trichloroethene	5	5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	ND	NA
Vinyl Chloride	5	5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA	ND	NA
HERBICIDES	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**µg/L**	**ug/L**	**µg/L**
Pentachlorophenol	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.19 U	NA	ND	NA
PESTICIDES	**µg/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**ug/L**	**µg/L**	**ug/L**	**µg/L**
Dieldrin	0.038	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.45**	**0.66**	**0.47**

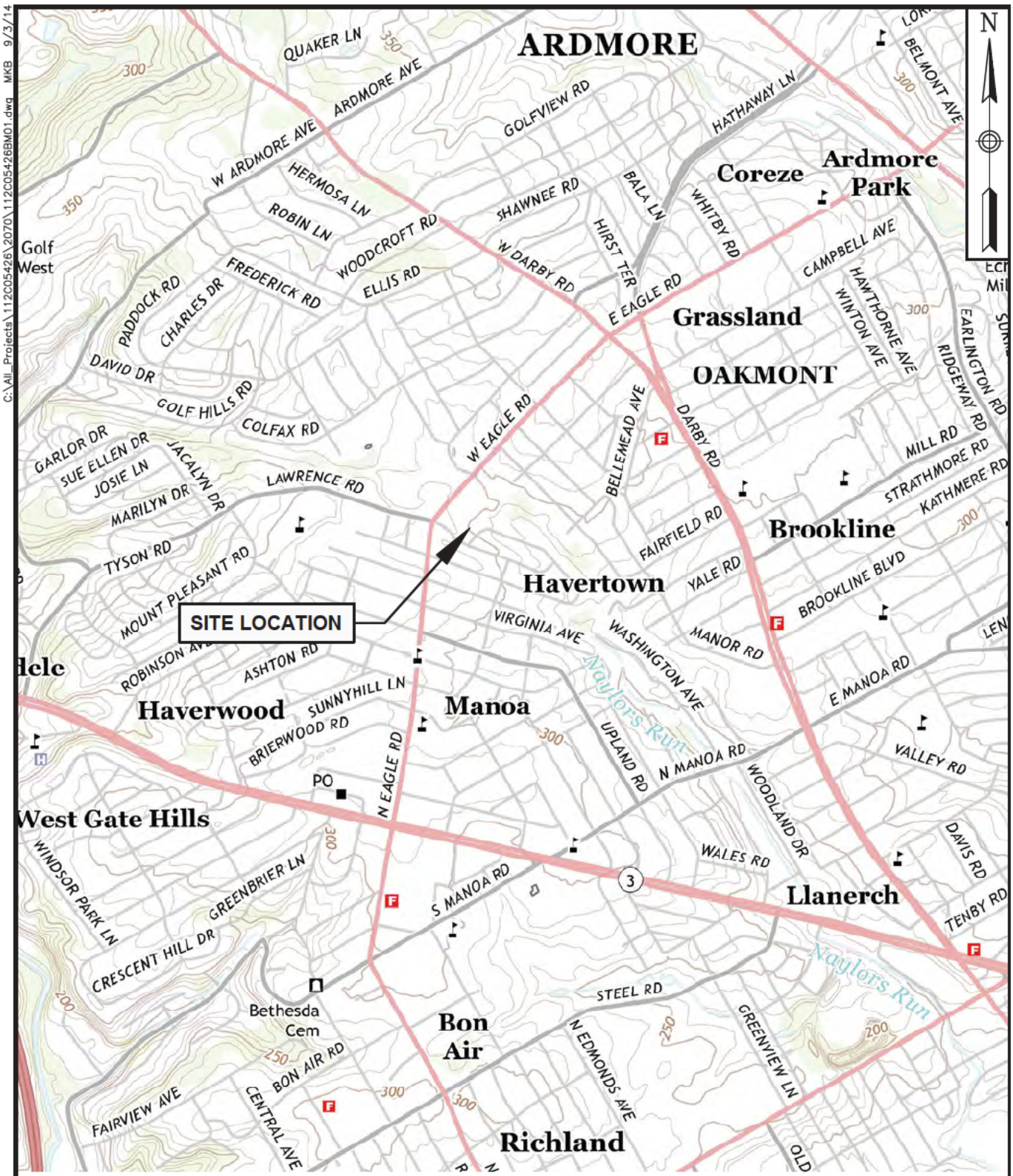
NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation I
5.5 - Exceeds Remediation Goal for GW

TABLE 6
COMPARISON OF GROUNDWATER REMEDIATION GOALS TO SAMPLING RESULTS OF ROS WELLS
HAVERTOWN PCP SUPERFUND SITE
HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW34																		HAV-LTR-MW1I	HAV-LTR-MW1S	HAV-LTR-MW2I	HAV-LTR-MW2S
Sample Date:	Goals for	10-May	10-Dec	3/19/2012	9/24/2012	12/17/2012	3/19/2013	6/12/2013	1/27/2014	4/29/2014	6/30/2014	12/30/2014	4/20/2015	7/1/2015	3/21/2016	9/14/2016	12/21/2016	3/20/2017	6/14/2017	9/14/2016	9/14/2016	9/14/2016	9/14/2016
	Groundwater																						
INORGANICS	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Aluminum	200	NA	NA	156 J	NA	NA	200 U	NA	NA	34	NA	NA	31 J	NA	NA	55 J	NA	**682**	NA	**1700**	**2700**	89 U	89 U
Arsenic	10	NA	NA	10 U	NA	NA	10 U	NA	NA	3 U	NA	NA	3 U	NA	NA	3 U	NA	ND	NA	4.5	1.6 J	3 U	8.9
Barium	2000	NA	NA	108 J	NA	NA	200 UJ	NA	NA	94	NA	NA	NA	NA	NA	110	NA	122	NA	28	69	37	140
Iron	300	NA	NA	248	NA	NA	115 J	NA	NA	94	NA	NA	45 J	NA	NA	77	NA	**1020**	NA	**360**	260	56 J	**20400**
Manganese	50	NA	NA	**526**	NA	NA	**217**	NA	NA	**58**	NA	NA	45	NA	NA	**110**	NA	**368**	NA	**950**	**880**	**210**	**660**
Vanadium	3.1	NA	NA	50 U	NA	NA	50 U	NA	NA	0.75	NA	NA	NA	NA	NA	1.3 J	NA	1.9	NA	1.4 J	1.3 J	0.83 J	1 J
SEMIVOLATILES	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
2-Methyl-4,6-dinitrophenol	1.7	10 U	10 U	9.8 U	10 U	10 U	10 U	10 U	7.8 U	7.5 U	7.4 U	8.1 U	7.9 U	7.7 U	6.4 U	5.7 U	NA	ND	NA	NA	NA	NA	NA
2-Methylnaphthalene	2	5 U	5 U	4.9 U	5 U	5 U	5 U	5 U	1.9 U	1.4 U	1.4 U	1.5 U	1.5 U	1.4 U	1.6 U	1.4 U	NA	ND	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.2	5 U	5 U	4.9 U	5 U	5 U	5 U	5 U	1.5 U	1.4 U	1.4 U	1.5 U	1.5 U	1.4 U	1.6 U	1.4 U	NA	ND	NA	NA	NA	NA	NA
Bis(2-ethylhexyl)phthalate	6	5 U	5 B	4.9 U	5 U	5 U	5 U	5 U	2.9 U	2.8 U	2.8 U	3 U	3 U	2.9 U	0.53 J	2.8 U	NA	ND	NA	NA	NA	NA	NA
Dibenzofuran	4	5 U	5 U	4.9 U	5 U	5 U	5 U	5 U	2.9 U	2.8 U	2.8 U	3 U	3 U	2.9 U	3.2 U	2.8 U	NA	ND	NA	NA	NA	NA	NA
Naphthalene	3	5 U	5 U	4.9 U	5 U	5 U	5 U	5 U	1.5 U	1.4 U	1.4 U	1.5 U	1.5 U	1.4 U	1.6 U	1.4 U	NA	ND	NA	NA	NA	NA	NA
Pentachlorophenol	1	10 U	**3** J	9.8 UJ	10 U	10 U	10 U	10 U	15.5 U	15 U	14.8 U	16.2 U	15.8 U	15.5 U	6.4 U	5.7 U	NA	ND	NA	NA	NA	NA	NA
Phenanthrene	41	5 U	5 U	4.9 U	5 U	5 U	5 U	5 U	1.5 U	1.4 U	1.4 U	1.5 U	1.5 U	1.4 U	1.6 U	1.4 U	NA	ND	NA	NA	NA	NA	NA
VOLATILES	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Benzene	5	5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	NA	ND	NA	NA	NA	NA	NA
Ethylbenzene	700	5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	NA	ND	NA	NA	NA	NA	NA
Toluene	1000	5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	NA	ND	NA	NA	NA	NA	NA
Trichloroethene	5	5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	NA	ND	NA	NA	NA	NA	NA
Vinyl Chloride	5	5 U	5 U	0.5 U	5 U	5 U	5 U	5 U	1 U	NA	1 U	1 U	1 U	1 U	1 U	1 U	NA	ND	NA	NA	NA	NA	NA
HERBICIDES	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	µg/L	ug/L	µg/L	ug/L	ug/L	ug/L	ug/L
Pentachlorophenol	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.098 J	NA	0.088	NA	NA	NA	NA	NA
PESTICIDES	µg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	µg/L	ug/L	µg/L	ug/L	ug/L	ug/L	ug/L
Dieldrin	0.038	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**0.3**	**0.32**	**0.25**	NA	NA	NA	NA

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation
5.5 - Exceeds Remediation Goal for GW

FIGURES



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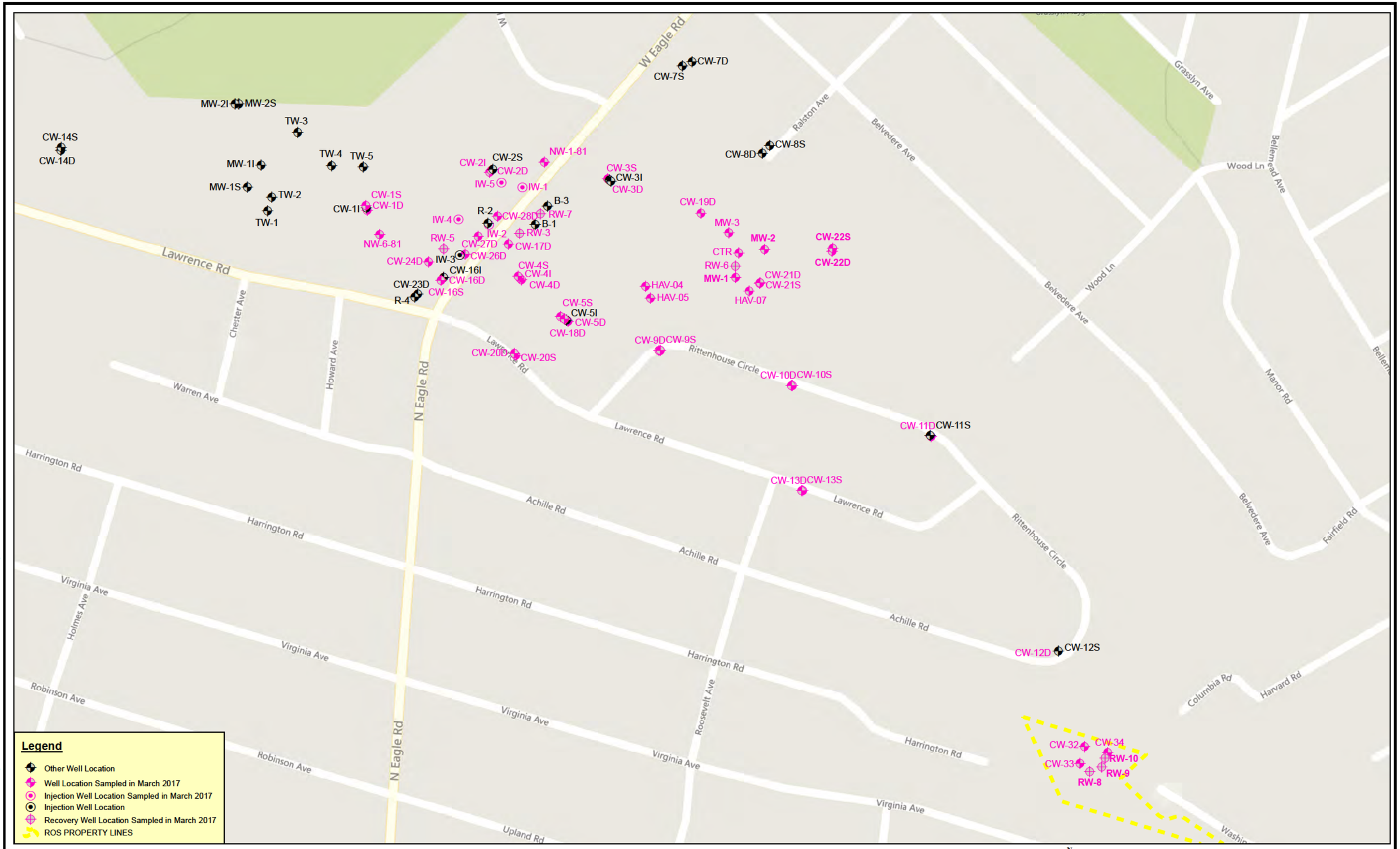
SITE LOCATION MAP
HAVERTOWN PCP SUPERFUND SITE
DELAWARE COUNTY
HAVERTOWN, PENNSYLVANIA

SCALE	AS NOTED
FILE	112C05426BM01
REV	0
DATE	09/03/14
FIGURE NUMBER	1


MW-2I
MW-2S
TW-3
CW-14S
CW-14D
MW-1I
TW-4
TW-5
MW-1S
TW-2
TW-1
CW-1S
CW-1I
CW-1D
NW-6-81
W Eagle Rd
CW-7D
CW-7S
CW-2I
CW-2S
CW-2D
NW-1-81
IW-5
IW-1
CW-3S
CW-3I
CW-3D
B-3
IW-4
R-2
CW-28D
RW-7
B-1
RW-5
IW-2
RW-3
CW-27D
CW-17D
CW-26D
CW-24D
IW-3
CW-4S
CW-4I
CW-4D
CW-16I
CW-16D
CW-23D
CW-16S
R-4
CW-5S
CW-5I
CW-5D
CW-18D
CW-20D
CW-20S
CW-8D
CW-8S
Ralston Ave
Belvedere Ave
Grasslyn Ave
Wood Ln
Bellemead Ave
CW-19D
MW-3
MW-2
CW-22S
CTR
CW-22D
RW-6
MW-1
CW-21D
CW-21S
HAV-04
HAV-05
HAV-07
Lawrence Rd
Chester Ave
Howard Ave
N Eagle Rd
Warren Ave
CW-9D
CW-9S
Rittenhouse Circle
CW-10D
CW-10S
Manor Rd
CW-11D
CW-11S
CW-13D
CW-13S
Harrington Rd
Achille Rd
Virginia Ave
Holmes Ave
Robinson Ave
Roosevelt Ave
Rittenhouse Circle
CW-12D
CW-12S
Columbia Rd
Harvard Rd
Fairfield Rd
CW-32
CW-34
RW-10
CW-33
RW-9
RW-8
Upland Rd
Legend
Other Well Location
Well Location Sampled in March 2017
Injection Well Location Sampled in March 2017
Injection Well Location
Recovery Well Location Sampled in March 2017
ROS PROPERTY LINES
TETRA TECH
This map is provided by Tetra Tech solely for display and reference purposes and is subject to change without notice. No claims, either real or assumed, as to the absolute accuracy or precision of any data contained herein are made by Tetra Tech, nor will Tetra Tech be held responsible for any use of this document for purposes other than which it was intended.
0 55 110 220 330 440
Feet
N
W
E
S
FIGURE 2 - WELLS SAMPLED IN MARCH 2017
HAVERTWON PCP SUPERFUND SITE
DELAWARE COUNTY
HAVERTOWN, PENNSYLVANIA
S:\03-Projects\Federal\EPA R3 RAC Assignments\Havertown\103IS3930- PADEP thru IRRSC-7\Data\GIS\Figure 2 - Wells Sampled in March 2017.mxd

MW-2S
ft msl

CW-14S
300.73 ft msl

MW-1S
ft msl

CW-1S
295.66 ft msl

NW-6-81
292.78 ft msl

CW-2S
290.82 ft msl

IW-1
290.34 ft msl

IW-2
289.1 ft msl

IW-3
288.42 ft msl

RW-3
288.79 ft msl

CW-16S
290.83 ft msl

CW-4S
287.28 ft msl

CW-5S
288.41 ft msl

CW-20S
288.39 ft msl

CW-3S
289.95 ft msl

CW-7S
288.89 ft msl

CW-8S
285.21 ft msl

MW-3
286.44 ft msl

CW-22S
279.14 ft msl

MW-2
281.29 ft msl

MW-1
281.31 ft msl

HAV-04
287.2 ft msl

HAV-05
288.01 ft msl

HAV-07
281.09 ft msl

CW-9S
287.94 ft msl

CW-10S
274.25 ft msl

CW-11S
268.27 ft msl

CW-13S
274.26 ft msl

CW-12S
263.67 ft msl

RW-10
244.87 ft msl

RW-9
241.78 ft msl

RW-8
242.02 ft msl

CW-33
256.01 ft msl

290

280

270

260

250

Lawrence Rd
Harrington Rd
Virginia Ave
Achille Rd
Lawrence Rd
Rittenhouse Rd
Belvedere Ave
Oakmont Ave
Grasslyn Ave
Bellemead Ave
Manor Rd
Columbia Rd
Fairfield
Chester Ave
Howard Ave
Warren Ave
Holmes Ave
N Eagle Rd
Roosevelt Ave
Robinson Ave
W Eagle Rd
Wood Ln
Grasslyn Playground

Legend

- Well Locations and Elevations in Feet Above Mean Sea Level (ft msl)
- Shallow Aquifer Contours March 2017
- ROS PROPERTY LINES

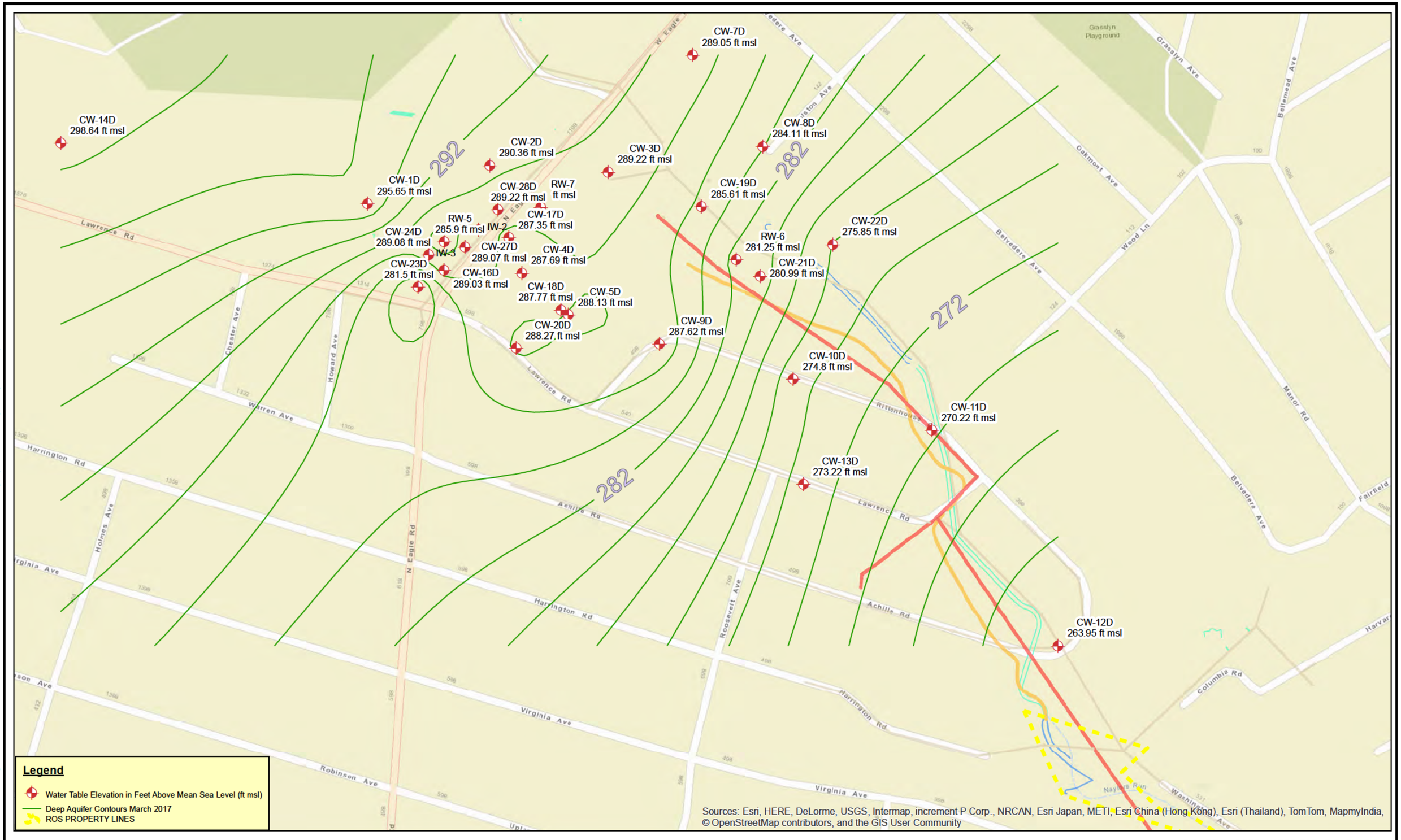
TETRA TECH

0 55 110 220 330 440 Feet

N W E S

FIGURE 3 - SHALLOW WATER TABLE ELEVATION
MARCH 2017
HAVERTWON PCP SUPERFUND SITE
DELAWARE COUNTY
HAVERTOWN, PENNSYLVANIA

S:\103-Projects\Federal\EPA R3 RAC Assignments\Havertown\103\S3930- PADEP thru IRRSC-7\Deliverables\Annual GW Monitoring Report 2016-2017\Figures\Figure 3 - Shallow Groundwater Contours March 2017.mxd



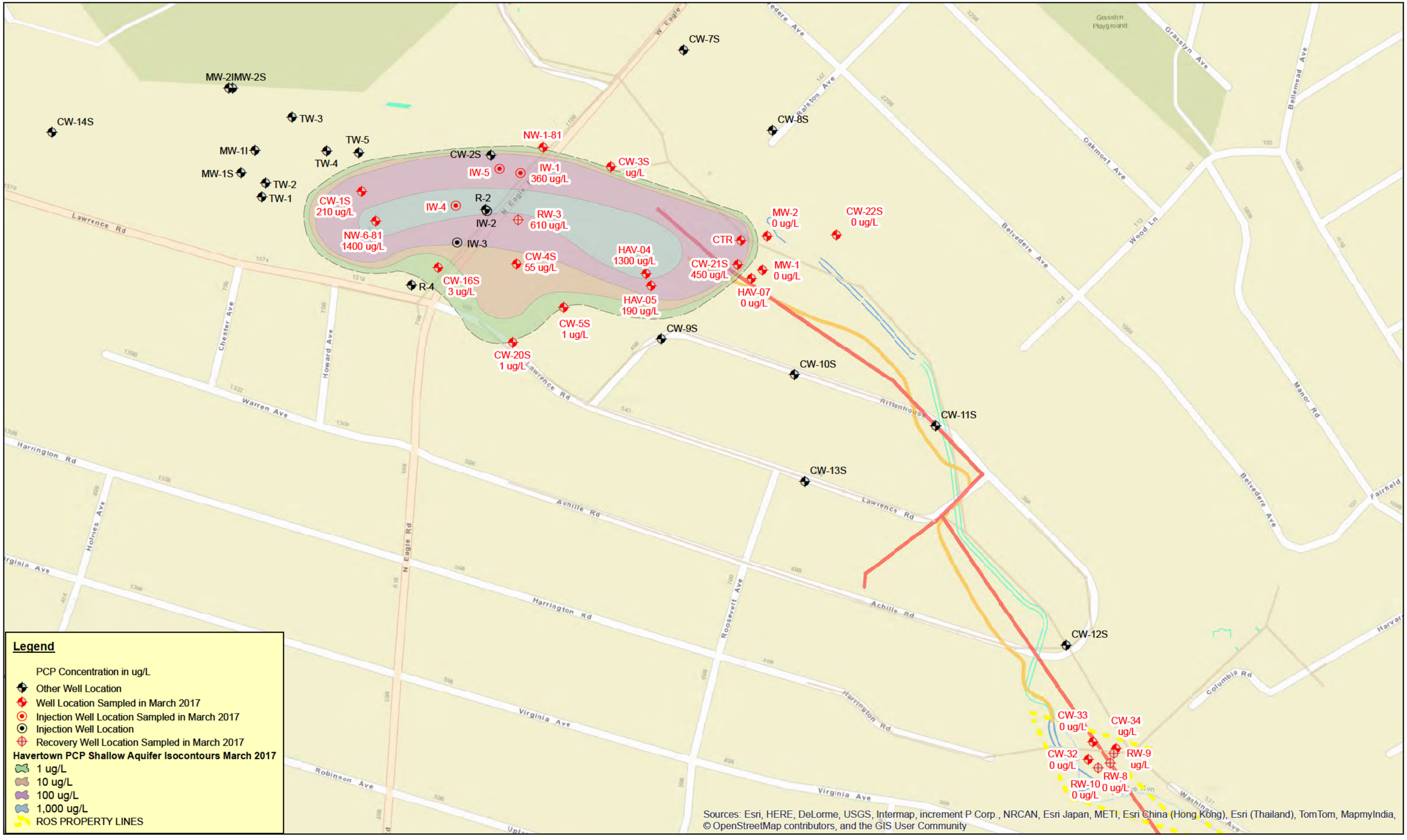
TETRA TECH

0 55 110 220 330 440 Feet

N W E S

FIGURE 4 - DEEP WATER TABLE ELEVATION
MARCH 2017
HAVERTWON PCP SUPERFUND SITE
DELAWARE COUNTY
HAVERTOWN, PENNSYLVANIA

S:\103-Projects\Federal\EPA R3 RAC Assignments\Havertown\103\S3930- PADEP thru IRRSC-7\Deliverables\Annual GW Monitoring Report 2016-2017\Figures\Figure 4 - Deep Groundwater Contours March 2017.mxd



Legend

PCP Concentration in ug/L
- Other Well Location
- Well Location Sampled in March 2017
- Injection Well Location Sampled in March 2017
- Injection Well Location
- Recovery Well Location Sampled in March 2017

Havertown PCP Shallow Aquifer Isocontours March 2017
- 1 ug/L
- 10 ug/L
- 100 ug/L
- 1,000 ug/L
- ROS PROPERTY LINES

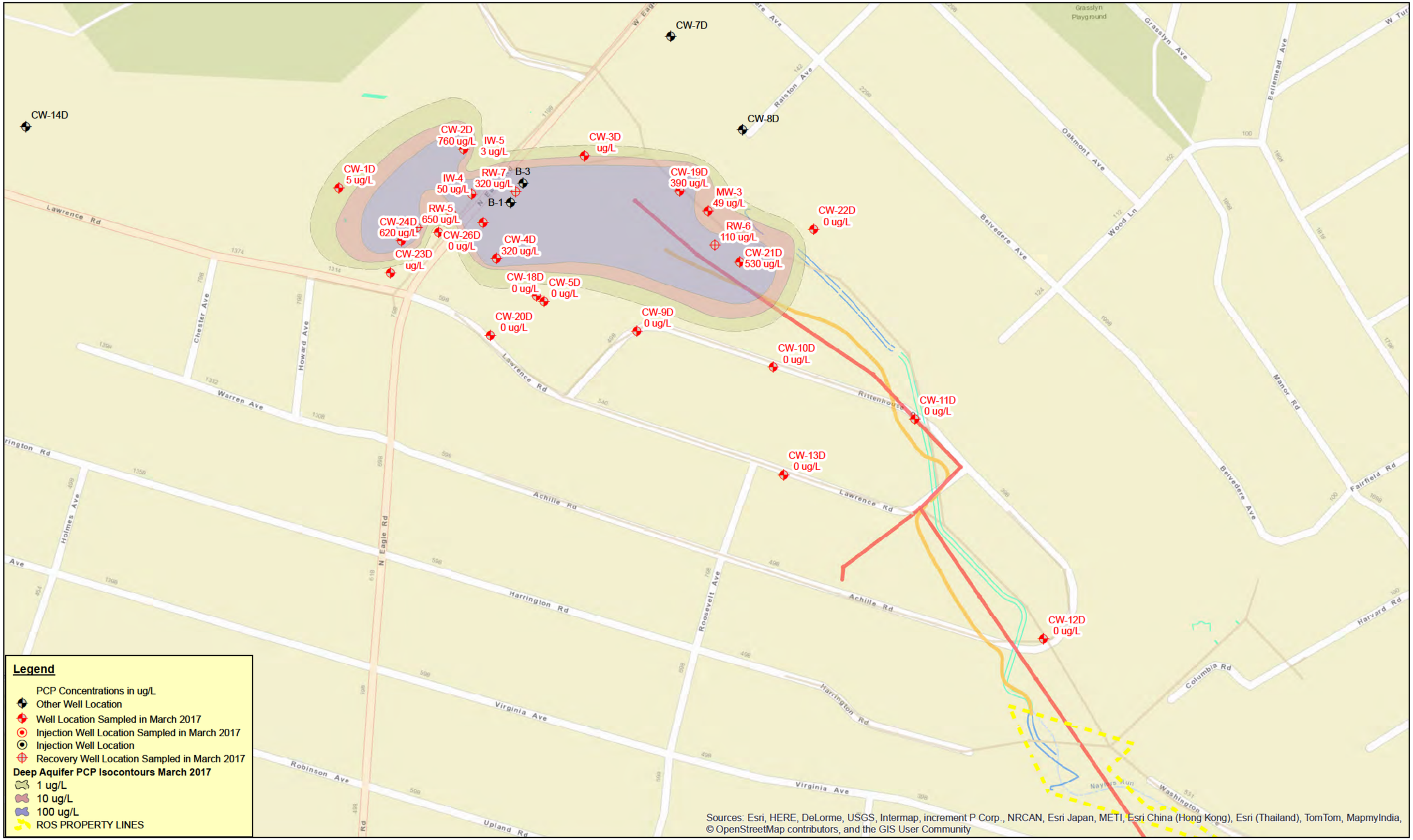
TETRA TECH

0 55 110 220 330 440 Feet

N W E S

FIGURE 5 - SHALLOW GROUNDWATER PCP ISOCONTOURS MARCH 2017 HAVERTWON PCP SUPERFUND SITE DELAWARE COUNTY HAVERTOWN, PENNSYLVANIA

S:\103-Projects\Federal\EPA R3 RAC Assignments\Havertown\103\S3930- PADEP thru IRRSC-7\Deliverables\Annual GW Monitoring Report 2016-2017\Figures\Figure 5 - Shallow Overburden PCP Plume Map March 2017.mxd



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

TETRA TECH

0 55 110 220 330 440 Feet

N W E S

FIGURE 6 - DEEP GROUNDWATER PCP ISOCONTOURS MARCH 2017 HAVERTWON PCP SUPERFUND SITE DELAWARE COUNTY HAVERTOWN, PENNSYLVANIA

S:\03-Projects\Federal\EPA R3 RAC Assignments\Havertown\103\S3930- PADEP thru IRRSC-7\Deliverables\Annual GW Monitoring Report 2016-2017\Figures\Figure 6 - Deep Bedrock PCP Plume Map March 2017.mxd

Figure 7

Source Area PCP Concentration Graph - Injection and Surrounding Wells

2011 - 2017

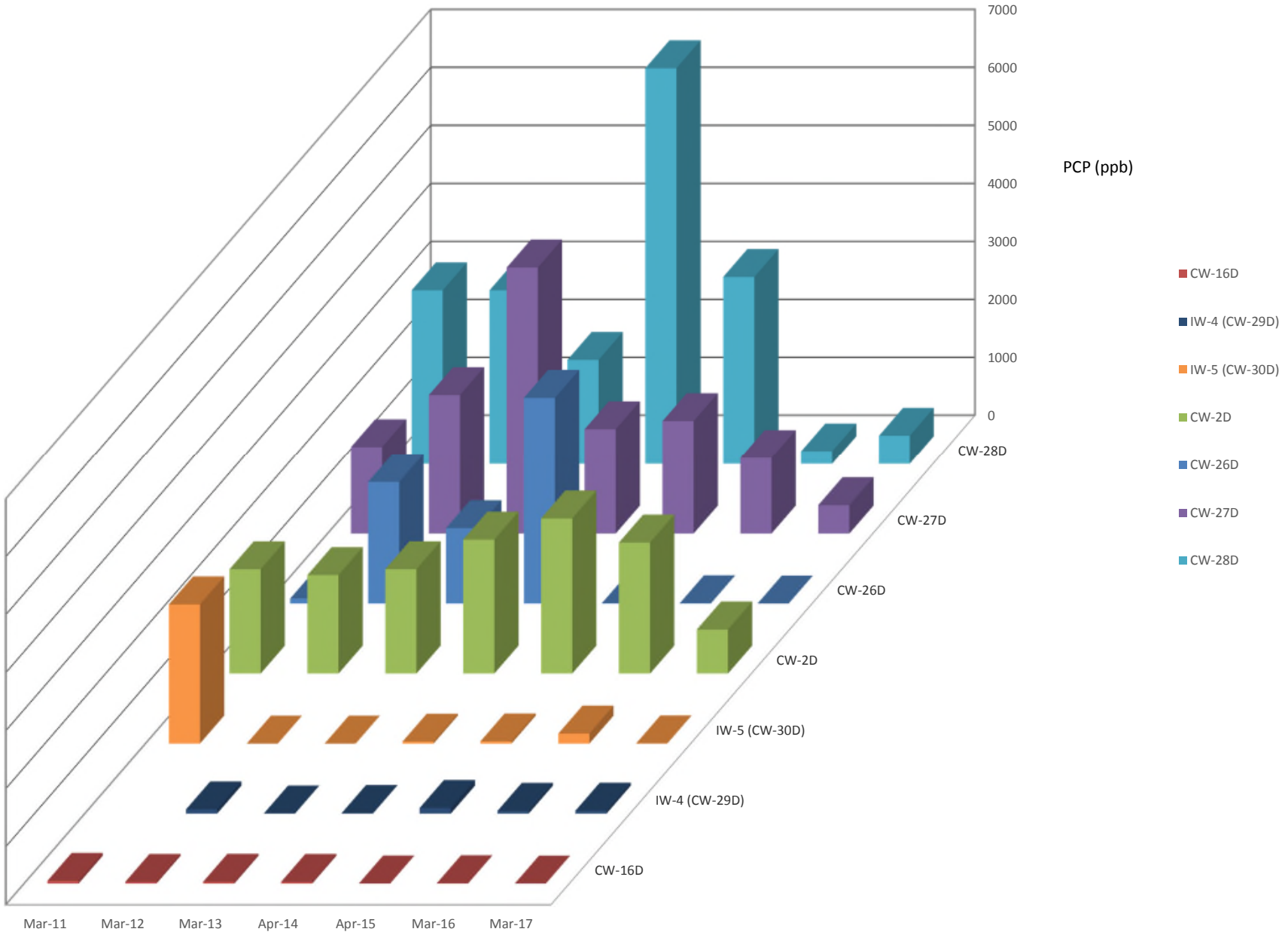


Figure 8

Source Area PCP Concentration - Recovery Wells and YMCA Wells

2011 - 2017

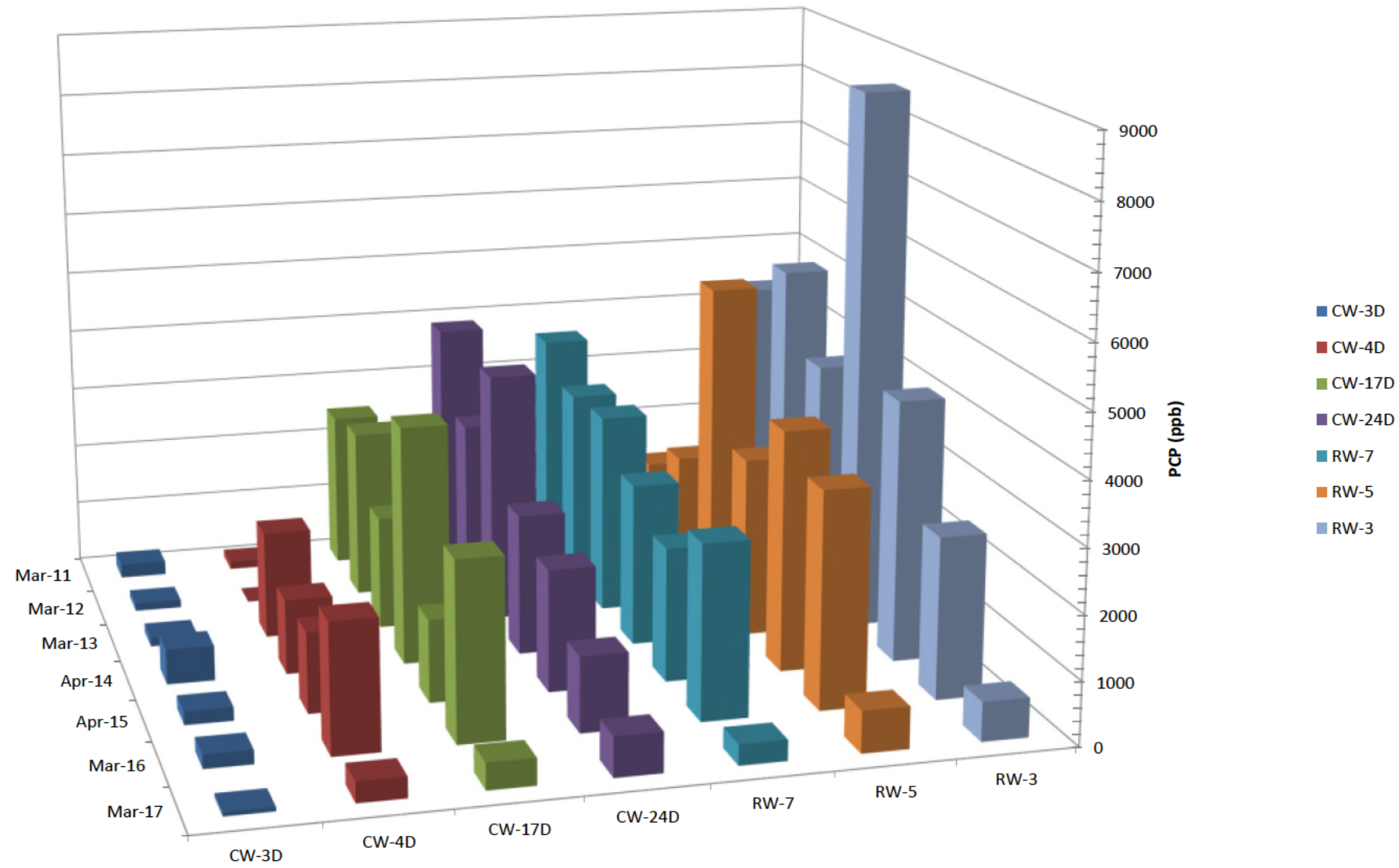


Figure 9
PCP Concentration Graph - Collection Trench Area Wells
2011 - 2017

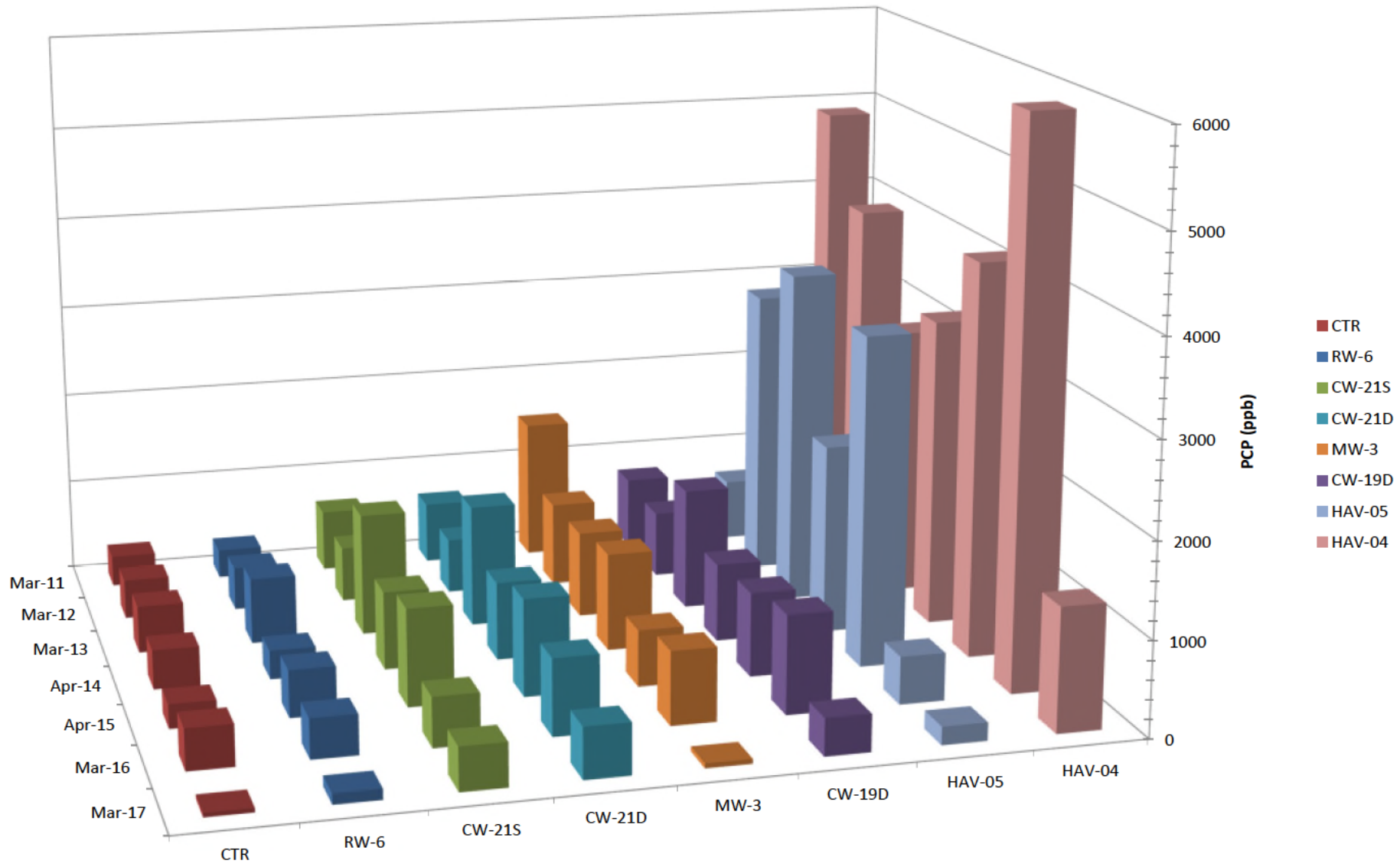


Figure 10

PCP Concentration Graph - Plume Perimeter Wells

2011 - 2017

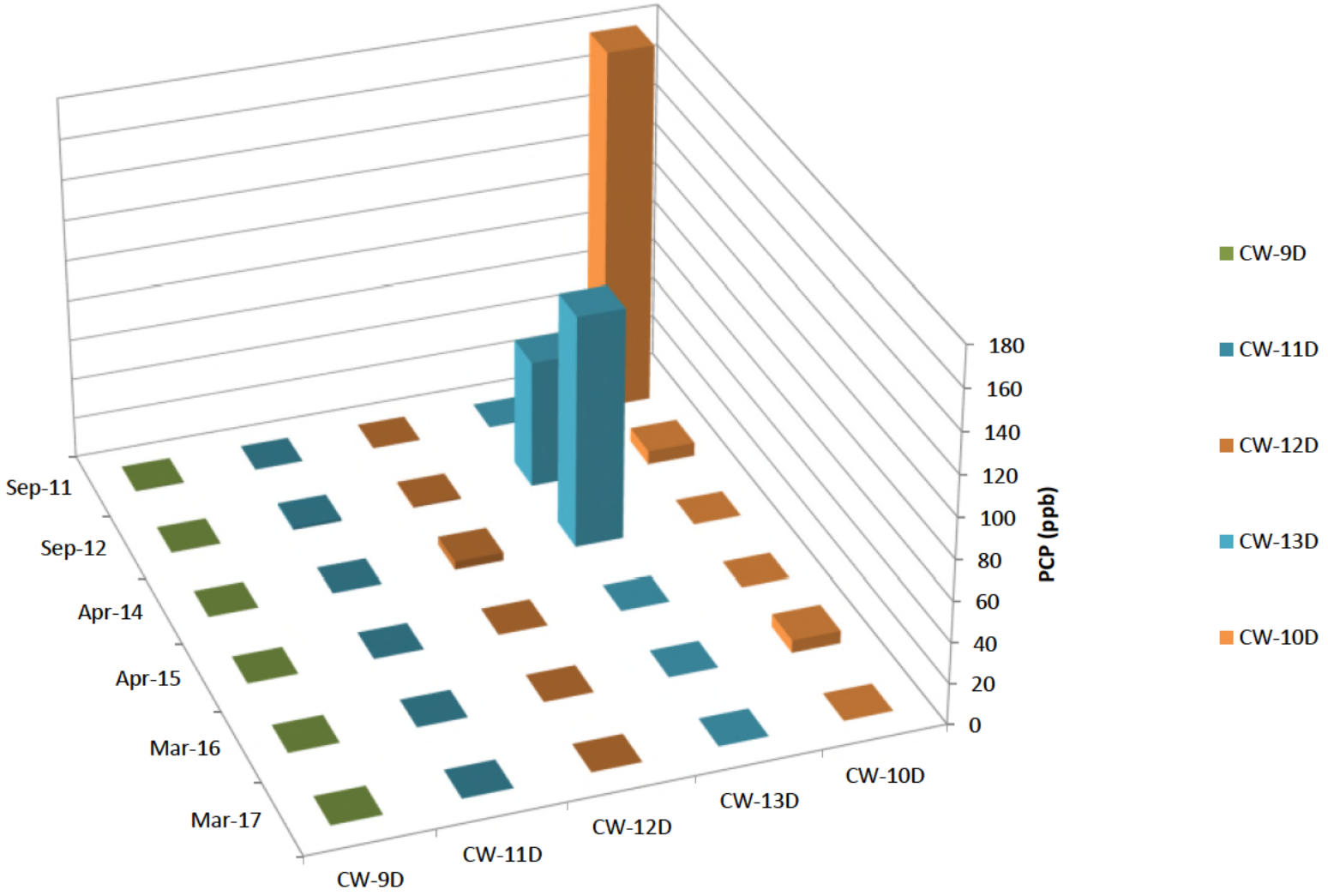
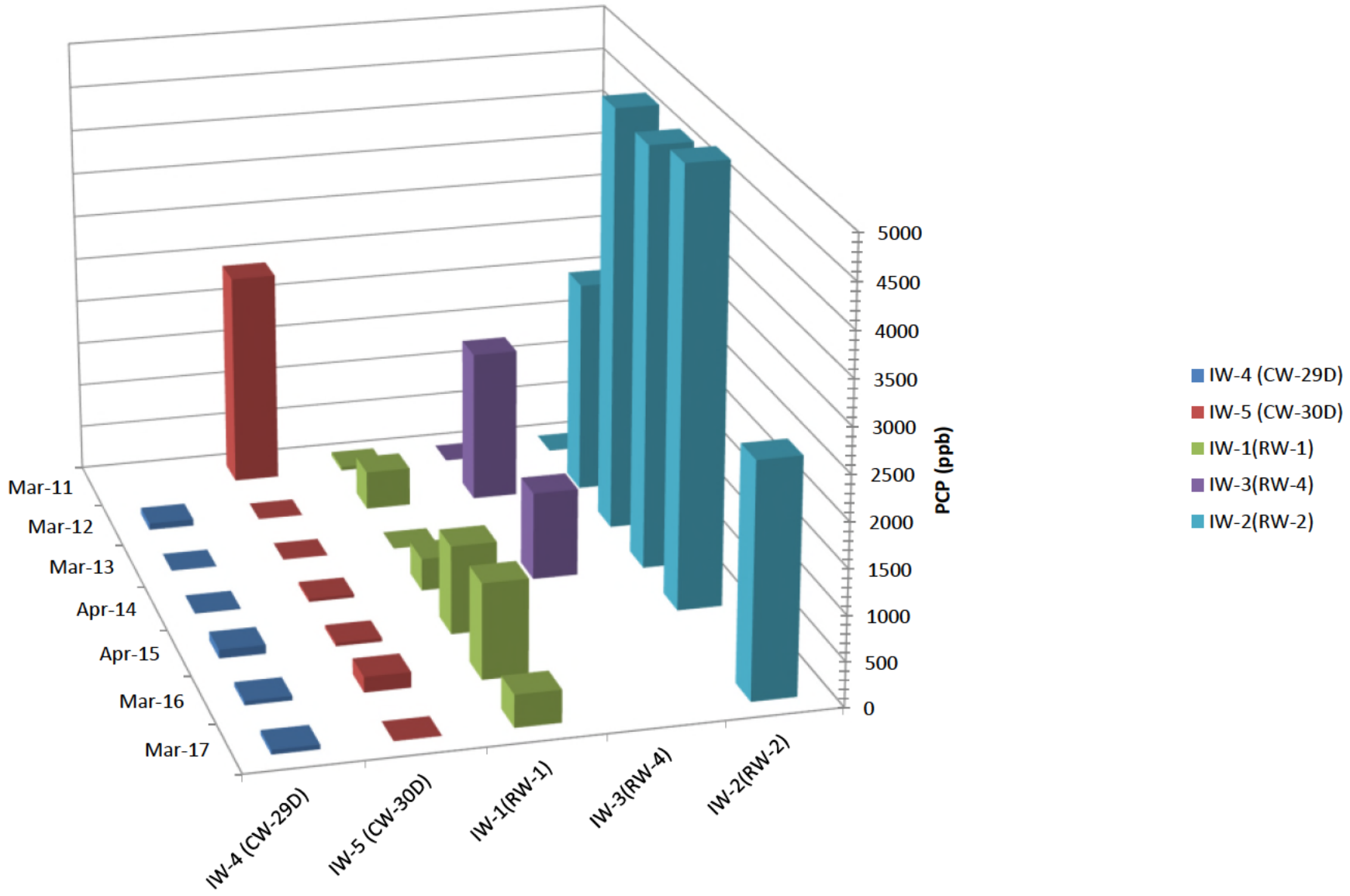
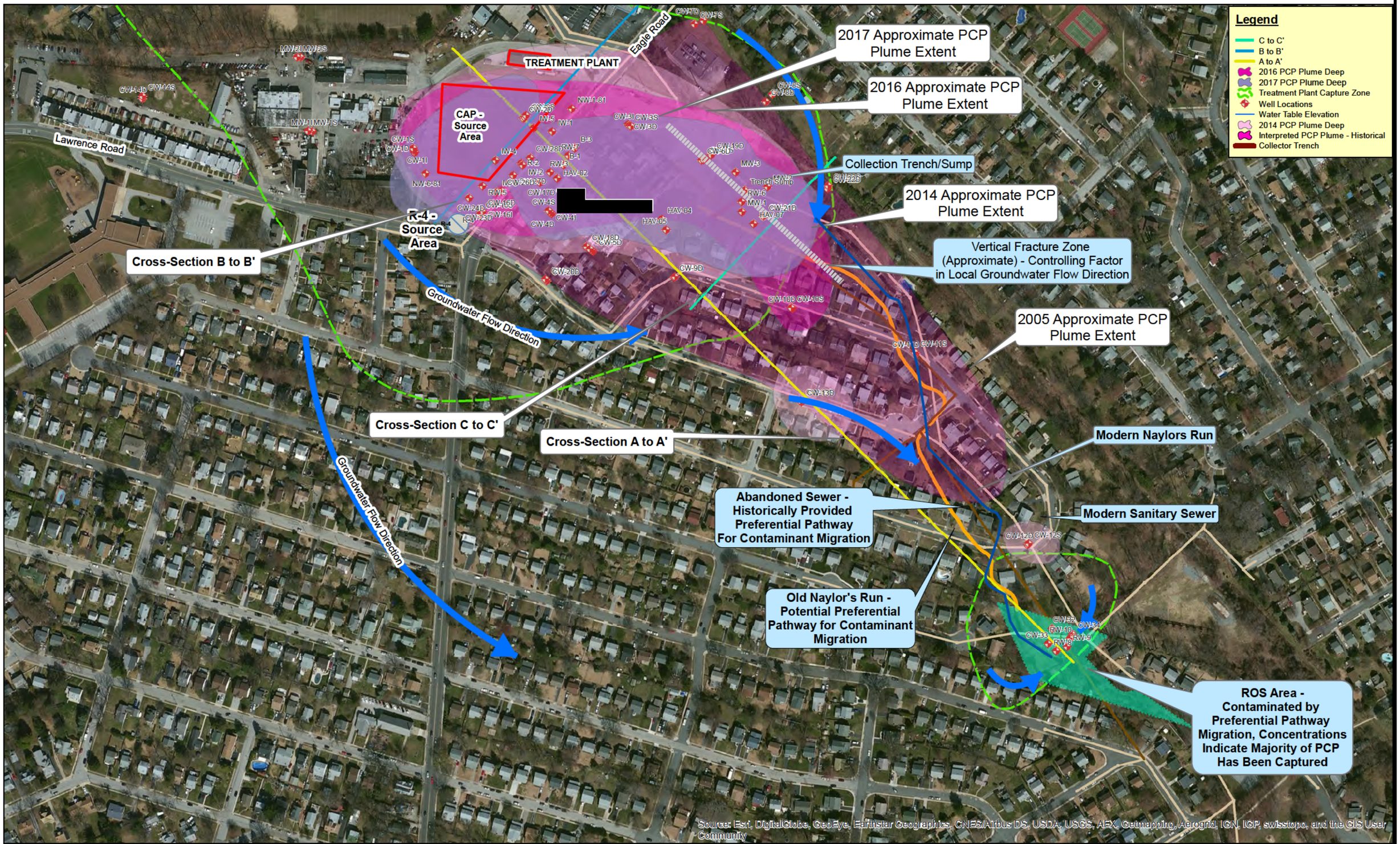


Figure 11
PCP Concentration Graph - Injection Wells
2011 - 2017





S:\03-Projects\Federal\EPA R3 RAC Assignments\Havertown\103\S3930- PADEP thru IRRSC-7\Deliverables\Annual GW Monitoring Report 2016-2017\Figures\Figure 12 CSM Update march 2017.mxd

EPA United States Environmental Protection Agency

"...to protect human health and to safeguard the natural environment..."

0 70 140 280 420 560 Feet

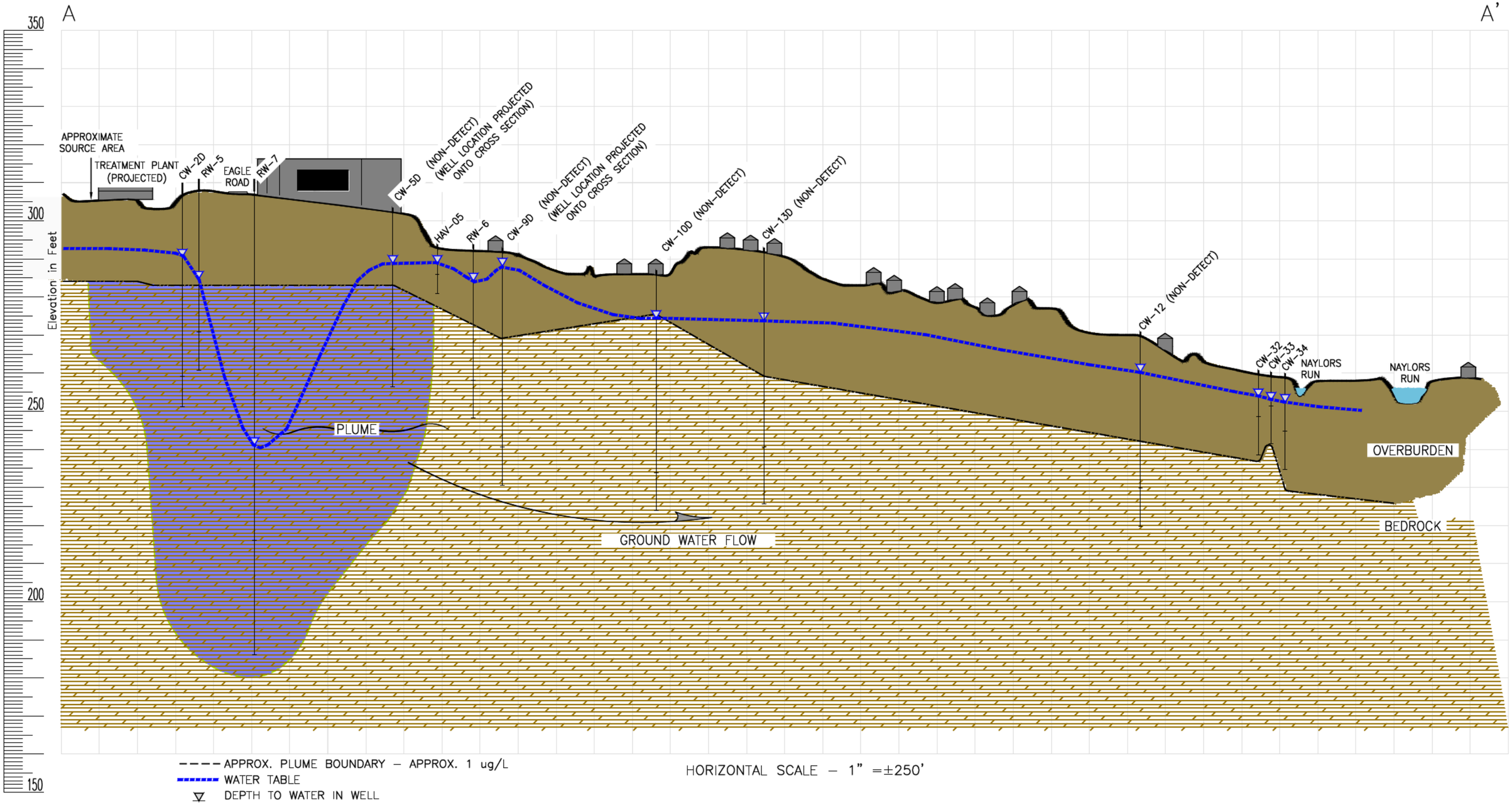
N W E S

Figure 12 - Conceptual Site Model 2017
Current Site Conditions
Havertown PCP site

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA)

FIGURE 13

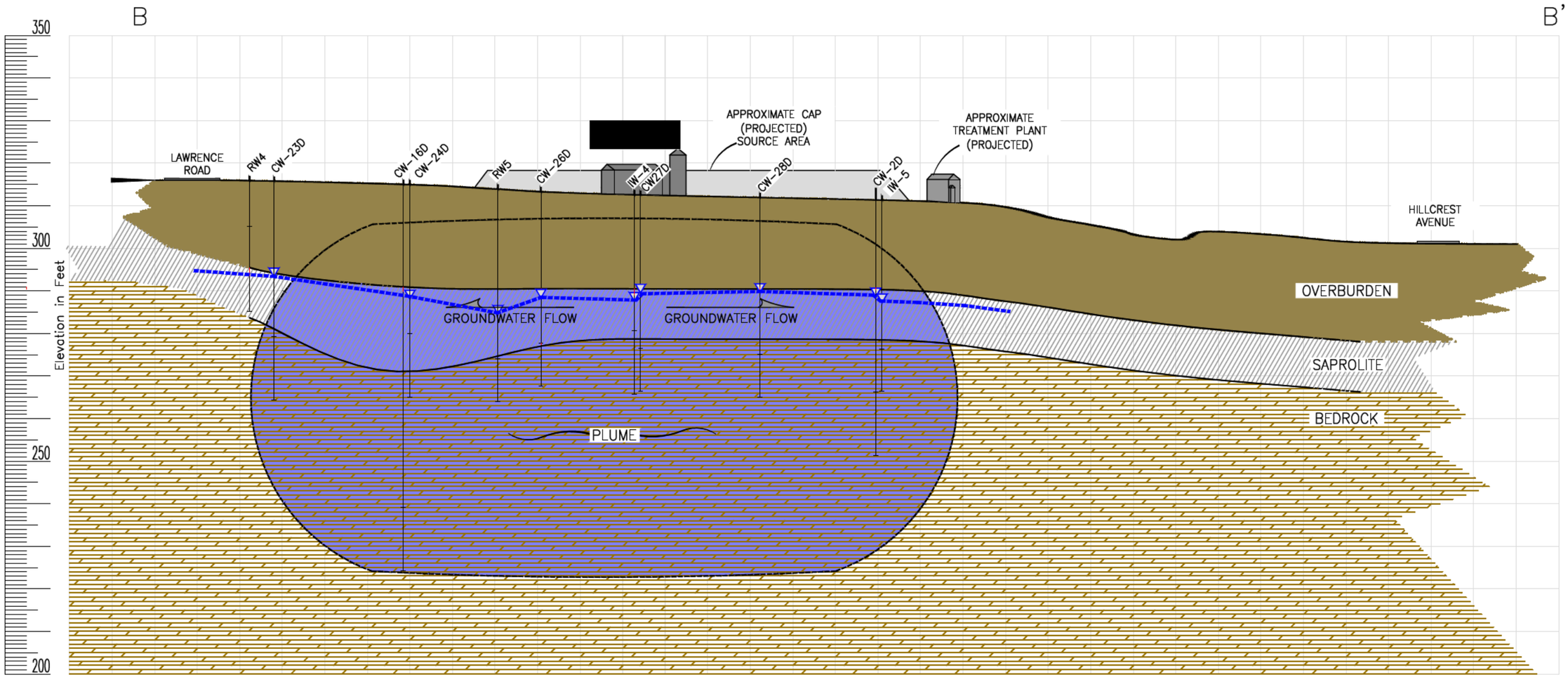
CONCEPTUAL MODEL CROSS SECTION A–A'



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA)

FIGURE 14

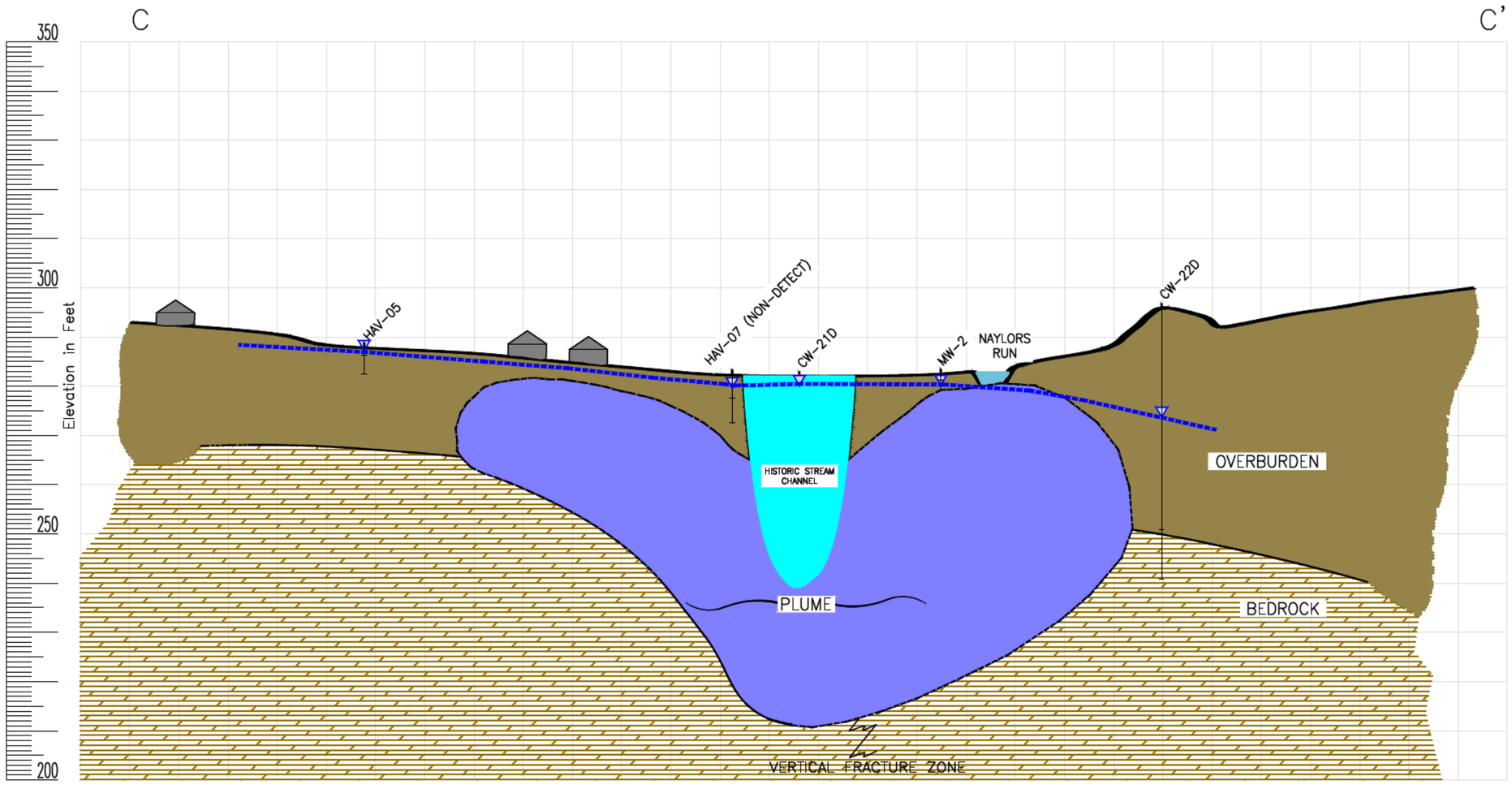
CONCEPTUAL MODEL CROSS SECTION B–B'



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA)

FIGURE 15

CONCEPTUAL MODEL CROSS SECTION C–C'



------- APPROX. PLUME BOUNDARY

------- WATER TABLE

HORIZONTAL SCALE – 1" =±65'

SECONDARY GROUNDWATER FLOW DIRECTION;
PRIMARY GROUNWATER FLOW DIRECTION
PERPENDICULAR TO B–B' CROSS SECTION.

S:\03-Projects\Federal\EPA R3 RAC Assignments\Hovertown\103\G2570013_Five Year Review-2014\2015 FYR documents\CSM\Fig ES-2 Conceptual Mode_2015EDITS_07_11_17.dwg 07/11/2017 14:39

APPENDIX A

ANALYTICAL DATA

S:\03-Projects\Federal\EPA R3 RAC Assignments\Havertown\03\S3930- PADEP thru IRRSC-7\Data\GIS\Figure - Sampling Frequency2016-2017.mxd

TETRA TECH

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FIGURE MONITORING WELL SAMPLE LOCATION MAP
HAVERTWON PCP SUPERFUND SITE
DELAWARE COUNTY
HAVERTOWN, PENNSYLVANIA

A-1 SEPTEMBER 2016 GROUNDWATER DATA

ANALYTICAL DATA
SEPTEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-RW5		HAV-LTR-DUP01		HAV-LTR-RW6		HAV-LTR-RW7		HAV-LTR-CTR	
Sample Date:	**Goals for**	**9/13/2016**		**9/13/2016**		**9/13/2016**		**9/13/2016**		**9/13/2016**	
Duplicate of:	**Groundwater**			**HAV-LTR-RW5**							
INORGANICS	**mg/L**	**mg/L**		**mg/L**		**mg/L**		**mg/L**		**mg/L**	
Aluminum, Total	200	NA		NA		NA		NA		NA	
Antimony, Total		NA		NA		NA		NA		NA	
Arsenic, Total	10	NA		NA		NA		NA		NA	
Barium, Total	2000	NA		NA		NA		NA		NA	
Beryllium, Total		NA		NA		NA		NA		NA	
Cadmium, Total		NA		NA		NA		NA		NA	
Calcium, Total		NA		NA		NA		NA		NA	
Chromium, Total		NA		NA		NA		NA		NA	
Cobalt, Total		NA		NA		NA		NA		NA	
Copper, Total		NA		NA		NA		NA		NA	
Iron, Total	300	NA		NA		NA		NA		NA	
Lead, Total		NA		NA		NA		NA		NA	
Magnesium, Total		NA		NA		NA		NA		NA	
Manganese, Total	50	NA		NA		NA		NA		NA	
Mercury, Total		NA		NA		NA		NA		NA	
Nickel, Total		NA		NA		NA		NA		NA	
Potassium, Total		NA		NA		NA		NA		NA	
Selenium, Total		NA		NA		NA		NA		NA	
Silver, Total		NA		NA		NA		NA		NA	
Sodium, Total		NA		NA		NA		NA		NA	
Thallium, Total		NA		NA		NA		NA		NA	
Vanadium, Total	3.1	NA		NA		NA		NA		NA	
Zinc, Total		NA		NA		NA		NA		NA	
VOLATILES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
1,1,1-Trichloroethane		1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane		0.2	U	0.2	U	0.2	U	0 2	U	0 2	U
1,1,2-Trichloroethane		1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane		1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene		1	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene		2	U	2	U	2	U	2	U	2	U
1,2,4-Trichlorobenzene		2	U	2	U	2	U	2	U	2	U
1,2-Dibromo-3-chloropropa		7	U	7	U	7	U	7	U	7	U
1,2-Dibromoethane		1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene		1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane		1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane		1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene		1	U	1	U	1	U	1	U	1	U
1,4-Dioxane		320	U	320	U	320	U	320	U	320	U
2-Butanone		10	U	10	U	10	U	10	U	10	U
2-Hexanone		5	U	5	U	5	U	5	U	5	U

J Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL)

U Indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL)

ANALYTICAL DATA
SEPTEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-RW5		HAV-LTR-DUP01		HAV-LTR-RW6		HAV-LTR-RW7		HAV-LTR-CTR	
Sample Date:	Goals for	9/13/2016		9/13/2016		9/13/2016		9/13/2016		9/13/2016	
Duplicate of:	Groundwater			HAV-LTR-RW5							
4-Methyl-2-Pentanone(MIBK		5	U	5	U	5	U	5	U	5	U
Acetone		10	U	10	U	10	U	10	U	10	U
Benzene	5	5.1		5		0.4	J	0.59	J	0 5	J
Bromochloromethane		1	U	1	U	1	U	1	U	1	U
Bromodichloromethane		1	U	1	U	1	U	1	U	1	U
Bromoform		1	U	1	U	1	U	1	U	1	U
Bromomethane		1	U	1	U	1	U	1	U	1	U
Carbon Disulfide		1	U	1	U	1	U	1	U	1	U
Carbon Tetrachloride		1	U	1	U	1	U	1	U	1	U
Chlorobenzene		1	U	1	U	1	U	1	U	1	U
Chlorodibromomethane		1	U	1	U	1	U	1	U	1	U
Chloroethane		1	U	1	U	1	U	1	U	1	U
Chloroform		0.71	J	0.66	J	1	U	1 8		1	U
Chloromethane		1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene		16.4		16.1		1.4		1.7		0.43	J
cis-1,3-Dichloropropene		1	U	1	U	1	U	1	U	1	U
Cyclohexane		0.81	J	0 83	J	1	U	1	U	1	U
Dichlorodifluoromethane		1	U	1	U	1	U	1	U	1	U
Ethylbenzene	700	7.3		7.2		1	U	1.6		1	U
Freon 113		1	U	1	U	1	U	1	U	1	U
Isopropylbenzene		3.6		3.6		0.33	J	4.1		0.75	J
Methyl acetate		2	U	2	U	2	U	2	U	2	U
Methyl cyclohexane		1	U	1	U	1	U	1	U	1	U
Methyl t-Butyl Ether		0.88	J	0 86	J	1.2		0.42	J	1	U
Methylene Chloride		1	U	1	U	1	U	1	U	1	U
mp-Xylene		6.2		6		2	U	1 8	J	2	U
o-Xylene		20.3		20.2		1	U	13		0.73	J
Styrene		1	U	1	U	1	U	0.39	J	1	U
Tetrachloroethene		1	U	1	U	1	U	1	U	1	U
Toluene	1000	3		2.9		1	U	0.52	J	1	U
Total Xylenes		26.5		26.3		3	U	14 8		0.73	J
trans-1,2-Dichloroethene		1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene		1	U	1	U	1	U	1	U	1	U
Trichloroethene	5	11.8		11.4		1	U	1 3		1	U
Trichlorofluoromethane		1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	5	0.95	J	1	J	1	U	1	U	1	U
SEMIVOLATILES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
1,2,4,5-Tetrachlorobenzen		2.9	U	3	U	2 8	U	2 9	U	2 9	U
1,4-Dioxane		2.9	U	3	U	2.8	U	2 9	U	2 9	U
2,3,4,6-Tetrachlorophenol		126		135		9.9		58		17.4	
2,4,5-Trichlorophenol		4.7		4.9		1.6	J	12 8		1 8	J
2,4,6-Trichlorophenol		6.9		7.1		0.89	J	2 2	J	0.88	J

J Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL)

U Indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL)

ANALYTICAL DATA
SEPTEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-RW5		HAV-LTR-DUP01		HAV-LTR-RW6		HAV-LTR-RW7		HAV-LTR-CTR	
Sample Date:	Goals for	9/13/2016		9/13/2016		9/13/2016		9/13/2016		9/13/2016	
Duplicate of:	Groundwater			HAV-LTR-RW5							
2,4-Dichlorophenol		1.5	J	1.5	J	2.8	U	0.33	J	2 9	U
2,4-Dimethylphenol		2.9	U	3	U	2.8	U	2 9	U	2 9	U
2,4-Dinitrophenol		5.8	U	6	U	5.6	U	5.7	U	5 8	U
2,4-Dinitrotoluene		2.9	U	3	U	2.8	U	2 9	U	2 9	U
2,6-Dinitrotoluene		2.9	U	3	U	2.8	U	2 9	U	2 9	U
2-Chloronaphthalene		2.9	U	3	U	2.8	U	2 9	U	2 9	U
2-Chlorophenol		2.9	U	3	U	2.8	U	2 9	U	2 9	U
2-Methyl-4,6-dinitropheno	1.7	5.8	U	6	U	5.6	U	5.7	U	5 8	U
2-Methylnaphthalene	2	2.5		2.5		1.4	U	3.1		1.4	U
2-Nitroaniline		2.9	U	3	U	2.8	U	2 9	U	2 9	U
2-Nitrophenol		2.9	U	3	U	2.8	U	2 9	U	2 9	U
3,3-Dichlorobenzidine		2.9	U	3	U	2.8	U	2 9	U	2 9	U
3-Nitroaniline		2.9	U	3	U	2.8	U	2 9	U	2 9	U
4-Bromophenyl-phenylether		2.9	U	3	U	2.8	U	2 9	U	2 9	U
4-Chloro-3-methylphenol		2.9	U	3	U	2.8	U	0.72	J	2 9	U
4-Chloroaniline		2.9	U	3	U	2.8	U	2 9	U	2 9	U
4-Chlorophenyl-phenylethe		2.9	U	3	U	2.8	U	2 9	U	2 9	U
4-Nitroaniline		2.9	U	3	U	2.8	U	2 9	U	2 9	U
4-Nitrophenol		2.9	U	3	U	2.8	U	2 9	U	2 9	U
Acenaphthene		3.6		3.8		1.4	U	1 5		0.18	J
Acenaphthylene		1.4	U	1.5	U	1.4	U	1.4	U	1.4	U
Acetophenone		2.9	U	3	U	2.8	U	2 9	U	0.46	J
Anthracene		0.96	J	0 98	J	1.4	U	0.57	J	1.4	U
Atrazine		2.9	U	3	U	2.8	U	2 9	U	2 9	U
Benzaldehyde		2.9	U	3	U	2.8	U	2 9	U	2 9	U
Benzo(a)anthracene		1.4	U	0.22	J	1.4	U	1.4	U	1.4	U
Benzo(a)pyrene	0 2	1.4	U	1.5	U	1.4	U	1.4	U	1.4	U
Benzo(b)fluoranthene		1.4	U	0.16	J	1.4	U	1.4	U	1.4	U
Benzo(g,h,i)perylene		1.4	U	1.5	U	1.4	U	1.4	U	1.4	U
Benzo(k)fluoranthene		1.4	U	1.5	U	1.4	U	1.4	U	1.4	U
Biphenyl		10.1		10.6		1.1	J	5 9		0 2	J
bis(2-Chloroethoxy)methan		2.9	U	3	U	2.8	U	2 9	U	2 9	U
bis(2-Chloroethyl)ether		2.9	U	3	U	2.8	U	2 9	U	2 9	U
bis(2-Chloroisopropyl)eth		2.9	U	3	U	2.8	U	2 9	U	2 9	U
bis(2-Ethylhexyl)phthalat	6	0.32	J	0 39	J	2.8	U	2 9	U	2 9	U
Butylbenzylphthalate		2.9	U	3	U	2.8	U	2 9	U	2 9	U
Caprolactam		2.9	U	3	U	2.8	U	2 9	U	2 9	U
Carbazole		0.44	J	0.5	J	0.15	J	2 9	U	0.12	J
Chrysene		1.4	U	0.16	J	1.4	U	1.4	U	1.4	U
Dibenzo(a,h)anthracene		1.4	U	1.5	U	1.4	U	1.4	U	1.4	U
Dibenzofuran	4	3		3.3		0.63	J	2.6	J	0.43	J
Diethylphthalate		2.9	U	3	U	2.8	U	2 9	U	2 9	U
Dimethylphthalate		2.9	U	3	U	2.8	U	2 9	U	2 9	U

J Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL)
U Indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL)

ANALYTICAL DATA
SEPTEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-RW5		HAV-LTR-DUP01		HAV-LTR-RW6		HAV-LTR-RW7		HAV-LTR-CTR	
Sample Date:	**Goals for**	**9/13/2016**		**9/13/2016**		**9/13/2016**		**9/13/2016**		**9/13/2016**	
Duplicate of:	**Groundwater**			**HAV-LTR-RW5**							
Di-n-Butylphthalate		0.27	J	3	U	2.8	U	2 9	U	2 9	U
Di-n-Octylphthalate		2.9	U	3	U	2.8	U	2 9	U	2 9	U
Fluoranthene		0.26	J	0 29	J	1.4	U	1.4	U	1.4	U
Fluorene		6.8		7.4		1.5		6 8		0.83	J
Hexachlorobenzene		2.9	U	3	U	2.8	U	2 9	U	2 9	U
Hexachlorobutadiene		2.9	U	3	U	2.8	U	2 9	U	2 9	U
Hexachlorocyclopentadiene		2.9	U	3	U	2.8	U	2 9	U	2 9	U
Hexachloroethane		2.9	U	3	U	2.8	U	2 9	U	2 9	U
Indeno(1,2,3-cd)pyrene		1.4	U	0.17	J	1.4	U	1.4	U	1.4	U
Isophorone		2.9	U	3	U	2.8	U	2 9	U	2 9	U
mp-Cresol		0.41	J	0.43	J	2.8	U	0.15	J	2 9	U
Naphthalene	3	**14.3**		**14.4**		1.4	U	**23**		0.46	J
Nitrobenzene		2.9	U	3	U	2.8	U	2 9	U	2 9	U
N-Nitroso-di-n-propylamin		2.9	U	3	U	2.8	U	2.9	U	2.9	U
N-Nitrosodiphenylamine		2.9	U	3	U	2.8	U	2 9	U	2 9	U
o-Cresol		0.25	J	3	U	2.8	U	2 9	U	2 9	U
Pentachlorophenol	1	**2050**		**2220**		**436**		**1970**		**575**	
Phenanthrene	41	8.4		8.8		1.4	U	6.6		1.4	U
Phenol		7.7	U	8	U	7.4	U	7.6	U	7.7	U
Pyrene		0.35	J	0 36	J	1.4	U	0.22	J	1.4	U
HERBICIDES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Pentachlorophenol	1	NA		NA		NA		NA		NA	
DIOXINS/FURANS	**pg/L**	**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**	
Toxicity Equivalent Quotient (TEQ)	0.00138	**0.175**		**0.162**		NA		NA		**0.518**	

J Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL)
U Indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL)

ANALYTICAL DATA
SEPTEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-RW8		HAV-LTR-RW9		HAV-LTR-DUP02		HAV-LTR-RW10		HAV-LTR-CW32		HAV-LTR-CW33		HAV-LTR-CW34	
Sample Date:	**Goals for**	**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**	
Duplicate of:	**Groundwater**					**HAV-LTR-RW9**									
INORGANICS	**mg/L**	**mg/L**		**mg/L**		**mg/L**		**mg/L**		**mg/L**		**mg/L**		**mg/L**	
Aluminum, Total	200	0.11		0 36		0.18		0.2		0.95		0.089	U	0.055	J
Antimony, Total		0.0022	U	0.0022	U	0 0022	U	0.0022	U	0.0022	U	0.0022	U	0 0022	U
Arsenic, Total	10	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U
Barium, Total	2000	0.097		0.11		0.098		0 21		0.24		0.15		0.11	
Beryllium, Total		0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Cadmium, Total		0.0011	U	0.0011	U	0 0011	U	0.0011	U	0.0011	U	0.0011	U	0 0011	U
Calcium, Total		88.3		74.6		82 8		64.9		17.5		17.6		70.4	
Chromium, Total		0.0018	J	0.0025		0.0018	J	0.0027		0.0069		0.0017	J	0 0011	J
Cobalt, Total		0.0056	U	0.0056	U	0.0056	U	0.0056	U	0.0056	U	0.0056	U	0 0056	U
Copper, Total		0.009		0.0056	J	0 0033	J	0.021		0.0025	J	0.0056	U	0 0056	U
Iron, Total	300	0.43		0 92		0.43		1.3		1.3		0.019	J	0.077	
Lead, Total		0.0011	J	0.00093	J	0.0022	U	0.0017	J	0.0022	U	0.0022	U	0 0022	U
Magnesium, Total		16.5		16.3		16 3		15.9		10.5		9.6		18.5	
Manganese, Total	50	0 54		1.7		0.76		3.2		0.077		0 004	J	0.11	
Mercury, Total		0.0005	U	0 0005	U	0.0005	U	0.0005	U	0.0005	U	0.0005	U	0 0005	U
Nickel, Total		0.0056	U	0 0056	U	0.0056	U	0.0056	U	0.0056	U	0.0056	U	0 0056	U
Potassium, Total		6.3		5.8		6 2		5		4.1		4.8		3.8	
Selenium, Total		0.0056	U	0 0056	U	0.0056	U	0.0056	U	0.0056	U	0.0056	U	0 0056	U
Silver, Total		0.0022	U	0 0022	U	0.0022	U	0.0022	U	0.0022	U	0.0022	U	0 0022	U
Sodium, Total		24.9		23.3		24.7		21.7		30.1		31.7		17.5	
Thallium, Total		0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0 001	U	0.001	U
Vanadium, Total	3.1	0.0021	J	0 0029		0.0021	J	0 0027		0.0038		0.00099	J	0 0013	J
Zinc, Total		0.0053	J	0 0073		0.0053	J	0.011		0.0045	J	0.0056	U	0 0019	J
VOLATILES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
1,1,1-Trichloroethane		1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane		0.2	U	0.2	U	0 2	U	0.2	U	0.2	U	0.2	U	0.2	U
1,1,2-Trichloroethane		1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane		1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene		1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene		2	U	2	U	2	U	2	U	2	U	2	U	2	U
1,2,4-Trichlorobenzene		2	U	2	U	2	U	2	U	2	U	2	U	2	U
1,2-Dibromo-3-chloropropa		7	U	7	U	7	U	7	U	7	U	7	U	7	U
1,2-Dibromoethane		1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene		1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane		1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane		1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		1	U	1	U	1	U	1	U	1	U	0.28	J	1	U
1,4-Dichlorobenzene		1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dioxane		320	U	320	U	320	U	320	U	320	U	320	U	320	U
2-Butanone		10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone		5	U	5	U	5	U	5	U	5	U	5	U	5	U

J Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL)

U Indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL)

ANALYTICAL DATA
SEPTEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-RW8		HAV-LTR-RW9		HAV-LTR-DUP02		HAV-LTR-RW10		HAV-LTR-CW32		HAV-LTR-CW33		HAV-LTR-CW34	
Sample Date:	**Goals for**	**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**	
Duplicate of:	**Groundwater**					**HAV-LTR-RW9**									
4-Methyl-2-Pentanone(MIBK		5	U	5	U	5	U	5	U	5	U	5	U	5	U
Acetone		10	U	10	U	10	U	10	U	10	U	3.8	J	10	U
Benzene	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromochloromethane		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Carbon Disulfide		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Carbon Tetrachloride		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorodibromomethane		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroform		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane		1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene		1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Cyclohexane		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	700	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Freon 113		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl acetate		2	U	2	U	2	U	2	U	2	U	2	U	2	U
Methyl cyclohexane		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl t-Butyl Ether		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methylene Chloride		1	U	1	U	1	U	1	U	1	U	1	U	1	U
mp-Xylene		2	U	2	U	2	U	2	U	2	U	2	U	2	U
o-Xylene		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Styrene		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	1000	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Xylenes		3	U	3	U	3	U	3	U	3	U	3	U	3	U
trans-1,2-Dichloroethene		1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichlorofluoromethane		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U
SEMIVOLATILES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
1,2,4,5-Tetrachlorobenzen		3	U	3	U	3.3	U	3	U	2.9	U	2.9	U	2.8	U
1,4-Dioxane		3	U	3	U	3.3	U	3	U	2.9	U	2.9	U	2.8	U
2,3,4,6-Tetrachlorophenol		3	U	3	U	3.3	U	3	U	2.9	U	2.9	U	2.8	U
2,4,5-Trichlorophenol		3	U	3	U	3.3	U	3	U	2.9	U	2.9	U	2.8	U
2,4,6-Trichlorophenol		3	U	3	U	3.3	U	3	U	2.9	U	2.9	U	2.8	U

J Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL)

U Indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL)

ANALYTICAL DATA
SEPTEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-RW8		HAV-LTR-RW9		HAV-LTR-DUP02		HAV-LTR-RW10		HAV-LTR-CW32		HAV-LTR-CW33		HAV-LTR-CW34	
Sample Date:	Goals for	9/14/2016		9/14/2016		9/14/2016		9/14/2016		9/14/2016		9/14/2016		9/14/2016	
Duplicate of:	Groundwater					HAV-LTR-RW9									
2,4-Dichlorophenol		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2.8	U
2,4-Dimethylphenol		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2.8	U
2,4-Dinitrophenol		6	U	5.9	U	6 5	U	5.9	U	5.8	U	5.7	U	5.7	U
2,4-Dinitrotoluene		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2.8	U
2,6-Dinitrotoluene		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2.8	U
2-Chloronaphthalene		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2.8	U
2-Chlorophenol		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2.8	U
2-Methyl-4,6-dinitropheno	1.7	6	U	5.9	U	6 5	U	5.9	U	5.8	U	5.7	U	5.7	U
2-Methylnaphthalene	2	1.5	U	1.5	U	1.6	U	1.5	U	1.4	U	1.4	U	1.4	U
2-Nitroaniline		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2.8	U
2-Nitrophenol		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2.8	U
3,3-Dichlorobenzidine		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2 8	U
3-Nitroaniline		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2 8	U
4-Bromophenyl-phenylether		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2 8	U
4-Chloro-3-methylphenol		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2 8	U
4-Chloroaniline		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2 8	U
4-Chlorophenyl-phenylethe		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2 8	U
4-Nitroaniline		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2 8	U
4-Nitrophenol		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2 8	U
Acenaphthene		1.5	U	1.5	U	1.6	U	1.5	U	1.4	U	1.4	U	1.4	U
Acenaphthylene		1.5	U	1.5	U	1.6	U	1.5	U	1.4	U	1.4	U	1.4	U
Acetophenone		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2 8	U
Anthracene		1.5	U	1.5	U	1.6	U	1.5	U	1.4	U	1.4	U	1.4	U
Atrazine		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2 8	U
Benzaldehyde		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2 8	U
Benzo(a)anthracene		1.5	U	1.5	U	1.6	U	1.5	U	1.4	U	1.4	U	1.4	U
Benzo(a)pyrene	0 2	1.5	U	1.5	U	1.6	U	1.5	U	1.4	U	1.4	U	1.4	U
Benzo(b)fluoranthene		1.5	U	1.5	U	1.6	U	1.5	U	1.4	U	1.4	U	1.4	U
Benzo(g,h,i)perylene		1.5	U	1.5	U	1.6	U	1.5	U	1.4	U	1.4	U	1.4	U
Benzo(k)fluoranthene		1.5	U	1.5	U	1.6	U	1.5	U	1.4	U	1.4	U	1.4	U
Biphenyl		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2 8	U
bis(2-Chloroethoxy)methan		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2 8	U
bis(2-Chloroethyl)ether		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2 8	U
bis(2-Chloroisopropyl)eth		3	U	3	U	3.3	U	3	U	2.9	U	2.9	U	2 8	U
bis(2-Ethylhexyl)phthalat	6	3	U	3	U	0.99	J	3	U	0 27	J	2.9	U	2 8	U
Butylbenzylphthalate		3	U	3	U	3.3	U	3	U	2.9	U	2.9	U	2 8	U
Caprolactam		3	U	3	U	3.3	U	3	U	2.9	U	2.9	U	2 8	U
Carbazole		3	U	3	U	3.3	U	3	U	2.9	U	2.9	U	2 8	U
Chrysene		1.5	U	1.5	U	1.6	U	1.5	U	1.4	U	1.4	U	1.4	U
Dibenzo(a,h)anthracene		1.5	U	1.5	U	1.6	U	1.5	U	1.4	U	1.4	U	1.4	U
Dibenzofuran	4	3	U	3	U	3.3	U	3	U	2.9	U	2.9	U	2 8	U
Diethylphthalate		3	U	3	U	3.3	U	3	U	2.9	U	2.9	U	2 8	U
Dimethylphthalate		3	U	3	U	3.3	U	3	U	2.9	U	2.9	U	2 8	U

J Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL)

U Indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL)

ANALYTICAL DATA
SEPTEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-RW8		HAV-LTR-RW9		HAV-LTR-DUP02		HAV-LTR-RW10		HAV-LTR-CW32		HAV-LTR-CW33		HAV-LTR-CW34	
Sample Date:	**Goals for**	**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**	
Duplicate of:	**Groundwater**					**HAV-LTR-RW9**									
Di-n-Butylphthalate		3	U	3	U	0.18	J	3	U	0.26	J	2 9	U	2.8	U
Di-n-Octylphthalate		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2.8	U
Fluoranthene		1.5	U	1.5	U	1.6	U	1.5	U	1.4	U	1.4	U	1.4	U
Fluorene		1.5	U	1.5	U	1.6	U	1.5	U	1.4	U	1.4	U	1.4	U
Hexachlorobenzene		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2.8	U
Hexachlorobutadiene		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2.8	U
Hexachlorocyclopentadiene		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2.8	U
Hexachloroethane		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2.8	U
Indeno(1,2,3-cd)pyrene		1.5	U	1.5	U	1.6	U	1.5	U	1.4	U	1.4	U	1.4	U
Isophorone		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2.8	U
mp-Cresol		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2.8	U
Naphthalene	3	1.5	U	0.72	J	1.6	U	1.5	U	1.4	U	0.4	J	1.4	U
Nitrobenzene		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2.8	U
N-Nitroso-di-n-propylamin		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2.8	U
N-Nitrosodiphenylamine		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2 8	U
o-Cresol		3	U	3	U	3 3	U	3	U	2.9	U	2.9	U	2 8	U
Pentachlorophenol	1	6	U	5.9	U	6 5	U	5.9	U	5.8	U	5.7	U	5.7	U
Phenanthrene	41	1.5	U	0.14	J	1.6	U	1.5	U	1.4	U	1.4	U	1.4	U
Phenol		8	U	7.9	U	8.7	U	7.9	U	7.7	U	7.6	U	7 5	U
Pyrene		1.5	U	1.5	U	1.6	U	1.5	U	1.4	U	1.4	U	1.4	U
HERBICIDES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Pentachlorophenol	1	0.2	U	0.2	U	NA		0.22	U	0.19	U	0.19	U	0.098	J
DIOXINS/FURANS	**pg/L**	**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**	
Toxicity Equivalent Quotient (TEQ)	0.00138	NA		NA		NA		NA		NA		NA		NA	

J Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL)
U Indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL)

ANALYTICAL DATA
SEPTEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW12D		HAV-LTR-CW13D		HAV-LTR-CW22D		HAV-LTR-CW22S		HAV-LTR-MW1		HAV-LTR-MW2	
Sample Date:	**Goals for**	**9/14/2016**		**9/14/2016**		**9/13/2016**		**9/13/2016**		**9/13/2016**		**9/13/2016**	
Duplicate of:	**Groundwater**												
INORGANICS	**mg/L**	**mg/L**		**mg/L**		**mg/L**		**mg/L**		**mg/L**		**mg/L**	
Aluminum, Total	200	NA		NA		NA		NA		NA		NA	
Antimony, Total		NA		NA		NA		NA		NA		NA	
Arsenic, Total	10	NA		NA		NA		NA		NA		NA	
Barium, Total	2000	NA		NA		NA		NA		NA		NA	
Beryllium, Total		NA		NA		NA		NA		NA		NA	
Cadmium, Total		NA		NA		NA		NA		NA		NA	
Calcium, Total		NA		NA		NA		NA		NA		NA	
Chromium, Total		NA		NA		NA		NA		NA		NA	
Cobalt, Total		NA		NA		NA		NA		NA		NA	
Copper, Total		NA		NA		NA		NA		NA		NA	
Iron, Total	300	NA		NA		NA		NA		NA		NA	
Lead, Total		NA		NA		NA		NA		NA		NA	
Magnesium, Total		NA		NA		NA		NA		NA		NA	
Manganese, Total	50	NA		NA		NA		NA		NA		NA	
Mercury, Total		NA		NA		NA		NA		NA		NA	
Nickel, Total		NA		NA		NA		NA		NA		NA	
Potassium, Total		NA		NA		NA		NA		NA		NA	
Selenium, Total		NA		NA		NA		NA		NA		NA	
Silver, Total		NA		NA		NA		NA		NA		NA	
Sodium, Total		NA		NA		NA		NA		NA		NA	
Thallium, Total		NA		NA		NA		NA		NA		NA	
Vanadium, Total	3.1	NA		NA		NA		NA		NA		NA	
Zinc, Total		NA		NA		NA		NA		NA		NA	
VOLATILES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
1,1,1-Trichloroethane		1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
1,1,2-Trichloroethane		1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane		1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene		1	U	1	U	1	U	1	U	1	U	1	U
1,2,3-Trichlorobenzene		2	U	2	U	2	U	2	U	2	U	2	U
1,2,4-Trichlorobenzene		2	U	2	U	2	U	2	U	2	U	2	U
1,2-Dibromo-3-chloropropa		7	U	7	U	7	U	7	U	7	U	7	U
1,2-Dibromoethane		1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene		1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane		1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane		1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene		1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene		1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dioxane		320	U	320	U	320	U	320	U	320	U	320	U
2-Butanone		10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone		5	U	5	U	5	U	5	U	5	U	5	U

J Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL)

U Indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL)

ANALYTICAL DATA
SEPTEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW12D		HAV-LTR-CW13D		HAV-LTR-CW22D		HAV-LTR-CW22S		HAV-LTR-MW1		HAV-LTR-MW2	
Sample Date:	**Goals for**	**9/14/2016**		**9/14/2016**		**9/13/2016**		**9/13/2016**		**9/13/2016**		**9/13/2016**	
Duplicate of:	**Groundwater**												
4-Methyl-2-Pentanone(MIBK		5	U	5	U	5	U	5	U	5	U	5	U
Acetone		10	U	10	U	10	U	10	U	10	U	10	U
Benzene	5	1	U	1	U	1	U	1	U	1	U	1	U
Bromochloromethane		1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane		1	U	1	U	1	U	1	U	1	U	1	U
Bromoform		1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane		1	U	1	U	1	U	1	U	1	U	1	U
Carbon Disulfide		1	U	1	U	1	U	1	U	1	U	1	U
Carbon Tetrachloride		1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene		1	U	1	U	1	U	1	U	1	U	1	U
Chlorodibromomethane		1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane		1	U	1	U	1	U	1	U	1	U	1	U
Chloroform		1	U	0.28	J	1	U	1	U	1	U	1	U
Chloromethane		1	U	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene		0 51	J	12.3		1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene		1	U	1	U	1	U	1	U	1	U	1	U
Cyclohexane		1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane		1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	700	1	U	1	U	1	U	1	U	1	U	1	U
Freon 113		1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene		1	U	1	U	1	U	1	U	1	U	1	U
Methyl acetate		2	U	2	U	2	U	0.44	J	2	U	2	U
Methyl cyclohexane		1	U	1	U	1	U	1	U	1	U	1	U
Methyl t-Butyl Ether		1	U	1	U	1	U	0.58	J	1	U	1	U
Methylene Chloride		1	U	1	U	1	U	1	U	1	U	1	U
mp-Xylene		2	U	2	U	2	U	2	U	2	U	2	U
o-Xylene		1	U	1	U	1	U	1	U	1	U	1	U
Styrene		1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene		1	U	1	U	1	U	1	U	1	U	1	U
Toluene	1000	1	U	1	U	1	U	1	U	1	U	1	U
Total Xylenes		3	U	3	U	3	U	3	U	3	U	3	U
trans-1,2-Dichloroethene		1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene		1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	5	1	U	6.2		1	U	1	U	1	U	1	U
Trichlorofluoromethane		1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	5	1	U	1	U	1	U	1	U	1	U	1	U
SEMIVOLATILES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
1,2,4,5-Tetrachlorobenzen		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
1,4-Dioxane		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
2,3,4,6-Tetrachlorophenol		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
2,4,5-Trichlorophenol		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
2,4,6-Trichlorophenol		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U

J Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL)

U Indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL)

ANALYTICAL DATA
SEPTEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW12D		HAV-LTR-CW13D		HAV-LTR-CW22D		HAV-LTR-CW22S		HAV-LTR-MW1		HAV-LTR-MW2	
Sample Date:	Goals for	9/14/2016		9/14/2016		9/13/2016		9/13/2016		9/13/2016		9/13/2016	
Duplicate of:	Groundwater												
2,4-Dichlorophenol		2.9	U	2 9	U	2.9	U	2.9	U	2.9	U	2.8	U
2,4-Dimethylphenol		2.9	U	2 9	U	2.9	U	2.9	U	2.9	U	2.8	U
2,4-Dinitrophenol		5.8	U	5 9	U	5.7	U	5.8	U	5.8	U	5.7	U
2,4-Dinitrotoluene		2.9	U	2 9	U	2.9	U	2.9	U	2.9	U	2.8	U
2,6-Dinitrotoluene		2.9	U	2 9	U	2.9	U	2.9	U	2.9	U	2.8	U
2-Chloronaphthalene		2.9	U	2 9	U	2.9	U	2.9	U	2.9	U	2.8	U
2-Chlorophenol		2.9	U	2 9	U	2.9	U	2.9	U	2.9	U	2.8	U
2-Methyl-4,6-dinitropheno	1.7	5.8	U	5 9	U	5.7	U	5.8	U	5.8	U	5.7	U
2-Methylnaphthalene	2	1.4	U	1 5	U	1.4	U	1.5	U	1.4	U	1.4	U
2-Nitroaniline		2.9	U	2 9	U	2.9	U	2.9	U	2.9	U	2.8	U
2-Nitrophenol		2.9	U	2 9	U	2.9	U	2.9	U	2.9	U	2.8	U
3,3-Dichlorobenzidine		2.9	U	2 9	U	2.9	U	2.9	U	2.9	U	2.8	U
3-Nitroaniline		2.9	U	2 9	U	2.9	U	2.9	U	2.9	U	2.8	U
4-Bromophenyl-phenylether		2.9	U	2 9	U	2.9	U	2.9	U	2.9	U	2.8	U
4-Chloro-3-methylphenol		2.9	U	2 9	U	2.9	U	2.9	U	2.9	U	2.8	U
4-Chloroaniline		2.9	U	2 9	U	2.9	U	2.9	U	2.9	U	2.8	U
4-Chlorophenyl-phenylethe		2.9	U	2 9	U	2.9	U	2.9	U	2.9	U	2.8	U
4-Nitroaniline		2.9	U	2 9	U	2.9	U	2.9	U	2.9	U	2.8	U
4-Nitrophenol		2.9	U	2 9	U	2.9	U	2.9	U	2.9	U	2.8	U
Acenaphthene		1.4	U	1 5	U	1.4	U	1.5	U	1.4	U	1.4	U
Acenaphthylene		1.4	U	1 5	U	1.4	U	1.5	U	1.4	U	1.4	U
Acetophenone		2.9	U	2 9	U	2.9	U	2.9	U	2.9	U	2.8	U
Anthracene		1.4	U	1 5	U	1.4	U	1.5	U	1.4	U	1.4	U
Atrazine		2.9	U	2 9	U	2.9	U	2.9	U	2.9	U	2.8	U
Benzaldehyde		2.9	U	2 9	U	2.9	U	2.9	U	2.9	U	2.8	U
Benzo(a)anthracene		1.4	U	1 5	U	1.4	U	1.5	U	1.4	U	1.4	U
Benzo(a)pyrene	0 2	1.4	U	1 5	U	1.4	U	1.5	U	1.4	U	1.4	U
Benzo(b)fluoranthene		1.4	U	1 5	U	1.4	U	0 34	J	1.4	U	1.4	U
Benzo(g,h,i)perylene		1.4	U	1.5	U	1.4	U	1.5	U	1.4	U	1.4	U
Benzo(k)fluoranthene		1.4	U	1.5	U	1.4	U	1.5	U	1.4	U	1.4	U
Biphenyl		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
bis(2-Chloroethoxy)methan		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
bis(2-Chloroethyl)ether		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
bis(2-Chloroisopropyl)eth		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
bis(2-Ethylhexyl)phthalat	6	2.9	U	**187**		2.9	U	2.9	U	2.9	U	2.8	U
Butylbenzylphthalate		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
Caprolactam		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
Carbazole		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
Chrysene		1.4	U	1.5	U	1.4	U	1.5	U	1.4	U	1.4	U
Dibenzo(a,h)anthracene		1.4	U	1.5	U	1.4	U	1.5	U	1.4	U	1.4	U
Dibenzofuran	4	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
Diethylphthalate		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
Dimethylphthalate		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U

J Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL)

U Indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL)

ANALYTICAL DATA
SEPTEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW12D		HAV-LTR-CW13D		HAV-LTR-CW22D		HAV-LTR-CW22S		HAV-LTR-MW1		HAV-LTR-MW2	
Sample Date:	**Goals for**	**9/14/2016**		**9/14/2016**		**9/13/2016**		**9/13/2016**		**9/13/2016**		**9/13/2016**	
Duplicate of:	**Groundwater**												
Di-n-Butylphthalate		0.16	J	0.28	J	2.9	U	0.26	J	0.15	J	2.8	U
Di-n-Octylphthalate		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
Fluoranthene		1.4	U	1 5	U	1.4	U	0 26	J	1.4	U	1.4	U
Fluorene		1.4	U	1.5	U	1.4	U	1.5	U	1.4	U	1.4	U
Hexachlorobenzene		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
Hexachlorobutadiene		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
Hexachlorocyclopentadiene		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
Hexachloroethane		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
Indeno(1,2,3-cd)pyrene		1.4	U	1.5	U	1.4	U	0.14	J	1.4	U	1.4	U
Isophorone		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
mp-Cresol		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
Naphthalene	3	1.4	U	1.5	U	1.4	U	1.5	U	1.4	U	1.4	U
Nitrobenzene		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
N-Nitroso-di-n-propylamin		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
N-Nitrosodiphenylamine		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
o-Cresol		2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U
Pentachlorophenol	1	5.8	U	5.9	U	5.7	U	5.8	U	5.8	U	5.7	U
Phenanthrene	41	1.4	U	1.5	U	1.4	U	1.5	U	1.4	U	1.4	U
Phenol		7.7	U	7.8	U	7.6	U	7.8	U	7.7	U	7.5	U
Pyrene		1.4	U	1.5	U	1.4	U	0.27	J	1.4	U	1.4	U
HERBICIDES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA	
DIOXINS/FURANS	**pg/L**	**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**	
Toxicity Equivalent Quotient (TEQ)	0.00138	NA		NA		NA		NA		NA		NA	

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U Indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL)

ANALYTICAL DATA
SEPTEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-MW1I		HAV-LTR-MW1S		HAV-LTR-MW2I		HAV-LTR-MW2S		HAV-LTR-FB01		HAV-LTR-TB01	
Sample Date:	**Goals for**	**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/13/2016**		**9/14/2016**	
Duplicate of:	**Groundwater**												
INORGANICS	**mg/L**	**mg/L**		**mg/L**		**mg/L**		**mg/L**		**mg/L**		**mg/L**	
Aluminum, Total	200	1.7		2.7		0 089	U	0.089	U	0.089	U	NA	
Antimony, Total		0.0022	U	0.00074	J	0.00078	J	0.0022	U	0.0022	U	NA	
Arsenic, Total	10	0.0045		0.0016	J	0 003	U	0 0089		0.003	U	NA	
Barium, Total	2000	0 028		0.069		0 037		0.14		0.0056	U	NA	
Beryllium, Total		0 021		0.0041		0 001	U	0.001	U	0.001	U	NA	
Cadmium, Total		0.00059	J	0.00046	J	0.0011	U	0 0011	U	0.0011	U	NA	
Calcium, Total		78.6		47 3		40.1		48.4		0.11	U	NA	
Chromium, Total		0.0012	J	0.0013	J	0 001	J	0.00084	J	0 00097	J	NA	
Cobalt, Total		0 058		0.033		0.0056	U	0 0077		0.0056	U	NA	
Copper, Total		0.0025	J	0.003	J	0.0056	U	0 0021	J	0.0056	U	NA	
Iron, Total	300	0.36		0.26		0 056	J	20.4		0.056	U	NA	
Lead, Total		0.0019	J	0.0043		0.0022	U	0.058		0.0022	U	NA	
Magnesium, Total		19.3		8 3		12.1		14		0.11	U	NA	
Manganese, Total	50	0.95		0.88		0.21		0.66		0.0056	U	NA	
Mercury, Total		0.0005	U	0.0005	U	0.0005	U	0 0005	U	0.0005	U	NA	
Nickel, Total		0 028		0.014		0.0056	U	0 0056	U	0.0056	U	NA	
Potassium, Total		5.4		3.7		4.7		6 2		0.11	U	NA	
Selenium, Total		0.0071		0.0034	J	0.0056	U	0 0056	U	0.0056	U	NA	
Silver, Total		0.0022	U	0.0022	U	0.0022	U	0 0022	U	0.0022	U	NA	
Sodium, Total		90.4		66.1		20.3		45.1		0.11	U	NA	
Thallium, Total		0 001	U	0.001	U	0 001	U	0.001	U	0.001	U	NA	
Vanadium, Total	3.1	0.0014	J	0.0013	J	0.00083	J	0.001	J	0.0022	U	NA	
Zinc, Total		0.22		0.13		0.0028	J	0 0074		0.0056	U	NA	
VOLATILES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
1,1,1-Trichloroethane		NA		NA		NA		NA		1	U	1	U
1,1,2,2-Tetrachloroethane		NA		NA		NA		NA		0.2	U	0.2	U
1,1,2-Trichloroethane		NA		NA		NA		NA		1	U	1	U
1,1-Dichloroethane		NA		NA		NA		NA		1	U	1	U
1,1-Dichloroethene		NA		NA		NA		NA		1	U	1	U
1,2,3-Trichlorobenzene		NA		NA		NA		NA		2	U	2	U
1,2,4-Trichlorobenzene		NA		NA		NA		NA		2	U	2	U
1,2-Dibromo-3-chloropropa		NA		NA		NA		NA		7	U	7	U
1,2-Dibromoethane		NA		NA		NA		NA		1	U	1	U
1,2-Dichlorobenzene		NA		NA		NA		NA		1	U	1	U
1,2-Dichloroethane		NA		NA		NA		NA		1	U	1	U
1,2-Dichloropropane		NA		NA		NA		NA		1	U	1	U
1,3-Dichlorobenzene		NA		NA		NA		NA		1	U	1	U
1,4-Dichlorobenzene		NA		NA		NA		NA		1	U	1	U
1,4-Dioxane		NA		NA		NA		NA		320	U	320	U
2-Butanone		NA		NA		NA		NA		1.9	J	2.1	J
2-Hexanone		NA		NA		NA		NA		5	U	5	U

J Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL)

U Indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL)

ANALYTICAL DATA
SEPTEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-MW1I		HAV-LTR-MW1S		HAV-LTR-MW2I		HAV-LTR-MW2S		HAV-LTR-FB01		HAV-LTR-TB01	
Sample Date:	**Goals for**	**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/13/2016**		**9/14/2016**	
Duplicate of:	**Groundwater**												
4-Methyl-2-Pentanone(MIBK		NA		NA		NA		NA		5	U	5	U
Acetone		NA		NA		NA		NA		8.4	J	9.2	J
Benzene	5	NA		NA		NA		NA		1	U	1	U
Bromochloromethane		NA		NA		NA		NA		1	U	1	U
Bromodichloromethane		NA		NA		NA		NA		1	U	1	U
Bromoform		NA		NA		NA		NA		1	U	1	U
Bromomethane		NA		NA		NA		NA		1	U	1	U
Carbon Disulfide		NA		NA		NA		NA		1	U	1	U
Carbon Tetrachloride		NA		NA		NA		NA		1	U	1	U
Chlorobenzene		NA		NA		NA		NA		0.42	J	0.46	J
Chlorodibromomethane		NA		NA		NA		NA		1	U	1	U
Chloroethane		NA		NA		NA		NA		1	U	1	U
Chloroform		NA		NA		NA		NA		1	U	1	U
Chloromethane		NA		NA		NA		NA		1	U	1	U
cis-1,2-Dichloroethene		NA		NA		NA		NA		1	U	1	U
cis-1,3-Dichloropropene		NA		NA		NA		NA		1	U	1	U
Cyclohexane		NA		NA		NA		NA		1	U	1	U
Dichlorodifluoromethane		NA		NA		NA		NA		1	U	1	U
Ethylbenzene	700	NA		NA		NA		NA		1	U	1	U
Freon 113		NA		NA		NA		NA		1	U	1	U
Isopropylbenzene		NA		NA		NA		NA		1	U	1	U
Methyl acetate		NA		NA		NA		NA		2	U	2	U
Methyl cyclohexane		NA		NA		NA		NA		1	U	1	U
Methyl t-Butyl Ether		NA		NA		NA		NA		1	U	1	U
Methylene Chloride		NA		NA		NA		NA		1	U	1	U
mp-Xylene		NA		NA		NA		NA		2	U	2	U
o-Xylene		NA		NA		NA		NA		1	U	1	U
Styrene		NA		NA		NA		NA		1	U	1	U
Tetrachloroethene		NA		NA		NA		NA		1	U	1	U
Toluene	1000	NA		NA		NA		NA		1	U	1	U
Total Xylenes		NA		NA		NA		NA		3	U	3	U
trans-1,2-Dichloroethene		NA		NA		NA		NA		1	U	1	U
trans-1,3-Dichloropropene		NA		NA		NA		NA		1	U	1	U
Trichloroethene	5	NA		NA		NA		NA		1	U	1	U
Trichlorofluoromethane		NA		NA		NA		NA		1	U	1	U
Vinyl Chloride	5	NA		NA		NA		NA		1	U	1	U
SEMIVOLATILES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
1,2,4,5-Tetrachlorobenzen		NA		NA		NA		NA		2.9	U	NA	
1,4-Dioxane		NA		NA		NA		NA		2.9	U	NA	
2,3,4,6-Tetrachlorophenol		NA		NA		NA		NA		2.9	U	NA	
2,4,5-Trichlorophenol		NA		NA		NA		NA		2.9	U	NA	
2,4,6-Trichlorophenol		NA		NA		NA		NA		2.9	U	NA	

J Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL)

U Indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL)

ANALYTICAL DATA
SEPTEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-MW1I		HAV-LTR-MW1S		HAV-LTR-MW2I		HAV-LTR-MW2S		HAV-LTR-FB01		HAV-LTR-TB01	
Sample Date:	**Goals for**	**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/13/2016**		**9/14/2016**	
Duplicate of:	**Groundwater**												
2,4-Dichlorophenol		NA		NA		NA		NA		2.9	U	NA	
2,4-Dimethylphenol		NA		NA		NA		NA		2.9	U	NA	
2,4-Dinitrophenol		NA		NA		NA		NA		5.7	U	NA	
2,4-Dinitrotoluene		NA		NA		NA		NA		2.9	U	NA	
2,6-Dinitrotoluene		NA		NA		NA		NA		2.9	U	NA	
2-Chloronaphthalene		NA		NA		NA		NA		2.9	U	NA	
2-Chlorophenol		NA		NA		NA		NA		2.9	U	NA	
2-Methyl-4,6-dinitropheno	1.7	NA		NA		NA		NA		5.7	U	NA	
2-Methylnaphthalene	2	NA		NA		NA		NA		1.4	U	NA	
2-Nitroaniline		NA		NA		NA		NA		2.9	U	NA	
2-Nitrophenol		NA		NA		NA		NA		2.9	U	NA	
3,3-Dichlorobenzidine		NA		NA		NA		NA		2.9	U	NA	
3-Nitroaniline		NA		NA		NA		NA		2.9	U	NA	
4-Bromophenyl-phenylether		NA		NA		NA		NA		2.9	U	NA	
4-Chloro-3-methylphenol		NA		NA		NA		NA		2.9	U	NA	
4-Chloroaniline		NA		NA		NA		NA		2.9	U	NA	
4-Chlorophenyl-phenylethe		NA		NA		NA		NA		2.9	U	NA	
4-Nitroaniline		NA		NA		NA		NA		2.9	U	NA	
4-Nitrophenol		NA		NA		NA		NA		2.9	U	NA	
Acenaphthene		NA		NA		NA		NA		1.4	U	NA	
Acenaphthylene		NA		NA		NA		NA		1.4	U	NA	
Acetophenone		NA		NA		NA		NA		2.9	U	NA	
Anthracene		NA		NA		NA		NA		1.4	U	NA	
Atrazine		NA		NA		NA		NA		2.9	U	NA	
Benzaldehyde		NA		NA		NA		NA		2.9	U	NA	
Benzo(a)anthracene		NA		NA		NA		NA		1.4	U	NA	
Benzo(a)pyrene	0.2	NA		NA		NA		NA		1.4	U	NA	
Benzo(b)fluoranthene		NA		NA		NA		NA		1.4	U	NA	
Benzo(g,h,i)perylene		NA		NA		NA		NA		1.4	U	NA	
Benzo(k)fluoranthene		NA		NA		NA		NA		1.4	U	NA	
Biphenyl		NA		NA		NA		NA		2.9	U	NA	
bis(2-Chloroethoxy)methan		NA		NA		NA		NA		2.9	U	NA	
bis(2-Chloroethyl)ether		NA		NA		NA		NA		2.9	U	NA	
bis(2-Chloroisopropyl)eth		NA		NA		NA		NA		2.9	U	NA	
bis(2-Ethylhexyl)phthalat	6	NA		NA		NA		NA		0.42	J	NA	
Butylbenzylphthalate		NA		NA		NA		NA		2.9	U	NA	
Caprolactam		NA		NA		NA		NA		2.9	U	NA	
Carbazole		NA		NA		NA		NA		2.9	U	NA	
Chrysene		NA		NA		NA		NA		1.4	U	NA	
Dibenzo(a,h)anthracene		NA		NA		NA		NA		1.4	U	NA	
Dibenzofuran	4	NA		NA		NA		NA		2.9	U	NA	
Diethylphthalate		NA		NA		NA		NA		2.9	U	NA	
Dimethylphthalate		NA		NA		NA		NA		2.9	U	NA	

J Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL)

U Indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL)

ANALYTICAL DATA
SEPTEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-MW1I		HAV-LTR-MW1S		HAV-LTR-MW2I		HAV-LTR-MW2S		HAV-LTR-FB01		HAV-LTR-TB01	
Sample Date:	**Goals for**	**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/14/2016**		**9/13/2016**		**9/14/2016**	
Duplicate of:	**Groundwater**												
Di-n-Butylphthalate		NA		NA		NA		NA		0.18	J	NA	
Di-n-Octylphthalate		NA		NA		NA		NA		2.9	U	NA	
Fluoranthene		NA		NA		NA		NA		1.4	U	NA	
Fluorene		NA		NA		NA		NA		1.4	U	NA	
Hexachlorobenzene		NA		NA		NA		NA		2.9	U	NA	
Hexachlorobutadiene		NA		NA		NA		NA		2.9	U	NA	
Hexachlorocyclopentadiene		NA		NA		NA		NA		2.9	U	NA	
Hexachloroethane		NA		NA		NA		NA		2.9	U	NA	
Indeno(1,2,3-cd)pyrene		NA		NA		NA		NA		1.4	U	NA	
Isophorone		NA		NA		NA		NA		2.9	U	NA	
mp-Cresol		NA		NA		NA		NA		2.9	U	NA	
Naphthalene	3	NA		NA		NA		NA		1.4	U	NA	
Nitrobenzene		NA		NA		NA		NA		2.9	U	NA	
N-Nitroso-di-n-propylamin		NA		NA		NA		NA		2.9	U	NA	
N-Nitrosodiphenylamine		NA		NA		NA		NA		2.9	U	NA	
o-Cresol		NA		NA		NA		NA		2.9	U	NA	
Pentachlorophenol	1	NA		NA		NA		NA		5.7	U	NA	
Phenanthrene	41	NA		NA		NA		NA		1.4	U	NA	
Phenol		NA		NA		NA		NA		7.7	U	NA	
Pyrene		NA		NA		NA		NA		1.4	U	NA	
HERBICIDES	**ug/L**	**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA	
DIOXINS/FURANS	**pg/L**	**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**		**pg/L**	
Toxicity Equivalent Quotient (TEQ)	0.00138	NA		NA		NA		NA		NA		NA	

J Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL)
U Indicates that the analyte was Not Detected at the Reporting Detection Limit (RDL)

A-2 DECEMBER 2016 GROUNDWATER DATA

ANALYTICAL DATA
DECEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

		ROS AREA WELLS															
Sample ID:	**Remediation**	**HAV-LTR-RW8**		**HAV-LTR-RW9**		**HAV-LTR-DUP01**		**HAV-LTR-RW10**		**HAV-LTR-CW32**		**HAV-LTR-CW33**		**HAV-LTR-CW34**	
Sample Date:	**Goals for**	**12/21/2016**		**12/21/2016**		**12/21/2016**		**12/21/2016**		**12/21/2016**		**12/21/2016**		**12/21/2016**	
Duplicate of:	**Groundwater**					**HAV-LTR-RW9**									
		Result		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**	
VOLATILES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Acetone		5	U	5	U	5	U	5	U	NA		NA		NA	
Benzene	5	0.5	U	0.5	U	0.5	U	0 5	U	NA		NA		NA	
Bromochloromethane		0.5	U	0.5	U	0.5	U	0 5	U	NA		NA		NA	
Bromodichloromethane		0.5	U	0.5	U	0.5	U	0 5	U	NA		NA		NA	
Bromoform		0.5	U	0.5	U	0.5	U	0 5	U	NA		NA		NA	
Bromomethane		0.5	U	0.5	U	0.5	U	0 5	U	NA		NA		NA	
2-Butanone		5	U	5	U	5	U	5	U	NA		NA		NA	
Carbon Disulfide		1	U	1	U	1	U	1	U	NA		NA		NA	
Carbon Tetrachloride		0.5	U	0.5	U	0.5	U	0 5	U	NA		NA		NA	
Chlorobenzene		0.5	U	0.5	U	0.5	U	0 5	U	NA		NA		NA	
Chloroethane		0.5	U	0.5	U	0.5	U	0 5	U	NA		NA		NA	
Chloroform		0.1	J	0.1	J	0.5	U	0.1	J	NA		NA		NA	
Chloromethane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Cyclohexane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,2-Dibromo-3-chloropropane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Dibromochloromethane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,2-Dibromoethane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,2-Dichlorobenzene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,3-Dichlorobenzene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,4-Dichlorobenzene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Dichlorodifluoromethane		0 5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,1-Dichloroethane		0 5	U	0.5	U	0.5	U	0 5	U	NA		NA		NA	
1,2-Dichloroethane		0.5	U	0.5	U	0.5	U	0 5	U	NA		NA		NA	
1,1-Dichloroethene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
cis-1,2-Dichloroethene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
trans-1,2-Dichloroethene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,2-Dichloropropane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
cis-1,3-Dichloropropene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
trans-1,3-Dichloropropene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Ethylbenzene	700	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Freon 113		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
2-Hexanone		5	U	5	U	5	U	5	U	NA		NA		NA	
Isopropylbenzene		0.5	U	0.5	U	0.5	U	0 5	U	NA		NA		NA	
Methyl Acetate		1	U	1	U	1	U	1	U	NA		NA		NA	
Methyl Tertiary Butyl Ether		0.5	U	0.5	U	0.5	U	0 5	U	NA		NA		NA	
4-Methyl-2-pentanone		5	U	5	U	5	U	5	U	NA		NA		NA	
Methylcyclohexane		0.5	U	0.5	U	0.5	U	0 5	U	NA		NA		NA	
Methylene Chloride		0.5	U	0.5	U	0.5	U	0 5	U	NA		NA		NA	

ANALYTICAL DATA
DECEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

		ROS AREA WELLS															
Sample ID:	**Remediation**	**HAV-LTR-RW8**		**HAV-LTR-RW9**		**HAV-LTR-DUP01**		**HAV-LTR-RW10**		**HAV-LTR-CW32**		**HAV-LTR-CW33**		**HAV-LTR-CW34**	
Sample Date:	**Goals for**	**12/21/2016**		**12/21/2016**		**12/21/2016**		**12/21/2016**		**12/21/2016**		**12/21/2016**		**12/21/2016**	
Duplicate of:	**Groundwater**					**HAV-LTR-RW9**									
		Result		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**	
Styrene		0.5	U	0.5	U	0.5	U	0 5	U	NA		NA		NA	
1,1,2,2-Tetrachloroethane		0.5	U	0.5	U	0.5	U	0 5	U	NA		NA		NA	
Tetrachloroethene		0.1	J	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Toluene	1000	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,2,3-Trichlorobenzene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,2,4-Trichlorobenzene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,1,1-Trichloroethane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,1,2-Trichloroethane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Trichloroethene	5	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Trichlorofluoromethane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,2,4-Trimethylbenzene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,3,5-Trimethylbenzene		0.5	U	0.5	U	0.5	U	0 5	U	NA		NA		NA	
Vinyl Chloride	5	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
m+p-Xylene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
o-Xylene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
SEMIVOLATILES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Acenaphthene		0.5	U	0.5	U	NA		0.5	U	NA		NA		NA	
Acenaphthylene		0.5	U	0.5	U	NA		0.5	U	NA		NA		NA	
Acetophenone		1	U	1	U	NA		1	U	NA		NA		NA	
Anthracene		0.5	U	0.5	U	NA		0.5	U	NA		NA		NA	
Atrazine		5	U	5	U	NA		5	U	NA		NA		NA	
Benzaldehyde		5	U	5	U	NA		5	U	NA		NA		NA	
Benzo(a)anthracene		0.5	U	0.5	U	NA		0.5	U	NA		NA		NA	
Benzo(a)pyrene	0.2	0.5	U	0.5	U	NA		0.5	U	NA		NA		NA	
Benzo(b)fluoranthene		0.5	U	0.5	U	NA		0.5	U	NA		NA		NA	
Benzo(g,h,i)perylene		0.5	U	0.5	U	NA		0 5	U	NA		NA		NA	
Benzo(k)fluoranthene		0.5	U	0.5	U	NA		0 5	U	NA		NA		NA	
1,1'-Biphenyl		1	U	1	U	NA		1	U	NA		NA		NA	
4-Bromophenyl-phenylether		1	U	1	U	NA		1	U	NA		NA		NA	
Butylbenzylphthalate		5	U	5	U	NA		5	U	NA		NA		NA	
Di-n-butylphthalate		5	U	5	U	NA		5	U	NA		NA		NA	
Caprolactam		15	U	15	U	NA		16	U	NA		NA		NA	
Carbazole		1	U	1	U	NA		1	U	NA		NA		NA	
4-Chloro-3-methylphenol		1	U	1	U	NA		1	U	NA		NA		NA	
4-Chloroaniline		4	U	4	U	NA		4	U	NA		NA		NA	
bis(2-Chloroethoxy)methane		1	U	1	U	NA		1	U	NA		NA		NA	
bis(2-Chloroethyl)ether		1	U	1	U	NA		1	U	NA		NA		NA	
2-Chloronaphthalene		1	U	1	U	NA		1	U	NA		NA		NA	

ANALYTICAL DATA
DECEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

		ROS AREA WELLS															
Sample ID:	**Remediation**	**HAV-LTR-RW8**		**HAV-LTR-RW9**		**HAV-LTR-DUP01**		**HAV-LTR-RW10**		**HAV-LTR-CW32**		**HAV-LTR-CW33**		**HAV-LTR-CW34**	
Sample Date:	**Goals for**	**12/21/2016**		**12/21/2016**		**12/21/2016**		**12/21/2016**		**12/21/2016**		**12/21/2016**		**12/21/2016**	
Duplicate of:	**Groundwater**					**HAV-LTR-RW9**									
		Result		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**	
2-Chlorophenol		1	U	1	U	NA		1	U	NA		NA		NA	
4-Chlorophenyl-phenylether		1	U	1	U	NA		1	U	NA		NA		NA	
2,2'-oxybis(1-Chloropropane)		1	U	1	U	NA		1	U	NA		NA		NA	
Chrysene		0.5	U	0.5	U	NA		0.5	U	NA		NA		NA	
Dibenz(a,h)anthracene		0.5	U	0.5	U	NA		0.5	U	NA		NA		NA	
Dibenzofuran	4	1	U	1	U	NA		1	U	NA		NA		NA	
3,3'-Dichlorobenzidine		5	U	5	U	NA		5	U	NA		NA		NA	
2,4-Dichlorophenol		1	U	1	U	NA		1	U	NA		NA		NA	
Diethylphthalate		5	U	5	U	NA		5	U	NA		NA		NA	
2,4-Dimethylphenol		1	U	1	U	NA		1	U	NA		NA		NA	
Dimethylphthalate		5	U	5	U	NA		5	U	NA		NA		NA	
4,6-Dinitro-2-methylphenol	1.7	15	U	15	U	NA		16	U	NA		NA		NA	
2,4-Dinitrophenol		31	U	30	U	NA		32	U	NA		NA		NA	
2,4-Dinitrotoluene		5	U	5	U	NA		5	U	NA		NA		NA	
2,6-Dinitrotoluene		1	U	1	U	NA		1	U	NA		NA		NA	
bis(2-Ethylhexyl)phthalate	6	5	U	5	U	NA		5	U	NA		NA		NA	
Fluoranthene		0.5	U	0.5	U	NA		0 5	U	NA		NA		NA	
Fluorene		0.5	U	0.5	U	NA		0 5	U	NA		NA		NA	
Hexachlorobenzene		0.5	U	0.5	U	NA		0 5	U	NA		NA		NA	
Hexachlorobutadiene		1	U	1	U	NA		1	U	NA		NA		NA	
Hexachlorocyclopentadiene		15	U	15	U	NA		16	U	NA		NA		NA	
Hexachloroethane		5	U	5	U	NA		5	U	NA		NA		NA	
Indeno(1,2,3-cd)pyrene		0.5	U	0.5	U	NA		0 5	U	NA		NA		NA	
Isophorone		1	U	1	U	NA		1	U	NA		NA		NA	
2-Methylnaphthalene	2	0.5	U	0.5	U	NA		0 5	U	NA		NA		NA	
2-Methylphenol		1	U	1	U	NA		1	U	NA		NA		NA	
4-Methylphenol		1	U	1	U	NA		1	U	NA		NA		NA	
Naphthalene	3	0.5	U	0.5	U	NA		0.1	JB	NA		NA		NA	
2-Nitroaniline		1	U	1	U	NA		1	U	NA		NA		NA	
3-Nitroaniline		1	U	1	U	NA		1	U	NA		NA		NA	
4-Nitroaniline		1	U	1	U	NA		1	U	NA		NA		NA	
Nitrobenzene		1	U	1	U	NA		1	U	NA		NA		NA	
2-Nitrophenol		1	U	1	U	NA		1	U	NA		NA		NA	
4-Nitrophenol		31	U	30	U	NA		32	U	NA		NA		NA	
N-Nitroso-di-n-propylamine		1	U	1	U	NA		1	U	NA		NA		NA	
N-Nitrosodiphenylamine		1	U	1	U	NA		1	U	NA		NA		NA	
Di-n-octylphthalate		5	U	5	U	NA		5	U	NA		NA		NA	
Pentachlorophenol	1	5	U	5	U	NA		5	U	NA		NA		NA	
Phenanthrene	41	0.5	U	0.5	U	NA		0.5	U	NA		NA		NA	

ANALYTICAL DATA
DECEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

		ROS AREA WELLS											
Sample ID:	**Remediation**	**HAV-LTR-RW8**		**HAV-LTR-RW9**		**HAV-LTR-DUP01**		**HAV-LTR-RW10**		**HAV-LTR-CW32**		**HAV-LTR-CW33**		**HAV-LTR-CW34**	
Sample Date:	**Goals for**	**12/21/2016**		**12/21/2016**		**12/21/2016**		**12/21/2016**		**12/21/2016**		**12/21/2016**		**12/21/2016**	
Duplicate of:	**Groundwater**					**HAV-LTR-RW9**									
		Result		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**	
Phenol		1	U	1	U	NA		1	U	NA		NA		NA	
Pyrene		0.5	U	0.5	U	NA		0 5	U	NA		NA		NA	
1,2,4,5-Tetrachlorobenzene		1	U	1	U	NA		1	U	NA		NA		NA	
2,3,4,6-Tetrachlorophenol		1	U	1	U	NA		1	U	NA		NA		NA	
2,4,5-Trichlorophenol		1	U	1	U	NA		1	U	NA		NA		NA	
2,4,6-Trichlorophenol		1	U	1	U	NA		1	U	NA		NA		NA	
HERBICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Pentachlorophenol	1	0.048	U	0.099		NA		0.076		NA		NA		NA	
PESTICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Dieldrin	0.038	**0.24**		**0.14**		NA		**0.18**		**0.54**		**0.45**		**0.3**	

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation Limit
5.5 - Exceeds Remediation Goal for GW

ANALYTICAL DATA
DECEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

		OTHER SITE WELLS						FIELD QC	
Sample ID:	**Remediation**	**HAV-LTR-MW1**	**HAV-LTR-MW2**	**HAV-LTR-CW22S**	**HAV-LTR-CW22D**	**HAV-LTR-CW12D**	**HAV-LTR-CW13D**	**HAV-LTR-FB01**	**HAV-LTR-TB01**
Sample Date:	**Goals for**	**12/20/2016**	**12/20/2016**	**12/20/2016**	**12/20/2016**	**12/20/2016**	**12/20/2016**	**12/21/2016**	**12/21/2016**
Duplicate of:	**Groundwater**								
		Result	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
VOLATILES	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
Acetone		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	0 5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane		0 5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane		0 5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Disulfide		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon Tetrachloride		0 5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene		0 5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane		0 5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform		0.6	0.5 U	0.3 J	0.2 J	0.5 U	0.6	0.5 U	0.5 U
Chloromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cyclohexane		0 5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane		0 5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane		0 5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0 5 U
1,4-Dichlorobenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane		0 5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane		0 5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.2 J	0.5 J	12	0.5 U	0.5 U
trans-1,2-Dichloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane		0 5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene		0 5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	700	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Freon 113		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Isopropylbenzene		0 5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl Acetate		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methyl Tertiary Butyl Ether		0 5 U	0.5 U	0.3 J	0.3 J	0.5 U	0.1 J	0.5 U	0.5 U
4-Methyl-2-pentanone		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Methylcyclohexane		0 5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene Chloride		0 5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

ANALYTICAL DATA
DECEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

		OTHER SITE WELLS						FIELD QC	
Sample ID:	**Remediation**	**HAV-LTR-MW1**	**HAV-LTR-MW2**	**HAV-LTR-CW22S**	**HAV-LTR-CW22D**	**HAV-LTR-CW12D**	**HAV-LTR-CW13D**	**HAV-LTR-FB01**	**HAV-LTR-TB01**
Sample Date:	**Goals for**	**12/20/2016**	**12/20/2016**	**12/20/2016**	**12/20/2016**	**12/20/2016**	**12/20/2016**	**12/21/2016**	**12/21/2016**
Duplicate of:	**Groundwater**								
		Result	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Styrene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	1000	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	5	0.1 J	0.5 U	0.5 U	0.5 U	0.1 J	**5.5**	0.5 U	0.5 U
Trichlorofluoromethane		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
m+p-Xylene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
SEMIVOLATILES	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**	**µg/L**
Acenaphthene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.6 U	NA
Acenaphthylene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.6 U	NA
Acetophenone		1 U	1 U	0.9 J	1 U	1 U	1 U	1 U	NA
Anthracene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.6 U	NA
Atrazine		5 U	5 U	5 U	5 U	5 U	5 U	6 U	NA
Benzaldehyde		5 U	5 U	5 U	5 U	5 U	5 U	6 U	NA
Benzo(a)anthracene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.6 U	NA
Benzo(a)pyrene	0.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.6 U	NA
Benzo(b)fluoranthene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.6 U	NA
Benzo(g,h,i)perylene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.6 U	NA
Benzo(k)fluoranthene		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.6 U	NA
1,1'-Biphenyl		1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA
4-Bromophenyl-phenylether		1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA
Butylbenzylphthalate		5 U	5 U	5 U	5 U	5 U	5 U	6 U	NA
Di-n-butylphthalate		5 U	5 U	5 U	5 U	5 U	5 U	6 U	NA
Caprolactam		15 U	15 U	15 U	15 U	15 U	16 U	17 U	NA
Carbazole		1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA
4-Chloro-3-methylphenol		1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA
4-Chloroaniline		4 U	4 U	4 U	4 U	4 U	4 U	4 U	NA
bis(2-Chloroethoxy)methane		1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA
bis(2-Chloroethyl)ether		1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA
2-Chloronaphthalene		1 U	1 U	1 U	1 U	1 U	1 U	1 U	NA

ANALYTICAL DATA
DECEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

		OTHER SITE WELLS										FIELD QC			
Sample ID:	**Remediation**	**HAV-LTR-MW1**		**HAV-LTR-MW2**		**HAV-LTR-CW22S**		**HAV-LTR-CW22D**		**HAV-LTR-CW12D**		**HAV-LTR-CW13D**		**HAV-LTR-FB01**		**HAV-LTR-TB01**	
Sample Date:	**Goals for**	**12/20/2016**		**12/20/2016**		**12/20/2016**		**12/20/2016**		**12/20/2016**		**12/20/2016**		**12/21/2016**		**12/21/2016**	
Duplicate of:	**Groundwater**																
		Result		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**	
2-Chlorophenol		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
4-Chlorophenyl-phenylether		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
2,2'-oxybis(1-Chloropropane)		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Chrysene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	NA	
Dibenz(a,h)anthracene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	NA	
Dibenzofuran	4	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
3,3'-Dichlorobenzidine		5	U	5	U	5	U	5	U	5	U	5	U	6	U	NA	
2,4-Dichlorophenol		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Diethylphthalate		5	U	5	U	5	U	5	U	5	U	5	U	6	U	NA	
2,4-Dimethylphenol		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Dimethylphthalate		5	U	5	U	5	U	5	U	5	U	5	U	6	U	NA	
4,6-Dinitro-2-methylphenol	1.7	15	U	15	U	15	U	15	U	15	U	16	U	17	U	NA	
2,4-Dinitrophenol		30	U	31	U	31	U	31	U	31	U	31	U	33	U	NA	
2,4-Dinitrotoluene		5	U	5	U	5	U	5	U	5	U	5	U	6	U	NA	
2,6-Dinitrotoluene		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
bis(2-Ethylhexyl)phthalate	6	5	U	5	U	5	U	5	U	5	U	5	U	6	U	NA	
Fluoranthene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	NA	
Fluorene		0 5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	NA	
Hexachlorobenzene		0 5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	NA	
Hexachlorobutadiene		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Hexachlorocyclopentadiene		15	U	15	U	15	U	15	U	15	U	16	U	17	U	NA	
Hexachloroethane		5	U	5	U	5	U	5	U	5	U	5	U	6	U	NA	
Indeno(1,2,3-cd)pyrene		0 5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	NA	
Isophorone		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
2-Methylnaphthalene	2	0 5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	NA	
2-Methylphenol		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
4-Methylphenol		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Naphthalene	3	0.5	U	0.5	U	0.5	U	1	B	0.5	U	0.5	U	0.6	U	NA	
2-Nitroaniline		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
3-Nitroaniline		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
4-Nitroaniline		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Nitrobenzene		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
2-Nitrophenol		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
4-Nitrophenol		30	U	31	U	31	U	31	U	31	U	31	U	33	U	NA	
N-Nitroso-di-n-propylamine		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
N-Nitrosodiphenylamine		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Di-n-octylphthalate		5	U	5	U	5	U	5	U	5	U	5	U	6	U	NA	
Pentachlorophenol	1	5	U	5	U	5	U	5	U	5	U	5	U	6	U	NA	
Phenanthrene	41	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	NA	

ANALYTICAL DATA
DECEMBER 2016 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

		OTHER SITE WELLS												FIELD QC			
Sample ID:	**Remediation**	**HAV-LTR-MW1**		**HAV-LTR-MW2**		**HAV-LTR-CW22S**		**HAV-LTR-CW22D**		**HAV-LTR-CW12D**		**HAV-LTR-CW13D**		**HAV-LTR-FB01**		**HAV-LTR-TB01**	
Sample Date:	**Goals for**	**12/20/2016**		**12/20/2016**		**12/20/2016**		**12/20/2016**		**12/20/2016**		**12/20/2016**		**12/21/2016**		**12/21/2016**	
Duplicate of:	**Groundwater**																
		Result		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**	
Phenol		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
Pyrene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.6	U	NA	
1,2,4,5-Tetrachlorobenzene		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
2,3,4,6-Tetrachlorophenol		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
2,4,5-Trichlorophenol		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
2,4,6-Trichlorophenol		1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	
HERBICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA		NA		NA	
PESTICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Dieldrin	0.038	NA		NA		NA		NA		NA		NA		0.017	U	NA	

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation Li
5.5 - Exceeds Remediation Goal for GW

A-3 MARCH 2017 GROUNDWATER DATA

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CTR		HAV-LTR-CW1S		HAV-LTR-CW1D		HAV-LTR-CW2I		HAV-LTR-CW2D		HAV-LTR-CW3D		HAV-LTR-CW3X		HAV-LTR-CW4S		HAV-LTR-CW4I	
Sample Date:	**Goals for**	**3/22/2017**		**3/24/2017**		**3/24/2017**		**3/21/2017**		**3/21/2017**		**3/23/2017**		**3/23/2017**		**3/22/2017**		**3/22/2017**	
Duplicate of:	**Groundwater**													**HAV-LTR-CW3D**					
INORGANICS		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aluminum	200	ND		32.4	J	**302**		29.2	J	30.1	J	36.8	J	38	J	51.5	J	75.1	J
Antimony		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Arsenic	10	ND		ND		1.2	J	ND		ND		ND		ND		ND		**17.4**	
Barium	2000	224		23.7		83		47		30.6		164		160		75.8		142	
Beryllium		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Cadmium		ND		ND		ND		ND		0 28	J	0.21	J	0.25	J	0.59		ND	
Calcium		71100		52400		29500		26400		32300		53100		51900		23500		30600	
Chromium		ND		0.86	J	2.7		ND		1	J	ND		ND		ND		ND	
Cobalt		15.9		138		42.9		14		240		15.4		15.1		15.1		64.4	
Copper		ND		ND		1	J	ND		ND		ND		ND		ND		0.7	J
Iron	300	**1410**		**18800**		**71900**		**1680**		**429**		**1440**		**1420**		61.2	J	**25500**	
Lead		ND		0.17	J	0.42	J	ND		0.099	J	0.16	J	0.23	J	0.14	J	0.14	J
Magnesium		35400		15900		14700		12600		12600		24700		24900		15400		17800	
Manganese	50	**4300**		**6900**		**6040**		**936**		**7090**		**3370**		**3260**		**6900**		**12600**	
Nickel		3.5		2.8		ND		ND		7.7		12.8		12.5		7.5		14.1	
Potassium		7620		5320		5900		4750		4040		9300		9120		5120		7670	
Selenium		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Silver		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Sodium		75000		29800		28100		177000		50800		95300		94700		26300		96800	
Thallium		0.16	J	0.19	J	ND		ND		0 24	J	ND		ND		ND		ND	
Vanadium	3.1	ND		0.38	J	1.5		0.68		0.72		0.36	J	0.38	J	0.42	J	0.3	J
Zinc		ND		5	J	15.1		ND		12.3	JB	111		114		ND		7.8	J
PENTACHLOROPHENOL		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA		NA		NA		NA	
HERBICIDES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Dieldrin	0.038	NA		NA		NA		NA		NA		NA		NA		NA		NA	
DIOXINS/FURANS		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L	
Toxicity Equivalent Quotient (TEQ)	30	0.156		NA		NA		NA		NA		NA		NA		NA		NA	
SEMIVOLATILES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Acenaphthene		ND		ND		ND		ND		ND		ND		ND		ND		4	
Acenaphthylene		ND		ND		ND		ND		0.3	J	ND		ND		ND		ND	
Acetophenone		ND		ND		ND		ND		0.9	J	ND		ND		ND		6	
Anthracene		ND		ND		ND		ND		ND		ND		ND		ND		1	
Atrazine		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzaldehyde		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)anthracene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)pyrene	0 2	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(b)fluoranthene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(g,h,i)perylene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(k)fluoranthene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,1'-Biphenyl		ND		1		ND		ND		5		ND		ND		ND		16	

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CTR		HAV-LTR-CW1S		HAV-LTR-CW1D		HAV-LTR-CW2I		HAV-LTR-CW2D		HAV-LTR-CW3D		HAV-LTR-CW3X		HAV-LTR-CW4S		HAV-LTR-CW4I	
Sample Date:	**Goals for**	**3/22/2017**		**3/24/2017**		**3/24/2017**		**3/21/2017**		**3/21/2017**		**3/23/2017**		**3/23/2017**		**3/22/2017**		**3/22/2017**	
Duplicate of:	**Groundwater**													**HAV-LTR-CW3D**					
4-Bromophenyl-phenylether		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Butylbenzylphthalate		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Di-n-butylphthalate		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Caprolactam		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Carbazole		ND		ND		ND		ND		ND		ND		ND		ND		0.6	J
4-Chloro-3-methylphenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
4-Chloroaniline		ND		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Chloroethoxy)methane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Chloroethyl)ether		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Chloronaphthalene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Chlorophenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
4-Chlorophenyl-phenylether		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2,2'-oxybis(1-Chloropropane)		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Chrysene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Dibenz(a,h)anthracene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Dibenzofuran	4	ND		0.6	J	ND		ND		1		ND		ND		ND		**4**	
3,3'-Dichlorobenzidine		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dichlorophenol		ND		ND		2		ND		ND		ND		ND		ND		ND	
Diethylphthalate		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dimethylphenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Dimethylphthalate		ND		ND		ND		ND		ND		ND		ND		ND		ND	
4,6-Dinitro-2-methylphenol	1.7	ND		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dinitrophenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dinitrotoluene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2,6-Dinitrotoluene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Ethylhexyl)phthalate	6	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Fluoranthene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Fluorene		0.4	J	0.5		0.1	J	ND		1		0.3	J	0.2	J	ND		9	
Hexachlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachlorobutadiene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachlorocyclopentadiene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachloroethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Indeno(1,2,3-cd)pyrene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Isophorone		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Methylnaphthalene	2	ND		ND		ND		ND		**25**		ND		ND		ND		ND	
2-Methylphenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
4-Methylphenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Naphthalene	3	ND		ND		ND		ND		**48**		ND		ND		ND		ND	
2-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND		ND	
3-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND		ND	
4-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Nitrobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Nitrophenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
4-Nitrophenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
N-Nitroso-di-n-propylamine		ND		ND		ND		ND		ND		ND		ND		ND		ND	
N-Nitrosodiphenylamine		ND		ND		ND		ND		ND		ND		ND		ND		ND	

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CTR		HAV-LTR-CW1S		HAV-LTR-CW1D		HAV-LTR-CW2I		HAV-LTR-CW2D		HAV-LTR-CW3D		HAV-LTR-CW3X		HAV-LTR-CW4S		HAV-LTR-CW4I	
Sample Date:	**Goals for**	**3/22/2017**		**3/24/2017**		**3/24/2017**		**3/21/2017**		**3/21/2017**		**3/23/2017**		**3/23/2017**		**3/22/2017**		**3/22/2017**	
Duplicate of:	**Groundwater**													**HAV-LTR-CW3D**					
Di-n-octylphthalate		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Pentachlorophenol	1	43		210		5	J	420		760		59		54		55		420	
Phenanthrene	41	ND		ND		ND		ND		2		ND		ND		ND		6	
Phenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Pyrene		0.1	J	ND		ND		ND		ND		ND		ND		ND		ND	
1,2,4,5-Tetrachlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2,3,4,6-Tetrachlorophenol		1		6		8		16		36		0.8	J	0.6	J	3		24	
2,4,5-Trichlorophenol		ND		1		ND		ND		ND		ND		ND		0.7	J	3	
2,4,6-Trichlorophenol		ND		0.6	J	10		ND		ND		ND		ND		ND		1	J
VOLATILES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Acetone		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzene	5	0.2	J	0.3	J	ND		ND		ND		ND		ND		ND		22	
Bromochloromethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Bromodichloromethane		ND		ND		ND		10		2.7		ND		ND		ND		ND	
Bromoform		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Bromomethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Butanone		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Carbon Disulfide		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Carbon Tetrachloride		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Chlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Chloroethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Chloroform		0.5	J	ND		ND		120		24		ND		0.1	J	0.1	J	0.7	
Chloromethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Cyclohexane		ND		ND		ND		ND		ND		ND		ND		ND		0.8	
1,2-Dibromo-3-chloropropane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Dibromochloromethane		ND		ND		ND		0.2	J	ND		ND		ND		ND		ND	
1,2-Dibromoethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dichlorobenzene		ND		ND		ND		ND		0.1	J	ND		ND		ND		ND	
1,3-Dichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,4-Dichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Dichlorodifluoromethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,1-Dichloroethane		ND		ND		0.3	J	ND		ND		ND		ND		ND		ND	
1,2-Dichloroethane		ND		0.2	J	0.1	J	ND		ND		ND		ND		ND		0.4	J
1,1-Dichloroethene		ND		3		0.7		ND		ND		ND		ND		ND		ND	
cis-1,2-Dichloroethene		0 3	J	210		78		0.8		1.9		ND		ND		0.1	J	3.5	
trans-1,2-Dichloroethene		ND		4.2		2		ND		ND		ND		ND		ND		ND	
1,2-Dichloropropane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
cis-1,3-Dichloropropene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
trans-1,3-Dichloropropene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Ethylbenzene	700	ND		ND		ND		ND		0.2	J	ND		ND		ND		6.3	
Freon 113		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Hexanone		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Isopropylbenzene		0 2	J	0.4	J	ND		ND		1.3		ND		ND		ND		8.2	
Methyl Acetate		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Methyl Tertiary Butyl Ether		0.2	J	4.1		0.4	J	0.4	J	1.9		ND		ND		ND		0.5	

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CTR		HAV-LTR-CW1S		HAV-LTR-CW1D		HAV-LTR-CW2I		HAV-LTR-CW2D		HAV-LTR-CW3D		HAV-LTR-CW3X		HAV-LTR-CW4S		HAV-LTR-CW4I	
Sample Date:	**Goals for**	**3/22/2017**		**3/24/2017**		**3/24/2017**		**3/21/2017**		**3/21/2017**		**3/23/2017**		**3/23/2017**		**3/22/2017**		**3/22/2017**	
Duplicate of:	**Groundwater**													**HAV-LTR-CW3D**					
4-Methyl-2-pentanone		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Methylcyclohexane		ND		ND		ND		ND		ND		ND		ND		ND		0.4	J
Methylene Chloride		ND		ND		ND		6		0.7		ND		ND		ND		0.3	J
Styrene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,2,2-Tetrachloroethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Tetrachloroethene		ND		0.9		ND		ND		0.1	J	ND		ND		ND		ND	
Toluene	1000	ND		ND		ND		ND		0.2	J	ND		ND		ND		1.4	
1,2,3-Trichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,2,4-Trichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,1-Trichloroethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,2-Trichloroethane		ND		1.1		0.2	J	ND		ND		ND		ND		ND		ND	
Trichloroethene	5	0.3	J	**230**		**14**		ND		1.6		ND		ND		0.2	J	2.4	
Trichlorofluoromethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,2,4-Trimethylbenzene		0 2	J	ND		ND		0.1	J	15		ND		ND		ND		0.9	
1,3,5-Trimethylbenzene		ND		ND		ND		ND		0.4	J	ND		ND		ND		0.7	
Vinyl Chloride	5	ND		**25**		**23**		ND		0.1	J	ND		ND		ND		0.3	J

NA - Not Analyzed
ND - Not Detected Above Laboratory Quantitation Limit
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
5.5 - Exceeds Remediation Goal for GW

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW4D		HAV-LTR-CW5S		HAV-LTR-CW5D		HAV-LTR-CW9S		HAV-LTR-CW9D		HAV-LTR-CW10S		HAV-LTR-CW10D		HAV-LTR-CW11D	
Sample Date:	**Goals for**	**3/22/2017**		**3/22/2017**		**3/22/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**	
Duplicate of:	**Groundwater**																
INORGANICS		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aluminum	200	**278**		**6990**		**736**		NA		181		NA		ND		33	J
Antimony		ND		ND		ND		NA		ND		NA		ND		ND	
Arsenic	10	8.4		**16**		1.4	J	NA		ND		NA		ND		ND	
Barium	2000	171		222		20		NA		211		NA		136		129	
Beryllium		ND		0.36	J	ND		NA		ND		NA		ND		ND	
Cadmium		1 9		10.4		ND		NA		0.3	J	NA		ND		ND	
Calcium		28700		20600		13800		NA		85300	B	NA		27600	B	27000	B
Chromium		6.1	B	15.1	B	1.8	JB	NA		1.4	JB	NA		0.75	JB	ND	
Cobalt		22.7		56.6		0.34	J	NA		0.72		NA		3.1		4 9	
Copper		1.1	J	48.9		13.7		NA		2.7		NA		0.58	J	0.71	J
Iron	300	**31100**		**28100**		**833**		NA		**1310**		NA		45.5	J	69 3	J
Lead		1		18		2.6		NA		1.9		NA		ND		0.12	J
Magnesium		17700		11300		2500		NA		9450		NA		12800		13400	
Manganese	50	**11800**		**5560**		16.1		NA		**91.6**		NA		**55.9**		**109**	
Nickel		2		67.3		2.4		NA		2.7		NA		1.3	J	1 9	J
Potassium		7760		8800		2480		NA		8690		NA		6650		6490	
Selenium		ND		ND		ND		NA		0.72	J	NA		0.6	J	0.6	J
Silver		ND		ND		ND		NA		ND		NA		ND		ND	
Sodium		102000		21800		9860		NA		468000		NA		23300		24000	
Thallium		ND		0 25	J	ND		NA		ND		NA		ND		ND	
Vanadium	3.1	1		**21.5**		**4.2**		NA		1.4		NA		0.33	J	0.62	
Zinc		23.4		108		526		NA		400		NA		ND		3 9	J
PENTACHLOROPHENOL		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA		NA		NA	
HERBICIDES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Dieldrin	0.038	NA		NA		NA		NA		NA		NA		NA		NA	
DIOXINS/FURANS		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L	
Toxicity Equivalent Quotient (TEQ)	30	NA		NA		NA		NA		NA		NA		NA		NA	
SEMIVOLATILES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Acenaphthene		5		ND		ND		ND		ND		ND		ND		ND	
Acenaphthylene		1		ND		ND		ND		ND		ND		ND		ND	
Acetophenone		8		ND		ND		ND		ND		ND		ND		ND	
Anthracene		1		ND		ND		ND		ND		ND		ND		ND	
Atrazine		ND		ND		ND		ND		ND		ND		ND		ND	
Benzaldehyde		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)anthracene		ND		0.1	J	ND		ND		ND		ND		ND		ND	
Benzo(a)pyrene	0 2	ND		**0.2**	J	ND		ND		ND		ND		ND		ND	
Benzo(b)fluoranthene		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(g,h,i)perylene		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(k)fluoranthene		ND		ND		ND		ND		ND		ND		ND		ND	
1,1'-Biphenyl		11		ND		ND		ND		ND		ND		ND		ND	

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW4D		HAV-LTR-CW5S		HAV-LTR-CW5D		HAV-LTR-CW9S		HAV-LTR-CW9D		HAV-LTR-CW10S		HAV-LTR-CW10D		HAV-LTR-CW11D	
Sample Date:	**Goals for**	**3/22/2017**		**3/22/2017**		**3/22/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**	
Duplicate of:	**Groundwater**																
4-Bromophenyl-phenylether		ND		ND		ND		ND		ND		ND		ND		ND	
Butylbenzylphthalate		ND		ND		ND		ND		ND		ND		ND		ND	
Di-n-butylphthalate		ND		ND		ND		ND		ND		ND		ND		ND	
Caprolactam		ND		ND		ND		ND		ND		ND		ND		ND	
Carbazole		ND		ND		ND		ND		ND		ND		ND		ND	
4-Chloro-3-methylphenol		ND		ND		ND		ND		ND		ND		ND		ND	
4-Chloroaniline		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Chloroethoxy)methane		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Chloroethyl)ether		ND		ND		ND		ND		ND		ND		ND		ND	
2-Chloronaphthalene		ND		0.7	J	ND		ND		ND		ND		ND		ND	
2-Chlorophenol		ND		ND		ND		ND		ND		ND		ND		ND	
4-Chlorophenyl-phenylether		ND		ND		ND		ND		ND		ND		ND		ND	
2,2'-oxybis(1-Chloropropane)		ND		ND		ND		ND		ND		ND		ND		ND	
Chrysene		ND		0.1	J	ND		ND		ND		ND		ND		ND	
Dibenz(a,h)anthracene		ND		ND		ND		ND		ND		ND		ND		ND	
Dibenzofuran	4	3		ND		ND		ND		ND		ND		ND		ND	
3,3'-Dichlorobenzidine		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dichlorophenol		ND		ND		ND		ND		ND		ND		ND		ND	
Diethylphthalate		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dimethylphenol		ND		ND		ND		ND		ND		ND		ND		ND	
Dimethylphthalate		ND		ND		ND		ND		ND		ND		ND		ND	
4,6-Dinitro-2-methylphenol	1.7	ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dinitrophenol		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dinitrotoluene		ND		ND		ND		ND		ND		ND		ND		ND	
2,6-Dinitrotoluene		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Ethylhexyl)phthalate	6	ND		ND		ND		ND		ND		ND		ND		ND	
Fluoranthene		0 3	J	0.3	J	ND		ND		ND		ND		ND		ND	
Fluorene		7		ND		ND		ND		ND		ND		ND		ND	
Hexachlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachlorobutadiene		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachlorocyclopentadiene		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
Indeno(1,2,3-cd)pyrene		ND		ND		ND		ND		ND		ND		ND		ND	
Isophorone		ND		ND		ND		ND		ND		ND		ND		ND	
2-Methylnaphthalene	2	ND		ND		ND		ND		ND		ND		ND		ND	
2-Methylphenol		ND		ND		ND		ND		ND		ND		ND		ND	
4-Methylphenol		ND		ND		ND		ND		ND		ND		ND		ND	
Naphthalene	3	ND		ND		ND		ND		ND		ND		ND		ND	
2-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND	
3-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND	
4-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND	
Nitrobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
2-Nitrophenol		ND		ND		ND		ND		ND		ND		ND		ND	
4-Nitrophenol		ND		ND		ND		ND		ND		ND		ND		ND	
N-Nitroso-di-n-propylamine		ND		ND		ND		ND		ND		ND		ND		ND	
N-Nitrosodiphenylamine		ND		ND		ND		ND		ND		ND		ND		ND	

ANALYTICAL DATA
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HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW4D		HAV-LTR-CW5S		HAV-LTR-CW5D		HAV-LTR-CW9S		HAV-LTR-CW9D		HAV-LTR-CW10S		HAV-LTR-CW10D		HAV-LTR-CW11D	
Sample Date:	**Goals for**	**3/22/2017**		**3/22/2017**		**3/22/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**	
Duplicate of:	**Groundwater**																
Di-n-octylphthalate		ND		ND		ND		ND		ND		ND		ND		ND	
Pentachlorophenol	1	**320**		**1**	J	ND		ND		ND		ND		ND		ND	
Phenanthrene	41	4		0.1	J	ND		ND		ND		ND		ND		ND	
Phenol		ND		ND		ND		ND		ND		ND		ND		ND	
Pyrene		0 5	J	0.3	J	ND		ND		ND		ND		ND		ND	
1,2,4,5-Tetrachlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
2,3,4,6-Tetrachlorophenol		20		ND		ND		ND		ND		ND		ND		ND	
2,4,5-Trichlorophenol		3		ND		ND		ND		ND		ND		ND		ND	
2,4,6-Trichlorophenol		2		0.6	J	ND		ND		ND		ND		ND		ND	
VOLATILES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Acetone		ND		ND		ND		ND		ND		ND		ND		ND	
Benzene	5	**18**		0.2	J	ND		ND		ND		ND		ND		ND	
Bromochloromethane		ND		ND		ND		ND		ND		ND		ND		ND	
Bromodichloromethane		ND		ND		ND		ND		ND		ND		ND		ND	
Bromoform		ND		ND		ND		ND		ND		ND		ND		ND	
Bromomethane		ND		ND		ND		ND		ND		ND		ND		ND	
2-Butanone		ND		ND		ND		ND		ND		ND		ND		ND	
Carbon Disulfide		ND		ND		ND		ND		ND		ND		ND		ND	
Carbon Tetrachloride		ND		ND		ND		ND		ND		ND		ND		ND	
Chlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
Chloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
Chloroform		0.4	J	ND		ND		1		0.4	J	0.5	J	0.4	J	0.4	J
Chloromethane		ND		ND		ND		ND		ND		ND		ND		ND	
Cyclohexane		2 9		ND		ND		ND		ND		ND		ND		ND	
1,2-Dibromo-3-chloropropane		ND		ND		ND		ND		ND		ND		ND		ND	
Dibromochloromethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dibromoethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
1,3-Dichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
1,4-Dichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
Dichlorodifluoromethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,1-Dichloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dichloroethane		0 3	J	ND		ND		ND		ND		ND		ND		ND	
1,1-Dichloroethene		ND		ND		ND		ND		ND		ND		ND		ND	
cis-1,2-Dichloroethene		2 5		ND		ND		ND		ND		ND		1.1		1	
trans-1,2-Dichloroethene		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dichloropropane		ND		ND		ND		ND		ND		ND		ND		ND	
cis-1,3-Dichloropropene		ND		ND		ND		ND		ND		ND		ND		ND	
trans-1,3-Dichloropropene		ND		ND		ND		ND		ND		ND		ND		ND	
Ethylbenzene	700	34		ND		ND		ND		ND		ND		ND		ND	
Freon 113		ND		ND		ND		ND		ND		ND		ND		ND	
2-Hexanone		ND		ND		ND		ND		ND		ND		ND		ND	
Isopropylbenzene		12		ND		ND		ND		ND		ND		ND		ND	
Methyl Acetate		ND		ND		ND		ND		ND		ND		ND		ND	
Methyl Tertiary Butyl Ether		0.4	J	ND		ND		0.1	J	ND		ND		ND		ND	

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW4D		HAV-LTR-CW5S		HAV-LTR-CW5D		HAV-LTR-CW9S		HAV-LTR-CW9D		HAV-LTR-CW10S		HAV-LTR-CW10D		HAV-LTR-CW11D	
Sample Date:	**Goals for**	**3/22/2017**		**3/22/2017**		**3/22/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**	
Duplicate of:	**Groundwater**																
4-Methyl-2-pentanone		ND		ND		ND		ND		ND		ND		ND		ND	
Methylcyclohexane		3		ND		ND		ND		ND		ND		ND		ND	
Methylene Chloride		0 3	J	ND		ND		ND		ND		ND		ND		ND	
Styrene		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,2,2-Tetrachloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
Tetrachloroethene		ND		ND		ND		ND		ND		ND		ND		ND	
Toluene	1000	1.6		ND		ND		ND		0.4	J	ND		ND		ND	
1,2,3-Trichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
1,2,4-Trichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,1-Trichloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,2-Trichloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
Trichloroethene	5	2		ND		ND		ND		ND		ND		1.5		1.4	
Trichlorofluoromethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,2,4-Trimethylbenzene		10		ND		ND		ND		ND		ND		ND		ND	
1,3,5-Trimethylbenzene		5 2		ND		ND		ND		ND		ND		ND		ND	
Vinyl Chloride	5	0 2	J	ND		ND		ND		ND		ND		ND		ND	

NA - Not Analyzed
ND - Not Detected Above Laboratory Quantitation Limit
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
5.5 - Exceeds Remediation Goal for GW

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW12D		HAV-LTR-CW13S		HAV-LTR-CW13D		HAV-LTR-CW13X		HAV-LTR-CW16S		HAV-LTR-CW16D		HAV-LTR-CW17D		HAV-LTR-CW18D	
Sample Date:	**Goals for**	**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/21/2017**		**3/21/2017**		**3/22/2017**		**3/22/2017**	
Duplicate of:	**Groundwater**							**HAV-LTR-CW13D**									
INORGANICS		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aluminum	200	**347**		NA		162		**327**		31.7	J	**200**		**ND**		**1560**	
Antimony		ND		NA		ND		ND		ND		ND		ND		ND	
Arsenic	10	ND		NA		ND		ND		ND		ND		3.1		2	J
Barium	2000	60.1		NA		106		101		187		66 3		102		100	
Beryllium		ND		NA		ND		ND		0.13	J	ND		ND		ND	
Cadmium		1.3		NA		ND		ND		0.54		ND		0.99		ND	
Calcium		16800	B	NA		19400	B	20300	B	24500		22400		49400		22400	
Chromium		0.86	JB	NA		ND		1.3	JB	ND		1 3	J	ND		4	B
Cobalt		ND		NA		0.49	J	0.6		13.3		1.4		75.5		0.76	
Copper		2.1		NA		5		5		ND		0.77	J	ND		5.2	
Iron	300	290		NA		**356**		**844**		**424**		**13800**		**2380**		**11800**	
Lead		0.38	J	NA		0.16	J	0 29	J	ND		0.9	J	ND		3.3	
Magnesium		5410		NA		12100		13300		17400		10000		20100		10900	
Manganese	50	13.7		NA		24.7		30.5		**792**		**2320**		**7740**		**1070**	
Nickel		4.4		NA		12.2		14.4		14.9		1.7	J	54.5		2.8	
Potassium		4110		NA		6490		7030		4190		4210		9080		9490	
Selenium		ND		NA		0.57	J	0 58	J	0.72	J	ND		ND		ND	
Silver		ND		NA		ND		ND		ND		ND		ND		ND	
Sodium		67100		NA		26400		28800		34800		279000		88100		25300	
Thallium		ND		NA		ND		ND		0.27	J	ND		ND		ND	
Vanadium	3.1	0.46	J	NA		0.62		1.2		0.32	J	0.81		ND		**4.2**	
Zinc		246		NA		37.6		78.4		37.3	B	62	B	6.8	J	18.4	
PENTACHLOROPHENOL		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA		NA		NA	
HERBICIDES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Dieldrin	0.038	NA		NA		NA		NA		NA		NA		NA		NA	
DIOXINS/FURANS		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L	
Toxicity Equivalent Quotient (TEQ)	30	NA		NA		NA		NA		0.849		NA		NA		NA	
SEMIVOLATILES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Acenaphthene		ND		ND		ND		ND		ND		7		ND		ND	
Acenaphthylene		ND		ND		ND		ND		ND		2		ND		ND	
Acetophenone		ND		ND		ND		ND		ND		4		0.8	J	ND	
Anthracene		ND		ND		ND		ND		ND		2		0.2	J	ND	
Atrazine		ND		ND		ND		ND		ND		ND		ND		ND	
Benzaldehyde		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)anthracene		ND		ND		ND		ND		ND		0 3	J	ND		ND	
Benzo(a)pyrene	0 2	ND		ND		ND		ND		ND		**0.8**		ND		ND	
Benzo(b)fluoranthene		ND		ND		ND		ND		0.1	J	2		ND		ND	
Benzo(g,h,i)perylene		ND		ND		ND		ND		ND		0 9		ND		ND	
Benzo(k)fluoranthene		ND		ND		ND		ND		ND		0 9		ND		ND	
1,1'-Biphenyl		ND		ND		ND		ND		ND		10		5		ND	

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Sample ID:	Remediation	HAV-LTR-CW12D		HAV-LTR-CW13S		HAV-LTR-CW13D		HAV-LTR-CW13X		HAV-LTR-CW16S		HAV-LTR-CW16D		HAV-LTR-CW17D		HAV-LTR-CW18D	
Sample Date:	**Goals for**	**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/21/2017**		**3/21/2017**		**3/22/2017**		**3/22/2017**	
Duplicate of:	**Groundwater**							**HAV-LTR-CW13D**									
4-Bromophenyl-phenylether		ND		ND		ND		ND		ND		ND		ND		ND	
Butylbenzylphthalate		ND		ND		ND		ND		ND		ND		ND		ND	
Di-n-butylphthalate		ND		ND		ND		ND		ND		ND		ND		ND	
Caprolactam		ND		ND		ND		ND		ND		ND		ND		ND	
Carbazole		ND		ND		ND		ND		ND		1		0.7	J	ND	
4-Chloro-3-methylphenol		ND		ND		ND		ND		ND		ND		ND		ND	
4-Chloroaniline		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Chloroethoxy)methane		ND		ND		ND		ND		ND		0.6	J	ND		ND	
bis(2-Chloroethyl)ether		ND		ND		ND		ND		ND		ND		ND		ND	
2-Chloronaphthalene		ND		ND		ND		ND		ND		ND		ND		ND	
2-Chlorophenol		ND		ND		ND		ND		ND		ND		ND		ND	
4-Chlorophenyl-phenylether		ND		ND		ND		ND		ND		ND		ND		ND	
2,2'-oxybis(1-Chloropropane)		ND		ND		ND		ND		ND		ND		ND		ND	
Chrysene		ND		ND		ND		ND		ND		3		ND		ND	
Dibenz(a,h)anthracene		ND		ND		ND		ND		ND		ND		ND		ND	
Dibenzofuran	4	ND		ND		ND		ND		ND		**4**		2		ND	
3,3'-Dichlorobenzidine		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dichlorophenol		ND		ND		ND		ND		ND		21		ND		ND	
Diethylphthalate		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dimethylphenol		ND		ND		ND		ND		ND		ND		ND		ND	
Dimethylphthalate		ND		ND		ND		ND		ND		ND		ND		ND	
4,6-Dinitro-2-methylphenol	1.7	ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dinitrophenol		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dinitrotoluene		ND		ND		ND		ND		ND		2	J	ND		ND	
2,6-Dinitrotoluene		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Ethylhexyl)phthalate	6	ND		ND		ND		ND		ND		ND		ND		ND	
Fluoranthene		ND		ND		ND		ND		0.1	J	4		ND		ND	
Fluorene		ND		ND		ND		ND		ND		8		2		0.2	J
Hexachlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachlorobutadiene		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachlorocyclopentadiene		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
Indeno(1,2,3-cd)pyrene		ND		ND		ND		ND		ND		0 8		ND		ND	
Isophorone		ND		ND		ND		ND		ND		ND		ND		ND	
2-Methylnaphthalene	2	ND		ND		ND		ND		ND		**5**		ND		ND	
2-Methylphenol		ND		ND		ND		ND		ND		ND		ND		ND	
4-Methylphenol		ND		ND		ND		ND		ND		ND		ND		ND	
Naphthalene	3	ND		ND		ND		ND		ND		**34**		0.2	J	ND	
2-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND	
3-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND	
4-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND	
Nitrobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
2-Nitrophenol		ND		ND		ND		ND		ND		ND		ND		ND	
4-Nitrophenol		ND		ND		ND		ND		ND		ND		ND		ND	
N-Nitroso-di-n-propylamine		ND		ND		ND		ND		ND		ND		ND		ND	
N-Nitrosodiphenylamine		ND		ND		ND		ND		ND		ND		ND		ND	

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Sample ID:	Remediation	HAV-LTR-CW12D		HAV-LTR-CW13S		HAV-LTR-CW13D		HAV-LTR-CW13X		HAV-LTR-CW16S		HAV-LTR-CW16D		HAV-LTR-CW17D		HAV-LTR-CW18D	
Sample Date:	**Goals for**	**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/21/2017**		**3/21/2017**		**3/22/2017**		**3/22/2017**	
Duplicate of:	**Groundwater**							**HAV-LTR-CW13D**									
Di-n-octylphthalate		ND		ND		ND		ND		ND		ND		ND		ND	
Pentachlorophenol	1	ND		ND		ND		ND		**3**	J	ND		**410**		ND	
Phenanthrene	41	ND		ND		ND		ND		0.1	J	15		4		ND	
Phenol		ND		ND		ND		ND		ND		0 5	J	ND		ND	
Pyrene		ND		ND		ND		ND		0.1	J	3		ND		ND	
1,2,4,5-Tetrachlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
2,3,4,6-Tetrachlorophenol		ND		ND		ND		ND		ND		ND		29		ND	
2,4,5-Trichlorophenol		ND		ND		ND		ND		ND		2		ND		ND	
2,4,6-Trichlorophenol		ND		ND		ND		ND		ND		4		0.7	J	ND	
VOLATILES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Acetone		ND		ND		ND		ND		ND		7 8		ND		ND	
Benzene	5	ND		ND		ND		ND		**6.9**		**55**		**7.8**		ND	
Bromochloromethane		ND		ND		ND		ND		ND		ND		ND		ND	
Bromodichloromethane		ND		ND		ND		ND		ND		ND		ND		ND	
Bromoform		ND		ND		ND		ND		ND		ND		ND		ND	
Bromomethane		ND		ND		ND		ND		ND		ND		ND		ND	
2-Butanone		ND		ND		ND		ND		ND		2 8	J	ND		ND	
Carbon Disulfide		ND		ND		ND		ND		ND		ND		ND		ND	
Carbon Tetrachloride		ND		ND		ND		ND		ND		ND		ND		ND	
Chlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
Chloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
Chloroform		ND		0.1	J	0.7		0.7		1.6		ND		0.6		ND	
Chloromethane		ND		ND		ND		ND		ND		ND		ND		ND	
Cyclohexane		ND		ND		ND		ND		ND		0.1	J	ND		ND	
1,2-Dibromo-3-chloropropane		ND		ND		ND		ND		ND		ND		ND		ND	
Dibromochloromethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dibromoethane		ND		ND		ND		ND		0.1	J	ND		ND		ND	
1,2-Dichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
1,3-Dichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
1,4-Dichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
Dichlorodifluoromethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,1-Dichloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dichloroethane		ND		ND		ND		ND		0.8		1 5		0.2	J	ND	
1,1-Dichloroethene		ND		ND		ND		ND		ND		ND		ND		ND	
cis-1,2-Dichloroethene		0.5	J	ND		12		12		ND		ND		1.5		0.2	J
trans-1,2-Dichloroethene		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dichloropropane		ND		ND		ND		ND		ND		ND		ND		ND	
cis-1,3-Dichloropropene		ND		ND		ND		ND		ND		ND		ND		ND	
trans-1,3-Dichloropropene		ND		ND		ND		ND		ND		ND		ND		ND	
Ethylbenzene	700	ND		ND		ND		ND		0.6		0.7		ND		ND	
Freon 113		ND		ND		ND		ND		ND		ND		ND		ND	
2-Hexanone		ND		ND		ND		ND		ND		ND		ND		ND	
Isopropylbenzene		ND		ND		ND		ND		0.6		1		2.3		ND	
Methyl Acetate		ND		ND		ND		ND		ND		ND		ND		ND	
Methyl Tertiary Butyl Ether		ND		ND		0.1	J	ND		0.3	J	0 5	J	0.3	J	ND	

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HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW12D		HAV-LTR-CW13S		HAV-LTR-CW13D		HAV-LTR-CW13X		HAV-LTR-CW16S		HAV-LTR-CW16D		HAV-LTR-CW17D		HAV-LTR-CW18D	
Sample Date:	**Goals for**	**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/21/2017**		**3/21/2017**		**3/22/2017**		**3/22/2017**	
Duplicate of:	**Groundwater**							**HAV-LTR-CW13D**									
4-Methyl-2-pentanone		ND		ND		ND		ND		ND		1 2	J	ND		ND	
Methylcyclohexane		ND		ND		ND		ND		ND		0 2	J	ND		ND	
Methylene Chloride		ND		ND		ND		ND		ND		ND		2.4		ND	
Styrene		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,2,2-Tetrachloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
Tetrachloroethene		ND		ND		ND		ND		ND		ND		ND		ND	
Toluene	1000	ND		ND		ND		ND		ND		2.6		ND		ND	
1,2,3-Trichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
1,2,4-Trichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,1-Trichloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,2-Trichloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
Trichloroethene	5	ND		ND		6.1		6.2		ND		ND		1.4		ND	
Trichlorofluoromethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,2,4-Trimethylbenzene		ND		ND		ND		ND		4.4		25		ND		ND	
1,3,5-Trimethylbenzene		ND		ND		ND		ND		ND		6 5		ND		ND	
Vinyl Chloride	5	ND		ND		ND		ND		ND		ND		ND		ND	

NA - Not Analyzed
ND - Not Detected Above Laboratory Quantitation Limit
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
5.5 - Exceeds Remediation Goal for GW

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HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW19D		HAV-LTR-CW20S		HAV-LTR-CW20D		HAV-LTR-CW21S		HAV-LTR-CW21D		HAV-LTR-CW21X		HAV-LTR-CW22S		HAV-LTR-CW22D	
Sample Date:	**Goals for**	**3/22/2017**		**3/20/2017**		**3/20/2017**		**3/23/2017**		**3/23/2017**		**3/23/2017**				**3/23/2017**	
Duplicate of:	**Groundwater**											**HAV-LTR-CW21D**					
INORGANICS		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aluminum	200	ND		38.9	J	108		ND		**354**		**357**		142		37.9	J
Antimony		ND		ND		ND		ND		ND		ND		ND		ND	
Arsenic	10	ND		4.4		ND		ND		ND		ND		ND		ND	
Barium	2000	86.7		265		252		70.2		75.6		75.6		603		271	
Beryllium		0.46	J	ND		ND		0.15	J	0.31	J	0.31	J	0.2	J	ND	
Cadmium		ND		ND		ND		ND		ND		ND		0.38	J	0 55	
Calcium		74200		22600	B	21900	B	43200		40500		41600		22100		30400	
Chromium		ND		0.74	JB	0.6	JB	0.72	J	1.1	J	1 3	J	0.62	J	ND	
Cobalt		ND		91.8		0.5	J	0.97		0.26	J	0.24	J	0.53		ND	
Copper		ND		0.8	J	ND		4 3		11		15 8		ND		ND	
Iron	300	**41300**		**19900**		**474**		**17400**		**18600**		**19000**		126		ND	
Lead		0.11	J	ND		0.22	J	ND		0.45	J	0.41	J	0.41	J	ND	
Magnesium		22900		15300		11300		10500		10100		10500		15000		18100	
Manganese	50	**3420**		**4790**		6.8		**962**		**952**		**992**		**73.5**		**256**	
Nickel		ND		9.9		11.8		1	J	1.8	J	18 5		6.6		7	
Potassium		11600		5440		5150		6760		6630		6870		4510		4910	
Selenium		ND		ND		0.98	J	ND		ND		ND		ND		ND	
Silver		ND		ND		0.17	J	ND		ND		ND		ND		0.2	J
Sodium		76700		37000		20200		27900		26200		27100		36900		82100	
Thallium		ND		ND		ND		ND		ND		ND		ND		ND	
Vanadium	3.1	ND		ND		0.8		0.39	J	1.4		1 5		0.41	J	0 25	J
Zinc		4.7	J	4	J	25.5		13.6	J	9.5	J	9.6	J	5.8	J	3.9	J
PENTACHLOROPHENOL		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA		NA		NA	
HERBICIDES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Dieldrin	0.038	NA		NA		NA		NA		NA		NA		NA		NA	
DIOXINS/FURANS		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L	
Toxicity Equivalent Quotient (TEQ)	30	NA		NA		NA		NA		NA		NA		NA		NA	
SEMIVOLATILES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Acenaphthene		0.3	J	0.4	J	ND		ND		0.3	J	0 3	J	ND		ND	
Acenaphthylene		ND		ND		ND		ND		ND		ND		ND		ND	
Acetophenone		2		ND		ND		ND		ND		ND		ND		ND	
Anthracene		0.5	J	0.6		ND		0 2	J	0.2	J	0.1	J	ND		ND	
Atrazine		ND		ND		ND		ND		ND		ND		ND		ND	
Benzaldehyde		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)anthracene		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)pyrene	0 2	ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(b)fluoranthene		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(g,h,i)perylene		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(k)fluoranthene		ND		ND		ND		ND		ND		ND		ND		ND	
1,1'-Biphenyl		5		ND		ND		3		3		3		ND		ND	

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Sample ID:	Remediation	HAV-LTR-CW19D		HAV-LTR-CW20S		HAV-LTR-CW20D		HAV-LTR-CW21S		HAV-LTR-CW21D		HAV-LTR-CW21X		HAV-LTR-CW22S		HAV-LTR-CW22D	
Sample Date:	**Goals for**	**3/22/2017**		**3/20/2017**		**3/20/2017**		**3/23/2017**		**3/23/2017**		**3/23/2017**		**3/23/2017**		**3/23/2017**	
Duplicate of:	**Groundwater**											**HAV-LTR-CW21D**					
4-Bromophenyl-phenylether		ND		ND		ND		ND		ND		ND		ND		ND	
Butylbenzylphthalate		ND		ND		ND		ND		ND		ND		ND		ND	
Di-n-butylphthalate		ND		ND		ND		ND		ND		ND		ND		ND	
Caprolactam		ND		ND		ND		ND		ND		ND		ND		ND	
Carbazole		0.7	J	ND		ND		ND		ND		ND		ND		ND	
4-Chloro-3-methylphenol		ND		ND		ND		ND		ND		ND		ND		ND	
4-Chloroaniline		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Chloroethoxy)methane		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Chloroethyl)ether		ND		ND		ND		ND		ND		ND		ND		ND	
2-Chloronaphthalene		ND		ND		ND		ND		ND		ND		ND		ND	
2-Chlorophenol		ND		ND		ND		ND		ND		ND		ND		ND	
4-Chlorophenyl-phenylether		ND		ND		ND		ND		ND		ND		ND		ND	
2,2'-oxybis(1-Chloropropane)		ND		ND		ND		ND		ND		ND		ND		ND	
Chrysene		ND		ND		ND		ND		ND		ND		ND		ND	
Dibenz(a,h)anthracene		ND		ND		ND		ND		ND		ND		ND		ND	
Dibenzofuran	4	3		ND		ND		1		1		1		ND		ND	
3,3'-Dichlorobenzidine		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dichlorophenol		ND		ND		ND		ND		ND		ND		ND		ND	
Diethylphthalate		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dimethylphenol		ND		ND		ND		ND		ND		ND		ND		ND	
Dimethylphthalate		ND		ND		ND		ND		ND		ND		ND		ND	
4,6-Dinitro-2-methylphenol	1.7	ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dinitrophenol		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dinitrotoluene		ND		ND		ND		ND		ND		ND		ND		ND	
2,6-Dinitrotoluene		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Ethylhexyl)phthalate	6	ND		ND		ND		ND		ND		ND		ND		ND	
Fluoranthene		ND		0.4	J	ND		ND		ND		ND		ND		ND	
Fluorene		8		2		ND		4		3		3		ND		ND	
Hexachlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachlorobutadiene		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachlorocyclopentadiene		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
Indeno(1,2,3-cd)pyrene		ND		ND		ND		ND		ND		ND		ND		ND	
Isophorone		ND		ND		ND		ND		ND		ND		ND		ND	
2-Methylnaphthalene	2	ND		ND		ND		ND		ND		ND		ND		ND	
2-Methylphenol		ND		ND		ND		ND		ND		ND		ND		ND	
4-Methylphenol		ND		ND		ND		ND		ND		ND		ND		ND	
Naphthalene	3	0.7		ND		ND		ND		ND		ND		ND		ND	
2-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND	
3-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND	
4-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND	
Nitrobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
2-Nitrophenol		ND		ND		ND		ND		ND		ND		ND		ND	
4-Nitrophenol		ND		ND		ND		ND		ND		ND		ND		ND	
N-Nitroso-di-n-propylamine		ND		ND		ND		ND		ND		ND		ND		ND	
N-Nitrosodiphenylamine		ND		ND		ND		ND		ND		ND		ND		ND	

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HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW19D		HAV-LTR-CW20S		HAV-LTR-CW20D		HAV-LTR-CW21S		HAV-LTR-CW21D		HAV-LTR-CW21X		HAV-LTR-CW22S		HAV-LTR-CW22D	
Sample Date:	**Goals for**	**3/22/2017**		**3/20/2017**		**3/20/2017**		**3/23/2017**		**3/23/2017**		**3/23/2017**		**3/23/2017**		**3/23/2017**	
Duplicate of:	**Groundwater**											**HAV-LTR-CW21D**					
Di-n-octylphthalate		ND		ND		ND		ND		ND		ND		ND		ND	
Pentachlorophenol	1	**390**		**1**	J	ND		**450**		**530**		**500**		ND		ND	
Phenanthrene	41	2		ND		ND		ND		ND		ND		ND		ND	
Phenol		ND		ND		ND		ND		ND		ND		ND		ND	
Pyrene		ND		0.5	J	ND		ND		ND		ND		ND		ND	
1,2,4,5-Tetrachlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
2,3,4,6-Tetrachlorophenol		26		ND		ND		8		7		7		ND		ND	
2,4,5-Trichlorophenol		6		ND		ND		2		3		3		ND		ND	
2,4,6-Trichlorophenol		5		ND		ND		0.9	J	ND		0.9	J	ND		ND	
VOLATILES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Acetone		ND		ND		ND		ND		ND		ND		ND		ND	
Benzene	5	0.3	J	ND		ND		1.3		2		2		ND		0.3	J
Bromochloromethane		ND		ND		ND		ND		ND		ND		ND		ND	
Bromodichloromethane		ND		ND		ND		ND		ND		ND		ND		ND	
Bromoform		ND		ND		ND		ND		ND		ND		ND		ND	
Bromomethane		ND		ND		ND		ND		ND		ND		ND		ND	
2-Butanone		ND		ND		ND		ND		ND		ND		ND		ND	
Carbon Disulfide		ND		ND		ND		ND		ND		ND		ND		ND	
Carbon Tetrachloride		ND		ND		ND		ND		ND		ND		ND		ND	
Chlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
Chloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
Chloroform		ND		ND		1.6		ND		ND		ND		0.3	J	0.4	J
Chloromethane		ND		ND		ND		ND		ND		ND		ND		ND	
Cyclohexane		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dibromo-3-chloropropane		ND		ND		ND		ND		ND		ND		ND		ND	
Dibromochloromethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dibromoethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
1,3-Dichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
1,4-Dichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
Dichlorodifluoromethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,1-Dichloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dichloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,1-Dichloroethene		ND		ND		ND		ND		ND		ND		ND		ND	
cis-1,2-Dichloroethene		0.6		ND		ND		1.7		2.3		2.4		ND		0.9	
trans-1,2-Dichloroethene		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dichloropropane		ND		ND		ND		ND		ND		ND		ND		ND	
cis-1,3-Dichloropropene		ND		ND		ND		ND		ND		ND		ND		ND	
trans-1,3-Dichloropropene		ND		ND		ND		ND		ND		ND		ND		ND	
Ethylbenzene	700	0.5	J	ND		ND		0.2	J	0.4	J	0.4	J	ND		ND	
Freon 113		ND		ND		ND		ND		ND		ND		ND		ND	
2-Hexanone		ND		ND		ND		ND		ND		ND		ND		ND	
Isopropylbenzene		1.2		0.6		ND		1.5		1.9		1 8		ND		ND	
Methyl Acetate		ND		ND		ND		ND		ND		ND		ND		ND	
Methyl Tertiary Butyl Ether		0.9		0.1	J	0.2	J	1 3		0.6		0.6		0.3	J	1	

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HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW19D		HAV-LTR-CW20S		HAV-LTR-CW20D		HAV-LTR-CW21S		HAV-LTR-CW21D		HAV-LTR-CW21X		HAV-LTR-CW22S		HAV-LTR-CW22D	
Sample Date:	**Goals for**	**3/22/2017**		**3/20/2017**		**3/20/2017**		**3/23/2017**		**3/23/2017**		**3/23/2017**		**3/23/2017**		**3/23/2017**	
Duplicate of:	**Groundwater**											**HAV-LTR-CW21D**					
4-Methyl-2-pentanone		ND		ND		ND		ND		ND		ND		ND		ND	
Methylcyclohexane		ND		0.3	J	ND		ND		ND		ND		ND		ND	
Methylene Chloride		0.2	J	ND		ND		ND		ND		ND		ND		ND	
Styrene		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,2,2-Tetrachloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
Tetrachloroethene		ND		ND		ND		ND		ND		ND		ND		ND	
Toluene	1000	0.2	J	ND		ND		ND		0.3	J	0 3	J	ND		ND	
1,2,3-Trichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
1,2,4-Trichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,1-Trichloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,2-Trichloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
Trichloroethene	5	0.5		ND		ND		0.8		1.2		1.1		ND		0.5	J
Trichlorofluoromethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,2,4-Trimethylbenzene		ND		ND		ND		ND		ND		ND		ND		ND	
1,3,5-Trimethylbenzene		0.2	J	ND		ND		ND		ND		ND		ND		ND	
Vinyl Chloride	5	ND		ND		ND		ND		ND		ND		ND		ND	

NA - Not Analyzed
ND - Not Detected Above Laboratory Quantitation Limit
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
5.5 - Exceeds Remediation Goal for GW

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HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW24D		HAV-LTR-CW26D		HAV-LTR-CW27D		HAV-LTR-CW27X		HAV-LTR-CW28D		HAV-LTR-CW32		HAV-LTR-CW33		HAV-LTR-CW34	
Sample Date:	**Goals for**	**3/21/2017**		**3/21/2017**		**3/21/2017**		**3/21/2017**		**3/21/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**	
Duplicate of:	**Groundwater**							**HAV-LTR-CW27D**									
INORGANICS		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aluminum	200	42.1	J	ND		ND		ND		ND		**628**		ND		**682**	
Antimony		ND		ND		ND		ND		ND		ND		ND		ND	
Arsenic	10	**31.3**		2		3		3.2		1.4	J	ND		ND		ND	
Barium	2000	243		2.8		62.3		62.4		50.5		241		167		122	
Beryllium		ND		ND		ND		ND		ND		0.19	J	ND		ND	
Cadmium		ND		ND		ND		ND		0.31	J	ND		ND		ND	
Calcium		46800		3710		28200		27900		20200		19300	B	20600	B	59300	B
Chromium		1.7	J	0 59	J	1	J	ND		0.7	J	5.9	B	3.2	B	2.1	B
Cobalt		21.6		4.6		11.6		10.9		28.5		0.33	J	ND		0.61	
Copper		ND		ND		ND		ND		2.8		0.7	J	ND		ND	
Iron	300	**48500**		**6520**		**11300**		**11200**		**10400**		**740**		68.9	J	**1020**	
Lead		ND		ND		ND		ND		ND		0.18	J	ND		0 52	J
Magnesium		20800		1740		15400		15200		11500		11700		12100		19900	
Manganese	50	**5000**		**91.8**		**4310**		**4220**		**3710**		**66.1**		3.9		**368**	
Nickel		16 8		2		3		2.4		8.7		2.8		1.2	J	1.9	J
Potassium		7430		27400		7510		7290		5990		4040		4290		3600	
Selenium		ND		ND		ND		ND		ND		1.5	J	1.4	J	0.73	J
Silver		ND		ND		ND		ND		ND		ND		ND		ND	
Sodium		46900		50300		165000		161000		173000		32400		30900		17400	
Thallium		ND		ND		ND		ND		0.64		ND		ND		ND	
Vanadium	3.1	ND		ND		0.25	J	ND		0.53		1.7		0.43	J	1.9	
Zinc		109	B	95.8	B	232	B	226	B	41.1	B	ND		ND		ND	
PENTACHLOROPHENOL		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Pentachlorophenol	1	NA		NA		NA		NA		NA		ND		ND		0.088	
HERBICIDES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Dieldrin	0.038	NA		NA		NA		NA		NA		**0.74**		**0.66**		**0.32**	
DIOXINS/FURANS		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L	
Toxicity Equivalent Quotient (TEQ)	30	29.6		NA		NA		NA		NA		NA		NA		NA	
SEMIVOLATILES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Acenaphthene		9		ND		1		0.9		1		ND		ND		ND	
Acenaphthylene		2		ND		0.2	J	ND		ND		ND		ND		ND	
Acetophenone		3		ND		2		1		ND		ND		ND		ND	
Anthracene		2		ND		0.6		0.4	J	0.3	J	ND		ND		ND	
Atrazine		ND		ND		ND		ND		ND		ND		ND		ND	
Benzaldehyde		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)anthracene		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)pyrene	0 2	ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(b)fluoranthene		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(g,h,i)perylene		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(k)fluoranthene		ND		ND		ND		ND		ND		ND		ND		ND	
1,1'-Biphenyl		13		ND		4		4		1	J	ND		ND		ND	

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Sample ID:	Remediation	HAV-LTR-CW24D		HAV-LTR-CW26D		HAV-LTR-CW27D		HAV-LTR-CW27X		HAV-LTR-CW28D		HAV-LTR-CW32		HAV-LTR-CW33		HAV-LTR-CW34	
Sample Date:	Goals for	3/21/2017		3/21/2017		3/21/2017		3/21/2017		3/21/2017		3/20/2017		3/20/2017		3/20/2017	
Duplicate of:	Groundwater							HAV-LTR-CW27D									
4-Bromophenyl-phenylether		ND		ND		ND		ND		ND		ND		ND		ND	
Butylbenzylphthalate		ND		ND		ND		ND		ND		ND		ND		ND	
Di-n-butylphthalate		ND		ND		ND		ND		ND		ND		ND		ND	
Caprolactam		ND		ND		ND		ND		ND		ND		ND		ND	
Carbazole		ND		ND		0.6	J	0.6	J	ND		ND		ND		ND	
4-Chloro-3-methylphenol		ND		ND		ND		ND		ND		ND		ND		ND	
4-Chloroaniline		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Chloroethoxy)methane		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Chloroethyl)ether		ND		ND		ND		ND		ND		ND		ND		ND	
2-Chloronaphthalene		ND		ND		ND		ND		ND		ND		ND		ND	
2-Chlorophenol		ND		ND		ND		ND		ND		ND		ND		ND	
4-Chlorophenyl-phenylether		ND		ND		ND		ND		ND		ND		ND		ND	
2,2'-oxybis(1-Chloropropane)		ND		ND		ND		ND		ND		ND		ND		ND	
Chrysene		ND		ND		ND		ND		ND		ND		ND		ND	
Dibenz(a,h)anthracene		ND		ND		ND		ND		ND		ND		ND		ND	
Dibenzofuran	4	5		ND		2		1		0.6	J	ND		ND		ND	
3,3'-Dichlorobenzidine		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dichlorophenol		ND		0.9	J	ND		ND		ND		ND		ND		ND	
Diethylphthalate		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dimethylphenol		ND		ND		ND		ND		ND		ND		ND		ND	
Dimethylphthalate		ND		ND		ND		ND		ND		ND		ND		ND	
4,6-Dinitro-2-methylphenol	1.7	ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dinitrophenol		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dinitrotoluene		ND		ND		ND		ND		ND		ND		ND		ND	
2,6-Dinitrotoluene		ND		2		ND		ND		ND		ND		ND		ND	
bis(2-Ethylhexyl)phthalate	6	ND		ND		ND		ND		ND		ND		ND		ND	
Fluoranthene		0 5	J	ND		ND		ND		0.2	J	ND		ND		ND	
Fluorene		16		ND		4		3		2		ND		ND		ND	
Hexachlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachlorobutadiene		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachlorocyclopentadiene		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
Indeno(1,2,3-cd)pyrene		ND		ND		ND		ND		ND		ND		ND		ND	
Isophorone		ND		ND		ND		ND		ND		ND		ND		ND	
2-Methylnaphthalene	2	38		ND		ND		ND		2		ND		ND		ND	
2-Methylphenol		ND		ND		ND		ND		ND		ND		ND		ND	
4-Methylphenol		ND		ND		ND		ND		ND		ND		ND		ND	
Naphthalene	3	180		23		1		1		21		ND		ND		ND	
2-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND	
3-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND	
4-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND	
Nitrobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
2-Nitrophenol		ND		ND		ND		ND		ND		ND		ND		ND	
4-Nitrophenol		ND		ND		ND		ND		ND		ND		ND		ND	
N-Nitroso-di-n-propylamine		ND		ND		ND		ND		ND		ND		ND		ND	
N-Nitrosodiphenylamine		ND		ND		ND		ND		ND		ND		ND		ND	

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Sample ID:	Remediation	HAV-LTR-CW24D		HAV-LTR-CW26D		HAV-LTR-CW27D		HAV-LTR-CW27X		HAV-LTR-CW28D		HAV-LTR-CW32		HAV-LTR-CW33		HAV-LTR-CW34	
Sample Date:	**Goals for**	**3/21/2017**		**3/21/2017**		**3/21/2017**		**3/21/2017**		**3/21/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**	
Duplicate of:	**Groundwater**							**HAV-LTR-CW27D**									
Di-n-octylphthalate		ND		ND		ND		ND		ND		ND		ND		ND	
Pentachlorophenol	1	**620**		ND		**490**		**540**		**490**		ND		ND		ND	
Phenanthrene	41	16		ND		0.3	J	0.3	J	0.7		ND		ND		ND	
Phenol		ND		1		ND		ND		ND		ND		ND		ND	
Pyrene		0 8		0.1	J	0.1	J	0.2	J	0.4	J	ND		ND		ND	
1,2,4,5-Tetrachlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
2,3,4,6-Tetrachlorophenol		22		1		51		61		11		ND		ND		ND	
2,4,5-Trichlorophenol		24		3		5		5		ND		ND		ND		ND	
2,4,6-Trichlorophenol		ND		0.6	J	2		2		ND		ND		ND		ND	
VOLATILES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Acetone		4 5	J	3.7	J	ND		ND		ND		ND		ND		ND	
Benzene	5	**14**		0.2	J	**9.6**		**9.3**		ND		ND		ND		ND	
Bromochloromethane		ND		ND		ND		ND		ND		ND		ND		ND	
Bromodichloromethane		ND		ND		ND		ND		ND		ND		ND		ND	
Bromoform		ND		ND		ND		ND		ND		ND		ND		ND	
Bromomethane		ND		ND		ND		ND		ND		ND		ND		ND	
2-Butanone		ND		ND		ND		ND		ND		ND		ND		ND	
Carbon Disulfide		ND		ND		ND		ND		ND		ND		ND		ND	
Carbon Tetrachloride		ND		ND		ND		ND		ND		ND		ND		ND	
Chlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
Chloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
Chloroform		0 3	J	ND		ND		ND		5		0.3	J	0.3	J	0.4	J
Chloromethane		ND		ND		ND		ND		ND		ND		ND		ND	
Cyclohexane		2 9		ND		0.1	J	0.1	J	ND		ND		ND		ND	
1,2-Dibromo-3-chloropropane		ND		ND		ND		ND		ND		ND		ND		ND	
Dibromochloromethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dibromoethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dichlorobenzene		ND		ND		ND		ND		0.1	J	ND		ND		ND	
1,3-Dichlorobenzene		ND		ND		0.2	J	0.2	J	ND		ND		ND		ND	
1,4-Dichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
Dichlorodifluoromethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,1-Dichloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dichloroethane		ND		ND		0.2	J	0.2	J	ND		ND		ND		ND	
1,1-Dichloroethene		ND		ND		ND		ND		ND		ND		ND		ND	
cis-1,2-Dichloroethene		0 3	J	ND		6.9		6.8		0.7		ND		ND		ND	
trans-1,2-Dichloroethene		ND		ND		0.1	J	0.1	J	ND		ND		ND		ND	
1,2-Dichloropropane		ND		ND		ND		ND		ND		ND		ND		ND	
cis-1,3-Dichloropropene		ND		ND		ND		ND		ND		ND		ND		ND	
trans-1,3-Dichloropropene		ND		ND		ND		ND		ND		ND		ND		ND	
Ethylbenzene	700	3.3		0.1	J	1.6		1.5		1.7		ND		ND		ND	
Freon 113		ND		ND		ND		ND		ND		ND		ND		ND	
2-Hexanone		ND		ND		ND		ND		ND		ND		ND		ND	
Isopropylbenzene		1.9		ND		1.2		1.1		1.6		ND		ND		ND	
Methyl Acetate		ND		ND		ND		ND		ND		ND		ND		ND	
Methyl Tertiary Butyl Ether		0.4	J	ND		0.6		0.6		0.3	J	ND		ND		ND	

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-CW24D		HAV-LTR-CW26D		HAV-LTR-CW27D		HAV-LTR-CW27X		HAV-LTR-CW28D		HAV-LTR-CW32		HAV-LTR-CW33		HAV-LTR-CW34	
Sample Date:	**Goals for**	**3/21/2017**		**3/21/2017**		**3/21/2017**		**3/21/2017**		**3/21/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**	
Duplicate of:	**Groundwater**							**HAV-LTR-CW27D**									
4-Methyl-2-pentanone		ND		ND		ND		ND		ND		ND		ND		ND	
Methylcyclohexane		0.6		ND		0.2	J	0.2	J	0.3	J	ND		ND		ND	
Methylene Chloride		ND		ND		ND		ND		0.6		ND		ND		ND	
Styrene		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,2,2-Tetrachloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
Tetrachloroethene		ND		ND		0.1	J	0.1	J	ND		0.3	J	0.3	J	ND	
Toluene	1000	1.2		ND		2.1		2.1		2.7		ND		ND		ND	
1,2,3-Trichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
1,2,4-Trichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,1-Trichloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,2-Trichloroethane		ND		ND		ND		ND		ND		ND		ND		ND	
Trichloroethene	5	0 3	J	ND		4.7		4.6		0.1	J	ND		ND		ND	
Trichlorofluoromethane		ND		ND		ND		ND		ND		ND		ND		ND	
1,2,4-Trimethylbenzene		28		1.5		0.2	J	0.2	J	31		ND		ND		ND	
1,3,5-Trimethylbenzene		11		0.4	J	0.1	J	0.1	J	5.9		ND		ND		ND	
Vinyl Chloride	5	ND		ND		0.4	J	0.4	J	ND		ND		ND		ND	

NA - Not Analyzed
ND - Not Detected Above Laboratory Quantitation Limit
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
5.5 - Exceeds Remediation Goal for GW

ANALYTICAL DATA
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HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-RW3		HAV-LTR-RW5		HAV-LTR-RW5X		HAV-LTR-RW6		HAV-LTR-RW7		HAV-LTR-RW8		HAV-LTR-RW8X		HAV-LTR-RW9		HAV-LTR-RW10	
Sample Date:	**Goals for**	**3/22/2017**		**3/21/2017**		**3/21/2017**		**3/23/2017**		**3/22/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**	
Duplicate of:	**Groundwater**					**HAV-LTR-RW5**								**HAV-LTR-RW8**					
INORGANICS		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aluminum	200	**676**		ND		ND		ND		ND		**8580**		**10400**		52.8	J	ND	
Antimony		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Arsenic	10	3.3		7.7		6.7		ND		1.5	J	2.4		2.6		ND		ND	
Barium	2000	75.3		60		61.1		117		69.2		251		284		107		125	
Beryllium		ND		ND		ND		ND		0.11	J	0.82		1		ND		ND	
Cadmium		ND		ND		ND		0.36	J	ND		ND		ND		ND		ND	
Calcium		23500		26200		27000		46700		33700		84600	B	86600	B	88200	B	69200	B
Chromium		9.6	B	0.82	J	0.79	J	ND		0.64	JB	186	B	117	B	0.87	JB	1.2	JB
Cobalt		5.9		24.1		24		14.1		18.7		7 3		7.8		ND		0.5	J
Copper		1.8	J	ND		ND		ND		9.5		24		28.8		2.8		3.9	
Iron	300	**7150**		**17000**		**16900**		**2300**		**12000**		**15900**		**21700**		232		262	
Lead		1.2		ND		ND		ND		1.3		13.6		17.1		0.48	J	0.15	J
Magnesium		13500		14600		15800		17200		14700		21400		23500		20000		18200	
Manganese	50	**5140**		**9320**		**9480**		**2440**		**7800**		**333**		**497**		**991**		**1100**	
Nickel		5.7		0.88	J	1.2	J	6.9		6.3		77.1		58.6		ND		ND	
Potassium		7490		6900		7310		7030		8440		8740		10300		5680		4610	
Selenium		ND		ND		ND		ND		ND		0.98	J	0.97	J	0.62	J	0.55	J
Silver		ND		ND		ND		ND		ND		0.61		0.45	J	ND		ND	
Sodium		212000		95900		101000		40100		138000		28200		28700		24600		20900	
Thallium		ND		ND		ND		ND		ND		0.29	J	0.35	J	ND		ND	
Vanadium	3.1	2.6		0.25	J	ND		0.27	J	ND		**21.5**		**28.8**		0.77		0.31	J
Zinc		19.5		ND		ND		ND		21		92 3		119		3.7	J	ND	
PENTACHLOROPHENOL		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Pentachlorophenol	1	NA		NA		NA		NA		NA		ND		ND		0.14		ND	
HERBICIDES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Dieldrin	0.038	NA		NA		NA		NA		NA		**0.42**		**0.56**		**0.27**		**0.3**	
DIOXINS/FURANS		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L	
Toxicity Equivalent Quotient (TEQ)	30	NA		0.398		0.47		NA		NA		NA		NA		NA		NA	
SEMIVOLATILES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Acenaphthene		4		4		4		ND		2		ND		ND		ND		ND	
Acenaphthylene		ND		ND		1		ND		0.6		ND		ND		ND		ND	
Acetophenone		6		6		5		ND		4		ND		ND		ND		ND	
Anthracene		1		2		2		ND		1		ND		ND		ND		ND	
Atrazine		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzaldehyde		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)anthracene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)pyrene	0 2	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(b)fluoranthene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(g,h,i)perylene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(k)fluoranthene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,1'-Biphenyl		5		14		14		0.8	J	8		ND		ND		ND		ND	

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HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-RW3		HAV-LTR-RW5		HAV-LTR-RW5X		HAV-LTR-RW6		HAV-LTR-RW7		HAV-LTR-RW8		HAV-LTR-RW8X		HAV-LTR-RW9		HAV-LTR-RW10	
Sample Date:	**Goals for**	**3/22/2017**		**3/21/2017**		**3/21/2017**		**3/23/2017**		**3/22/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**	
Duplicate of:	**Groundwater**					**HAV-LTR-RW5**								**HAV-LTR-RW8**					
4-Bromophenyl-phenylether		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Butylbenzylphthalate		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Di-n-butylphthalate		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Caprolactam		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Carbazole		0.8	J	0.8	J	0.7	J	ND		0.6	J	ND		ND		ND		ND	
4-Chloro-3-methylphenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
4-Chloroaniline		ND		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Chloroethoxy)methane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Chloroethyl)ether		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Chloronaphthalene		3		ND		ND		ND		ND		ND		ND		ND		ND	
2-Chlorophenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
4-Chlorophenyl-phenylether		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2,2'-oxybis(1-Chloropropane)		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Chrysene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Dibenz(a,h)anthracene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Dibenzofuran	4	3		5		5		ND		3		ND		ND		ND		ND	
3,3'-Dichlorobenzidine		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dichlorophenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Diethylphthalate		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dimethylphenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Dimethylphthalate		ND		ND		ND		ND		ND		ND		ND		ND		ND	
4,6-Dinitro-2-methylphenol	1.7	ND		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dinitrophenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dinitrotoluene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2,6-Dinitrotoluene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Ethylhexyl)phthalate	6	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Fluoranthene		0.3	J	0.4	J	0.6		ND		0.2	J	ND		ND		ND		ND	
Fluorene		7		11		11		1		10		ND		ND		ND		ND	
Hexachlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachlorobutadiene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachlorocyclopentadiene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachloroethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Indeno(1,2,3-cd)pyrene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Isophorone		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Methylnaphthalene	2	ND		3		3		ND		ND		ND		ND		ND		ND	
2-Methylphenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
4-Methylphenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Naphthalene	3	1		27		25		ND		4		ND		ND		ND		ND	
2-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND		ND	
3-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND		ND	
4-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Nitrobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Nitrophenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
4-Nitrophenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
N-Nitroso-di-n-propylamine		ND		ND		ND		ND		ND		ND		ND		ND		ND	
N-Nitrosodiphenylamine		1		1		2		ND		ND		ND		ND		ND		ND	

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HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-RW3		HAV-LTR-RW5		HAV-LTR-RW5X		HAV-LTR-RW6		HAV-LTR-RW7		HAV-LTR-RW8		HAV-LTR-RW8X		HAV-LTR-RW9		HAV-LTR-RW10	
Sample Date:	**Goals for**	**3/22/2017**		**3/21/2017**		**3/21/2017**		**3/23/2017**		**3/22/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**	
Duplicate of:	**Groundwater**					**HAV-LTR-RW5**								**HAV-LTR-RW8**					
Di-n-octylphthalate		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Pentachlorophenol	1	**610**		**650**		**470**		**110**		**320**		ND		ND		ND		ND	
Phenanthrene	41	6		13		13		ND		7		ND		ND		ND		ND	
Phenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Pyrene		0.5	J	0.5		0.5	J	ND		0.4	J	ND		ND		ND		ND	
1,2,4,5-Tetrachlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2,3,4,6-Tetrachlorophenol		44		46		58		1		12		ND		ND		ND		ND	
2,4,5-Trichlorophenol		4		2		3		ND		2		ND		ND		ND		ND	
2,4,6-Trichlorophenol		2		0.8	J	1		ND		ND		ND		ND		ND		ND	
VOLATILES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Acetone		ND		3.4	J	3.5	J	ND		ND		ND		ND		ND		ND	
Benzene	5	0 2	J	**21**		**20**		ND		2.1		ND		ND		ND		ND	
Bromochloromethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Bromodichloromethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Bromoform		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Bromomethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Butanone		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Carbon Disulfide		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Carbon Tetrachloride		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Chlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Chloroethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Chloroform		1.6		1.2		1.5		0 3	J	1.1		0.2	J	0.2	J	0.2	J	0.2	J
Chloromethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Cyclohexane		ND		0.8		0.9		ND		ND		ND		ND		ND		ND	
1,2-Dibromo-3-chloropropane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Dibromochloromethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dibromoethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dichlorobenzene		0.3	J	ND		0.1	J	ND		0.1	J	ND		ND		ND		ND	
1,3-Dichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,4-Dichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Dichlorodifluoromethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,1-Dichloroethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dichloroethane		ND		0.3	J	0.4	J	ND		ND		ND		ND		ND		ND	
1,1-Dichloroethene		ND		0.1	J	0.1	J	ND		ND		ND		ND		ND		ND	
cis-1,2-Dichloroethene		0.9		11		13		0.2	J	4 2		ND		ND		ND		ND	
trans-1,2-Dichloroethene		ND		0 2	J	0.2	J	ND		ND		ND		ND		ND		ND	
1,2-Dichloropropane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
cis-1,3-Dichloropropene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
trans-1,3-Dichloropropene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Ethylbenzene	700	3.8		6.6		7.2		ND		1.4		ND		ND		ND		ND	
Freon 113		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Hexanone		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Isopropylbenzene		3		2 9		3 2		ND		3.4		ND		ND		ND		ND	
Methyl Acetate		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Methyl Tertiary Butyl Ether		0.3	J	0 8		1		0.2	J	0.4	J	ND		ND		ND		ND	

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-RW3		HAV-LTR-RW5		HAV-LTR-RW5X		HAV-LTR-RW6		HAV-LTR-RW7		HAV-LTR-RW8		HAV-LTR-RW8X		HAV-LTR-RW9		HAV-LTR-RW10	
Sample Date:	**Goals for**	**3/22/2017**		**3/21/2017**		**3/21/2017**		**3/23/2017**		**3/22/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**		**3/20/2017**	
Duplicate of:	**Groundwater**					**HAV-LTR-RW5**								**HAV-LTR-RW8**					
4-Methyl-2-pentanone		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Methylcyclohexane		0.2	J	0.8		0.8		ND		0.1	J	ND		ND		ND		ND	
Methylene Chloride		0.3	J	0.3	J	0.4	J	ND		0.4	J	ND		ND		ND		ND	
Styrene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,2,2-Tetrachloroethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Tetrachloroethene		ND		0.1	J	0.2	J	ND		ND		0 2	J	0.2	J	ND		ND	
Toluene	1000	1		2.7		2.9		ND		0.5	J	ND		ND		ND		ND	
1,2,3-Trichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,2,4-Trichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,1-Trichloroethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,2-Trichloroethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Trichloroethene	5	0.6		**7.3**		**8.7**		ND		2.2		ND		ND		ND		ND	
Trichlorofluoromethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,2,4-Trimethylbenzene		21		8.2		10		ND		8.1		ND		ND		ND		ND	
1,3,5-Trimethylbenzene		4.1		2		2.3		ND		1		ND		ND		ND		ND	
Vinyl Chloride	5	ND		0.7		0.8		ND		0.1	J	ND		ND		ND		ND	

NA - Not Analyzed
ND - Not Detected Above Laboratory Quantitation Limit
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
5.5 - Exceeds Remediation Goal for GW

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-IW1		HAV-LTR-IW2		HAV-LTR-IW4		HAV-LTR-IW5		HAV-LTR-HAV04		HAV-LTR-HAV05		HAV-LTR-HAV07		HAV-LTR-MW1		HAV-LTR-MW2	
Sample Date:	**Goals for**	**3/21/2017**		**3/21/2017**		**3/24/2017**		**3/24/2017**		**3/24/2017**		**3/21/2017**		**3/23/2017**		**3/23/2017**		**3/23/2017**	
Duplicate of:	**Groundwater**																		
INORGANICS		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aluminum	200	187		**1480**		ND		73.1	J	**79400**		**23700**		42.8	J	33	J	160	
Antimony		ND		ND		ND		ND		0.87	J	1.1		ND		ND		ND	
Arsenic	10	1.3	J	3.5		0.75	J	0.82	J	**15.6**		**20.4**		ND		ND		1.2	J
Barium	2000	30.6		115		35.6		66.3		1550		467		175		151		122	
Beryllium		ND		0.11	J	ND		ND		5.6		1.1		ND		ND		ND	
Cadmium		ND		ND		ND		ND		253		81.2		ND		ND		ND	
Calcium		33400		19300		41000		41100		26700		22100		25900		28800		128000	
Chromium		661		63.1		ND		1.4	J	197		47.6		0.74	J	0.63	J	0 92	J
Cobalt		19		15		0.63		4.1		247		196		ND		0.23	J	0.61	
Copper		16.5		7.6		2.6		6.2		932		761		0.69	J	ND		1.6	J
Iron	300	**3940**		**47900**		**2390**		**6420**		**118000**		**183000**		55	J	128		278	
Lead		ND		1.3		ND		0.38	J	286		121		ND		ND		0.73	J
Magnesium		17100		13900		20100		20700		35400		18700		13900		12500		73300	
Manganese	50	**1280**		**4060**		**230**		**1400**		**27100**		**12900**		10.1		38.7		13.5	
Nickel		726		9.8		1.2	J	2.6		239		421		1.8	J	ND		2.4	
Potassium		5880		8140		8170		8120		27300		15200		4170		5620		4810	
Selenium		ND		ND		ND		ND		1.2	J	0.63	J	0.8	J	0.74	J	ND	
Silver		ND		ND		ND		ND		0.57		0.23	J	ND		ND		ND	
Sodium		170000		161000		227000		232000		36400		30900		23700		21300		160000	
Thallium		ND		ND		ND		ND		3.7		0.64		ND		ND		ND	
Vanadium	3.1	**3.3**		**6.4**		1.2		0.9		**289**		**64.9**		0 38	J	0.54		**13.8**	
Zinc		39.2	B	202	B	ND		ND		1310		882	B	ND		ND		5.7	J
PENTACHLOROPHENOL		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA		NA		NA		NA	
HERBICIDES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Dieldrin	0.038	NA		NA		NA		NA		NA		NA		NA		NA		NA	
DIOXINS/FURANS		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L	
Toxicity Equivalent Quotient (TEQ)	30	NA		NA		NA		NA		NA		**154**		NA		NA		NA	
SEMIVOLATILES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Acenaphthene		ND		ND		ND		ND		33		0.3	J	ND		ND		ND	
Acenaphthylene		ND		0.2	J	ND		ND		ND		ND		ND		ND		ND	
Acetophenone		ND		1		ND		ND		ND		ND		ND		ND		ND	
Anthracene		ND		ND		ND		ND		29		0.5	J	ND		ND		ND	
Atrazine		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzaldehyde		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)anthracene		ND		ND		ND		ND		6		0.2	J	ND		ND		ND	
Benzo(a)pyrene	0 2	ND		ND		ND		ND		**1**		0.1	J	ND		ND		ND	
Benzo(b)fluoranthene		ND		ND		ND		ND		2		0.2	J	ND		ND		ND	
Benzo(g,h,i)perylene		ND		ND		ND		ND		0.4	J	ND		ND		ND		ND	
Benzo(k)fluoranthene		ND		ND		ND		ND		0.6	J	ND		ND		ND		ND	
1,1'-Biphenyl		ND		ND		ND		ND		45		ND		ND		ND		ND	

ANALYTICAL DATA
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HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-IW1		HAV-LTR-IW2		HAV-LTR-IW4		HAV-LTR-IW5		HAV-LTR-HAV04		HAV-LTR-HAV05		HAV-LTR-HAV07		HAV-LTR-MW1		HAV-LTR-MW2	
Sample Date:	**Goals for**	**3/21/2017**		**3/21/2017**		**3/24/2017**		**3/24/2017**		**3/24/2017**		**3/21/2017**		**3/23/2017**		**3/23/2017**		**3/23/2017**	
Duplicate of:	**Groundwater**																		
4-Bromophenyl-phenylether		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Butylbenzylphthalate		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Di-n-butylphthalate		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Caprolactam		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Carbazole		ND		ND		ND		ND		1		ND		ND		ND		ND	
4-Chloro-3-methylphenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
4-Chloroaniline		ND		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Chloroethoxy)methane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Chloroethyl)ether		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Chloronaphthalene		0.9	J	ND		ND		ND		ND		ND		ND		ND		ND	
2-Chlorophenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
4-Chlorophenyl-phenylether		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2,2'-oxybis(1-Chloropropane)		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Chrysene		ND		ND		ND		ND		8		0.3	J	ND		ND		ND	
Dibenz(a,h)anthracene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Dibenzofuran	4	ND		ND		ND		ND		**25**		ND		ND		ND		ND	
3,3'-Dichlorobenzidine		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dichlorophenol		ND		0.7	J	ND		ND		ND		ND		ND		ND		ND	
Diethylphthalate		ND		93		ND		ND		ND		ND		ND		ND		ND	
2,4-Dimethylphenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Dimethylphthalate		ND		5	J	ND		ND		ND		ND		ND		ND		ND	
4,6-Dinitro-2-methylphenol	1.7	ND		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dinitrophenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2,4-Dinitrotoluene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2,6-Dinitrotoluene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
bis(2-Ethylhexyl)phthalate	6	ND		ND		ND		ND		4	J	ND		ND		ND		ND	
Fluoranthene		ND		0.2	J	ND		ND		24		0.6		ND		ND		ND	
Fluorene		ND		ND		ND		ND		70		0.8		ND		ND		ND	
Hexachlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachlorobutadiene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachlorocyclopentadiene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Hexachloroethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Indeno(1,2,3-cd)pyrene		ND		ND		ND		ND		0.3	J	ND		ND		ND		ND	
Isophorone		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Methylnaphthalene	2	ND		ND		ND		ND		**520**		ND		ND		ND		ND	
2-Methylphenol		ND		2		ND		ND		ND		ND		ND		ND		ND	
4-Methylphenol		ND		3		ND		ND		ND		ND		ND		ND		ND	
Naphthalene	3	ND		**3**		ND		ND		**310**		0.3	J	ND		ND		ND	
2-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND		ND	
3-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND		ND	
4-Nitroaniline		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Nitrobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Nitrophenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
4-Nitrophenol		ND		ND		ND		ND		ND		ND		ND		ND		ND	
N-Nitroso-di-n-propylamine		ND		ND		ND		ND		ND		ND		ND		ND		ND	
N-Nitrosodiphenylamine		ND		ND		ND		ND		ND		ND		ND		ND		ND	

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-IW1		HAV-LTR-IW2		HAV-LTR-IW4		HAV-LTR-IW5		HAV-LTR-HAV04		HAV-LTR-HAV05		HAV-LTR-HAV07		HAV-LTR-MW1		HAV-LTR-MW2	
Sample Date:	**Goals for**	**3/21/2017**		**3/21/2017**		**3/24/2017**		**3/24/2017**		**3/24/2017**		**3/21/2017**		**3/23/2017**		**3/23/2017**		**3/23/2017**	
Duplicate of:	**Groundwater**																		
Di-n-octylphthalate		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Pentachlorophenol	1	**360**		**2600**		**50**		**3**	J	**1300**		**190**		ND		ND		ND	
Phenanthrene	41	ND		ND		ND		ND		**250**		1		ND		ND		ND	
Phenol		ND		2		ND		ND		ND		ND		ND		ND		ND	
Pyrene		ND		0.8		ND		ND		40		1		ND		ND		ND	
1,2,4,5-Tetrachlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2,3,4,6-Tetrachlorophenol		25		190		14		ND		48		10		ND		ND		ND	
2,4,5-Trichlorophenol		ND		4		ND		ND		8		5		ND		ND		ND	
2,4,6-Trichlorophenol		ND		6		3		ND		1	J	2		ND		ND		ND	
VOLATILES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Acetone		ND		22		ND		ND		NA		11		ND		ND		ND	
Benzene	5	ND		0.1	J	ND		ND		NA		0.8		ND		ND		ND	
Bromochloromethane		ND		ND		ND		ND		NA		ND		ND		ND		ND	
Bromodichloromethane		1.1		ND		1.4		10		NA		ND		ND		ND		ND	
Bromoform		ND		ND		ND		ND		NA		ND		ND		ND		ND	
Bromomethane		ND		ND		ND		ND		NA		ND		ND		ND		ND	
2-Butanone		ND		ND		ND		ND		NA		ND		ND		ND		ND	
Carbon Disulfide		ND		ND		ND		ND		NA		ND		ND		ND		ND	
Carbon Tetrachloride		ND		ND		ND		ND		NA		ND		ND		ND		ND	
Chlorobenzene		ND		ND		ND		ND		NA		ND		ND		ND		ND	
Chloroethane		ND		ND		ND		ND		NA		ND		ND		ND		ND	
Chloroform		12		3.5		9.6		83		NA		ND		0.5	J	0.5	J	0.1	J
Chloromethane		ND		ND		ND		ND		NA		ND		ND		ND		ND	
Cyclohexane		ND		0.1	J	ND		ND		NA		0.1	J	ND		ND		ND	
1,2-Dibromo-3-chloropropane		ND		ND		ND		ND		NA		ND		ND		ND		ND	
Dibromochloromethane		ND		ND		ND		0.2	J	NA		ND		ND		ND		ND	
1,2-Dibromoethane		ND		ND		ND		ND		NA		ND		ND		ND		ND	
1,2-Dichlorobenzene		ND		0.2	J	ND		ND		NA		ND		ND		ND		ND	
1,3-Dichlorobenzene		ND		ND		ND		ND		NA		ND		ND		ND		ND	
1,4-Dichlorobenzene		ND		ND		ND		ND		NA		ND		ND		ND		ND	
Dichlorodifluoromethane		ND		ND		ND		ND		NA		ND		ND		ND		ND	
1,1-Dichloroethane		ND		ND		ND		ND		NA		ND		ND		ND		ND	
1,2-Dichloroethane		ND		ND		ND		ND		NA		ND		ND		ND		ND	
1,1-Dichloroethene		ND		ND		ND		ND		NA		ND		ND		ND		ND	
cis-1,2-Dichloroethene		0.4	J	0.3	J	0.8		0.5	J	NA		ND		ND		0.1	J	ND	
trans-1,2-Dichloroethene		ND		ND		ND		ND		NA		ND		ND		ND		ND	
1,2-Dichloropropane		ND		ND		ND		ND		NA		ND		ND		ND		ND	
cis-1,3-Dichloropropene		ND		ND		ND		ND		NA		ND		ND		ND		ND	
trans-1,3-Dichloropropene		ND		ND		ND		ND		NA		ND		ND		ND		ND	
Ethylbenzene	700	ND		1.6		ND		ND		NA		2.2		ND		ND		ND	
Freon 113		ND		ND		ND		ND		NA		ND		ND		ND		ND	
2-Hexanone		ND		ND		ND		ND		NA		ND		ND		ND		ND	
Isopropylbenzene		0.3	J	0.9		ND		ND		NA		2.1		ND		ND		ND	
Methyl Acetate		ND		ND		ND		ND		NA		ND		ND		ND		ND	
Methyl Tertiary Butyl Ether		0.2	J	0.3	J	0.2	J	0.1	J	NA		ND		ND		ND		ND	

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-IW1		HAV-LTR-IW2		HAV-LTR-IW4		HAV-LTR-IW5		HAV-LTR-HAV04		HAV-LTR-HAV05		HAV-LTR-HAV07		HAV-LTR-MW1		HAV-LTR-MW2	
Sample Date:	**Goals for**	**3/21/2017**		**3/21/2017**		**3/24/2017**		**3/24/2017**		**3/24/2017**		**3/21/2017**		**3/23/2017**		**3/23/2017**		**3/23/2017**	
Duplicate of:	**Groundwater**																		
4-Methyl-2-pentanone		ND		ND		ND		ND		NA		ND		ND		ND		ND	
Methylcyclohexane		ND		0.2	J	ND		ND		NA		0.3	J	ND		ND		ND	
Methylene Chloride		0.6		0.8		ND		1.1		NA		ND		ND		ND		ND	
Styrene		ND		ND		ND		ND		NA		ND		ND		ND		ND	
1,1,2,2-Tetrachloroethane		ND		ND		ND		ND		NA		ND		ND		ND		ND	
Tetrachloroethene		ND		0.1	J	ND		ND		NA		ND		ND		ND		ND	
Toluene	1000	ND		17		0.2	J	ND		NA		0.2	J	ND		ND		ND	
1,2,3-Trichlorobenzene		ND		ND		ND		ND		NA		ND		ND		ND		ND	
1,2,4-Trichlorobenzene		ND		ND		ND		ND		NA		ND		ND		ND		ND	
1,1,1-Trichloroethane		ND		ND		ND		ND		NA		ND		ND		ND		ND	
1,1,2-Trichloroethane		ND		ND		ND		ND		NA		ND		ND		ND		ND	
Trichloroethene	5	ND		0.7		0.4	J	ND		NA		0.4	J	ND		0.1	J	ND	
Trichlorofluoromethane		ND		ND		ND		ND		NA		ND		ND		ND		ND	
1,2,4-Trimethylbenzene		ND		8.6		0.1	J	ND		NA		18		ND		ND		ND	
1,3,5-Trimethylbenzene		ND		5.4		ND		ND		NA		1		ND		ND		ND	
Vinyl Chloride	5	ND		ND		ND		ND		NA		ND		ND		ND		ND	

NA - Not Analyzed
ND - Not Detected Above Laboratory Quantitation Limit
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
5.5 - Exceeds Remediation Goal for GW

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-MW3		HAV-LTR-NW01		HAV-LTR-NW06		HAV-LTR-FB01		HAV-LTR-FB02		HAV-LTR-FB03		HAV-LTR-TB01		HAV-LTR-TB02		HAV-LTR-TB03	
Sample Date:	**Goals for**	**3/22/2017**		**3/21/2017**		**3/24/2017**		**3/20/2017**		**3/21/2017**		**3/22/2017**		**3/20/2017**		**3/21/2017**		**3/22/2017**	
Duplicate of:	**Groundwater**																		
INORGANICS		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**		**ug/L**	
Aluminum	200	ND		ND		50.4	J	ND		ND		ND		NA		NA		NA	
Antimony		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Arsenic	10	ND		ND		2.5		ND		ND		ND		NA		NA		NA	
Barium	2000	70.3		74.4		52.9		ND		ND		ND		NA		NA		NA	
Beryllium		0 29	J	ND		ND		ND		ND		ND		NA		NA		NA	
Cadmium		1		ND		0.73		ND		ND		ND		NA		NA		NA	
Calcium		69700		43300		39500		ND		ND		ND		NA		NA		NA	
Chromium		1.9	JB	ND		1.1	J	0 81	JB	ND		ND		NA		NA		NA	
Cobalt		0 34	J	0 91		19.3		ND		ND		ND		NA		NA		NA	
Copper		0.74	J	1.1	J	0.56	J	14.7		2.2		3.9		NA		NA		NA	
Iron	300	**18700**		61.3	J	**4060**		ND		ND		ND		NA		NA		NA	
Lead		0.1	J	0 54	J	0.24	J	ND		ND		ND		NA		NA		NA	
Magnesium		15000		13800		14400		ND		ND		14.7	J	NA		NA		NA	
Manganese	50	**965**		20.1		**4880**		ND		ND		1.2	J	NA		NA		NA	
Nickel		2.4		ND		3.4		ND		ND		ND		NA		NA		NA	
Potassium		8830		4520		6030		ND		ND		ND		NA		NA		NA	
Selenium		ND		0 57	J	ND		ND		ND		ND		NA		NA		NA	
Silver		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Sodium		38600		60300		31500		218		200	J	182	J	NA		NA		NA	
Thallium		ND		ND		0 29	J	ND		ND		ND		NA		NA		NA	
Vanadium	3.1	ND		ND		0.46	J	ND		ND		ND		NA		NA		NA	
Zinc		23.9		ND		93.6		ND		ND		ND		NA		NA		NA	
PENTACHLOROPHENOL		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Pentachlorophenol	1	NA		NA		NA		ND		NA		NA		NA		NA		NA	
HERBICIDES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Dieldrin	0.038	NA		NA		NA		ND		NA		NA		NA		NA		NA	
DIOXINS/FURANS		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L		pg/L	
Toxicity Equivalent Quotient (TEQ)	30	NA		**67.4**		NA		NA		NA		0.272		NA		NA		NA	
SEMIVOLATILES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Acenaphthene		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Acenaphthylene		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Acetophenone		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Anthracene		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Atrazine		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Benzaldehyde		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Benzo(a)anthracene		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Benzo(a)pyrene	0 2	ND		ND		ND		ND		ND		ND		NA		NA		NA	
Benzo(b)fluoranthene		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Benzo(g,h,i)perylene		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Benzo(k)fluoranthene		ND		ND		ND		ND		ND		ND		NA		NA		NA	
1,1'-Biphenyl		ND		ND		0.7	J	ND		ND		ND		NA		NA		NA	

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-MW3		HAV-LTR-NW01		HAV-LTR-NW06		HAV-LTR-FB01		HAV-LTR-FB02		HAV-LTR-FB03		HAV-LTR-TB01		HAV-LTR-TB02		HAV-LTR-TB03	
Sample Date:	**Goals for**	**3/22/2017**		**3/21/2017**		**3/24/2017**		**3/20/2017**		**3/21/2017**		**3/22/2017**		**3/20/2017**		**3/21/2017**		**3/22/2017**	
Duplicate of:	**Groundwater**																		
4-Bromophenyl-phenylether		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Butylbenzylphthalate		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Di-n-butylphthalate		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Caprolactam		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Carbazole		ND		ND		ND		ND		ND		ND		NA		NA		NA	
4-Chloro-3-methylphenol		ND		ND		ND		ND		ND		ND		NA		NA		NA	
4-Chloroaniline		ND		ND		ND		ND		ND		ND		NA		NA		NA	
bis(2-Chloroethoxy)methane		ND		ND		ND		ND		ND		ND		NA		NA		NA	
bis(2-Chloroethyl)ether		ND		ND		ND		ND		ND		ND		NA		NA		NA	
2-Chloronaphthalene		ND		ND		ND		ND		ND		ND		NA		NA		NA	
2-Chlorophenol		ND		ND		ND		ND		ND		ND		NA		NA		NA	
4-Chlorophenyl-phenylether		ND		ND		ND		ND		ND		ND		NA		NA		NA	
2,2'-oxybis(1-Chloropropane)		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Chrysene		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Dibenz(a,h)anthracene		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Dibenzofuran	4	ND		ND		ND		ND		ND		ND		NA		NA		NA	
3,3'-Dichlorobenzidine		ND		ND		ND		ND		ND		ND		NA		NA		NA	
2,4-Dichlorophenol		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Diethylphthalate		ND		ND		ND		ND		ND		ND		NA		NA		NA	
2,4-Dimethylphenol		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Dimethylphthalate		ND		ND		ND		ND		ND		ND		NA		NA		NA	
4,6-Dinitro-2-methylphenol	1.7	ND		ND		ND		ND		ND		ND		NA		NA		NA	
2,4-Dinitrophenol		ND		ND		ND		ND		ND		ND		NA		NA		NA	
2,4-Dinitrotoluene		ND		ND		ND		ND		ND		ND		NA		NA		NA	
2,6-Dinitrotoluene		ND		ND		ND		ND		ND		ND		NA		NA		NA	
bis(2-Ethylhexyl)phthalate	6	ND		ND		ND		ND		ND		ND		NA		NA		NA	
Fluoranthene		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Fluorene		ND		ND		0.4	J	ND		ND		ND		NA		NA		NA	
Hexachlorobenzene		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Hexachlorobutadiene		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Hexachlorocyclopentadiene		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Hexachloroethane		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Indeno(1,2,3-cd)pyrene		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Isophorone		ND		ND		ND		ND		ND		ND		NA		NA		NA	
2-Methylnaphthalene	2	ND		ND		ND		ND		ND		ND		NA		NA		NA	
2-Methylphenol		ND		ND		ND		ND		ND		ND		NA		NA		NA	
4-Methylphenol		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Naphthalene	3	ND		ND		1		ND		ND		ND		NA		NA		NA	
2-Nitroaniline		ND		ND		ND		ND		ND		ND		NA		NA		NA	
3-Nitroaniline		ND		ND		ND		ND		ND		ND		NA		NA		NA	
4-Nitroaniline		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Nitrobenzene		ND		ND		ND		ND		ND		ND		NA		NA		NA	
2-Nitrophenol		ND		ND		ND		ND		ND		ND		NA		NA		NA	
4-Nitrophenol		ND		ND		ND		ND		ND		ND		NA		NA		NA	
N-Nitroso-di-n-propylamine		ND		ND		ND		ND		ND		ND		NA		NA		NA	
N-Nitrosodiphenylamine		ND		ND		ND		ND		ND		ND		NA		NA		NA	

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-MW3		HAV-LTR-NW01		HAV-LTR-NW06		HAV-LTR-FB01		HAV-LTR-FB02		HAV-LTR-FB03		HAV-LTR-TB01		HAV-LTR-TB02		HAV-LTR-TB03	
Sample Date:	**Goals for**	**3/22/2017**		**3/21/2017**		**3/24/2017**		**3/20/2017**		**3/21/2017**		**3/22/2017**		**3/20/2017**		**3/21/2017**		**3/22/2017**	
Duplicate of:	**Groundwater**																		
Di-n-octylphthalate		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Pentachlorophenol	1	**49**		ND		**1400**		ND		ND		ND		NA		NA		NA	
Phenanthrene	41	ND		ND		ND		ND		ND		ND		NA		NA		NA	
Phenol		ND		ND		ND		ND		ND		ND		NA		NA		NA	
Pyrene		ND		ND		0.1	J	ND		ND		ND		NA		NA		NA	
1,2,4,5-Tetrachlorobenzene		ND		ND		ND		ND		ND		ND		NA		NA		NA	
2,3,4,6-Tetrachlorophenol		2		ND		80		ND		ND		ND		NA		NA		NA	
2,4,5-Trichlorophenol		ND		ND		0.7	J	ND		ND		ND		NA		NA		NA	
2,4,6-Trichlorophenol		0.9	J	ND		0.6	J	ND		ND		ND		NA		NA		NA	
VOLATILES		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Acetone		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzene	5	0.2	J	ND		ND		ND		ND		ND		ND		ND		ND	
Bromochloromethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Bromodichloromethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Bromoform		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Bromomethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Butanone		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Carbon Disulfide		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Carbon Tetrachloride		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Chlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Chloroethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Chloroform		ND		9.7		ND		ND		ND		ND		ND		ND		ND	
Chloromethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Cyclohexane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dibromo-3-chloropropane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Dibromochloromethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dibromoethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,3-Dichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,4-Dichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Dichlorodifluoromethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,1-Dichloroethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dichloroethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,1-Dichloroethene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
cis-1,2-Dichloroethene		0.9		ND		0.1	J	ND		ND		ND		ND		ND		ND	
trans-1,2-Dichloroethene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,2-Dichloropropane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
cis-1,3-Dichloropropene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
trans-1,3-Dichloropropene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Ethylbenzene	700	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Freon 113		ND		ND		ND		ND		ND		ND		ND		ND		ND	
2-Hexanone		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Isopropylbenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Methyl Acetate		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Methyl Tertiary Butyl Ether		0.2	J	ND		ND		ND		ND		ND		ND		ND		ND	

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-MW3		HAV-LTR-NW01		HAV-LTR-NW06		HAV-LTR-FB01		HAV-LTR-FB02		HAV-LTR-FB03		HAV-LTR-TB01		HAV-LTR-TB02		HAV-LTR-TB03	
Sample Date:	**Goals for**	**3/22/2017**		**3/21/2017**		**3/24/2017**		**3/20/2017**		**3/21/2017**		**3/22/2017**		**3/20/2017**		**3/21/2017**		**3/22/2017**	
Duplicate of:	**Groundwater**																		
4-Methyl-2-pentanone		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Methylcyclohexane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Methylene Chloride		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Styrene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,2,2-Tetrachloroethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Tetrachloroethene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Toluene	1000	ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,2,3-Trichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,2,4-Trichlorobenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,1-Trichloroethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,2-Trichloroethane		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Trichloroethene	5	0.6		ND		0.3	J	ND		ND		ND		ND		ND		ND	
Trichlorofluoromethane		ND		ND		0.3	J	ND		ND		ND		ND		ND		ND	
1,2,4-Trimethylbenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,3,5-Trimethylbenzene		ND		ND		ND		ND		ND		ND		ND		ND		ND	
Vinyl Chloride	5	ND		ND		ND		ND		ND		ND		ND		ND		ND	

NA - Not Analyzed
ND - Not Detected Above Laboratory Quantitation Limit
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
5.5 - Exceeds Remediation Goal for GW

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-TB04		HAV-LTR-TB05	
Sample Date:	Goals for	3/23/2017		3/24/2017	
Duplicate of:	Groundwater				
INORGANICS		ug/L		ug/L	
Aluminum	200	NA		NA	
Antimony		NA		NA	
Arsenic	10	NA		NA	
Barium	2000	NA		NA	
Beryllium		NA		NA	
Cadmium		NA		NA	
Calcium		NA		NA	
Chromium		NA		NA	
Cobalt		NA		NA	
Copper		NA		NA	
Iron	300	NA		NA	
Lead		NA		NA	
Magnesium		NA		NA	
Manganese	50	NA		NA	
Nickel		NA		NA	
Potassium		NA		NA	
Selenium		NA		NA	
Silver		NA		NA	
Sodium		NA		NA	
Thallium		NA		NA	
Vanadium	3.1	NA		NA	
Zinc		NA		NA	
PENTACHLOROPHENOL		ug/L		ug/L	
Pentachlorophenol	1	NA		NA	
HERBICIDES		ug/L		ug/L	
Dieldrin	0.038	NA		NA	
DIOXINS/FURANS		pg/L		pg/L	
Toxicity Equivalent Quotient (TEQ)	30	NA		NA	
SEMIVOLATILES		ug/L		ug/L	
Acenaphthene		NA		NA	
Acenaphthylene		NA		NA	
Acetophenone		NA		NA	
Anthracene		NA		NA	
Atrazine		NA		NA	
Benzaldehyde		NA		NA	
Benzo(a)anthracene		NA		NA	
Benzo(a)pyrene	0 2	NA		NA	
Benzo(b)fluoranthene		NA		NA	
Benzo(g,h,i)perylene		NA		NA	
Benzo(k)fluoranthene		NA		NA	
1,1'-Biphenyl		NA		NA	

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-TB04		HAV-LTR-TB05	
Sample Date:	Goals for	3/23/2017		3/24/2017	
Duplicate of:	Groundwater				
4-Bromophenyl-phenylether		NA		NA	
Butylbenzylphthalate		NA		NA	
Di-n-butylphthalate		NA		NA	
Caprolactam		NA		NA	
Carbazole		NA		NA	
4-Chloro-3-methylphenol		NA		NA	
4-Chloroaniline		NA		NA	
bis(2-Chloroethoxy)methane		NA		NA	
bis(2-Chloroethyl)ether		NA		NA	
2-Chloronaphthalene		NA		NA	
2-Chlorophenol		NA		NA	
4-Chlorophenyl-phenylether		NA		NA	
2,2'-oxybis(1-Chloropropane)		NA		NA	
Chrysene		NA		NA	
Dibenz(a,h)anthracene		NA		NA	
Dibenzofuran	4	NA		NA	
3,3'-Dichlorobenzidine		NA		NA	
2,4-Dichlorophenol		NA		NA	
Diethylphthalate		NA		NA	
2,4-Dimethylphenol		NA		NA	
Dimethylphthalate		NA		NA	
4,6-Dinitro-2-methylphenol	1.7	NA		NA	
2,4-Dinitrophenol		NA		NA	
2,4-Dinitrotoluene		NA		NA	
2,6-Dinitrotoluene		NA		NA	
bis(2-Ethylhexyl)phthalate	6	NA		NA	
Fluoranthene		NA		NA	
Fluorene		NA		NA	
Hexachlorobenzene		NA		NA	
Hexachlorobutadiene		NA		NA	
Hexachlorocyclopentadiene		NA		NA	
Hexachloroethane		NA		NA	
Indeno(1,2,3-cd)pyrene		NA		NA	
Isophorone		NA		NA	
2-Methylnaphthalene	2	NA		NA	
2-Methylphenol		NA		NA	
4-Methylphenol		NA		NA	
Naphthalene	3	NA		NA	
2-Nitroaniline		NA		NA	
3-Nitroaniline		NA		NA	
4-Nitroaniline		NA		NA	
Nitrobenzene		NA		NA	
2-Nitrophenol		NA		NA	
4-Nitrophenol		NA		NA	
N-Nitroso-di-n-propylamine		NA		NA	
N-Nitrosodiphenylamine		NA		NA	

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-TB04		HAV-LTR-TB05	
Sample Date:	Goals for	3/23/2017		3/24/2017	
Duplicate of:	Groundwater				
Di-n-octylphthalate		NA		NA	
Pentachlorophenol	1	NA		NA	
Phenanthrene	41	NA		NA	
Phenol		NA		NA	
Pyrene		NA		NA	
1,2,4,5-Tetrachlorobenzene		NA		NA	
2,3,4,6-Tetrachlorophenol		NA		NA	
2,4,5-Trichlorophenol		NA		NA	
2,4,6-Trichlorophenol		NA		NA	
VOLATILES		ug/L		ug/L	
Acetone		ND		ND	
Benzene	5	ND		ND	
Bromochloromethane		ND		ND	
Bromodichloromethane		ND		ND	
Bromoform		ND		ND	
Bromomethane		ND		ND	
2-Butanone		ND		ND	
Carbon Disulfide		ND		ND	
Carbon Tetrachloride		ND		ND	
Chlorobenzene		ND		ND	
Chloroethane		ND		ND	
Chloroform		ND		ND	
Chloromethane		ND		ND	
Cyclohexane		ND		ND	
1,2-Dibromo-3-chloropropane		ND		ND	
Dibromochloromethane		ND		ND	
1,2-Dibromoethane		ND		ND	
1,2-Dichlorobenzene		ND		ND	
1,3-Dichlorobenzene		ND		ND	
1,4-Dichlorobenzene		ND		ND	
Dichlorodifluoromethane		ND		ND	
1,1-Dichloroethane		ND		ND	
1,2-Dichloroethane		ND		ND	
1,1-Dichloroethene		ND		ND	
cis-1,2-Dichloroethene		ND		ND	
trans-1,2-Dichloroethene		ND		ND	
1,2-Dichloropropane		ND		ND	
cis-1,3-Dichloropropene		ND		ND	
trans-1,3-Dichloropropene		ND		ND	
Ethylbenzene	700	ND		ND	
Freon 113		ND		ND	
2-Hexanone		ND		ND	
Isopropylbenzene		ND		ND	
Methyl Acetate		ND		ND	
Methyl Tertiary Butyl Ether		ND		ND	

ANALYTICAL DATA
MARCH 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID:	Remediation	HAV-LTR-TB04		HAV-LTR-TB05	
Sample Date:	Goals for	3/23/2017		3/24/2017	
Duplicate of:	Groundwater				
4-Methyl-2-pentanone		ND		ND	
Methylcyclohexane		ND		ND	
Methylene Chloride		ND		ND	
Styrene		ND		ND	
1,1,2,2-Tetrachloroethane		ND		ND	
Tetrachloroethene		ND		ND	
Toluene	1000	ND		ND	
1,2,3-Trichlorobenzene		ND		ND	
1,2,4-Trichlorobenzene		ND		ND	
1,1,1-Trichloroethane		ND		ND	
1,1,2-Trichloroethane		ND		ND	
Trichloroethene	5	ND		ND	
Trichlorofluoromethane		ND		ND	
1,2,4-Trimethylbenzene		ND		ND	
1,3,5-Trimethylbenzene		ND		ND	
Vinyl Chloride	5	ND		ND	

NA - Not Analyzed
ND - Not Detected Above Laboratory Quantitation Limit
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
5.5 - Exceeds Remediation Goal for GW

A-4 MARCH 2017 BOL GROUNDWATER DATA

ANALYTICAL DATA
MARCH 2017 BUREAU OF LABORATORIES GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

Sample ID	HavertownCTR		HavertownCW-17D		HavertownCW-19D		HavertownCW-24D	
Sample Date:	3/22/2017		3/22/2017		3/22/2017		3/21/2017	
Duplicate of:								
	Result		Result		Result		Result	
SEMIVOLATILES	µg/L		µg/L		µg/L		µg/L	
1,2,4,5-Tetrachlorobenzene	2.4	U	2.5	U	2.4	U	2.6	U
1,2,4-Trichlorobenzene	2.4	U	2.5	U	2.4	U	2.6	U
1,2-Dichlorobenzene	2.4	U	2.5	U	2.4	U	2.6	U
1,3-Dichlorobenzene	2.4	U	2.5	U	2.4	U	2.6	U
1,3-Dinitrobenzene	2.4	U	2.5	U	2.4	U	2.6	U
1,4-Dichlorobenzene	2.4	U	2.5	U	2.4	U	2.6	U
1,4-Naphthoquinone	2.4	U	2.5	U	2.4	U	2.6	U
1-Chloronaphthalene	2.4	U	2.5	U	2.4	U	2.6	U
1-Methylnaphthalene	2.4	U	2.5	U	2.6		237	
2,2'-oxybis(1-Chloropropane)	2.4	U	2.5	U	2.4	U	2.6	U
2,3,4,6-Tetrachlorophenol	9.4		145		56.7		96	Q
2,4,5-Trichlorophenol	2.4	U	6.3		7.8		82	Q
2,4,6-Trichlorophenol	2.4	U	6.6		11.8		2.6	U
2,4-Dichlorophenol	2.4	U	2.5	U	2.4	U	3.7	
2,4-Dimethylphenol	2.4	U	2.5	U	2.4	U	2.6	U
2,4-Dinitrophenol	12.2	U	12.6	U	11.9	U	12.8	U
2,4-Dinitrotoluene	2.4	U	2.5	U	2.4	U	2.6	U
2,6-Dichlorophenol	2.4	U	2.5	U	2.4	U	2.6	U
2,6-Dinitrotoluene	2.4	U	2.5	U	2.4	U	2.6	U
2-Acetylaminofluorene	2.4	U	2.5	U	2.4	U	2.6	U
2-Chloronaphthalene	2.4	U	2.5	U	2.4	U	2.6	U
2-Chlorophenol	2.4	U	2.5	U	2.4	U	3.3	
2-Methylnaphthalene	2.4	U	2.5	U	2.4	U	66.4	Q
2-Methylphenol	2.4	U	2.5	U	2.4	U	2.6	U
2-Nitroaniline	2.4	U	2.5	U	2.4	U	2.6	U
2-Nitrophenol	2.4	U	2.5	U	2.4	U	2.6	U
2-Picoline (2-Methylpyridine)	2.4	U	2.5	U	2.4	U	2.6	U
3&4-Methylphenol	4.9	U	5	U	4.8	U	5.1	U
3,3'-Dichlorobenzidine	1.2	U	1.3	U	1.2	U	1.3	U
3-Methylcholanthrene	1.2	U	1.3	U	1.2	U	1.3	U
3-Nitroaniline	2.4	U	2.5	U	2.4	U	2.6	U
4,6-Dinitro-2-methylphenol	2.4	U	2.5	U	2.4	U	2.6	U
4-Aminobiphenyl	2.4	U	2.5	U	2.4	U	2.6	U
4-Bromophenyl-phenyl ether	2.4	U	2.5	U	2.4	U	2.6	U
4-Chloro-3-methylphenol	2.4	U	2.5	U	2.4	U	2.6	U
4-Chloroaniline	2.4	U	2.5	U	2.4	U	2.6	U
4-Chlorophenyl-phenyl ether	2.4	U	2.5	U	2.4	U	2.6	U
4-Nitroaniline	2.4	U	2.5	U	2.4	U	2.6	U
4-Nitrophenol	12.2	U	12.6	U	11.9	U	12.8	U
5-Nitro-o-toluidine	2.4	U	2.5	U	2.4	U	2.6	U
7,12-Dimethylbenz(a)-anthracen	1.2	U	1.3	U	1.2	U	1.3	U
Acenaphthene	2.4	U	2.5	U	2.4	U	16.5	Q
Acenaphthylene	2.4	U	2.5	U	2.4	U	2.6	U
Acetophenone	4.9	U	5	U	4.8	U	5.1	U
Aniline	2.4	U	2.5	U	2.4	U	2.6	U
Anthracene	2.4	U	2.5	U	2.4	U	4.9	
Aramite	2.4	U	2.5	U	2.4	U	2.6	U
a-Terpineol	2.4	U	2.5	U	2.4	U	2.6	U
Benz(a)anthracene	1.2	U	1.3	U	1.2	U	1.3	U
Benzo(a)pyrene	1.2	U	1.3	U	1.2	U	1.3	U

Sample ID	HavertownCTR		HavertownCW-17D		HavertownCW-19D		HavertownCW-24D	
Sample Date:	3/22/2017		3/22/2017		3/22/2017		3/21/2017	
Duplicate of:								
	Result		Result		Result		Result	
Benzo(b)fluoranthene	1.2	U	1.3	U	1.2	U	1.3	U
Benzo(g,h,i)perylene	1.2	U	1.3	U	1.2	U	1.3	U
Benzo(k)fluoranthene	1.2	U	1.3	U	1.2	U	1.3	U
Benzyl alcohol	2.4	U	2.5	U	2.4	U	2.6	U
bis(2-Chloroethoxy)methane	2.4	U	2.5	U	2.4	U	2.6	U
bis(2-Chloroethyl)ether	2.4	U	2.5	U	2.4	U	2.6	U
bis(2-Ethylhexyl)phthalate	1.2	U	1.6		1.3		2.2	
Butylbenzylphthalate	1.2	U	1.3	U	1.2	U	1.3	U
Chlorobenzilate	2.4	U	2.5	U	2.4	U	2.6	U
Chrysene	1.2	U	1.3	U	1.2	U	1.3	U
Diallate (Cis & Trans)	2.4	U	2.5	U	2.4	U	2.6	U
Dibenzo(a,h)anthracene	1.2	U	1.3	U	1.2	U	1.3	U
Dibenzofuran	2.4	U	2.5	U	3.3		7.2	
Diethylphthalate	2.4	U	2.5	U	2.4	U	2.6	U
Dimethoate	2.4	U	2.5	U	2.4	U	2.6	U
Dimethylaminoazobenzene	1.2	U	1.3	U	1.2	U	1.3	U
Dimethylphthalate	2.4	U	2.5	U	2.4	U	2.6	U
Di-n-butylphthalate	2.4	U	2.5	U	2.4	U	5.3	
Di-n-octylphthalate	1.2	U	1.3	U	1.2	U	1.4	
Dinoseb	2.4	U	2.5	U	2.4	U	2.6	U
Diphenylamine	4.9	U	5	U	4.8	U	5.1	U
Disulfoton	2.4	U	2.5	U	2.4	U	2.6	U
Ethyl methanesulfonate	2.4	U	2.5	U	2.4	U	2.6	U
Ethyl Parathion	2.4	U	2.5	U	2.4	U	2.6	U
Fluoranthene	2.4	U	2.5	U	2.4	U	5.6	
Fluorene	2.4	U	3.3		9.3		27.2	Q
Hexachlorobenzene	2.4	U	2.5	U	2.4	U	2.6	U
Hexachlorobutadiene	2.4	U	2.5	U	2.4	U	2.6	U
Hexachlorocyclopentadiene	2.4	U	2.5	U	2.4	U	2.6	U
Hexachloroethane	2.4	U	2.5	U	2.4	U	2.6	U
Hexachloropropene	2.4	U	2.5	U	2.4	U	2.6	U
Indeno-1,2,3-cd-pyrene	1.2	U	1.3	U	1.2	U	1.3	U
Isodrin	2.4	U	2.5	U	2.4	U	2.6	U
Isophorone	2.4	U	2.5	U	2.4	U	2.6	U
Isosafrole	2.4	U	2.5	U	2.4	U	2.6	U
Methyl Methanesulfonate	2.4	U	2.5	U	2.4	U	2.6	U
Methyl Parathion	2.4	U	2.5	U	2.4	U	2.6	U
Naphthalene	2.4	U	2.5	U	2.4	U	396	
Nitrobenzene	2.4	U	2.5	U	2.4	U	2.6	U
N-Nitrosodibutylamine	2.4	U	2.5	U	2.4	U	2.6	U
N-Nitrosodiethylamine	2.4	U	2.5	U	2.4	U	2.6	U
N-Nitrosodimethylamine	2.4	U	2.5	U	2.4	U	2.6	U
N-Nitrosodipropylamine	2.4	U	2.5	U	2.4	U	2.6	U
N-Nitrosomethylethylamine	2.4	U	2.5	U	2.4	U	2.6	U
N-Nitrosomorpholine	2.4	U	2.5	U	2.4	U	2.6	U
N-nitrosopiperidine	2.4	U	2.5	U	2.4	U	2.6	U
N-Nitrosopyrrolidine	2.4	U	2.5	U	2.4	U	2.6	U
O,O,O-Triethylphosphorothioate	2.4	U	2.5	U	2.4	U	2.6	U
o-Toluidine	2.4	U	2.5	U	2.4	U	2.6	U
Pentachlorethane	2.4	U	2.5	U	2.4	U	2.6	U
Pentachlorobenzene	2.4	U	2.5	U	2.4	U	2.6	U
Pentachloronitrobenzene	2.4	U	2.5	U	2.4	U	2.6	U

Sample ID	HavertownCTR		HavertownCW-17D		HavertownCW-19D		HavertownCW-24D	
Sample Date:	3/22/2017		3/22/2017		3/22/2017		3/21/2017	
Duplicate of:								
	Result		Result		Result		Result	
Pentachlorophenol	165		2980		1310		1540	
Phenanthrene	2.4	U	6.4		2.4	U	36.4	Q
Phenol	2.4	U	2.5	U	2.4	U	4.4	
Phorate	2.4	U	2.5	U	2.4	U	2.6	U
Pronamide	2.4	U	2.5	U	2.4	U	2.6	U
Pyrene	1.2	U	1.3	U	1.2	U	9.6	Q
Pyridine	2.4	U	2.5	U	2.4	U	2.6	U
Safrole	2.4	U	2.5	U	2.4	U	2.6	U
Sulfotep	2.4	U	2.5	U	2.4	U	2.6	U
Thionazine	2.4	U	2.5	U	2.4	U	2.6	U

Sample ID	HavertownCW-27D		HavertownCW-2D		HavertownCW-2I		HavertownCW-4D	
Sample Date:	3/21/2017		3/21/2017		3/21/2017		3/22/2017	
Duplicate of:								
	Result		Result		Result		Result	
SEMIVOLATILES	µg/L		µg/L		µg/L		µg/L	
1,2,4,5-Tetrachlorobenzene	2.4	U	2.5	U	2.5	U	2.4	U
1,2,4-Trichlorobenzene	2.4	U	2.5	U	2.5	U	2.4	U
1,2-Dichlorobenzene	2.4	U	2.5	U	2.5	U	2.4	U
1,3-Dichlorobenzene	2.4	U	2.5	U	2.5	U	2.4	U
1,3-Dinitrobenzene	2.4	U	2.5	U	2.5	U	2.4	U
1,4-Dichlorobenzene	2.4	U	2.5	U	2.5	U	2.4	U
1,4-Naphthoquinone	2.4	U	2.5	U	2.5	U	2.4	U
1-Chloronaphthalene	2.4	U	2.5	U	2.5	U	2.4	U
1-Methylnaphthalene	10.2		47.8		2.5	U	81.9	Q
2,2'-oxybis(1-Chloropropane)	2.4	U	2.5	U	2.5	U	2.4	U
2,3,4,6-Tetrachlorophenol	120		109		22.2		113	
2,4,5-Trichlorophenol	8.9		2.5	U	2.5	U	13	
2,4,6-Trichlorophenol	5.8		2.5	U	2.5	U	15.7	Q
2,4-Dichlorophenol	2.4	U	2.5	U	2.5	U	2.5	
2,4-Dimethylphenol	2.4	U	2.5	U	2.5	U	2.4	U
2,4-Dinitrophenol	12.2	U	12.6	U	12.4	U	12.1	U
2,4-Dinitrotoluene	2.4	U	2.5	U	2.5	U	2.4	U
2,6-Dichlorophenol	2.4	U	2.5	U	2.5	U	2.4	U
2,6-Dinitrotoluene	2.4	U	2.5	U	2.5	U	2.4	U
2-Acetylaminofluorene	2.4	U	2.5	U	2.5	U	2.4	U
2-Chloronaphthalene	2.4	U	2.5	U	2.5	U	2.4	U
2-Chlorophenol	2.4	U	2.5	U	2.5	U	2.4	U
2-Methylnaphthalene	2.4	U	40.5		2.5	U	2.4	U
2-Methylphenol	2.4	U	2.5	U	2.5	U	2.4	U
2-Nitroaniline	2.4	U	2.5	U	2.5	U	2.4	U
2-Nitrophenol	2.4	U	2.5	U	2.5	U	2.4	U
2-Picoline (2-Methylpyridine)	2.4	U	2.5	U	2.5	U	2.4	U
3&4-Methylphenol	4.9	U	5	U	5	U	4.8	U
3,3'-Dichlorobenzidine	1.2	U	1.2	U	1.2	U	1.2	U
3-Methylcholanthrene	1.2	U	1.2	U	1.2	U	1.2	U
3-Nitroaniline	2.4	U	2.5	U	2.5	U	2.4	U
4,6-Dinitro-2-methylphenol	2.4	U	2.5	U	2.5	U	2.4	U
4-Aminobiphenyl	2.4	U	2.5	U	2.5	U	2.4	U
4-Bromophenyl-phenyl ether	2.4	U	2.5	U	2.5	U	2.4	U
4-Chloro-3-methylphenol	2.4	U	2.5	U	2.5	U	2.4	U
4-Chloroaniline	2.4	U	2.5	U	2.5	U	2.4	U
4-Chlorophenyl-phenyl ether	2.4	U	2.5	U	2.5	U	2.4	U
4-Nitroaniline	2.4	U	2.5	U	2.5	U	2.4	U
4-Nitrophenol	12.2	U	12.6	U	12.4	U	12.1	U
5-Nitro-o-toluidine	2.4	U	2.5	U	2.5	U	2.4	U
7,12-Dimethylbenz(a)-anthracen	1.2	U	1.2	U	1.2	U	1.2	U
Acenaphthene	2.4	U	2.5	U	2.5	U	6.4	
Acenaphthylene	2.4	U	2.5	U	2.5	U	2.4	U
Acetophenone	4.9	U	5	U	5	U	4.8	U
Aniline	2.4	U	2.5	U	2.5	U	2.4	U
Anthracene	2.4	U	2.5	U	2.5	U	2.4	U
Aramite	2.4	U	2.5	U	2.5	U	2.4	U
a-Terpineol	2.4	U	2.5	U	2.5	U	2.4	U
Benz(a)anthracene	1.2	U	1.2	U	1.2	U	1.2	U
Benzo(a)pyrene	1.2	U	1.2	U	1.2	U	1.2	U

Sample ID	HavertownCW-27D		HavertownCW-2D		HavertownCW-2I		HavertownCW-4D	
Sample Date:	3/21/2017		3/21/2017		3/21/2017		3/22/2017	
Duplicate of:								
	Result		Result		Result		Result	
Benzo(b)fluoranthene	1.2	U	1.2	U	1.2	U	1.2	U
Benzo(g,h,i)perylene	1.2	U	1.2	U	1.2	U	1.2	U
Benzo(k)fluoranthene	1.2	U	1.2	U	1.2	U	1.2	U
Benzyl alcohol	2.4	U	2.5	U	2.5	U	2.4	U
bis(2-Chloroethoxy)methane	2.4	U	2.5	U	2.5	U	2.4	U
bis(2-Chloroethyl)ether	2.4	U	2.5	U	2.5	U	2.4	U
bis(2-Ethylhexyl)phthalate	3.8		1.2	U	1.2	U	1.5	
Butylbenzylphthalate	1.2	U	1.2	U	1.2	U	1.2	U
Chlorobenzilate	2.4	U	2.5	U	2.5	U	2.4	U
Chrysene	1.2	U	1.2	U	1.2	U	1.2	U
Diallate (Cis & Trans)	2.4	U	2.5	U	2.5	U	2.4	U
Dibenzo(a,h)anthracene	1.2	U	1.2	U	1.2	U	1.2	U
Dibenzofuran	2.4	U	2.5	U	2.5	U	3.7	
Diethylphthalate	2.4	U	2.5	U	2.5	U	2.4	U
Dimethoate	2.4	U	2.5	U	2.5	U	2.4	U
Dimethylaminoazobenzene	1.2	U	1.2	U	1.2	U	1.2	U
Dimethylphthalate	2.4	U	2.5	U	2.5	U	2.4	U
Di-n-butylphthalate	2.4	U	2.5	U	2.5	U	2.4	U
Di-n-octylphthalate	1.2	U	1.2	U	1.2	U	1.2	U
Dinoseb	2.4	U	2.5	U	2.5	U	2.4	U
Diphenylamine	4.9	U	5	U	5	U	4.8	U
Disulfoton	2.4	U	2.5	U	2.5	U	2.4	U
Ethyl methanesulfonate	2.4	U	2.5	U	2.5	U	2.4	U
Ethyl Parathion	2.4	U	2.5	U	2.5	U	2.4	U
Fluoranthene	2.4	U	2.5	U	2.5	U	2.4	U
Fluorene	4.7		2.5	U	2.5	U	9.4	
Hexachlorobenzene	2.4	U	2.5	U	2.5	U	2.4	U
Hexachlorobutadiene	2.4	U	2.5	U	2.5	U	2.4	U
Hexachlorocyclopentadiene	2.4	U	2.5	U	2.5	U	2.4	U
Hexachloroethane	2.4	U	2.5	U	2.5	U	2.4	U
Hexachloropropene	2.4	U	2.5	U	2.5	U	2.4	U
Indeno-1,2,3-cd-pyrene	1.2	U	1.2	U	1.2	U	1.2	U
Isodrin	2.4	U	2.5	U	2.5	U	2.4	U
Isophorone	2.4	U	2.5	U	2.5	U	2.4	U
Isosafrole	2.4	U	2.5	U	2.5	U	2.4	U
Methyl Methanesulfonate	2.4	U	2.5	U	2.5	U	2.4	U
Methyl Parathion	2.4	U	2.5	U	2.5	U	2.4	U
Naphthalene	2.4	U	90.5		2.5	U	2.4	U
Nitrobenzene	2.4	U	2.5	U	2.5	U	2.4	U
N-Nitrosodibutylamine	2.4	U	2.5	U	2.5	U	2.4	U
N-Nitrosodiethylamine	2.4	U	2.5	U	2.5	U	2.4	U
N-Nitrosodimethylamine	2.4	U	2.5	U	2.5	U	2.4	U
N-Nitrosodipropylamine	2.4	U	2.5	U	2.5	U	2.4	U
N-Nitrosomethylethylamine	2.4	U	2.5	U	2.5	U	2.4	U
N-Nitrosomorpholine	2.4	U	2.5	U	2.5	U	2.4	U
N-nitrosopiperidine	2.4	U	2.5	U	2.5	U	2.4	U
N-Nitrosopyrrolidine	2.4	U	2.5	U	2.5	U	2.4	U
O,O,O-Triethylphosphorothioate	2.4	U	2.5	U	2.5	U	2.4	U
o-Toluidine	2.4	U	2.5	U	2.5	U	2.4	U
Pentachlorethane	2.4	U	2.5	U	2.5	U	2.4	U
Pentachlorobenzene	2.4	U	2.5	U	2.5	U	2.4	U
Pentachloronitrobenzene	2.4	U	2.5	U	2.5	U	2.4	U

Sample ID	**HavertownCW-27D**		**HavertownCW-2D**		**HavertownCW-2I**		**HavertownCW-4D**	
Sample Date:	**3/21/2017**		**3/21/2017**		**3/21/2017**		**3/22/2017**	
Duplicate of:								
	Result		**Result**		**Result**		**Result**	
Pentachlorophenol	1310		3080		844		1640	
Phenanthrene	2.4	U	2.5	U	2.5	U	4.8	
Phenol	2.4	U	2.5	U	2.5	U	2.4	U
Phorate	2.4	U	2.5	U	2.5	U	2.4	U
Pronamide	2.4	U	2.5	U	2.5	U	2.4	U
Pyrene	1.2	U	1.2	U	1.2	U	1.2	U
Pyridine	2.4	U	2.5	U	2.5	U	2.4	U
Safrole	2.4	U	2.5	U	2.5	U	2.4	U
Sulfotep	2.4	U	2.5	U	2.5	U	2.4	U
Thionazine	2.4	U	2.5	U	2.5	U	2.4	U

Sample ID	HavertownCW-4I		HavertownHAV-05		HavertownIW-1		HavertownRW-3		HavertownRW-5	
Sample Date:	3/22/2017		3/21/2017		3/21/2017		3/22/2017		3/21/2017	
Duplicate of:										
	Result		Result		Result		Result		Result	
SEMIVOLATILES	µg/L		µg/L		µg/L		µg/L		µg/L	
1,2,4,5-Tetrachlorobenzene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
1,2,4-Trichlorobenzene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
1,2-Dichlorobenzene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
1,3-Dichlorobenzene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
1,3-Dinitrobenzene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
1,4-Dichlorobenzene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
1,4-Naphthoquinone	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
1-Chloronaphthalene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
1-Methylnaphthalene	88.6	Q	34		2.6	U	66	Q	73.6	Q
2,2'-oxybis(1-Chloropropane)	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
2,3,4,6-Tetrachlorophenol	138		21.9		38.6	Q	131		193	
2,4,5-Trichlorophenol	14.6	Q	12.5		2.6	U	9.2		13.5	Q
2,4,6-Trichlorophenol	8.3		3.3		2.6	U	7.4		6.4	
2,4-Dichlorophenol	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
2,4-Dimethylphenol	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
2,4-Dinitrophenol	12	U	13.7	U	12.8	U	12.3	U	11.9	U
2,4-Dinitrotoluene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
2,6-Dichlorophenol	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
2,6-Dinitrotoluene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
2-Acetylaminofluorene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
2-Chloronaphthalene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
2-Chlorophenol	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
2-Methylnaphthalene	2.4	U	2.7	U	2.6	U	2.5	U	3.6	
2-Methylphenol	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
2-Nitroaniline	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
2-Nitrophenol	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
2-Picoline (2-Methylpyridine)	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
3&4-Methylphenol	4.8	U	5.5	U	5.1	U	4.9	U	4.8	U
3,3'-Dichlorobenzidine	1.2	U	1.4	U	1.3	U	1.2	U	1.2	U
3-Methylcholanthrene	1.2	U	1.4	U	1.3	U	1.2	U	1.2	U
3-Nitroaniline	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
4,6-Dinitro-2-methylphenol	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
4-Aminobiphenyl	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
4-Bromophenyl-phenyl ether	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
4-Chloro-3-methylphenol	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
4-Chloroaniline	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
4-Chlorophenyl-phenyl ether	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
4-Nitroaniline	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
4-Nitrophenol	12	U	13.7	U	12.8	U	12.3	U	11.9	U
5-Nitro-o-toluidine	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
7,12-Dimethylbenz(a)-anthracen	1.2	U	1.4	U	1.3	U	1.2	U	1.2	U
Acenaphthene	6.1		4.3		2.6	U	5.5		5	
Acenaphthylene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Acetophenone	4.8	U	5.5	U	5.1	U	4.9	U	4.8	U
Aniline	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Anthracene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Aramite	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
a-Terpineol	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Benz(a)anthracene	1.2	U	1.4	U	1.3	U	1.2	U	1.2	U
Benzo(a)pyrene	1.2	U	1.4	U	1.3	U	1.2	U	1.2	U

Sample ID	HavertownCW-4I		HavertownHAV-05		HavertownIW-1		HavertownRW-3		HavertownRW-5	
Sample Date:	3/22/2017		3/21/2017		3/21/2017		3/22/2017		3/21/2017	
Duplicate of:										
	Result		Result		Result		Result		Result	
Benzo(b)fluoranthene	1.2	U	1.4	U	1.3	U	1.2	U	1.2	U
Benzo(g,h,i)perylene	1.2	U	1.4	U	1.3	U	1.2	U	1.2	U
Benzo(k)fluoranthene	1.2	U	1.4	U	1.3	U	1.2	U	1.2	U
Benzyl alcohol	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
bis(2-Chloroethoxy)methane	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
bis(2-Chloroethyl)ether	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
bis(2-Ethylhexyl)phthalate	1.8		1.4		1.3	U	3.2		1.3	
Butylbenzylphthalate	1.2	U	1.4	U	1.3	U	1.2	U	1.2	U
Chlorobenzilate	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Chrysene	1.2	U	1.4	U	1.3	U	1.2	U	1.2	U
Diallate (Cis & Trans)	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Dibenzo(a,h)anthracene	1.2	U	1.4	U	1.3	U	1.2	U	1.2	U
Dibenzofuran	4.9		2.7	U	2.6	U	3.4		5.6	
Diethylphthalate	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Dimethoate	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Dimethylaminoazobenzene	1.2	U	1.4	U	1.3	U	1.2	U	1.2	U
Dimethylphthalate	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Di-n-butylphthalate	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Di-n-octylphthalate	1.2	U	1.4	U	1.3	U	1.2	U	1.2	U
Dinoseb	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Diphenylamine	4.8	U	5.5	U	5.1	U	4.9	U	4.8	U
Disulfoton	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Ethyl methanesulfonate	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Ethyl Parathion	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Fluoranthene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Fluorene	11.8	Q	6.2		2.6	U	9.8		13.4	Q
Hexachlorobenzene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Hexachlorobutadiene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Hexachlorocyclopentadiene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Hexachloroethane	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Hexachloropropene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Indeno-1,2,3-cd-pyrene	1.2	U	1.4	U	1.3	U	1.2	U	1.2	U
Isodrin	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Isophorone	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Isosafrole	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Methyl Methanesulfonate	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Methyl Parathion	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Naphthalene	2.4	U	7.4		2.6	U	2.5	U	38.4	Q
Nitrobenzene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
N-Nitrosodibutylamine	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
N-Nitrosodiethylamine	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
N-Nitrosodimethylamine	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
N-Nitrosodipropylamine	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
N-Nitrosomethylethylamine	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
N-Nitrosomorpholine	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
N-nitrosopiperidine	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
N-Nitrosopyrrolidine	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
O,O,O-Triethylphosphorothioate	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
o-Toluidine	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Pentachlorethane	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Pentachlorobenzene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Pentachloronitrobenzene	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U

Sample ID	**HavertownCW-4I**		**HavertownHAV-05**		**HavertownIW-1**		**HavertownRW-3**		**HavertownRW-5**	
Sample Date:	**3/22/2017**		**3/21/2017**		**3/21/2017**		**3/22/2017**		**3/21/2017**	
Duplicate of:										
	Result		**Result**		**Result**		**Result**		**Result**	
Pentachlorophenol	2050		502		970		2290		2210	
Phenanthrene	7		2.7	U	2.6	U	7.4		14.4	Q
Phenol	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Phorate	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Pronamide	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Pyrene	1.2	U	1.4	U	1.3	U	1.2	U	1.2	U
Pyridine	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Safrole	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Sulfotep	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U
Thionazine	2.4	U	2.7	U	2.6	U	2.5	U	2.4	U

Sample ID	HavertownRW-5X		HavertownRW-7		HavertownFB-03	
Sample Date:	3/22/2017		3/22/2017		3/22/2017	
Duplicate of:	HavertownRW-5					
	Result		Result		Result	
SEMIVOLATILES	µg/L		µg/L		µg/L	
1,2,4,5-Tetrachlorobenzene	2.4	U	2.5	U	2.4	U
1,2,4-Trichlorobenzene	2.4	U	2.5	U	2.4	U
1,2-Dichlorobenzene	2.4	U	2.5	U	2.4	U
1,3-Dichlorobenzene	2.4	U	2.5	U	2.4	U
1,3-Dinitrobenzene	2.4	U	2.5	U	2.4	U
1,4-Dichlorobenzene	2.4	U	2.5	U	2.4	U
1,4-Naphthoquinone	2.4	U	2.5	U	2.4	U
1-Chloronaphthalene	2.4	U	2.5	U	2.4	U
1-Methylnaphthalene	80.3	Q	27.8		2.4	U
2,2'-oxybis(1-Chloropropane)	2.4	U	2.5	U	2.4	U
2,3,4,6-Tetrachlorophenol	200		73.3		2.4	U
2,4,5-Trichlorophenol	13.2	Q	19.1		2.4	U
2,4,6-Trichlorophenol	6.7		6.5		2.4	U
2,4-Dichlorophenol	2.5		2.5	U	2.4	U
2,4-Dimethylphenol	2.4	U	2.5	U	2.4	U
2,4-Dinitrophenol	11.8	U	12.3	U	12.2	U
2,4-Dinitrotoluene	2.4	U	2.5	U	2.4	U
2,6-Dichlorophenol	2.4	U	2.5	U	2.4	U
2,6-Dinitrotoluene	2.4	U	2.5	U	2.4	U
2-Acetylaminofluorene	2.4	U	2.5	U	2.4	U
2-Chloronaphthalene	2.4	U	2.5	U	2.4	U
2-Chlorophenol	2.4	U	2.5	U	2.4	U
2-Methylnaphthalene	3.9		2.5	U	2.4	U
2-Methylphenol	2.4	U	2.5	U	2.4	U
2-Nitroaniline	2.4	U	2.5	U	2.4	U
2-Nitrophenol	2.4	U	2.5	U	2.4	U
2-Picoline (2-Methylpyridine)	2.4	U	2.5	U	2.4	U
3&4-Methylphenol	4.7	U	4.9	U	4.9	U
3,3'-Dichlorobenzidine	1.2	U	1.2	U	1.2	U
3-Methylcholanthrene	1.2	U	1.2	U	1.2	U
3-Nitroaniline	2.4	U	2.5	U	2.4	U
4,6-Dinitro-2-methylphenol	2.4	U	2.5	U	2.4	U
4-Aminobiphenyl	2.4	U	2.5	U	2.4	U
4-Bromophenyl-phenyl ether	2.4	U	2.5	U	2.4	U
4-Chloro-3-methylphenol	2.4	U	2.5	U	2.4	U
4-Chloroaniline	2.4	U	2.5	U	2.4	U
4-Chlorophenyl-phenyl ether	2.4	U	2.5	U	2.4	U
4-Nitroaniline	2.4	U	2.5	U	2.4	U
4-Nitrophenol	11.8	U	12.3	U	12.2	U
5-Nitro-o-toluidine	2.4	U	2.5	U	2.4	U
7,12-Dimethylbenz(a)-anthracen	1.2	U	1.2	U	1.2	U
Acenaphthene	5.3		2.5	U	2.4	U
Acenaphthylene	2.4	U	2.5	U	2.4	U
Acetophenone	4.7	U	4.9	U	4.9	U
Aniline	2.4	U	2.5	U	2.4	U
Anthracene	2.4	U	2.5	U	2.4	U
Aramite	2.4	U	2.5	U	2.4	U
a-Terpineol	2.4	U	2.5	U	2.4	U
Benz(a)anthracene	1.2	U	1.2	U	1.2	U
Benzo(a)pyrene	1.2	U	1.2	U	1.2	U

Sample ID	HavertownRW-5X		HavertownRW-7		HavertownFB-03	
Sample Date:	3/22/2017		3/22/2017		3/22/2017	
Duplicate of:	HavertownRW-5					
	Result		Result		Result	
Benzo(b)fluoranthene	1.2	U	1.2	U	1.2	U
Benzo(g,h,i)perylene	1.2	U	1.2	U	1.2	U
Benzo(k)fluoranthene	1.2	U	1.2	U	1.2	U
Benzyl alcohol	2.4	U	2.5	U	2.4	U
bis(2-Chloroethoxy)methane	2.4	U	2.5	U	2.4	U
bis(2-Chloroethyl)ether	2.4	U	2.5	U	2.4	U
bis(2-Ethylhexyl)phthalate	1.8		7.4		1.2	U
Butylbenzylphthalate	1.2	U	1.2	U	1.2	U
Chlorobenzilate	2.4	U	2.5	U	2.4	U
Chrysene	1.2	U	1.2	U	1.2	U
Diallate (Cis & Trans)	2.4	U	2.5	U	2.4	U
Dibenzo(a,h)anthracene	1.2	U	1.2	U	1.2	U
Dibenzofuran	5.7		4.3		2.4	U
Diethylphthalate	2.4	U	2.5	U	2.4	U
Dimethoate	2.4	U	2.5	U	2.4	U
Dimethylaminoazobenzene	1.2	U	1.2	U	1.2	U
Dimethylphthalate	2.4	U	2.5	U	2.4	U
Di-n-butylphthalate	2.4	U	2.5	U	2.4	U
Di-n-octylphthalate	1.2	U	2		1.2	U
Dinoseb	2.4	U	2.5	U	2.4	U
Diphenylamine	4.7	U	4.9	U	4.9	U
Disulfoton	2.4	U	2.5	U	2.4	U
Ethyl methanesulfonate	2.4	U	2.5	U	2.4	U
Ethyl Parathion	2.4	U	2.5	U	2.4	U
Fluoranthene	2.4	U	2.5	U	2.4	U
Fluorene	13.6	Q	11.9		2.4	U
Hexachlorobenzene	2.4	U	2.5	U	2.4	U
Hexachlorobutadiene	2.4	U	2.5	U	2.4	U
Hexachlorocyclopentadiene	2.4	U	2.5	U	2.4	U
Hexachloroethane	2.4	U	2.5	U	2.4	U
Hexachloropropene	2.4	U	2.5	U	2.4	U
Indeno-1,2,3-cd-pyrene	1.2	U	1.2	U	1.2	U
Isodrin	2.4	U	2.5	U	2.4	U
Isophorone	2.4	U	2.5	U	2.4	U
Isosafrole	2.4	U	2.5	U	2.4	U
Methyl Methanesulfonate	2.4	U	2.5	U	2.4	U
Methyl Parathion	2.4	U	2.5	U	2.4	U
Naphthalene	38.6	Q	4.9		2.4	U
Nitrobenzene	2.4	U	2.5	U	2.4	U
N-Nitrosodibutylamine	2.4	U	2.5	U	2.4	U
N-Nitrosodiethylamine	2.4	U	2.5	U	2.4	U
N-Nitrosodimethylamine	2.4	U	2.5	U	2.4	U
N-Nitrosodipropylamine	2.4	U	2.5	U	2.4	U
N-Nitrosomethylethylamine	2.4	U	2.5	U	2.4	U
N-Nitrosomorpholine	2.4	U	2.5	U	2.4	U
N-nitrosopiperidine	2.4	U	2.5	U	2.4	U
N-Nitrosopyrrolidine	2.4	U	2.5	U	2.4	U
O,O,O-Triethylphosphorothioate	2.4	U	2.5	U	2.4	U
o-Toluidine	2.4	U	2.5	U	2.4	U
Pentachlorethane	2.4	U	2.5	U	2.4	U
Pentachlorobenzene	2.4	U	2.5	U	2.4	U
Pentachloronitrobenzene	2.4	U	2.5	U	2.4	U

Sample ID	**HavertownRW-5X**		**HavertownRW-7**		**HavertownFB-03**	
Sample Date:	**3/22/2017**		**3/22/2017**		**3/22/2017**	
Duplicate of:	**HavertownRW-5**					
	Result		**Result**		**Result**	
Pentachlorophenol	2320		1700		4.9	U
Phenanthrene	15.2	Q	9		2.4	U
Phenol	2.4	U	2.5	U	2.4	U
Phorate	2.4	U	2.5	U	2.4	U
Pronamide	2.4	U	2.5	U	2.4	U
Pyrene	1.2	U	1.2	U	1.2	U
Pyridine	2.4	U	2.5	U	2.4	U
Safrole	2.4	U	2.5	U	2.4	U
Sulfotep	2.4	U	2.5	U	2.4	U
Thionazine	2.4	U	2.5	U	2.4	U

A-5 JUNE 2017 GROUNDWATER DATA

ANALYTICAL DATA
JUNE 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

		ROS AREA WELLS																	
Sample ID:	**Remediation**	**HAV-LTR-RW8**		**HAV-LTR-DUP01**		**HAV-LTR-RW9**		**HAV-LTR-RW10**		**HAV-LTR-CW32**		**HAV-LTR-CW33**		**HAV-LTR-CW34**		**HAV-LTR-CW12D**	
Sample Date:	**Goals for**	**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/13/2017**	
Duplicate of:	**Groundwater**			**HAV-LTR-RW8**															
		Result		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**	
VOLATILES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Acetone		3.1	J	3	J	5	U	5	U	NA		NA		NA		5	U
Benzene	5	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Bromochloromethane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Bromodichloromethane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Bromoform		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Bromomethane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
2-Butanone		5	U	5	U	5	U	5	U	NA		NA		NA		5	U
Carbon Disulfide		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
Carbon Tetrachloride		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Chlorobenzene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Chloroethane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Chloroform		0.1	J	0.1	J	0.5	U	0.5	0.2	NA		NA		NA		0.5	U
Chloromethane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Cyclohexane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
1,2-Dibromo-3-chloropropane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Dibromochloromethane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
1,2-Dibromoethane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
1,2-Dichlorobenzene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
1,3-Dichlorobenzene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
1,4-Dichlorobenzene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Dichlorodifluoromethane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
1,1-Dichloroethane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
1,2-Dichloroethane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
1,1-Dichloroethene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
cis-1,2-Dichloroethene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		2.7	
trans-1,2-Dichloroethene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
1,2-Dichloropropane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
cis-1,3-Dichloropropene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
trans-1,3-Dichloropropene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Ethylbenzene	700	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Freon 113		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
2-Hexanone		5	U	5	U	5	U	5	U	NA		NA		NA		5	U
Isopropylbenzene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U

ANALYTICAL DATA
JUNE 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

		ROS AREA WELLS																	
Sample ID:	**Remediation**	**HAV-LTR-RW8**		**HAV-LTR-DUP01**		**HAV-LTR-RW9**		**HAV-LTR-RW10**		**HAV-LTR-CW32**		**HAV-LTR-CW33**		**HAV-LTR-CW34**		**HAV-LTR-CW12D**	
Sample Date:	**Goals for**	**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/13/2017**	
Duplicate of:	**Groundwater**			**HAV-LTR-RW8**															
		Result		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**	
Methyl Acetate		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
Methyl Tertiary Butyl Ether		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.1	J
4-Methyl-2-pentanone		5	U	5	U	5	U	5	U	NA		NA		NA		5	U
Methylcyclohexane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Methylene Chloride		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Styrene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
1,1,2,2-Tetrachloroethane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Tetrachloroethene		0.2	J	0.2	J	0.5	U	0.5	U	NA		NA		NA		0.5	U
Toluene	1000	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
1,2,3-Trichlorobenzene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
1,2,4-Trichlorobenzene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
1,1,1-Trichloroethane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
1,1,2-Trichloroethane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Trichloroethene	5	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.2	J
Trichlorofluoromethane		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
1,2,4-Trimethylbenzene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
1,3,5-Trimethylbenzene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Vinyl Chloride	5	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
m+p-Xylene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
o-Xylene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
SEMIVOLATILES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Acenaphthene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Acenaphthylene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Acetophenone		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
Anthracene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Atrazine		5	U	5	U	5	U	5	U	NA		NA		NA		5	U
Benzaldehyde		5	U	5	U	5	U	5	U	NA		NA		NA		5	U
Benzo(a)anthracene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Benzo(a)pyrene	0.2	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Benzo(b)fluoranthene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Benzo(g,h,i)perylene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Benzo(k)fluoranthene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
1,1'-Biphenyl		1	U	1	U	1	U	1	U	NA		NA		NA		1	U

ANALYTICAL DATA
JUNE 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

		ROS AREA WELLS																	
Sample ID:	**Remediation**	**HAV-LTR-RW8**		**HAV-LTR-DUP01**		**HAV-LTR-RW9**		**HAV-LTR-RW10**		**HAV-LTR-CW32**		**HAV-LTR-CW33**		**HAV-LTR-CW34**		**HAV-LTR-CW12D**	
Sample Date:	**Goals for**	**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/13/2017**	
Duplicate of:	**Groundwater**			**HAV-LTR-RW8**															
		Result		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**	
4-Bromophenyl-phenylether		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
Butylbenzylphthalate		5	U	5	U	5	U	5	U	NA		NA		NA		5	U
Di-n-butylphthalate		5	U	5	U	5	U	5	U	NA		NA		NA		5	U
Caprolactam		15	U	16	U	15	U	15	U	NA		NA		NA		15	U
Carbazole		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
4-Chloro-3-methylphenol		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
4-Chloroaniline		4	U	4	U	4	U	4	U	NA		NA		NA		4	U
bis(2-Chloroethoxy)methane		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
bis(2-Chloroethyl)ether		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
2-Chloronaphthalene		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
2-Chlorophenol		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
4-Chlorophenyl-phenylether		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
2,2'-oxybis(1-Chloropropane)		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
Chrysene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Dibenz(a,h)anthracene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Dibenzofuran	4	1	U	1	U	1	U	1	U	NA		NA		NA		1	U
3,3'-Dichlorobenzidine		5	U	5	U	5	U	5	U	NA		NA		NA		5	U
2,4-Dichlorophenol		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
Diethylphthalate		5	U	5	U	5	U	5	U	NA		NA		NA		5	U
2,4-Dimethylphenol		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
Dimethylphthalate		5	U	5	U	5	U	5	U	NA		NA		NA		5	U
4,6-Dinitro-2-methylphenol	1.7	15	U	16	U	15	U	15	U	NA		NA		NA		15	U
2,4-Dinitrophenol		30	U	32	U	30	U	31	U	NA		NA		NA		31	U
2,4-Dinitrotoluene		5	U	5	U	5	U	5	U	NA		NA		NA		5	U
2,6-Dinitrotoluene		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
bis(2-Ethylhexyl)phthalate	6	5	U	5	U	5	U	5	U	NA		NA		NA		5	U
Fluoranthene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Fluorene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Hexachlorobenzene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Hexachlorobutadiene		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
Hexachlorocyclopentadiene		15	U	16	U	15	U	15	U	NA		NA		NA		15	U
Hexachloroethane		5	U	5	U	5	U	5	U	NA		NA		NA		5	U
Indeno(1,2,3-cd)pyrene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Isophorone		1	U	1	U	1	U	1	U	NA		NA		NA		1	U

ANALYTICAL DATA
JUNE 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

		ROS AREA WELLS																	
Sample ID:	**Remediation**	**HAV-LTR-RW8**		**HAV-LTR-DUP01**		**HAV-LTR-RW9**		**HAV-LTR-RW10**		**HAV-LTR-CW32**		**HAV-LTR-CW33**		**HAV-LTR-CW34**		**HAV-LTR-CW12D**	
Sample Date:	**Goals for**	**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/14/2017**		**6/13/2017**	
Duplicate of:	**Groundwater**			**HAV-LTR-RW8**															
		Result		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**	
2-Methylnaphthalene	2	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
2-Methylphenol		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
4-Methylphenol		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
Naphthalene	3	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
2-Nitroaniline		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
3-Nitroaniline		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
4-Nitroaniline		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
Nitrobenzene		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
2-Nitrophenol		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
4-Nitrophenol		30	U	32	U	30	U	31	U	NA		NA		NA		31	U
N-Nitroso-di-n-propylamine		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
N-Nitrosodiphenylamine		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
Di-n-octylphthalate		5	U	5	U	5	U	5	U	NA		NA		NA		5	U
Pentachlorophenol	1	5	U	5	U	5	U	5	U	NA		NA		NA		5	U
Phenanthrene	41	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
Phenol		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
Pyrene		0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA		0.5	U
1,2,4,5-Tetrachlorobenzene		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
2,3,4,6-Tetrachlorophenol		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
2,4,5-Trichlorophenol		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
2,4,6-Trichlorophenol		1	U	1	U	1	U	1	U	NA		NA		NA		1	U
HERBICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Pentachlorophenol	1	0.034	J	NA		0.14		0.048	J	NA		NA		NA		NA	
PESTICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Dieldrin	0.038	**0.29**		**0.31**		**0.24**		**0.29**		**0.66**		**0.47**		**0.25**		NA	

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation Limit
5.5 - Exceeds Remediation Goal for GW

ANALYTICAL DATA
JUNE 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

		OTHER SITE WELLS																	
Sample ID:	**Remediation**	**HAV-LTR-CW13D**		**HAV-LTR-CW22S**		**HAV-LTR-CW22D**		**HAV-LTR-MW1**		**HAV-LTR-MW2**		**HAV-LTR-RW5**		**HAV-LTR-RW7**		**HAV-LTR-NW1-81**	
Sample Date:	**Goals for**	**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**	
Duplicate of:	**Groundwater**																
		Result		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**	
VOLATILES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Acetone		5	U	5	U	5	U	5	U	5	U	NA		NA		NA	
Benzene	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Bromochloromethane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Bromodichloromethane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Bromoform		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Bromomethane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
2-Butanone		5	U	5	U	5	U	5	U	5	U	NA		NA		NA	
Carbon Disulfide		1	U	1	U	1	U	1	U	1	U	NA		NA		NA	
Carbon Tetrachloride		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Chlorobenzene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Chloroethane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Chloroform		0.6		0.3	J	0.4	J	0.6		0.5	U	NA		NA		NA	
Chloromethane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Cyclohexane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,2-Dibromo-3-chloropropane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Dibromochloromethane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,2-Dibromoethane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,2-Dichlorobenzene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,3-Dichlorobenzene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,4-Dichlorobenzene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Dichlorodifluoromethane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,1-Dichloroethane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,2-Dichloroethane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,1-Dichloroethene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
cis-1,2-Dichloroethene		9.8		0.5	U	0.5	U	0.1	J	0.5	U	NA		NA		NA	
trans-1,2-Dichloroethene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,2-Dichloropropane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
cis-1,3-Dichloropropene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
trans-1,3-Dichloropropene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Ethylbenzene	700	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Freon 113		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
2-Hexanone		5	U	5	U	5	U	5	U	5	U	NA		NA		NA	
Isopropylbenzene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	

ANALYTICAL DATA
JUNE 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

		OTHER SITE WELLS																			
Sample ID:	**Remediation**	**HAV-LTR-CW13D**		**HAV-LTR-CW22S**		**HAV-LTR-CW22D**		**HAV-LTR-MW1**		**HAV-LTR-MW2**		**HAV-LTR-RW5**		**HAV-LTR-RW7**		**HAV-LTR-NW1-81**	
Sample Date:	**Goals for**	**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**	
Duplicate of:	**Groundwater**																
		Result		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**	
Methyl Acetate		1	U	1	U	1	U	1	U	1	U	NA		NA		NA	
Methyl Tertiary Butyl Ether		0.5	U	0.3	J	0.5	U	0.5	U	0.5	U	NA		NA		NA	
4-Methyl-2-pentanone		5	U	5	U	5	U	5	U	5	U	NA		NA		NA	
Methylcyclohexane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Methylene Chloride		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Styrene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,1,2,2-Tetrachloroethane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Tetrachloroethene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Toluene	1000	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,2,3-Trichlorobenzene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,2,4-Trichlorobenzene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,1,1-Trichloroethane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,1,2-Trichloroethane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Trichloroethene	5	5.1		0.5	U	0.5	U	0.1	J	0.5	U	NA		NA		NA	
Trichlorofluoromethane		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,2,4-Trimethylbenzene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,3,5-Trimethylbenzene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Vinyl Chloride	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
m+p-Xylene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
o-Xylene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
SEMIVOLATILES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Acenaphthene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Acenaphthylene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Acetophenone		1	U	1	U	1	U	1	U	1	U	NA		NA		NA	
Anthracene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Atrazine		5	U	5	U	5	U	5	U	5	U	NA		NA		NA	
Benzaldehyde		5	U	5	U	5	U	5	U	5	U	NA		NA		NA	
Benzo(a)anthracene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Benzo(a)pyrene	0.2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Benzo(b)fluoranthene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Benzo(g,h,i)perylene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Benzo(k)fluoranthene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,1'-Biphenyl		1	U	1	U	1	U	1	U	1	U	NA		NA		NA	

ANALYTICAL DATA
JUNE 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

		OTHER SITE WELLS																			
Sample ID:	**Remediation**	**HAV-LTR-CW13D**		**HAV-LTR-CW22S**		**HAV-LTR-CW22D**		**HAV-LTR-MW1**		**HAV-LTR-MW2**		**HAV-LTR-RW5**		**HAV-LTR-RW7**		**HAV-LTR-NW1-81**			
Sample Date:	**Goals for**	**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**			
Duplicate of:	**Groundwater**																		
		Result		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**			
4-Bromophenyl-phenylether		1	U	1	U	1	U	1	U	1	U	NA		NA		NA			
Butylbenzylphthalate		5	U	5	U	5	U	5	U	5	U	NA		NA		NA			
Di-n-butylphthalate		5	U	5	U	5	U	5	U	5	U	NA		NA		NA			
Caprolactam		16	U	15	U	15	U	16	U	15	U	NA		NA		NA			
Carbazole		1	U	1	U	1	U	1	U	1	U	NA		NA		NA			
4-Chloro-3-methylphenol		1	U	1	U	1	U	1	U	1	U	NA		NA		NA			
4-Chloroaniline		4	U	4	U	4	U	4	U	4	U	NA		NA		NA			
bis(2-Chloroethoxy)methane		1	U	1	U	1	U	1	U	1	U	NA		NA		NA			
bis(2-Chloroethyl)ether		1	U	1	U	1	U	1	U	1	U	NA		NA		NA			
2-Chloronaphthalene		1	U	1	U	1	U	1	U	1	U	NA		NA		NA			
2-Chlorophenol		1	U	1	U	1	U	1	U	1	U	NA		NA		NA			
4-Chlorophenyl-phenylether		1	U	1	U	1	U	1	U	1	U	NA		NA		NA			
2,2'-oxybis(1-Chloropropane)		1	U	1	U	1	U	1	U	1	U	NA		NA		NA			
Chrysene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA			
Dibenz(a,h)anthracene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA			
Dibenzofuran	4	1	U	1	U	1	U	1	U	1	U	NA		NA		NA			
3,3'-Dichlorobenzidine		5	U	5	U	5	U	5	U	5	U	NA		NA		NA			
2,4-Dichlorophenol		1	U	1	U	1	U	1	U	1	U	NA		NA		NA			
Diethylphthalate		5	U	5	U	5	U	5	U	5	U	NA		NA		NA			
2,4-Dimethylphenol		1	U	1	U	1	U	1	U	1	U	NA		NA		NA			
Dimethylphthalate		5	U	5	U	5	U	5	U	5	U	NA		NA		NA			
4,6-Dinitro-2-methylphenol	1.7	16	U	15	U	15	U	16	U	15	U	NA		NA		NA			
2,4-Dinitrophenol		32	U	31	U	31	U	31	U	31	U	NA		NA		NA			
2,4-Dinitrotoluene		5	U	5	U	5	U	5	U	5	U	NA		NA		NA			
2,6-Dinitrotoluene		1	U	1	U	1	U	1	U	1	U	NA		NA		NA			
bis(2-Ethylhexyl)phthalate	6	5	U	5	U	5	U	5	U	5	U	NA		NA		NA			
Fluoranthene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA			
Fluorene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA			
Hexachlorobenzene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA			
Hexachlorobutadiene		1	U	1	U	1	U	1	U	1	U	NA		NA		NA			
Hexachlorocyclopentadiene		16	U	15	U	15	U	16	U	15	U	NA		NA		NA			
Hexachloroethane		5	U	5	U	5	U	5	U	5	U	NA		NA		NA			
Indeno(1,2,3-cd)pyrene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA			
Isophorone		1	U	1	U	1	U	1	U	1	U	NA		NA		NA			

ANALYTICAL DATA
JUNE 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

		OTHER SITE WELLS																			
Sample ID:	**Remediation**	**HAV-LTR-CW13D**		**HAV-LTR-CW22S**		**HAV-LTR-CW22D**		**HAV-LTR-MW1**		**HAV-LTR-MW2**		**HAV-LTR-RW5**		**HAV-LTR-RW7**		**HAV-LTR-NW1-81**	
Sample Date:	**Goals for**	**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**	
Duplicate of:	**Groundwater**																
		Result		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**		**Result**	
2-Methylnaphthalene	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
2-Methylphenol		1	U	1	U	1	U	1	U	1	U	NA		NA		NA	
4-Methylphenol		1	U	1	U	1	U	1	U	1	U	NA		NA		NA	
Naphthalene	3	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
2-Nitroaniline		1	U	1	U	1	U	1	U	1	U	NA		NA		NA	
3-Nitroaniline		1	U	1	U	1	U	1	U	1	U	NA		NA		NA	
4-Nitroaniline		1	U	1	U	1	U	1	U	1	U	NA		NA		NA	
Nitrobenzene		1	U	1	U	1	U	1	U	1	U	NA		NA		NA	
2-Nitrophenol		1	U	1	U	1	U	1	U	1	U	NA		NA		NA	
4-Nitrophenol		32	U	31	U	31	U	31	U	31	U	NA		NA		NA	
N-Nitroso-di-n-propylamine		1	U	1	U	1	U	1	U	1	U	NA		NA		NA	
N-Nitrosodiphenylamine		1	U	1	U	1	U	1	U	1	U	NA		NA		NA	
Di-n-octylphthalate		5	U	5	U	5	U	5	U	5	U	NA		NA		NA	
Pentachlorophenol	1	5	U	5	U	5	U	5	U	5	U	NA		NA		NA	
Phenanthrene	41	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
Phenol		1	U	1	U	1	U	1	U	1	U	NA		NA		NA	
Pyrene		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		NA		NA	
1,2,4,5-Tetrachlorobenzene		1	U	1	U	1	U	1	U	1	U	NA		NA		NA	
2,3,4,6-Tetrachlorophenol		1	U	1	U	1	U	1	U	1	U	NA		NA		NA	
2,4,5-Trichlorophenol		1	U	1	U	1	U	1	U	1	U	NA		NA		NA	
2,4,6-Trichlorophenol		1	U	1	U	1	U	1	U	1	U	NA		NA		NA	
HERBICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Pentachlorophenol	1	NA		NA		NA		NA		NA		NA		NA		NA	
PESTICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Dieldrin	0.038	NA		**0.17**		NA		NA		NA		0.022		0.012	J	0.016	U

NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation L
5.5 - Exceeds Remediation Goal for GW

ANALYTICAL DATA
JUNE 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

										FIELD QC			
Sample ID:	**Remediation**	**HAV-LTR-CW27D**		**HAV-LTR-CW1S**		**HAV-LTR-HAV04**		**HAV-LTR-HAV05**		**HAV-LTR-TB01**		**HAV-LTR-FB01**	
Sample Date:	**Goals for**	**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/14/2017**	
Duplicate of:	**Groundwater**												
		Result		**Result**		**Result**		**Result**		**Result**		**Result**	
VOLATILES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Acetone		NA		NA		27		4.6	J	5	U	5	U
Benzene	5	NA		NA		1.8		1.3		0.5	U	0.5	U
Bromochloromethane		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
Bromoform		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
Bromomethane		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
2-Butanone		NA		NA		2.8	J	1.4	J	5	U	5	U
Carbon Disulfide		NA		NA		1	U	1	U	1	U	1	U
Carbon Tetrachloride		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
Chloroethane		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
Chloroform		NA		NA		0.2	J	0.5	U	0.5	U	0.5	U
Chloromethane		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
Cyclohexane		NA		NA		0.2	J	0.1	J	0.5	U	0.5	U
1,2-Dibromo-3-chloropropane		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
Dibromochloromethane		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dibromoethane		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichlorobenzene		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichlorobenzene		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
1,4-Dichlorobenzene		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
Dichlorodifluoromethane		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethane		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene		NA		NA		0.2	J	0.1	J	0.5	U	0.5	U
trans-1,2-Dichloroethene		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	700	NA		NA		2.4		6.7		0.5	U	0.5	U
Freon 113		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
2-Hexanone		NA		NA		5	U	5	U	5	U	5	U
Isopropylbenzene		NA		NA		2.6		3.9		0.5	U	0.5	U

ANALYTICAL DATA
JUNE 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

										FIELD QC			
Sample ID:	**Remediation**	**HAV-LTR-CW27D**		**HAV-LTR-CW1S**		**HAV-LTR-HAV04**		**HAV-LTR-HAV05**		**HAV-LTR-TB01**		**HAV-LTR-FB01**	
Sample Date:	**Goals for**	**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/14/2017**	
Duplicate of:	**Groundwater**												
		Result		**Result**		**Result**		**Result**		**Result**		**Result**	
Methyl Acetate		NA		NA		1	U	1	U	1	U	1	U
Methyl Tertiary Butyl Ether		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
4-Methyl-2-pentanone		NA		NA		5	U	5	U	5	U	5	U
Methylcyclohexane		NA		NA		0.4	J	0.5	J3	0.5	U	0.5	U
Methylene Chloride		NA		NA		0.3	J	0.5	U	0.5	U	0.3	J
Styrene		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-Tetrachloroethane		NA		NA		0.4	J	0.5	U	0.5	U	0.5	U
Tetrachloroethene		NA		NA		0.2	J	0.5	U	0.5	U	0.5	U
Toluene	1000	NA		NA		0.3	J	0.1	J	0.5	U	0.5	U
1,2,3-Trichlorobenzene		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trichlorobenzene		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
1,1,1-Trichloroethane		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	5	NA		NA		1.7		0.5	J	0.5	U	0.5	U
Trichlorofluoromethane		NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trimethylbenzene		NA		NA		49		20		0.5	U	0.5	U
1,3,5-Trimethylbenzene		NA		NA		1.3		2.4		0.5	U	0.5	U
Vinyl Chloride	5	NA		NA		0.5	U	0.5	U	0.5	U	0.5	U
m+p-Xylene		NA		NA		5.1		1.6		0.5	U	0.5	U
o-Xylene		NA		NA		18		15		0.5	U	0.5	U
SEMIVOLATILES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Acenaphthene		NA		NA		3		2		NA		0.5	U
Acenaphthylene		NA		NA		0.5	U	0.5	U	NA		0.5	U
Acetophenone		NA		NA		8		1	U	NA		1	U
Anthracene		NA		NA		4		0.5	U	NA		0.5	U
Atrazine		NA		NA		5	U	5	U	NA		5	U
Benzaldehyde		NA		NA		5	U	5	U	NA		5	U
Benzo(a)anthracene		NA		NA		0.4	J	0.5	U	NA		0.5	U
Benzo(a)pyrene	0.2	NA		NA		**0.2**	J	0.5	U	NA		0.5	U
Benzo(b)fluoranthene		NA		NA		0.2	J	0.5	U	NA		0.5	U
Benzo(g,h,i)perylene		NA		NA		0.5	U	0.5	U	NA		0.5	U
Benzo(k)fluoranthene		NA		NA		0.5	U	0.5	U	NA		0.5	U
1,1'-Biphenyl		NA		NA		1	U	1	U	NA		1	U

ANALYTICAL DATA
JUNE 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

										FIELD QC			
Sample ID:	**Remediation**	**HAV-LTR-CW27D**		**HAV-LTR-CW1S**		**HAV-LTR-HAV04**		**HAV-LTR-HAV05**		**HAV-LTR-TB01**		**HAV-LTR-FB01**	
Sample Date:	**Goals for**	**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/14/2017**	
Duplicate of:	**Groundwater**												
		Result		**Result**		**Result**		**Result**		**Result**		**Result**	
4-Bromophenyl-phenylether		NA		NA		1	U	1	U	NA		1	U
Butylbenzylphthalate		NA		NA		5	U	5	U	NA		5	U
Di-n-butylphthalate		NA		NA		5	U	5	U	NA		5	U
Caprolactam		NA		NA		16	U	16	U	NA		16	U
Carbazole		NA		NA		1	U	1	U	NA		1	U
4-Chloro-3-methylphenol		NA		NA		1	U	1	U	NA		1	U
4-Chloroaniline		NA		NA		4	U	4	U	NA		4	U
bis(2-Chloroethoxy)methane		NA		NA		1	U	1	U	NA		1	U
bis(2-Chloroethyl)ether		NA		NA		1	U	1	U	NA		1	U
2-Chloronaphthalene		NA		NA		1	U	1	U	NA		1	U
2-Chlorophenol		NA		NA		1	U	1	U	NA		1	U
4-Chlorophenyl-phenylether		NA		NA		1	U	1	U	NA		1	U
2,2'-oxybis(1-Chloropropane)		NA		NA		1	U	1	U	NA		1	U
Chrysene		NA		NA		0.7		0.5	U	NA		0.5	U
Dibenz(a,h)anthracene		NA		NA		0.5	U	0.5	U	NA		0.5	U
Dibenzofuran	4	NA		NA		0.9	J	0.7	J	NA		1	U
3,3'-Dichlorobenzidine		NA		NA		5	U	5	U	NA		5	U
2,4-Dichlorophenol		NA		NA		1	U	1	U	NA		1	U
Diethylphthalate		NA		NA		5	U	5	U	NA		5	U
2,4-Dimethylphenol		NA		NA		1	U	1	U	NA		1	U
Dimethylphthalate		NA		NA		5	U	5	U	NA		5	U
4,6-Dinitro-2-methylphenol	1.7	NA		NA		16	U	16	U	NA		16	U
2,4-Dinitrophenol		NA		NA		32	U	31	U	NA		31	U
2,4-Dinitrotoluene		NA		NA		5	U	5	U	NA		5	U
2,6-Dinitrotoluene		NA		NA		1	U	1	U	NA		1	U
bis(2-Ethylhexyl)phthalate	6	NA		NA		5	U	5	U	NA		5	U
Fluoranthene		NA		NA		2		0.2	J	NA		0.5	U
Fluorene		NA		NA		0.5	U	2		NA		0.5	U
Hexachlorobenzene		NA		NA		0.5	U	0.5	U	NA		0.5	U
Hexachlorobutadiene		NA		NA		1	U	1	U	NA		1	U
Hexachlorocyclopentadiene		NA		NA		16	U	16	U	NA		16	U
Hexachloroethane		NA		NA		5	U	5	U	NA		5	U
Indeno(1,2,3-cd)pyrene		NA		NA		0.5	U	0.5	U	NA		0.5	U
Isophorone		NA		NA		1	U	1	U	NA		1	U

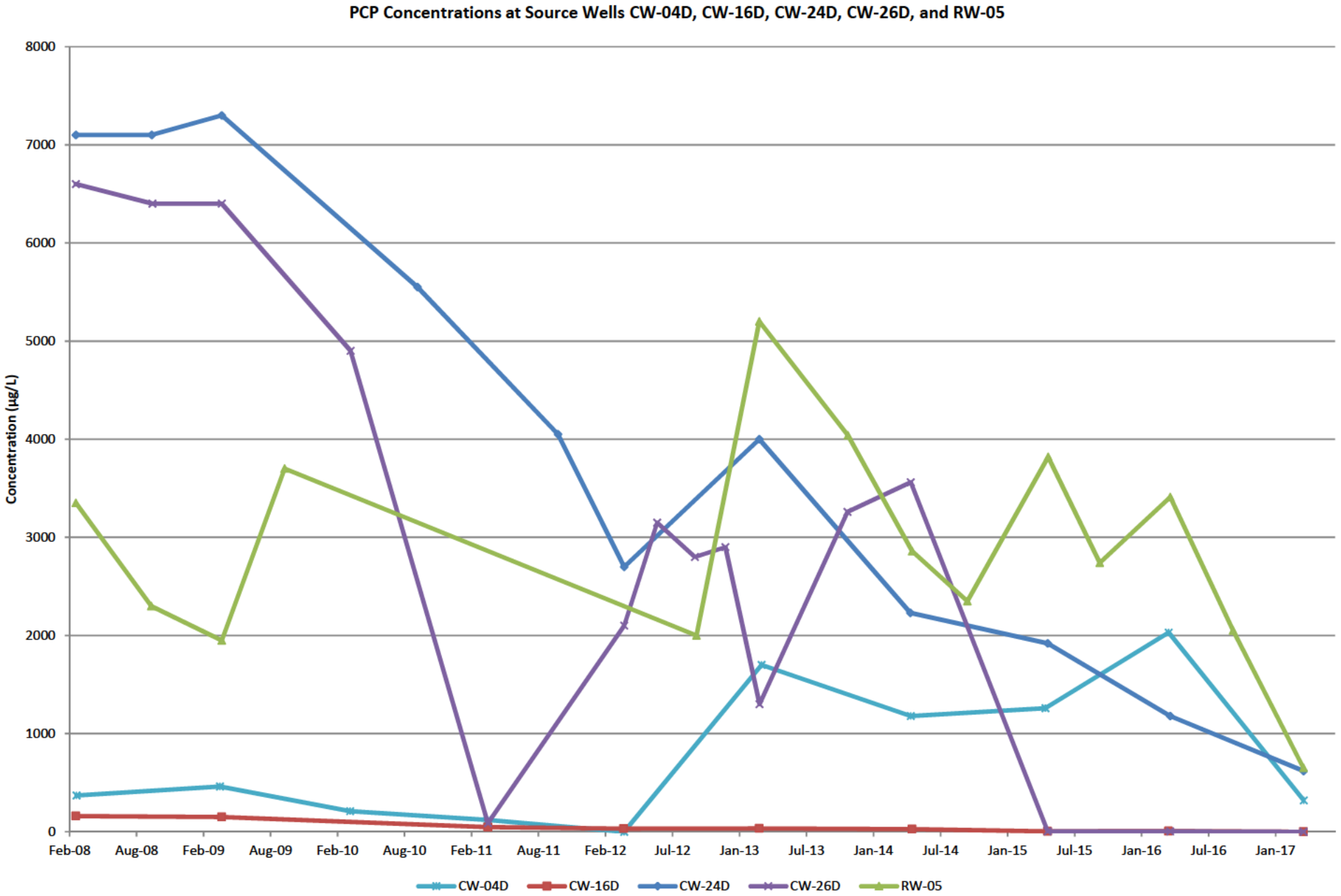
ANALYTICAL DATA
JUNE 2017 GROUNDWATER DATA
HAVERTOWN PCP SITE, HAVERTOWN, PENNSYLVANIA

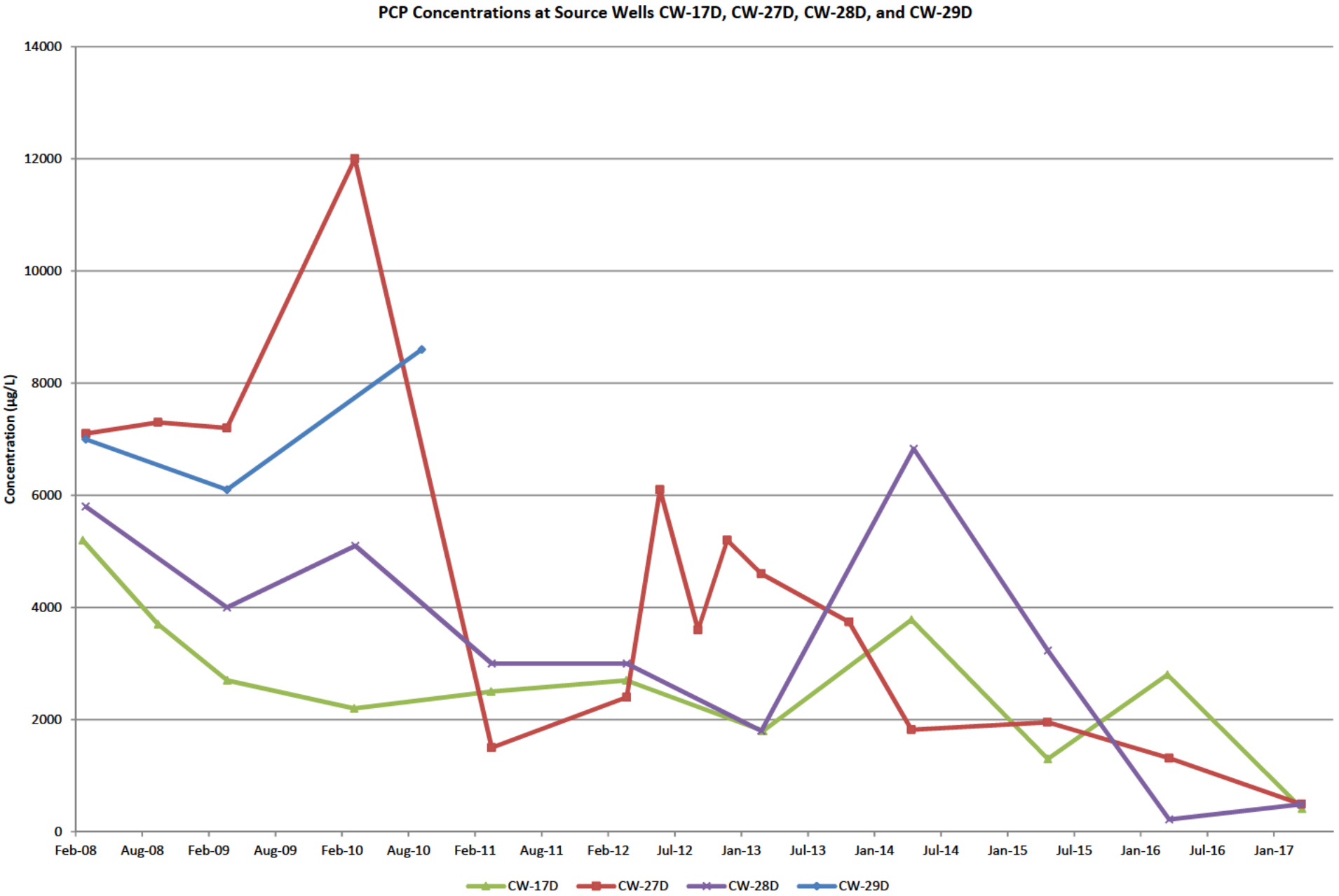
										FIELD QC			
Sample ID:	**Remediation**	**HAV-LTR-CW27D**		**HAV-LTR-CW1S**		**HAV-LTR-HAV04**		**HAV-LTR-HAV05**		**HAV-LTR-TB01**		**HAV-LTR-FB01**	
Sample Date:	**Goals for**	**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/13/2017**		**6/14/2017**	
Duplicate of:	**Groundwater**												
		Result		**Result**		**Result**		**Result**		**Result**		**Result**	
2-Methylnaphthalene	2	NA		NA		**2**		0.5	U	NA		0.5	U
2-Methylphenol		NA		NA		5		1	U	NA		1	U
4-Methylphenol		NA		NA		2		1	U	NA		1	U
Naphthalene	3	NA		NA		0.5	U	1		NA		0.5	U
2-Nitroaniline		NA		NA		1	U	1	U	NA		1	U
3-Nitroaniline		NA		NA		1	U	1	U	NA		1	U
4-Nitroaniline		NA		NA		1	U	1	U	NA		1	U
Nitrobenzene		NA		NA		1	U	1	U	NA		1	U
2-Nitrophenol		NA		NA		1	U	1	U	NA		1	U
4-Nitrophenol		NA		NA		32	U	31	U	NA		31	U
N-Nitroso-di-n-propylamine		NA		NA		1	U	1	U	NA		1	U
N-Nitrosodiphenylamine		NA		NA		1	U	1	U	NA		1	U
Di-n-octylphthalate		NA		NA		5	U	5	U	NA		5	U
Pentachlorophenol	1	NA		NA		**1700**		**94**		NA		5	U
Phenanthrene	41	NA		NA		16		0.5	U	NA		0.5	U
Phenol		NA		NA		5		1	U	NA		1	U
Pyrene		NA		NA		4		0.5	J	NA		0.5	U
1,2,4,5-Tetrachlorobenzene		NA		NA		1	U	1	U	NA		1	U
2,3,4,6-Tetrachlorophenol		NA		NA		100		3		NA		1	U
2,4,5-Trichlorophenol		NA		NA		5		2		NA		1	U
2,4,6-Trichlorophenol		NA		NA		0.8	J	1	U	NA		1	U
HERBICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Pentachlorophenol	1	NA		NA		NA		NA		NA		0.047	U
PESTICIDES	**µg/L**	**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**		**µg/L**	
Dieldrin	0.038	0.016	U	0.016	U	NA		NA		NA		0.016	U

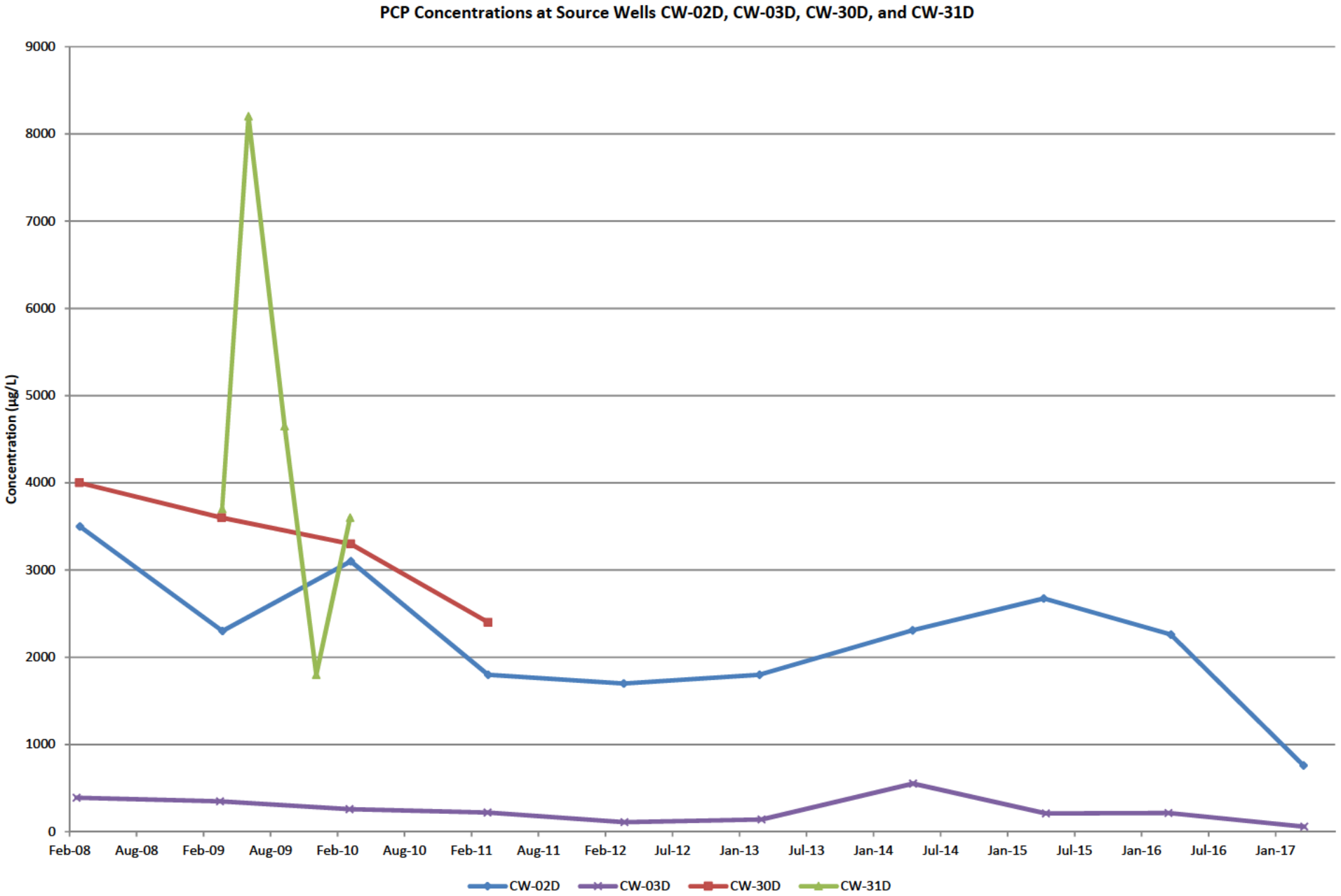
NA - Not Analyzed
µg/L - Micrograms per Liter
J - Estimated Value
B - Detection in the Blank
U - Not Detected Above Laboratory Quantitation L
5.5 - Exceeds Remediation Goal for GW

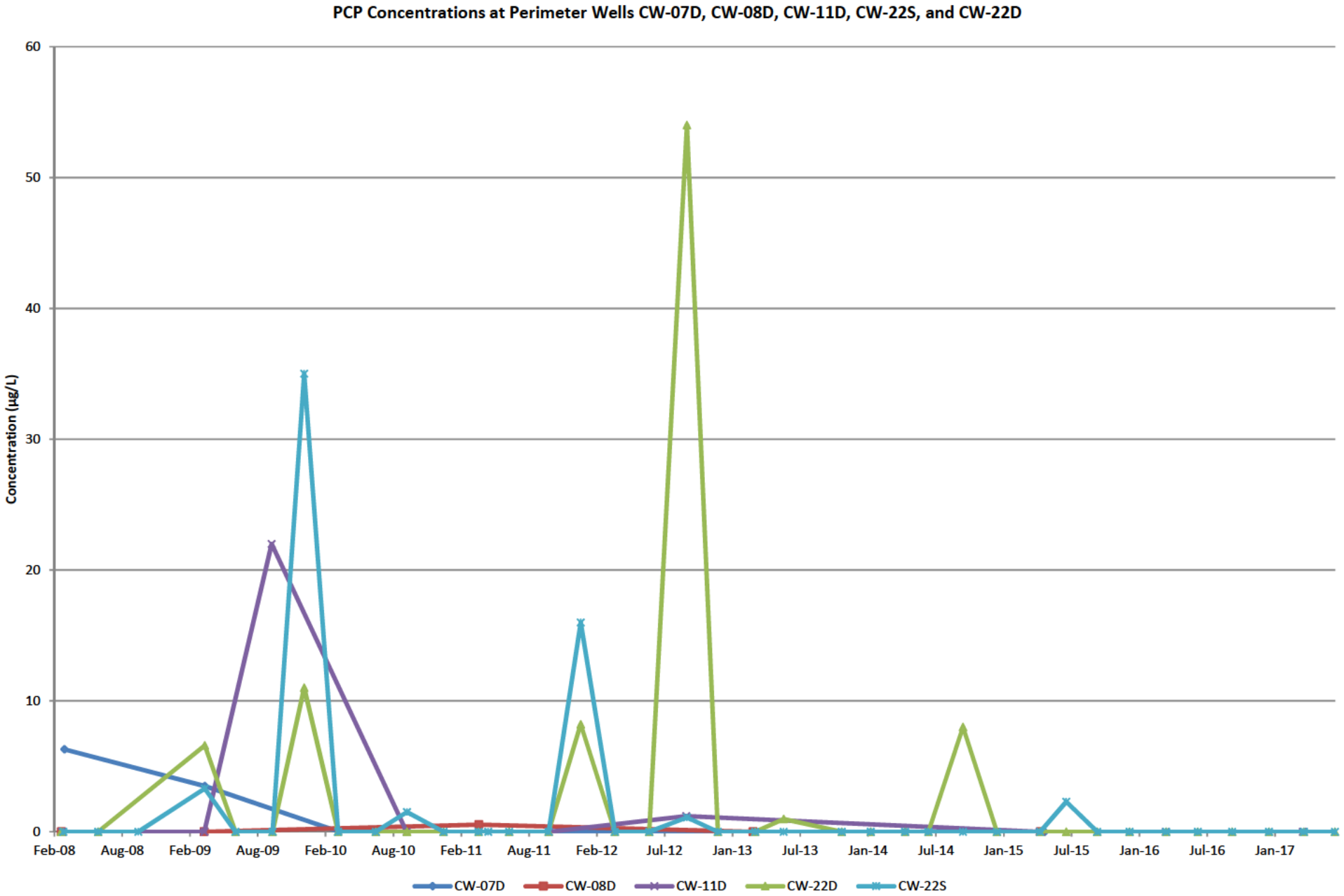
APPENDIX B

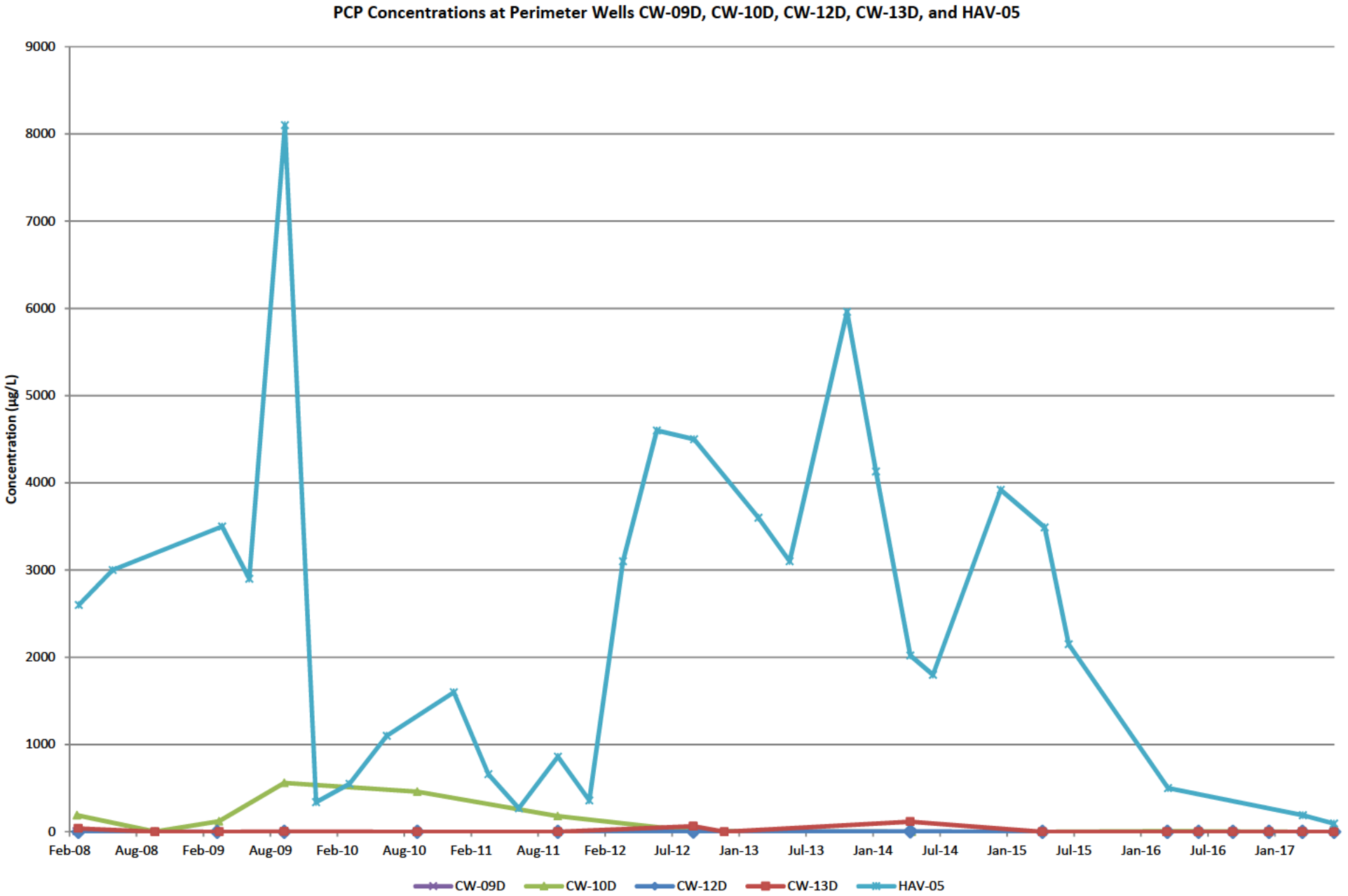
GRAPHS OF HISTORICAL CONTAMINANT CONCENTRATIONS IN MONITORING WELLS

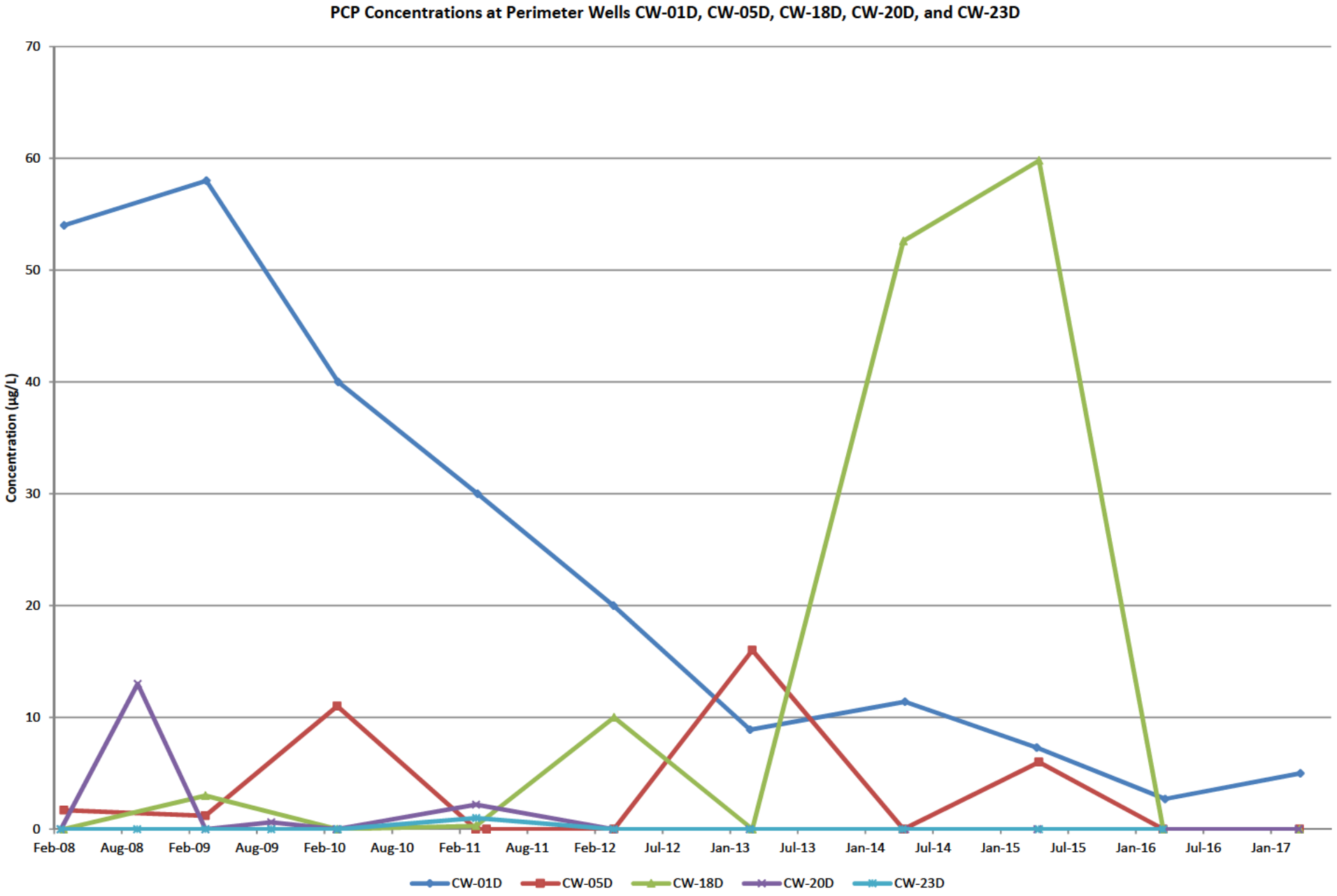

PCP Concentrations at Source Wells CW-04D, CW-16D, CW-24D, CW-26D, and RW-05
Concentration (µg/L)
8000
7000
6000
5000
4000
3000
2000
1000
0
Feb-08
Aug-08
Feb-09
Aug-09
Feb-10
Aug-10
Feb-11
Aug-11
Feb-12
Jul-12
Jan-13
Jul-13
Jan-14
Jul-14
Jan-15
Jul-15
Jan-16
Jul-16
Jan-17
CW-04D
CW-16D
CW-24D
CW-26D
RW-05

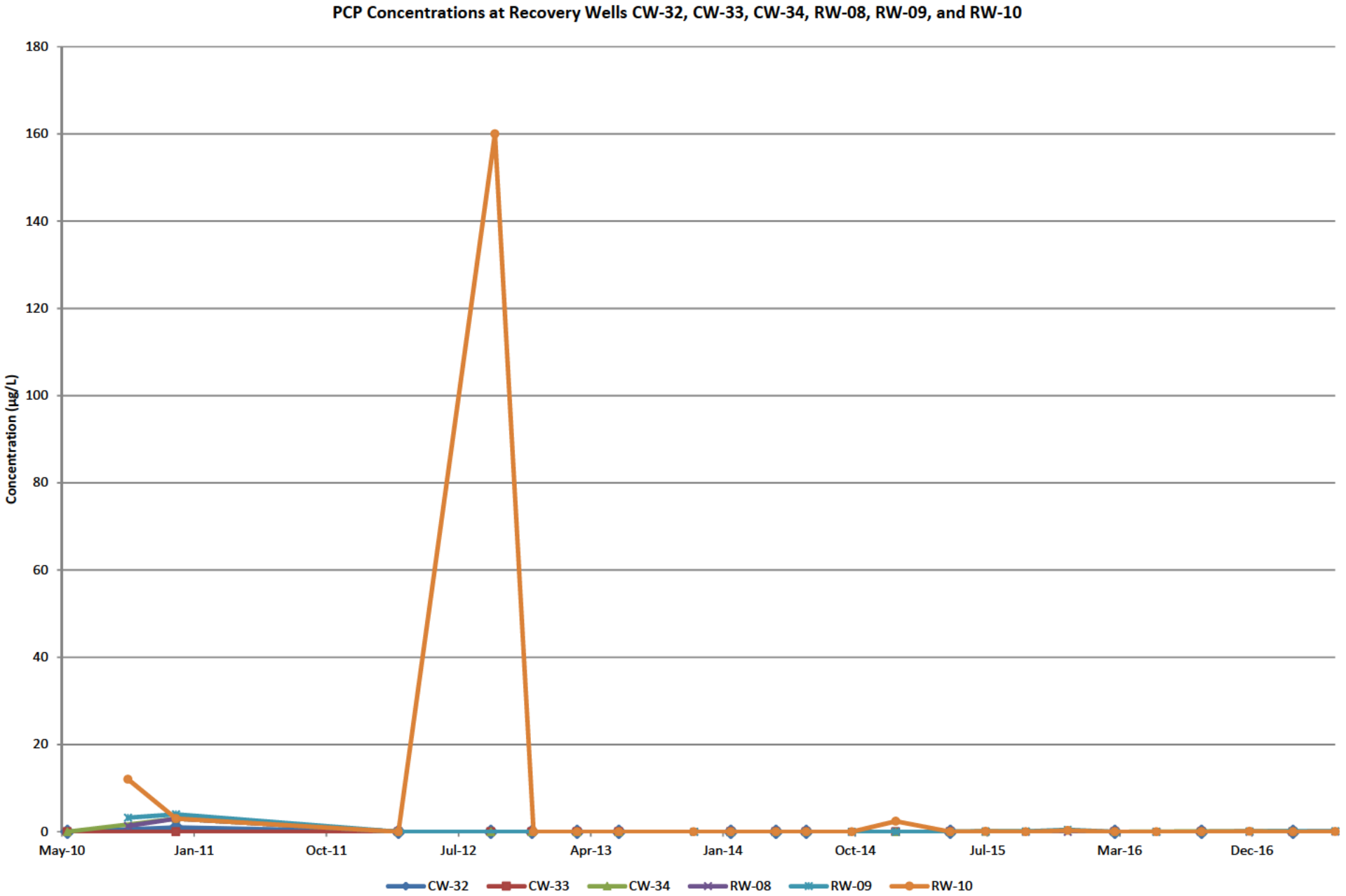

PCP Concentrations at Source Wells CW-17D, CW-27D, CW-28D, and CW-29D
Concentration (µg/L)
14000
12000
10000
8000
6000
4000
2000
0
Feb-08
Aug-08
Feb-09
Aug-09
Feb-10
Aug-10
Feb-11
Aug-11
Feb-12
Jul-12
Jan-13
Jul-13
Jan-14
Jul-14
Jan-15
Jul-15
Jan-16
Jul-16
Jan-17
CW-17D
CW-27D
CW-28D
CW-29D

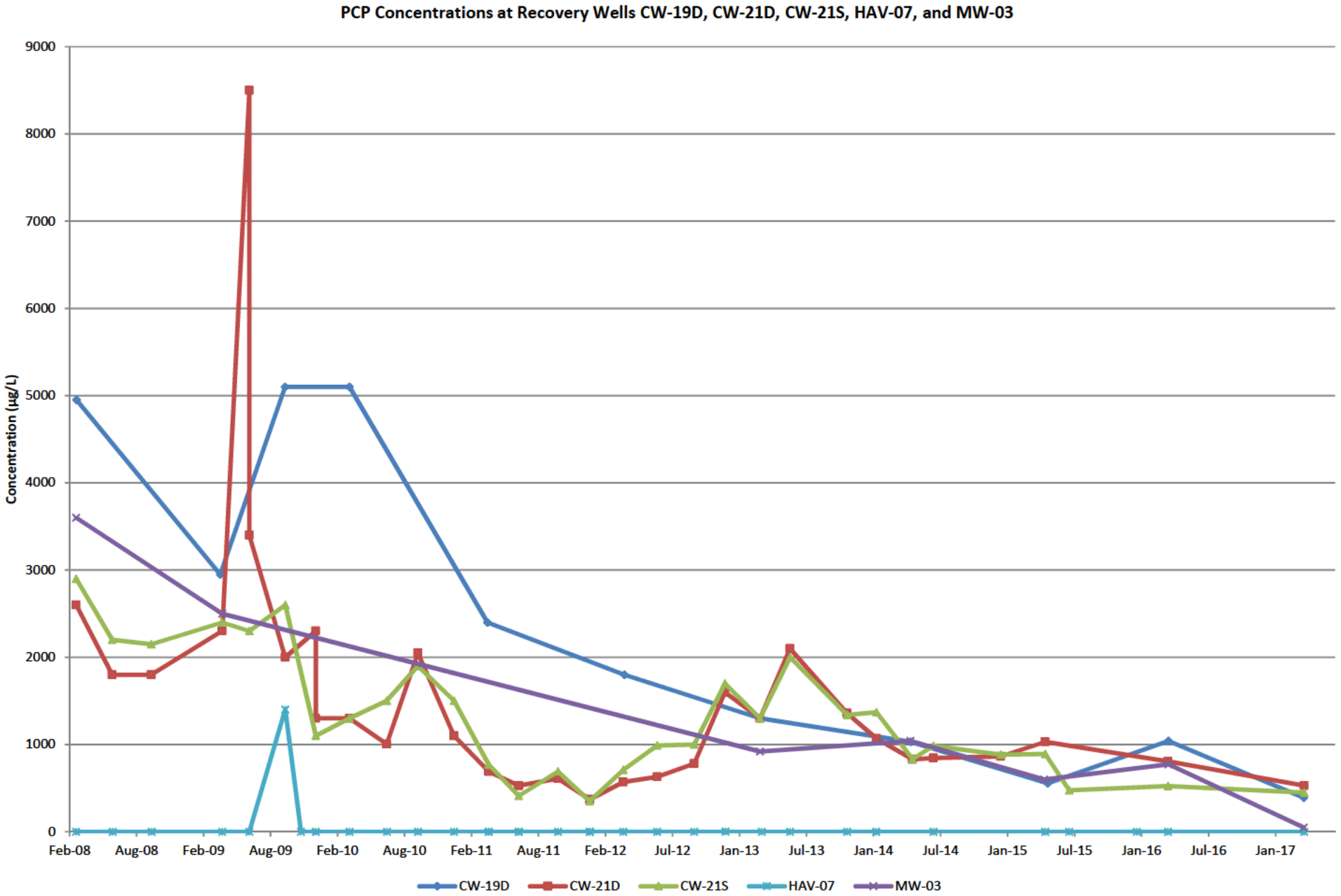

PCP Concentrations at Source Wells CW-02D, CW-03D, CW-30D, and CW-31D
Concentration (µg/L)
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Feb-08
Aug-08
Feb-09
Aug-09
Feb-10
Aug-10
Feb-11
Aug-11
Feb-12
Jul-12
Jan-13
Jul-13
Jan-14
Jul-14
Jan-15
Jul-15
Jan-16
Jul-16
Jan-17
CW-02D
CW-03D
CW-30D
CW-31D

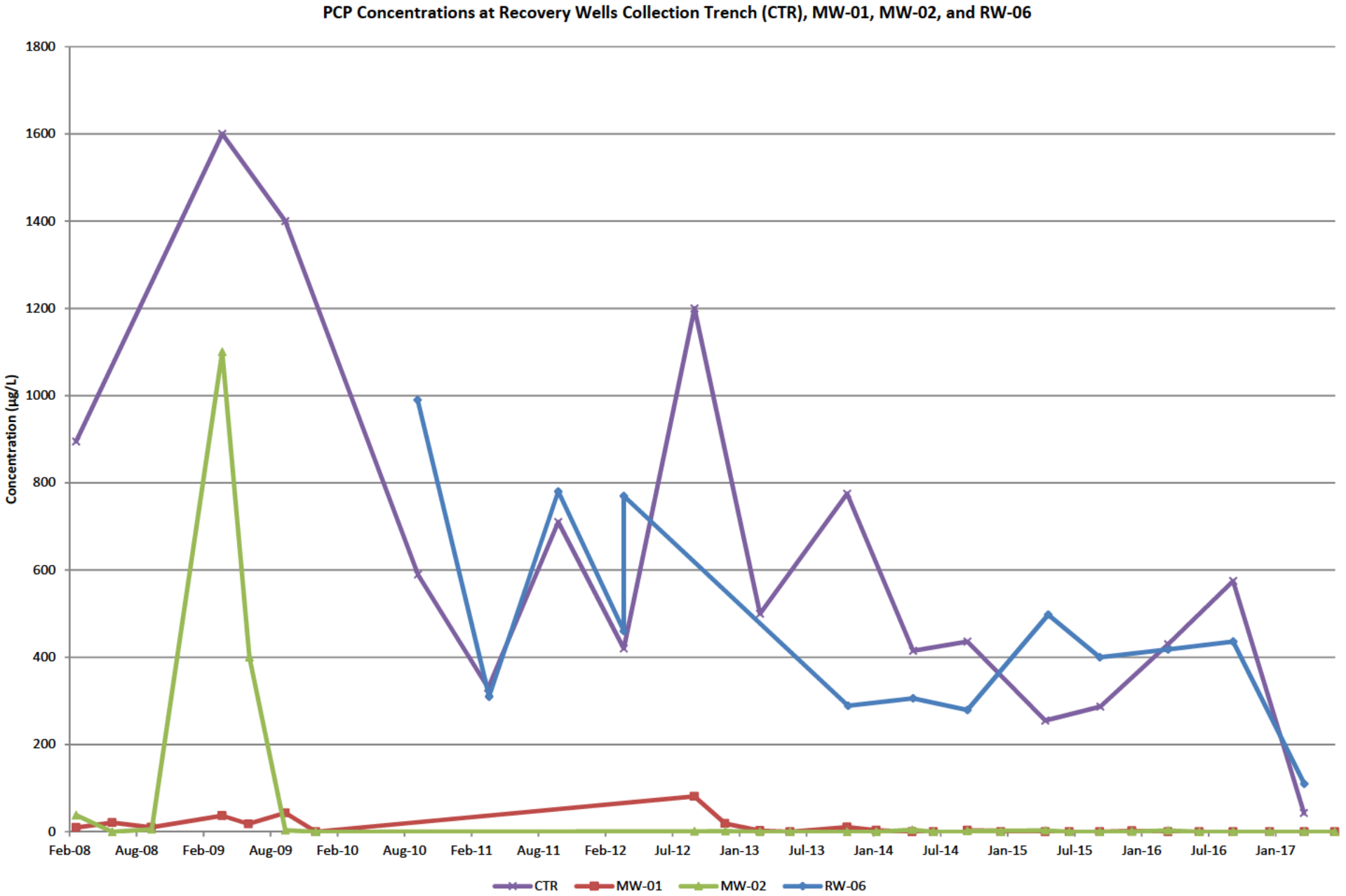

PCP Concentrations at Perimeter Wells CW-07D, CW-08D, CW-11D, CW-22S, and CW-22D
Concentration (µg/L)
60
50
40
30
20
10
0
Feb-08
Aug-08
Feb-09
Aug-09
Feb-10
Aug-10
Feb-11
Aug-11
Feb-12
Jul-12
Jan-13
Jul-13
Jan-14
Jul-14
Jan-15
Jul-15
Jan-16
Jul-16
Jan-17
CW-07D
CW-08D
CW-11D
CW-22D
CW-22S

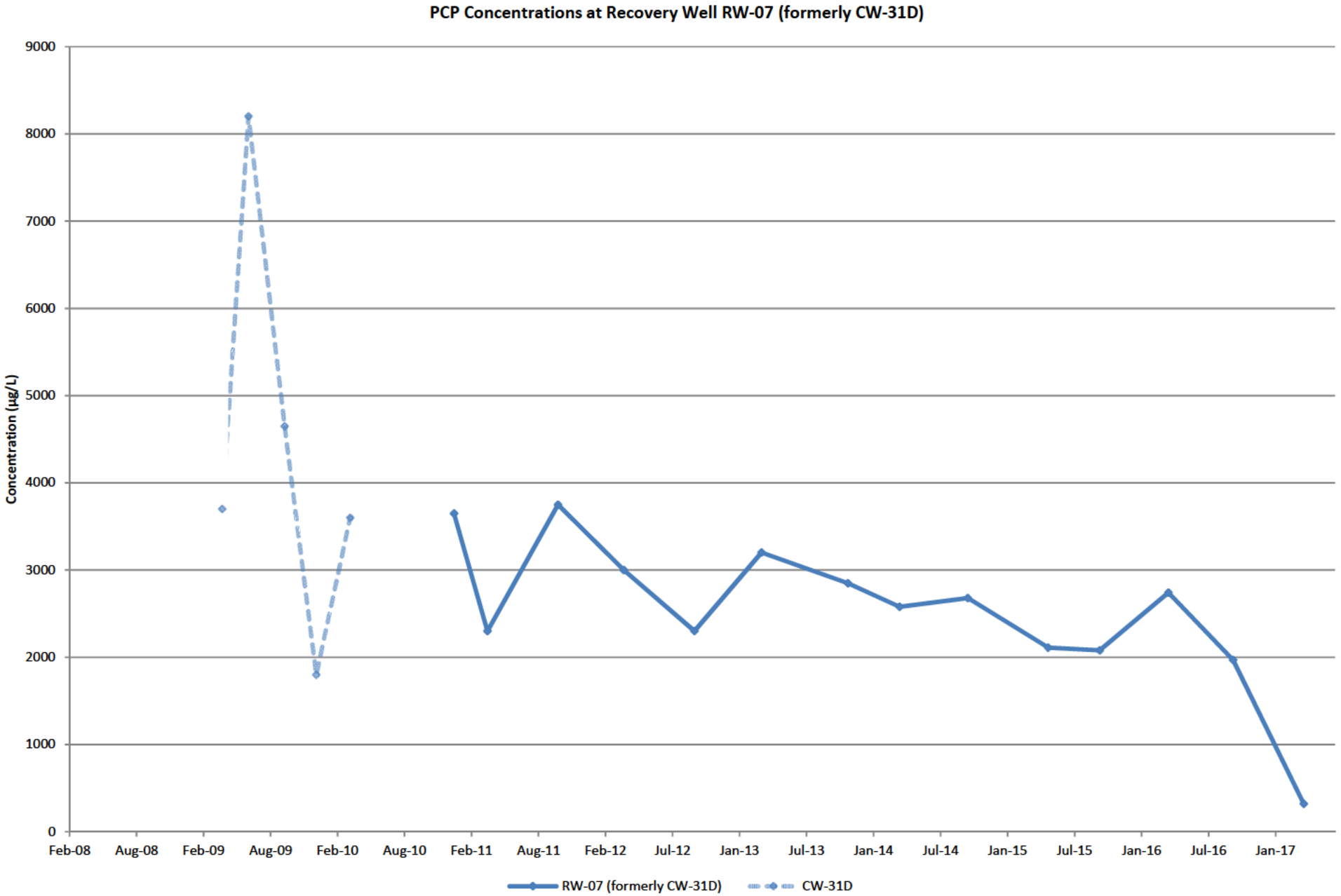

PCP Concentrations at Perimeter Wells CW-09D, CW-10D, CW-12D, CW-13D, and HAV-05
Concentration (µg/L)
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Feb-08
Aug-08
Feb-09
Aug-09
Feb-10
Aug-10
Feb-11
Aug-11
Feb-12
Jul-12
Jan-13
Jul-13
Jan-14
Jul-14
Jan-15
Jul-15
Jan-16
Jul-16
Jan-17
CW-09D
CW-10D
CW-12D
CW-13D
HAV-05

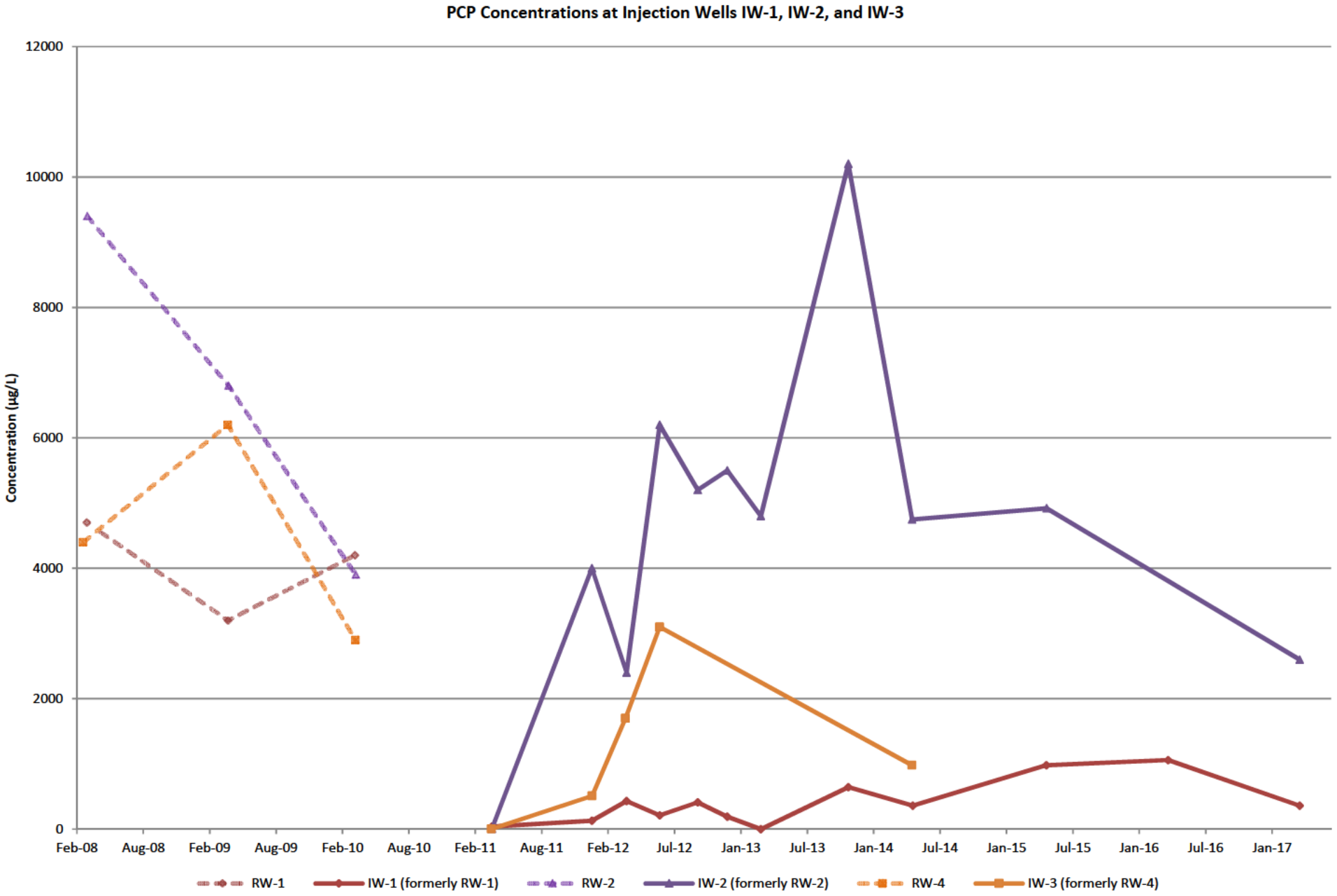

PCP Concentrations at Perimeter Wells CW-01D, CW-05D, CW-18D, CW-20D, and CW-23D
Concentration (µg/L)
70
60
50
40
30
20
10
0
Feb-08
Aug-08
Feb-09
Aug-09
Feb-10
Aug-10
Feb-11
Aug-11
Feb-12
Jul-12
Jan-13
Jul-13
Jan-14
Jul-14
Jan-15
Jul-15
Jan-16
Jul-16
Jan-17
CW-01D
CW-05D
CW-18D
CW-20D
CW-23D

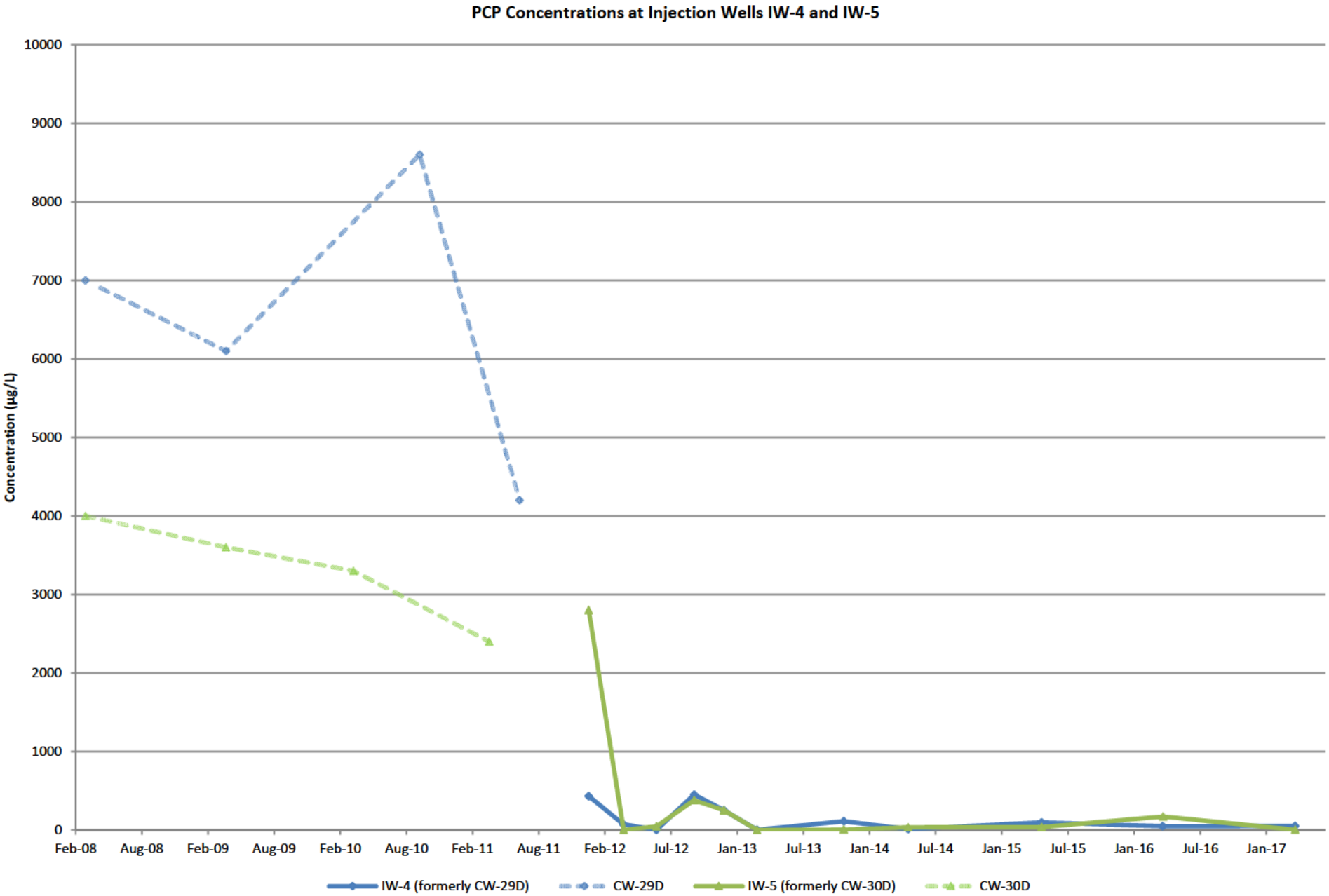

PCP Concentrations at Recovery Wells CW-32, CW-33, CW-34, RW-08, RW-09, and RW-10
Concentration (µg/L)
180
160
140
120
100
80
60
40
20
0
May-10
Jan-11
Oct-11
Jul-12
Apr-13
Jan-14
Oct-14
Jul-15
Mar-16
Dec-16
CW-32
CW-33
CW-34
RW-08
RW-09
RW-10


PCP Concentrations at Recovery Wells CW-19D, CW-21D, CW-21S, HAV-07, and MW-03
Concentration (µg/L)
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Feb-08
Aug-08
Feb-09
Aug-09
Feb-10
Aug-10
Feb-11
Aug-11
Feb-12
Jul-12
Jan-13
Jul-13
Jan-14
Jul-14
Jan-15
Jul-15
Jan-16
Jul-16
Jan-17
CW-19D
CW-21D
CW-21S
HAV-07
MW-03


PCP Concentrations at Recovery Wells Collection Trench (CTR), MW-01, MW-02, and RW-06
Concentration (µg/L)
1800
1600
1400
1200
1000
800
600
400
200
0
Feb-08
Aug-08
Feb-09
Aug-09
Feb-10
Aug-10
Feb-11
Aug-11
Feb-12
Jul-12
Jan-13
Jul-13
Jan-14
Jul-14
Jan-15
Jul-15
Jan-16
Jul-16
Jan-17
CTR
MW-01
MW-02
RW-06


PCP Concentrations at Recovery Well RW-07 (formerly CW-31D)
Concentration (µg/L)
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Feb-08
Aug-08
Feb-09
Aug-09
Feb-10
Aug-10
Feb-11
Aug-11
Feb-12
Jul-12
Jan-13
Jul-13
Jan-14
Jul-14
Jan-15
Jul-15
Jan-16
Jul-16
Jan-17
RW-07 (formerly CW-31D)
CW-31D


PCP Concentrations at Injection Wells IW-1, IW-2, and IW-3
Concentration (µg/L)
12000
10000
8000
6000
4000
2000
0
Feb-08
Aug-08
Feb-09
Aug-09
Feb-10
Aug-10
Feb-11
Aug-11
Feb-12
Jul-12
Jan-13
Jul-13
Jan-14
Jul-14
Jan-15
Jul-15
Jan-16
Jul-16
Jan-17
RW-1
IW-1 (formerly RW-1)
RW-2
IW-2 (formerly RW-2)
RW-4
IW-3 (formerly RW-4)


PCP Concentrations at Injection Wells IW-4 and IW-5
Concentration (µg/L)
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Feb-08
Aug-08
Feb-09
Aug-09
Feb-10
Aug-10
Feb-11
Aug-11
Feb-12
Jul-12
Jan-13
Jul-13
Jan-14
Jul-14
Jan-15
Jul-15
Jan-16
Jul-16
Jan-17
IW-4 (formerly CW-29D)
CW-29D
IW-5 (formerly CW-30D)
CW-30D