PHASE II
INVESTIGATION REPORT

AREA A: PARCEL A15
TRADEPOINT ATLANTIC
SPARROWS POINT, MARYLAND

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Revision 1 – August 28, 2023

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1.0 INTRODUCTION

ARM Group LLC (ARM), on behalf of Tradepoint Atlantic (TPA), has completed the Phase II Investigation on the portion of the Tradepoint Atlantic property (formerly Sparrows Point Terminal, LLC) that has been designated as Area A: Parcel A15 (the Site). Parcel A15 is comprised of 61.3 acres of the approximately 3,100-acre former plant property located as shown on **Figure 1**. The High Head Reservoir occupies most of the parcel (approximately 40.4 acres), with the remaining portion (20.9 acres) occupied by land. There are two brick pumping stations within Parcel A15 at the southwest and southeastern sides of the tract, and an electrical substation is present just northwest of the southwestern pump station. There is also an unused aboveground tank containing hypochlorite solution in a diked structure at the northeastern side of the reservoir along Reservoir Road.

The Phase II Investigation was performed in accordance with procedures outlined in the approved Phase II Investigation Work Plan for Area A: Parcel A15 (Revision 1 dated September 30, 2022). This Work Plan was approved by the Maryland Department of the Environment (MDE) and United States Environmental Protection Agency (USEPA) via email on October 6, 2022.

Results from this investigation phase are included and discussed in this report. The investigations were implemented in compliance with requirements pursuant to the following:

- Administrative Consent Order between Tradepoint Atlantic (formerly Sparrows Point Terminal, LLC) and the MDE effective September 12, 2014; and
- Settlement Agreement and Covenant Not to Sue (SA) between Tradepoint Atlantic (formerly Sparrows Point Terminal, LLC) and the USEPA effective November 25, 2014.

Parcel A15 is part of the acreage that was removed (Carveout Area) from inclusion in the Multimedia Consent Decree between Bethlehem Steel Corporation, the USEPA, and the MDE (effective October 8, 1997) as documented in correspondence received from the USEPA on September 12, 2014. Based on this agreement, the USEPA has determined that no further investigation or corrective measures will be required under the terms of the Consent Decree for the Carveout Area. However, the SA reflects that the property within the Carveout Area will remain subject to USEPA's Resource Conservation and Recovery Act Corrective Action authorities.

An application to enter the full Tradepoint Atlantic property (3,100 acres) into the MDE's Voluntary Cleanup Program was submitted to the MDE and delivered on June 27, 2014. The property's current and anticipated future use is Tier 3 (Industrial) and plans for the full Tradepoint Atlantic property include continued demolition and redevelopment over the next several years.

Tradepoint Atlantic has developed an initial master plan that shows potential future development areas across the entire Tradepoint Atlantic property. This master plan is a working document, and it is expected to undergo subsequent revisions in the future. The most recent plan does not show any proposed development within Parcel A15.

1.1. SITE HISTORY

From the late 1800s until 2012, the production and manufacturing of steel was conducted at Sparrows Point. Iron and steel production operations and processes at Sparrows Point included raw material handling, coke production, sinter production, iron production, steel production, and semi-finished and finished product preparation. In 1970, Sparrows Point was the largest steel facility in the United States, producing hot and cold rolled sheets, coated materials, pipes, plates, and rod and wire. The steel making operations at Sparrows Point ceased in fall 2012.

In 1916, groundcover in Parcel A15 was comprised of approximately 60% natural soils based on the approximate shoreline of the Sparrows Point Peninsula, as shown on **Figure 2** (adapted from Figure 2-20 on the Description of Current Conditions (DCC) Report prepared by Rust Environment and Infrastructure, dated January 1998).

Historical operations on Site primarily consisted of the High Head Reservoir, which occupied approximately 66% of the 61.3 acres of Parcel A15. The Reservoir was constructed between 1916 and 1952 as an industrial facility to receive effluent from the Back River Wastewater Treatment Plant (BRWWTP). The reservoir was constructed by damming and expanding a bay formerly present on the northeastern side of Humphrey Creek. The Phase I Environmental Site Assessment (ESA) prepared by Weaver Boos Consultants dated May 19, 2014, identified one Recognized Environmental Condition (REC) on the adjacent Parcel A8. As shown **on Figure 3**, Finding 243, REC 11B identifies a discharge pipe leading from beneath the Air Production Facility to the High Head Reservoir. According to the Phase I ESA (Weaver Boos), oily surface water was observed in the discharge area during a site visit. Booms were placed around the discharge pipe, although oil was observed on both sides of the booms. As shown **on Figure 3**, the Phase I ESA also identified one REC (Finding 281, REC 28A) to the northeast of Parcel A15. There were seven underground storage tanks of unknown contents (listed as out of use) on the adjacent non-TPA property.

There are two pumping stations currently located within Parcel A15, along with an aboveground storage tank in a concrete containment structure. The storage tank contained hypochlorite solution for treatment of water in the reservoir has not been used for several years. Each pumping station has an associated sub-station. The oxygen plant/Air Products facility had been present west of Parcel A15 in Parcel A8 and has previously been assessed (refer to the Parcel A8 Phase II Investigation Report, Revision 1, dated November 11, 2017). Runoff from multiple properties, including TPA parcels A2, A8, A13, and A14, the non-TPA property along the northeast boundary, and I-695 to the south, appears to be collected in the High Head Reservoir. The reservoir is fed by

treated effluent from the BRWWTP operated by Baltimore City. While the steel plant was operational, treated effluent stored in the reservoir was used as an industrial water source. The reservoir continues to receive effluent from the BRWWTP. The effluent flows into the northeastern portion of the reservoir through two pipes (96-inch pipe and 60-inch pipe). There is currently no industrial Process Water discharged to the pond on Parcel A15. Water from the High Head Reservoir is discharged directly to National Pollutant Discharge Elimination System (NPDES) permitted Outfall 014.

The Site's layout in 1952 is shown in the aerial imagery presented in **Figure 3**. Pumping Station #2 and the sub-station, which are visible in the recent aerial imagery shown on **Figure 4**, had not yet been constructed in 1952. The High Head Reservoir appears to occupy the same area as was observed in the site walk. There is no evidence that iron and steel industrial processes were completed within the boundary of Parcel A15.

1.2. OBJECTIVES

The objective of this Phase II Investigation was to characterize the nature and extent of potential contamination or hazardous conditions for future tenants or personnel working on the Site. A summary table of the site investigation locations, including the sample identification numbers and the analyses performed, is provided as **Appendix A**. Throughout the Phase II Investigation, 17 soil borings (34 soil samples), three temporary groundwater collection points and three permanent monitoring wells, 12 sediment sample locations, and eight surface water sample locations were collected and analyzed. This report includes a summary of the work performed, including the environmental setting, site investigation methods, analytical results and data usability assessment, and findings and recommendations.

2.0 ENVIRONMENTAL SETTING

2.1. LAND USE AND SURFACE FEATURES

The Tradepoint Atlantic property consists of the former Sparrows Point steel mill. Interviews conducted as part of the Phase I ESA stated that no hazardous materials or petroleum products were known to be disposed of within Parcel A15.

The Site is primarily occupied by the High Head Reservoir, which was created as an industrial facility to receive effluent from the BRWWTP. Ground surface elevations at the Site range from approximately 5 to 14 feet above mean sea level (amsl). Generally, elevations on Site slope inwards towards the surface water body. Higher elevations are observed along Reservoir Road and the I-695 highway in the southern portion of the Site.

According to Figure B-2 of the Stormwater Pollution Prevention Plan Revision 8 dated April 30, 2020, surface water runoff from the Site flows into the High Head Reservoir. Discharge from the High Head Reservoir is controlled by a Baltimore City NPDES permit.

2.2. REGIONAL GEOLOGY

The Site is located within the Atlantic Coastal Plain Physiographic Province (Coastal Plain). The western boundary of the Coastal Plain is the “Fall Line”, which separates the Coastal Plain from the Piedmont Plateau Province. The Fall Line runs from northeast to southwest along the western boundary of the Chesapeake Bay, passing through Elkton (MD), Havre de Grace (MD), Baltimore City (MD), and Laurel (MD). The eastern boundary of the Coastal Plain is the off-shore Continental Shelf.

The unconsolidated sediments beneath the Site belong to the Talbot Formation (Pleistocene), which is then underlain by the Cretaceous formations which comprise the Potomac Group (Patapsco Formation, Arundel Formation, and the Patuxent Formation). The Potomac Group formations are comprised of unconsolidated sediments of varying thicknesses and types, which may be several hundred feet to several thousand feet thick. These unconsolidated formations may overlie deeper Mesozoic and/or Precambrian bedrock. Depth to bedrock is approximately 700 feet within the Site.

2.3. SITE GEOLOGY/HYDROGEOLOGY

The approximate shoreline of the Sparrows Point Peninsula in 1916 is shown in **Figure 2** (adapted from Figure 2-20 in the DCC Report prepared by Rust Environment and Infrastructure dated January 1998). In general, the encountered subsurface geology was comprised of non-native fill materials including slag, sand, and gravel, as well as natural soils including fine-grained sediments (clays and silts) and coarse-grained sediments (sands). Shallow groundwater was observed in soil borings at varying depths ranging from approximately 0.5 to 9 feet below ground surface (bgs)

across the Site; however, groundwater was not encountered at every location. Soil boring observation logs are provided in **Appendix B**.

Groundwater in Parcel A15 was investigated via the installation of three temporary groundwater sample collection points (commonly referred to as piezometers). Sample locations where piezometers were installed included A15-015-PZ, A15-016-PZ, and A15-019-PZ. Three historical groundwater monitoring wells (SG03-PDM007, SG04-PDM008, and SW-099-MWS) were sampled along with the temporary piezometers. **Figure 4** shows an aerial view of the six groundwater locations sampled in December 2022 and January 2023. The temporary groundwater sample collection points and the existing permanent well were surveyed by a Maryland-licensed surveyor. Surveyed top of casing and ground surface elevations for all applicable locations can be found in **Table 1**, along with the depth to water measurements.

A groundwater elevation map was constructed for the shallow hydrogeologic zone based on field measurements. The localized groundwater elevations are shown in **Figure 5**. Due to access restrictions, surface water stage measurements of the lake were not conducted.

3.0 SITE INVESTIGATION

A total of 34 soil samples (from 17 soil boring locations), 12 sediment samples, six groundwater samples, and eight surface water samples were collected for analysis as part of this Phase II Investigation. However, 33 of the 34 soil samples were analyzed; the remaining soil sample was placed on hold, and analysis was not required based on the results of the shallower soil sample.

This Phase II Investigation followed the procedures included in the Quality Assurance Project Plan (QAPP) Revision 4 dated May 31, 2022, which was approved by the agencies to support the investigation and remediation of the Tradepoint Atlantic property. Information regarding the project organization, field activities and sampling methods, sampling equipment, sample handling and management procedures, the selected laboratory and analytical methods, quality control and quality assurance procedures, and reporting requirements are described in detail in the approved Work Plans and the QAPP.

All site characterization activities were conducted under the property wide Tradepoint Atlantic Health and Safety Plan.

3.1. SAMPLE TARGET IDENTIFICATION

Previous activities within and around the buildings and facilities located on the Tradepoint Atlantic property may have been historical sources of environmental contamination. If present, source areas were identified as targets for sampling through a careful review of historical documents. When a sampling target was identified, a soil boring was placed at or next to its location using Geographic Information System software (ArcMap Version 10.6).

Sampling targets included, as applicable, 1) RECs shown on the REC Location Map provided in Weaver Boos' Phase I ESA, 2) additional findings (non-RECs) from the Phase I ESA which were identified as potential environmental concerns, and 3) Solid Waste Management Units and Areas of Concern identified from the DCC Report prepared by Rust Environment and Infrastructure.

Four sets of historical drawings were also reviewed to identify potential sampling targets for the Site. These drawings included the 5000 Set (Plant Arrangement), the 5100 Set (Plant Index), the 5500 Set (Plant Sewer Lines), and a set of drawings indicating coke oven gas distribution drip leg locations. Drip legs are points throughout the distribution system where coke oven gas condensate was removed from the gas pipelines. The condensate from the drip legs was typically discharged to drums, although it is possible some spilled out of the drums and onto the ground. There were no drip legs identified within the Site boundary. ARM also reviewed a list of former polychlorinated biphenyl (PCB)-containing equipment on the property via a historical PCB Inventory Map. There were no PCB-containing areas identified at the Site from the PCB Inventory Map.

A summary of the specific drawings covering the Site is presented in **Table 2**. Sampling target locations were identified if the historical drawings depicted industrial activities or a specific feature at a location that may have been a source of environmental contamination. Sampling targets were also identified during the pre-investigation site visit. Additional sample locations were distributed to provide complete coverage of the Site and to fill in areas with insufficient coverage. A summary table of the investigation plan, along with the applicable boring identification numbers and the analyses performed, has been provided as **Appendix A**. The density of soil borings met the requirements set forth in QAPP Worksheet 17 – Sampling Design and Rationale. Per the requirements given in the Work Plan, a minimum of 14 borings were required to provide coverage of the Site. A total of 17 soil borings were completed during the Phase II Investigation.

During the completion of fieldwork, it was necessary to shift some borings from the approved locations given in the Work Plan, primarily due to equipment refusal and/or access restrictions. **Table 3** provides the identification numbers of the field adjusted borings, the coordinates of the proposed and final locations, and the distance/direction of the field shifts.

3.2. SOIL INVESTIGATION

Continuous core soil borings were advanced at 17 locations across the Site to assess the presence or absence of soil contamination, and to assess the vertical distribution of any encountered contamination (**Figure 6**). The 17 continuous core soil borings were advanced to a maximum depth of 20 feet bgs using the Geoprobe® MC-7 Macrocore soil sampler (surface to 10 feet bgs) and the Geoprobe® D-22 Dual-Tube Sampler (depths >10 feet bgs). At each of the 17 boring locations, each soil core was visually inspected and screened with a hand-held photoionization detector (PID) prior to logging soil types. Soil boring logs have been included as **Appendix B**, and the PID calibration log has been included as **Appendix C**.

In each boring, one shallow sample was collected from the 0 to 2-foot depth interval in accordance with the approved Work Plan. If unsuitable surface cover materials (such as asphalt pavement) were present, the first 1 foot of soil beneath this layer was collected as the shallow sample. An underlying sample was collected from the 4- to 5-foot depth interval from each continuous core soil boring but could be adjusted based on field observations. If the PID or other field observations indicated contamination to exist at a depth greater than 3 feet bgs but less than 9 feet bgs, and above the water table, the sample from the deeper 4- to 5-foot interval was shifted to the alternate depth interval. One additional sample was collected from the 9- to 10-foot depth interval if groundwater had not been encountered. The 10-foot bgs samples were held by the laboratory prior to analysis in accordance with the requirements given in the Parcel A15 Work Plan. These project-specific requirements for the analysis of 10-foot bgs samples are further described below. It should be noted that soil samples were not collected from a depth that was below the water table. Shallow groundwater was observed in soil cores at depths as shallow as 0.5 feet. Therefore, some 4- to 5-foot samples were not able to be collected at all locations.

Soil sampling activities were conducted in accordance with the procedures and methods referenced in **Field Standard Operating Procedure (SOP) Numbers 008, 009, 012, and 013** provided in Appendix A of the QAPP. Sample containers, preservatives, and holding times for the sample analyses are listed in the QAPP Worksheet 19 & 30 – Sample Containers, Preservation, and Holding Times. Down-hole soil sampling equipment was decontaminated after soil sampling had been concluded at each location, according to the procedures and methods referenced in **Field SOP Number 016** provided in Appendix A of the QAPP.

Each soil sample collected during this investigation was submitted to Alpha Analytical Services, Inc. for analysis. The 10-foot bgs samples were held prior to analysis in accordance with the Parcel A15 Work Plan requirements. Excluding these deep samples, the remaining soil samples were analyzed for Target Compound List (TCL) semi-volatile organic compounds (SVOCs) and polynuclear aromatic hydrocarbons (PAHs) via USEPA Methods 8270 and 8270 SIM, Oil & Grease via USEPA Method 9071, total petroleum hydrocarbon (TPH) diesel range organics (DRO) and gasoline range organics (GRO) via USEPA Method 8015, Target Analyte List (TAL) Metals via USEPA Methods 3050, Mercury via USEPA Method 7471, hexavalent chromium via USEPA Method 7196, and cyanide via USEPA Method 9012. The shallow soil samples collected across the Site from the 0- to 2-foot bgs interval were analyzed for PCBs via USEPA Method 8082. Samples from any depth interval with a sustained PID reading of greater than 10 ppm were also analyzed for TCL volatile organic compounds (VOCs) via USEPA Method 8260.

If the PID reading from the deep (9- to 10-foot bgs) sampling interval was less than 10 ppm, all parameters were held by the laboratory pending the analysis of the overlying samples. If the deep sampling interval exhibited a sustained PID reading of 10 ppm or greater, the sample was released to be analyzed for VOCs, SVOCs, TPH-DRO, TPH-GRO, and Oil & Grease. However, the samples for metals and cyanide were still held by the laboratory pending the analysis of the overlying samples. If the preliminary laboratory results from the 4- to 5-foot bgs (or field adjusted) interval indicated exceedances of the Project Action Limits (PALs) for any constituents, the held sample from the deep interval was then released to be analyzed for those constituents that exhibited PAL exceedances in the overlying sample.

3.3. GROUNDWATER INVESTIGATION

Three shallow temporary groundwater piezometers (A15-015-PZ, A15-016-PZ, and A15-019-PZ) and three existing groundwater monitoring wells (SG03-PDM007, SW-099-MWS, and SG04-PDM008) were sampled to characterize groundwater around the perimeter of the Site. Existing monitoring wells SG03-PDM007, SW-099-MWS, and SG04-PDM008 were inspected by ARM personnel on January 24, 2022, and prior to sampling, and was found to be in good condition. The locations where shallow groundwater samples were collected in this Phase II investigation are provided in **Figure 4**.

Piezometer installation activities were conducted in accordance with the procedures and methods referenced in **Field SOP Number 028** provided in Appendix A of the QAPP. The piezometers were installed at each location using the Geoprobe® DT22 Dual Tube sampling system. During the installation of each piezometer, soil types were logged and screened with a hand-held PID. The piezometer construction logs have been included as part of **Appendix B**.

Following the installation of each sample collection point, the 0-hour depth to water was documented and the collection point was checked for the presence of non-aqueous phase liquid (NAPL) using an oil-water interface probe in accordance with the methods referenced in **Field SOP Number 019** provided in Appendix A of the QAPP. After the installation of each sample collection point, down-hole equipment was decontaminated according to the procedures and methods referenced in **Field SOP Number 016** provided in Appendix A of the QAPP.

Groundwater samples were collected at each location in accordance with methods referenced in **Field SOP Number 006** provided in Appendix A of the QAPP; which employed the use of laboratory supplied sample containers and preservatives, a peristaltic pump, dedicated sample tubing, and a water quality multiparameter meter with a flow-through cell. Groundwater samples submitted for analysis of dissolved metals were filtered in the field with an in-line 0.45-micron filter. The sampling and purge logs have been included in **Appendix D**. Calibration of the multiparameter meter was performed before the start of each day of the sampling event. Documentation of the multiparameter meter calibration is included in **Appendix D**.

Groundwater samples were submitted to Alpha to be analyzed for VOCs via USEPA Method 8260, SVOCs via USEPA Method 8270, Oil & Grease via USEPA Method 1664, TPH-DRO/GRO via USEPA Methods 5030 and 8015, TAL-dissolved metals via USEPA Methods 6010 and Mercury via USEPA Method 7470, dissolved hexavalent chromium via USEPA Method 7196, total cyanide via USEPA Method 9012, and available cyanide via USEPA Method 9014. Sample containers, preservatives, and holding times for the sample analyses are listed in the QAPP Worksheet 19 & 30 – Sample Containers, Preservation, and Holding Times.

3.4. SURFACE WATER INVESTIGATION

A total of eight surface water samples were collected from the approximate locations in **Figure 7**. Samples were collected in accordance with the procedures referenced in the QAPP Worksheet 21 – Field SOPs, SOP No. 4 – Surface Water Sampling. Samples were collected from the middle of the water column at each proposed location. The water depth was approximated using a boat oar and ranged from 5 to 6 feet deep. Samples were collected using a peristaltic pump with a weighted end to place the tubing at the correct depth.

All surface water samples were analyzed for VOCs, SVOCs, PAHs, TAL-Dissolved Metals, Oil & Grease, TPH-DRO, TPH-GRO, dissolved hexavalent chromium, total cyanide, and available cyanide. Analytical methods, sample containers, preservatives, and holding times for the sample

analyses are listed in the QAPP Worksheet 19 & 30 – Sample Containers, Preservation, and Holding Times.

3.5. SEDIMENT INVESTIGATION

A total of 12 sediment samples were collected within the High Head Reservoir. Each of the sediment samples were collected as a grab sample from the top 12 inches of accumulated sediment in the bottom surface of the High Head Reservoir with a Ponar dredge as described in Section 4.2.3 of SOP No. 3. provided in Appendix A of the QAPP.

Each sediment sample was analyzed for VOCs via USEPA Method 8260, SVOCs and PAHs via USEPA Methods 8270 and 8270 SIM, TAL-Metals via USEPA Method 3050, Mercury via USEPA Method 7471, Oil & Grease via USEPA Method 9071, TPH-DRO and TPH-GRO via USEPA Method 8015, PCBs via USEPA Method 8082, hexavalent chromium via USEPA Method 7196, and cyanide via USEPA Method 9012. Analytical methods, sample containers, preservatives, and holding times for the analyses are listed in the QAPP Worksheet 19 & 30 – Sample Containers, Preservation, and Holding Times.

3.6. MANAGEMENT OF INVESTIGATION-DERIVED WASTE (IDW)

Purged groundwater IDW generated during this Phase II Investigation was containerized in 55-gallon (DOT-UN1A2) drums. This aqueous IDW will be characterized and removed from the Site via a vacuum truck. Excess soil boring cuttings were used to fill the boreholes, so containerization was not required.

4.0 ANALYTICAL RESULTS

4.1. SOIL CONDITIONS

Soil analytical results were screened against PALs established in the property wide QAPP (or other direct guidance from the agencies; i.e., TPH/Oil & Grease) to determine PAL exceedances. PALs are generally based on the USEPA's Regional Screening Levels (RSLs) for the Composite Worker exposure to soil. RSLs for cadmium and chromium have been updated recently and therefore the PALs for these constituents have also been updated. These updates have not yet been reflected in the QAPP. The Composite Worker is defined by the USEPA as a long-term receptor exposed during the workday who is a full-time employee that spends most of the workday conducting maintenance activities (which typically involve on-site exposures to surface soils) outdoors.

The analytical results for the detected soil parameters are summarized and compared to the PALs in **Table 4** (Organics) and **Table 5** (Inorganics). The laboratory Certificates of Analysis (including Chains of Custody) and Data Validation Reports (DVRs) have been included as electronic attachments. The DVRs contain a glossary of qualifiers for the final flags assigned to results in the attached summary tables.

4.1.1. Soil Conditions: Organic Compounds

No soil PID readings exceeded 10 ppm at any soil boring location, so no soil VOC samples were collected from Parcel A15.

Table 4 provides a summary of SVOCs detected above the laboratory's reporting limits (RLs) in the soil samples collected from across the Site. There were no SVOCs detected above their respective PALs.

Shallow soil samples collected across the Site from the 0- to 2-foot bgs interval were analyzed for PCBs. **Table 4** provides a summary of PCBs detected above the laboratory's RLs. There were no PCBs detected above their PALs.

Table 4 provides a summary of the TPH/Oil & Grease detections above the laboratory's RLs in the soil samples collected from across the Site. There were no PAL exceedances of TPH-DRO, TPH-GRO, or Oil & Grease. Additionally, no physical evidence of NAPL was observed in any soil cores completed during this investigation.

4.1.2. Soil Conditions: Inorganic Constituents

Table 5 provides a summary of inorganic constituents detected above the laboratory's RLs in the soil samples collected from across the Site. One inorganic constituent (arsenic) was detected above its respective PAL in multiple soil samples. Arsenic was detected above (or equal to) its PAL of 3

mg/kg in 28 of the 33 samples where it was analyzed, with a maximum detection of 8.48 mg/kg in A15-020-SB-4. Arsenic was the only inorganic PAL exceedance. The inorganic PAL exceedances are shown on **Figure 8**.

4.1.3. Soil Conditions: Results Summary

Table 4, and **Table 5** provide summaries of the detected organic and inorganics compounds in the soil samples submitted for laboratory analysis, while **Figure 8** presents the soil sample results that exceeded the PALs. PAL exceedances in soil within Parcel A15 were limited to one metal (arsenic) which is considered only slightly above naturally occurring concentrations in the region. **Table 6** provides a summary of results for all PAL exceedances in soil, including maximum values and detection frequencies. VOCs, SVOCs, PCBs, TPH-DRO/GRO, and Oil & Grease were not detected above their respective PALs (as applicable) and are not considered to be soil contaminants in Parcel A15.

Lead, PCBs, and TPH/Oil & Grease are subject to special requirements as designated by the agencies: lead results above 10,000 mg/kg are subject to additional delineation (and possible excavation), PCB results above 50 mg/kg are subject to delineation and excavation, and TPH/Oil & Grease results above 6,200 mg/kg should be evaluated for the potential presence and mobility of NAPL in any future development planning:

- There were no locations where detections of lead exceeded 10,000 mg/kg.
- There were no locations where detections of PCBs exceeded 50 mg/kg.
- There were no locations where detections of TPH-DRO/GRO or Oil & Grease exceeded 6,200 mg/kg. Additionally, no physical evidence of NAPL was observed in any soil cores completed during this investigation.

4.2. GROUNDWATER CONDITIONS

Groundwater analytical results were screened against PALs established in the property wide QAPP to determine PAL exceedances. The analytical results for the detected groundwater parameters are summarized and compared to the PALs in **Table 7** (Organics) and **Table 8** (Inorganics). The laboratory Certificates of Analysis (including Chains of Custody) and DVRs have been included as electronic attachments. The DVRs contain a glossary of qualifiers for the final flags assigned to results in the attached summary tables.

4.2.1. Groundwater Conditions: Organic Compounds

Table 7 provides a summary of VOCs identified in groundwater samples above the laboratory's RLs. There was one VOC (trichloroethene) identified as above its respective PAL (5 µg/L) in one

groundwater sample (A15-015-PZ) at a concentration of 9.5 µg/L. The VOC PAL exceedance is shown in **Figure 9**.

Table 7 provides a summary of SVOCs identified in the groundwater samples above the laboratory's RLs. A total of two SVOCs (benz[a]anthracene and naphthalene) were identified above their respective PALs (0.03 µg/L and 0.12 µg/L, respectively) in three groundwater samples: A15-016-PZ (benz[a]anthracene concentration of 0.03 J µg/L), SG04-PDM008 (naphthalene concentration of 3.4 µg/L), and SW-099-MWS (naphthalene concentration of 0.19 µg/L). The SVOC PAL exceedances are shown in **Figure 9**.

Table 7 provides a summary of the TPH/Oil & Grease detections in groundwater above the laboratory's RLs. TPH-GRO and Oil & Grease were not detected above the PAL at any sample locations. TPH-DRO was identified above the PAL (47 µg/L) in five of the six sampled groundwater locations, with a maximum detection of 210 µg/L (with a corresponding "J" flag) in SW-099-MWS. Each location was checked for the potential presence of NAPL using an oil-water interface probe prior to sampling. During these checks, NAPL was not detected in any of the groundwater sampling locations. The TPH-DRO PAL exceedances are shown on **Figure 9**.

4.2.2. Groundwater Conditions: Inorganic Constituents

Table 8 provides a summary of inorganic constituents detected in groundwater above the laboratory's RLs. Four dissolved metals (cobalt, iron, lead, and manganese) were detected above their respective aqueous PALs (6 µg/L, 14,000 µg/L, 15 µg/L, and 430 µg/L, respectively). Cobalt, iron, and manganese are typically associated with slag fill material. Cobalt had PAL exceedances at three locations (A15-015-PZ, A15-016-PZ, and SW-099-MWS), with the maximum detection of 52.94 µg/L at SW-099-MWS. Iron, lead, and manganese were detected above their PALs at A15-016-PZ, with concentrations of 16,000 µg/L for iron, 38.19 µg/L for lead, and 1,478 µg/L for manganese. The inorganic PAL exceedances are shown on **Figure 9**.

4.2.3. Groundwater Conditions: Results Summary

Table 7 and **Table 8** provide summaries of the parameters detected in the groundwater samples from Parcel A15, and **Figure 9** presents the locations and aqueous results that exceeded the PALs. The PAL exceedances within Parcel A15 consisted of one VOC (trichloroethene), two SVOCs (benz[a]anthracene and naphthalene), TPH-DRO, and four dissolved metals (cobalt, iron, lead, and manganese).

None of the aqueous results exceeded the individual vapor intrusion (VI) target cancer risk (TCR) or target hazard quotient (THQ) criteria as specified by the Vapor Intrusion Screening Level (VISL) Calculator. Following the initial screening, a cumulative VI risk assessment was also performed for each individual sample location, with the results separated by cancer risk versus non-cancer hazard. All compounds with detections (and corresponding VISLs) were included in

the computation of the cumulative cancer risk, and all compounds with detections exceeding 10% of the THQ level were included in the evaluation of non-cancer hazard. None of the cumulative VI cancer risks were greater than 1E-5 and none of the VI non-cancer hazards exceeded the 10% THQ level. The cumulative VI comparisons are provided in **Table 9**.

The presence and absence of groundwater impacts within the Site boundaries have been adequately described. Groundwater is not used on the Tradepoint Atlantic property (and is not proposed to be utilized). Based on the relatively low-level analytical results identified during this investigation, there do not appear to be ongoing sources of groundwater contamination present. Overall, there are no plans for development within the Site so there is no vapor intrusion risk to potential workers.

4.3. SURFACE WATER CONDITIONS

The surface water samples were screened against the PALs established in the QAPP (for groundwater) to determine potential direct exposure risks. The surface water analytical results were additionally compared to the National Recommended Water Quality Criteria (NRWQC) Aquatic Life Chronic Criteria for Freshwater. The analytical results for the detected parameters are summarized and compared to the PALs and the Aquatic Life Chronic Criteria for Freshwater in **Table 10** (Organics) and **Table 11** (Inorganics). No detections were observed for any organics that have established NRWQC screening levels. The laboratory Certificates of Analysis (including Chains of Custody) and DVRs have been included as electronic attachments. The DVRs contain a glossary of qualifiers for the final flags assigned to results in the attached summary tables.

4.3.1. Surface Water Conditions: Organic Compounds

Table 10 provides a summary of VOCs identified in groundwater samples above the laboratory's RLs. A total of three VOCs (bromodichloromethane, chloroform, and dibromochloromethane) were identified above their respective PALs for each of the eight surface water samples. Bromodichloromethane was detected above the PAL of 0.13 µg/L with a maximum detection of 0.86 µg/L in A15-001-SW. Chloroform was detected above the PAL of 0.22 µg/L with a maximum detection of 1.2 µg/L also in A15-001-SW. Dibromochloromethane was detected above the PAL of 0.17 µg/L with a maximum detection of 0.89 µg/L at A15-001-SW as well. The VOC PAL exceedances are shown in **Figure 10**. Overall, these chlorinated compounds are likely associated with receipt of the discharge from the Back River Wastewater Treatment Plant.

Table 10 provides a summary of SVOCs identified in the surface water samples above the laboratory's RLs. A total of two SVOCs (benz[a]anthracene and naphthalene) were identified above their respective PALs for multiple surface water samples. Benz[a]anthracene was detected above its PAL of 0.03 µg/L in two samples (A15-008-SW and A15-012-SW), with values of 0.07 µg/L and 0.04 µg/L, respectively. Naphthalene was detected above its PAL of 0.12 µg/L in two samples (A15-007-SW and A15-010-SW) with a detection of 0.17 µg/L and 0.13 µg/L, respectively. The SVOC PAL exceedances are shown in **Figure 10**.

Table 10 provides a summary of the TPH/Oil & Grease detections in groundwater above the laboratory's RLs. TPH-GRO was not detected above the PAL at any sample locations. TPH-DRO was identified above the PAL in four surface water locations (A15-006-SW, A15-008-SW, A15-010-SW, and A15-012-SW) with a maximum concentration of 870 µg/L detected in A15-006-SW. Oil & Grease was detected above its respective PAL of 47 µg/L in one location (A15-004-SW) with a concentration of 5,800 µg/L. Note that the Oil & Grease RL is 3,600 µg/L, which is higher than the PAL. The TPH/Oil & Grease PAL exceedance is shown in **Figure 10**.

4.3.2. Surface Water Conditions: Inorganic Constituents

Table 11 provides a summary of inorganic constituents detected in surface water above the laboratory's RLs. No dissolved metals were detected above their respective aqueous PALs or NRWQC screening levels.

4.3.3. Surface Water Conditions: Results Summary

Table 10 and **Table 11** provide summaries of the parameters detected in the surface water samples from Parcel A15, and **Figure 10** presents the locations and aqueous results that exceeded the PALs. The surface water PAL exceedances for Parcel A15 consisted of three VOCs (bromodichloromethane, chloroform, and dibromochloromethane), two SVOCs (benz[a]anthracene and naphthalene), TPH-DRO, and Oil & Grease. Note that the observed Oil & Grease PAL exceedance occurred at A15-004-SW, which is the sample nearest to the area of previously noted oily surface water discharge and associated booms.

The detection of constituents in the surface water samples are not a significant concern at this time. The PALs specified in the QAPP are based upon drinking water use, which is not a potential exposure pathway for surface water at the Site. There is no indirect exposure risk via the consumption of organisms impacted by the surface water constituents because fishing does not occur in this area. Therefore, no additional action or remediation is proposed at this time with regard to the surface water in the High Head Reservoir.

4.4. SEDIMENT CONDITIONS

The analytical results for the detected sediment parameters from Parcel A15 are summarized and compared to the soil PALs and also the Biological Technical Assistance Group (BTAG) Freshwater Sediment Screening Benchmark values in **Table 12** (Organics) and **Table 13** (Inorganics). The laboratory Certificates of Analysis (including Chains of Custody) and DVRs have been included as electronic attachments. The DVRs contain a glossary of qualifiers for the final flags assigned to results in the attached summary tables.

4.4.1. Sediment Conditions: Organic Compounds

Table 12 provides a summary of VOCs identified in sediment samples above the laboratory's RLs. Comparison of sediment samples to PALs and Freshwater BTAG Screening Values took place during this Phase II investigation. No VOCs were identified above their respective PALs in any sediment samples. Three BTAG exceedances were detected for VOCs (carbon disulfide, chlorobenzene, and xylenes) across seven sample locations.

Table 12 provides a summary of SVOCs identified in sediment samples above the laboratory's RLs. Sediment samples values were compared to PALs and BTAG Screening Values. No SVOCs were identified above their respective PALs in any sediment samples. There were sixteen SVOC BTAG exceedances observed across multiple sediment sample locations.

Table 12 provides a summary of PCBs identified in the sediment samples above the laboratory's RLs. PCBs were detected above the PALs in six of the 12 sediment samples, for one or more of the following PCB mixtures: Aroclor 1248, Aroclor 1254, Aroclor 1260 and total PCBs. Aroclor 1248 was detected above its PAL in one sediment sample location: A15-011-SD with a concentration of 5.3 J mg/kg. Aroclor 1254 was detected above its PAL in four sediment sample locations, with a maximum concentration of 6.41 mg/kg at A15-011-SD. Aroclor 1260 was detected above its PAL in three sediment sample locations, with a maximum concentration of 2.73 mg/kg at A15-011-SD. Total PCBs were detected above its PAL in six sediment sample locations, with a maximum value of 14.4 mg/kg at A15-011-SD. The PCB PAL exceedances are shown in **Figure 11**. Each sediment sample also exceeded the BTAG Screening Value for total PCBs.

Table 12 provides a summary of the TPH/Oil & Grease detections in sediment above the laboratory's RLs. TPH-GRO was not identified above its PAL in any sediment samples. TPH-DRO was identified above the PAL at one sediment sample location (A15-007-SB) with a detection of 10,000 mg/kg (with an associated "J" flag). Oil & Grease exceedances were observed at all 12 sediment sample locations, with a maximum detection of 82,400 mg/kg (with an associated "J +" flag) at A15-011-SD. The TPH/Oil & Grease PAL exceedances are shown on **Figure 11**.

4.4.2. Sediment Conditions: Inorganic Constituents

Table 13 provides a summary of inorganic constituents detected in sediment above the laboratory's RLs. Comparison of sediment samples to PALs and Freshwater BTAG Screening Values took place during this Phase II investigation. Two metals (arsenic and lead) were detected above their respective PAL. Arsenic was detected above the PAL in 11 of the 12 sediment sample locations with a maximum observed value of 23.8 mg/kg (with an associated "J" flag) at A15-010-SD. Lead was detected in four sample locations (A15-001-SD, A15-007-SD, A15-010-SD, and A15-012-SD) with a maximum observed value of 2,790 mg/kg, (with associate "J" flag) at A15-010-SD. The inorganic PAL exceedances are shown on **Figure 11**. It should be noted that

hexavalent chromium results from each sediment sample were rejected due to matrix interference. Of the inorganic constituents for the sediment samples, there were 13 BTAG exceedances across multiple sediment sample locations.

4.4.3. Sediment Conditions: Results Summary

Table 12 and **Table 13** provide summaries of the parameters detected in the sediment samples from Parcel A15, and **Figure 11** presents the locations and results that exceeded the PALs. The sediment PAL exceedances for Parcel A15 consisted of four PCB mixtures (Aroclor 1248, Aroclor 1254, Aroclor 1260 and total PCBs), TPH-DRO, Oil & Grease, and two metals (arsenic and lead).The maximum detections for PCBs were all at location A15-011-SD. The maximum detection for metals were all at A15-010-SD. Only one DRO exceedance was observed in the sediment at A15-007-SD, located on the eastern portion of the reservoir. Overall, Oil & Grease exceedances are not localized to a particular area of the reservoir, suggesting that there does not appear to be a single source area for these impacts. It should be noted that hexavalent chromium results from each sediment sample were rejected due to matrix interference.

Since the sediments are below the water surface, there is no direct exposure pathway for a current worker to encounter the sediments. There is also no indirect exposure risk via the consumption of organisms potentially impacted by the pond sediments because fishing does not occur in this area. Therefore, no additional action or remediation is proposed at this time with regard to the pond sediments and human health.

Sediment exceedances for BTAG screening values included three exceedances for VOCs, 16 exceedances for SVOCs, one exceedance for PCBs, and 13 exceedances for metals. Each compound identified as an exceedance of the BTAG values was detected above its applicable criterion in at least two samples. As mentioned in Section 1.1, High Head Reservoir is largely fed by treated effluent from the BRWWTP. There is no current Process Watter discharged to the pond in Parcel A15. Potential impacts to ecological receptors do not appear to be related to Sparrows Point activities. In addition, future development plans indicate that treated effluent from the BCWWTP will bypass the High Head Reservoir, and the High Head Reservoir may be filled in.

5.0 DATA USABILITY ASSESSMENT

The approved property wide QAPP specified a process for evaluating data usability in the context of meeting project goals. Specifically, the goal of the Phase II Investigation is to determine if potentially hazardous substances or petroleum products (VOCs, SVOCs, PCBs, metals, cyanide, or TPH/Oil & Grease) are present in Site media (soil/sediment and groundwater) at concentrations that could pose an unacceptable risk to Site receptors. Individual results are compared to the PALs established in the QAPP (i.e., the USEPA RSLs), or based on other direct guidance from the agencies, to identify the presence of PAL exceedances in each environmental medium.

Quality assurance and quality control (QA/QC) samples were collected during the field studies to evaluate field/laboratory variability. A summary of QA/QC samples associated with this investigation has been included as **Appendix E**. The following QA/QC samples were required by the QAPP to support the data validation:

- Trip Blank – at a rate of one per cooler with VOC samples per day
  - Soil/Sediment – VOCs only
  - Water – VOCs only
- Blind Field Duplicate – at a rate of one per twenty samples
  - Soil/Sediment – VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, Oil & Grease, PCBs, hexavalent chromium, and cyanide
  - Water – VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, Oil & Grease, hexavalent chromium, and cyanide
- Matrix Spike/Matrix Spike Duplicate – at a rate of one per twenty samples
  - Soil/Sediment – VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, Oil & Grease, PCBs, and hexavalent chromium
  - Water – VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, Oil & Grease, and hexavalent chromium
- Field Blank and Equipment Blank – at a rate of one per twenty samples
  - Soil/Sediment – VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, Oil & Grease, hexavalent chromium, and cyanide
  - Water – VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, Oil & Grease, hexavalent chromium, and cyanide

The QA/QC samples were collected and analyzed in accordance with the QAPP Worksheet 12 – Measurement Performance Criteria, QAPP Worksheet 20 – Field Quality Control, and QAPP Worksheet 28 – Analytical Quality Control and Corrective Action.

5.1. DATA VERIFICATION

A verification review was performed on documentation generated during sample collection and analysis. The verification included a review of field logbooks, field data sheets, and Chains of Custody to ensure that all planned samples were collected, and to ensure consistency with the field methods and decontamination procedures specified in the QAPP Worksheet 21 – Field SOPs and Appendix A of the QAPP. In addition, calibration logs were reviewed to ensure that field equipment was calibrated at the beginning of each day and re-checked as needed. The logs have been provided in **Appendix C** (PID calibration log) and **Appendix D** (multiparameter meter calibration logs).

The laboratory deliverables were reviewed to ensure that all records specified in the QAPP as well as necessary signatures and dates are present. Sample receipt records were reviewed to ensure that the sample condition upon receipt was noted, and any missing/broken sample containers (if any) were noted and reported according to plan. The data packages were compared to the Chains of Custody to verify that results were provided for all collected samples. The data package case narratives were reviewed to ensure that all exceptions (if any) are described.

5.2. DATA VALIDATION

USEPA Stage 2B data validation was completed for a representative 30% (minimum) of the environmental sample analyses performed by Alpha and ALS and supporting Level IV Data Package information by Environmental Data Quality Inc. (EDQI). The DVRs provided by EDQI have been included as electronic attachments.

Sample analyses have undergone an analytical quality assurance review to ensure adherence to the required protocols. The Stage 2B review was performed as outlined in “Guide for Labeling Externally Validated Laboratory Analytical Data for Superfund Use”, EPA-540-R-08-005. Results have been validated or qualified according to general guidance provided in “USEPA National Functional Guidelines for Inorganic Superfund Data Review (ISM02.1)”, USEPA October 2013. Region III references this guidance for validation requirements. This document specifies procedures for validating data generated for Contract Laboratory Program (CLP) analyses. The approved property wide QAPP dated April 5, 2016, and the quality control requirements specified in the methods and associated acceptance criteria were also used to evaluate the non-CLP data.

The Alpha Analytical Services, Inc. laboratory facility implements quality assurance and reporting requirements through the TNI certification program with the State of Pennsylvania; which is accepted by Maryland. Since late-January 2017, these requirements include the flagging of contaminants with a “B” qualifier when an analyte is detected in an associated laboratory method blank, regardless of the level of the contaminant detected in the sample. A method blank is analyzed at a rate of one blank for each 20 sample analytical batch. The USEPA has previously specified that results flagged with the “B” qualifier do not represent legitimate detections. They

have also specified that results flagged with a “JB” qualifier are invalid, and any such results should be revised to display the “B” qualifier only.

Although elevated sample results may be “B” qualified by the laboratory as non-detects (due to low-level blank detections), EDQI corrects any erroneous “B” qualifiers during the data validation procedure to avoid under-reporting analytical detections. EDQI removes the “B” qualifiers for relevant samples according to the guidance given in the table below. Therefore, a result originally flagged with a “B” qualifier in the laboratory certificate may be reported as a legitimate detection without this qualifier. Likewise, a result originally flagged with a “JB” qualifier in the laboratory certificate may be reported as a “J” qualifier if the erroneous “B” qualifier can be eliminated but would be reported as a “B” qualified non-detect result if the original “B” qualifier is legitimate.

Blank Result	Sample Result	Qualifying Action
Result less than RL	Result less than RL	Result is Qualified "B"
	Result greater than RL	Remove "B"
Result greater than RL	Result less than Blank Result	Result is Qualified "B"
	Result greater than Blank Result	Remove "B"

RL = Reporting Limit

As directed by EDQI, ARM has reviewed all non-validated laboratory reports (those which were not designated to be reviewed by EDQI) and applied the same validation corrections to any relevant “B” or “JB” qualified results. This review of the non-validated data ensures that any elevated detections of parameters, including those which may exceed the PALs, are not mistakenly reported as non-detect values simply because they did not undergo the formal validation procedure by EDQI. ARM has also revised the non-validated results to eliminate any laboratory-specific, non-standardized qualifiers (L2, 6c, ip, 4c, etc.), which are customarily removed by EDQI during the validation procedure.

5.3. DATA USABILITY

The data were evaluated with respect to the quality control elements of precision, bias, representativeness, comparability, completeness, and sensitivity relative to data quality indicators and performance measurement criteria outlined in QAPP Worksheet 12 – Measurement Performance Criteria. The following discussion details deviation from the performance measurement criteria, and the impact on data quality and usability.

The measurement performance criteria of precision and bias were evaluated in the data validation process as described in the DVRs provided as electronic attachments. Where appropriate, potential limitations in the results have been indicated through final data flags. These flags indicate whether

particular data points were quantitative estimates, biased high/low, associated with blank contamination, etc. Individual data flags are provided with the results in the detection summary tables. A qualifier code glossary is included with the DVRs provided by EDQI. Particular results may have been marked with the "R" flag if the result was deemed to be unreliable and was not included in any further data evaluation. The analytical soil, sediment, and groundwater results that were rejected during data validation are provided in **Table 14**. A discussion of data completeness (the proportion of valid data) is included below.

Representativeness is a measure of how accurately and precisely the data describe the Site conditions. Representativeness of the samples submitted for analysis was ensured by adherence to standard sampling techniques and protocols, as well as appropriate sample preservation prior to analysis. The sampling was conducted in accordance with the QAPP Worksheet 21 – Field SOPs and Appendix A of the QAPP. Specific Field SOPs applicable to the assessment of representativeness include **Field SOP Numbers 003, 006, 008, 009, 010, 011, 017, and 024**. Review of the field notes and laboratory sample receipt records indicated that sample collection at the Site was representative, with no significant deviations from the SOPs.

Comparability describes the degree of confidence in comparing two sets of data. Comparability is maintained across multiple datasets by the use of consistent sampling and analytical methods across multiple project phases. Comparability of sample results was ensured through the use of approved standard sampling and analysis methods outlined in the QAPP. QA/QC protocols help to maintain the comparability of datasets, and in this case were assessed via blind duplicates, blank samples, and spiked samples, where applicable. Any significant deviations from the QAPP are noted in the DVRs.

Sensitivity is a determination of whether the analytical methods and quantitation limits will satisfy the requirements of the project. The laboratory reports were reviewed to verify that reporting limits met the quantitation limits for specific analytes provided in QAPP Worksheet #15 – Project Action Limits and Laboratory-Specific Detection/Quantitation Limits. In general, the laboratory reporting limits met the detection and quantitation limits specified in the QAPP.

Completeness is expressed as a ratio of the number of valid data points to the total number of analytical data results. Non-usable ("R" flagged) data results were determined through the data validation process. The approved QAPP specifies that the completeness of data is assessed by professional judgement but should be greater than or equal to 90%. Data completeness for each compound is provided in **Appendix F**. This evaluation of completeness includes only the representative 30% (minimum) of sample results which were randomly selected for validation.

All soil and surface water compounds had completeness ratios greater than 90%. Only two analytes had completeness ratios less than 90% (selenium in groundwater (50%) and hexavalent chromium in sediment (0%)). Neither of these parameters had PAL exceedances in any samples collected

across the Site. Overall, the soil, groundwater, sediment, and surface water data can be used as intended, and no significant data gaps were identified.

6.0 FINDINGS AND RECOMMENDATIONS

The objective of the Parcel A15 Phase II Investigation was to characterize the nature and extent of contamination at the Site. During the Phase II Investigation, a total of 34 soil samples (from 17 soil boring locations), 12 sediment samples, 6 groundwater samples, and eight surface water samples were collected for analysis. However, 33 of the 34 soil samples were analyzed; the remaining soil sample was placed on hold, and analysis was not required based on the results of the shallower soil sample. The sampling and analysis plan for the parcel was developed to target specific features that represented a potential release of hazardous substances and/or petroleum products to the environment, as well as providing general site coverage.

Soil and sediment samples were analyzed for VOCs, SVOCs, TPH-DRO/GRO, Oil & Grease, TAL-Metals, hexavalent chromium, cyanide, and PCBs, in accordance with the requirements of the project-specific soil sampling plan. Groundwater and surface water samples were analyzed for VOCs, SVOCs, TPH-DRO/GRO, Oil & Grease, TAL metals, dissolved hexavalent chromium, total cyanide, and available/amenable cyanide.

High Head Reservoir was constructed as an industrial facility to receive effluent from the BRWWTP. High Head Reservoir discharges into the TMC and ultimately is treated at the HCWWTP. Currently, the City of Baltimore is looking to bypass the High Head Reservoir and instead pipe directly to one of the stormwater outfalls. Future development plans may likely include filling the High Head Reservoir.

6.1. SOIL

The concentrations of constituents in the soil have been characterized by the Phase II Investigation to provide estimates of exposure point concentrations to support risk assessment.

PCB concentrations are below levels that would warrant delineation and evaluation of a removal remedy (50 mg/kg). Additionally, lead concentrations were below the mandatory delineation threshold (10,000 mg/kg). No further action is required with respect to PCBs or lead at the Site. VOCs, SVOCs, PCBs, TPH-DRO/GRO, and Oil & Grease were not detected above their respective PALs and are not considered to be significant soil contaminants at the Site. No physical evidence of NAPL was observed in any soil cores completed during this investigation.

PAL exceedances in soil within Parcel A15 were limited to one metal (arsenic). The maximum concentration of arsenic was 8.48 mg/kg, within sample A15-020-SB-4. Arsenic exceedances were detected in almost every sample, but only slightly above naturally occurring concentrations in the region.

6.2. GROUNDWATER

The concentrations of constituents in the groundwater have been characterized by this Phase II Investigation to provide estimates of exposure point concentrations to support risk assessment. NAPL was not detected at any of the groundwater sample locations included in either investigation.

PAL exceedances in groundwater consisted of one VOC (trichloroethene), two SVOCs (benz[a]anthracene and naphthalene), TPH-DRO, and four dissolved metals (cobalt, iron, lead, and manganese). Trichloroethene exceeded its PAL of 5 µg/L at A15-015-PZ with a detection of 9.5 µg/L. Benz[a]anthracene was detected right at the PAL exceedance limit value of 0.03 µg/L at A15-016-PZ, while naphthalene was observed in two locations (SG04-PDM008 and SW-099-MWS) with a detections of 3.4 µg/L and 0.19 µg/L, respectively. TPH-DRO was identified above the PAL in five groundwater locations with a maximum detection of 2,100 µg/L in SW-099-MWS. The maximum detections for each listed metal were: 52.94 µg/L for cobalt (SW-099-MWS), 16,000 µg/L for iron (A15-016-PZ), 38.19 µg/L for lead (A15-016-PZ), and 1,478 µg/L for manganese(A15-016-PZ). Cobalt had exceedances at multiple locations, but the remaining inorganic exceedances were identified at a single location (A15-016-PZ).

Groundwater is not used on the Tradepoint Atlantic property (and is not proposed to be utilized); therefore, there is no potential for direct human exposure. If future construction/excavation leads to potential construction worker exposures to groundwater, health and safety plans should be implemented to limit exposure risk. The groundwater data were screened to determine whether any cumulative (or individual) sample results exceeded the USEPA VI TCR (carcinogen) or THQ (non-carcinogen) Screening Levels. No VI exceedances were observed. Overall, there are no plans for development within the Site so there is no VI risk to potential workers.

6.3. SURFACE WATER

The concentrations of constituents in the surface water have been characterized by this Phase II Investigation to provide estimates of exposure point concentrations to support risk assessment.

PAL Exceedances in surface water consisted of three VOCs (bromodichloromethane, chloroform, and dibromochloromethane), two SVOCs (benz[a]anthracene and naphthalene), TPH-DRO, and Oil & Grease. The maximum detections for each listed VOC were: 0.86 µg/L for bromodichloromethane, 1.2 µg/L for chloroform, and 0.89 for dibromochloromethane µg/L, all at a single location (A15-001-SW). Benz[a]anthracene was detected above the PAL exceedance limit value of 0.03 µg/L in two samples (A15-008-SW and A15-012-SW), with values of 0.07 µg/L and 0.04 µg/L, respectively. Naphthalene was observed in two locations (A15-007-SW and A15-010-SW) with a detection of 0.17 µg/L and 0.13 µg/L, respectively. DRO exceeded its PAL of 47 µg/L in four surface sample locations with a maximum detection of detection of 870 µg/L (A15-006-SW).

The surface water in High Head Reservoir is not used for any purpose, therefore there are no potentially complete exposure pathways for human health. No additional action or remediation is proposed at this time with regard to the surface water in the High Head Reservoir.

6.4. SEDIMENT

The concentrations of constituents in the sediment have been characterized by this Phase II Investigation to provide estimates of exposure point concentrations to support risk assessment.

PAL exceedances in the sediment consisted of four PCB mixtures (Aroclor 1248, Aroclor 1254, Aroclor 1260, and total PCBs), TPH-DRO, Oil & Grease, and two metals (arsenic and lead). TPH-DRO concentrations were only elevated at A15-007-SD, with an exceedance of 10,000 mg/kg. Oil & Grease sediment concentrations were elevated at every location. The maximum Oil & Grease concentration was observed at A15-011-SD at 82,400 mg/kg.

There is no direct exposure pathway for a current worker to encounter the sediments, and there is also no indirect exposure risk via the consumption of organisms because fishing does not occur in this area. Therefore, no additional action or remediation with regard to human health is warranted or proposed. There is no current Process Water discharged to the pond on Parcel A15 and there is no record/indication of any historical industrial activity on Parcel A15. Potential impacts to ecological receptors do not appear to be related to Sparrows Point activities. No additional action or remediation is proposed at this time with regard to ecological receptors.

6.5. RECOMMENDATIONS

Sufficient remedial investigation data has been collected to evaluate the nature and extent of possible constituents of concern in Parcel A15. The presence and absence of soil, groundwater, surface water, and sediment impacts within Parcel A15 have been adequately described and further investigation at the Site is not warranted to characterize overall conditions. Recommendations for the Site are as follows:

- At multiple locations in the High Head Reservoir, sediment and surface water sample results exceeded the PALs and BTAG screening levels. The PALs are related to human health; there are no potentially complete exposure pathways for a worker to encounter sediments and surface water in the ponds. No additional action or remediation with regard to human health is proposed at this time. While there are BTAG exceedances; any potential impacts to ecological receptors do not appear to be related to Sparrows Point activities. In addition, future development plans indicate that treated effluent from the BCWWTP will bypass the High Head Reservoir, and the High Head Reservoir may be filled in. Additional characterization may be required during future redevelopment (if redevelopment is proposed for Parcel A15) to ensure proper management of sediments if they are to be excavated, particularly those with elevated Oil & Grease and PCB results.

7.0 REFERENCES

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FIGURES

Tradepoint Atlantic Property
Area A and Area B Parcel Boundaries
April 20, 2023

Figure 1

ARM Group LLC
Engineers and Scientists

Tradepoint Atlantic
Sparrows Point
Baltimore County, MD
Area A: Project 210101
Area B: Project 210102

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Site Boundary
Parcel Boundaries
1916 Shoreline:
Land
Marsh
Water

Parcel A9
Parcel A5
Parcel A13
Parcel A7
Parcel A14
Greys Creek
Bear Creek
Parcel A11
Parcel A8
Parcel A12
Parcel A2
Parcel A15
Parcel A17
Parcel A18
Parcel A16
Parcel A6
Parcel A3
Parcel A4
Parcel A10
Parcel A1
Parcel B6
Humphrey Creek
Parcel B8
Parcel B14
Parcel B21
Parcel B22
Parcel B16
Parcel B15
Parcel B24
Parcel B23
Parcel B25
Old Road Bay
Block House Cove
Parcel B7
Jones Creek
Parcel B1
Parcel B2
Parcel B3
Parcel B17
Parcel B19
Parcel B4
Parcel B5
Parcel B9
Parcel B18
Parcel B10
Parcel B13
Parcel B20
Parcel B11
Parcel B12
Patapsco River

Approximate Shoreline 1916

April 20, 2023

Adapted from Figure 2-20 of the Description of Current Conditions Report prepared by Rust Environmental and Infrastructure, dated January 1998

Figure 2

ARM Group LLC
Engineers and Scientists

0 500 1,000 2,000 Feet

Tradepoint Atlantic
Sparrows Point
Baltimore County, MD
Area A: Project 210101
Area B: Project 210102

Parcel A15: 1952 Aerial Imagery

April 20, 2023

Figure 3

ARM Group LLC
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Tradepoint Atlantic

Sparrows Point

Baltimore County, MD

ARM Project 21010115

Parcel A15 Groundwater Sample Locations

April 20, 2023

Figure 4

ARM Group LLC
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Tradepoint Atlantic

Sparrows Point

Baltimore County, MD

ARM Project 21010115

Parcel A15: Shallow Groundwater Elevations

May 10, 2023

Figure 5

ARM Group LLC
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Tradepoint Atlantic

Sparrows Point

Baltimore County, MD

ARM Project 21010115

Parcel A15 Completed Soil Borings

February 10, 2023

Figure 6

ARM Group LLC
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Tradepoint Atlantic

Sparrows Point

Baltimore County, MD

ARM Project 21010115

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LEGEND

- ◆ Proposed Sediment Sample
- ● Proposed Sediment and Surface Water Sample
- ☐ Parcel Boundaries

Parcel A15: Sediment and SW Sample Locations

April 20, 2023

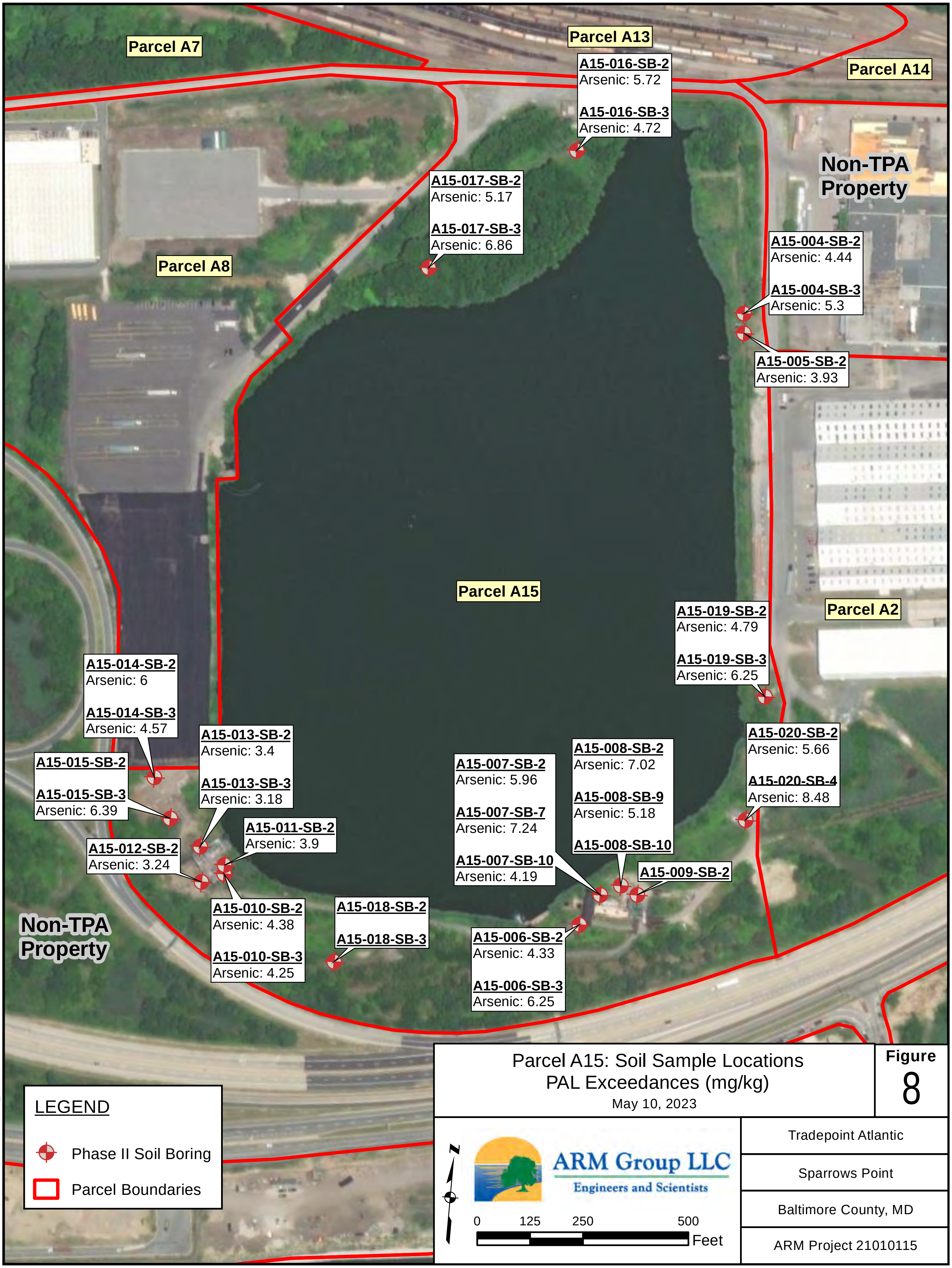
Figure 7

ARM Group LLC
Engineers and Scientists

0 125 250 500 Feet

Tradepoint Atlantic
Sparrows Point
Baltimore County, MD
ARM Project 21010115

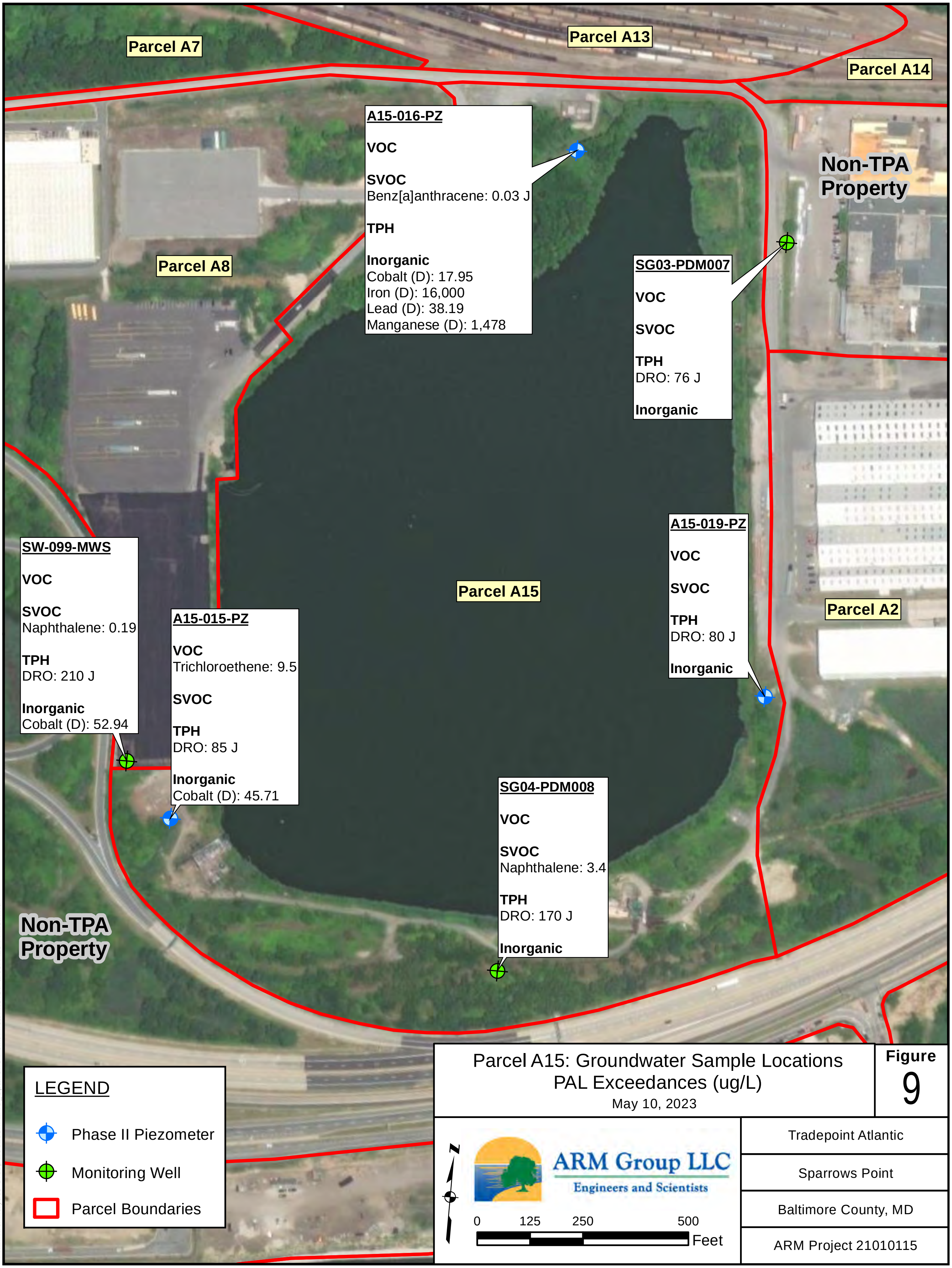
P:\EnviroAnalytics Group\150298M EAG_Sparrows Point Area A\GIS\Parcel A15.mxd



Parcel A15: Soil Sample Locations
PAL Exceedances (mg/kg)
May 10, 2023

Figure 8

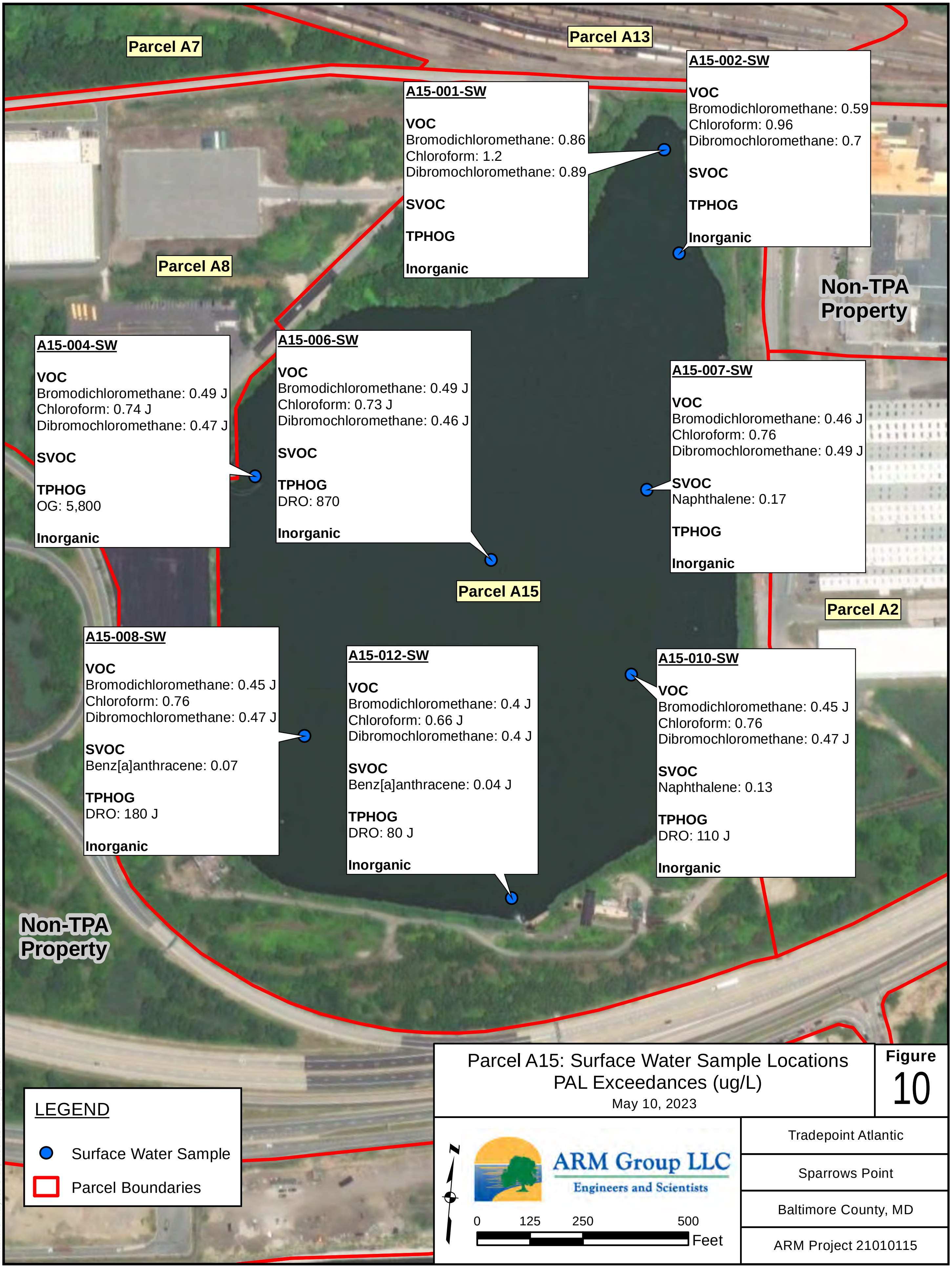
Tradepoint Atlantic
Sparrows Point
Baltimore County, MD
ARM Project 21010115



Parcel A15: Groundwater Sample Locations
PAL Exceedances (ug/L)
May 10, 2023

Figure 9

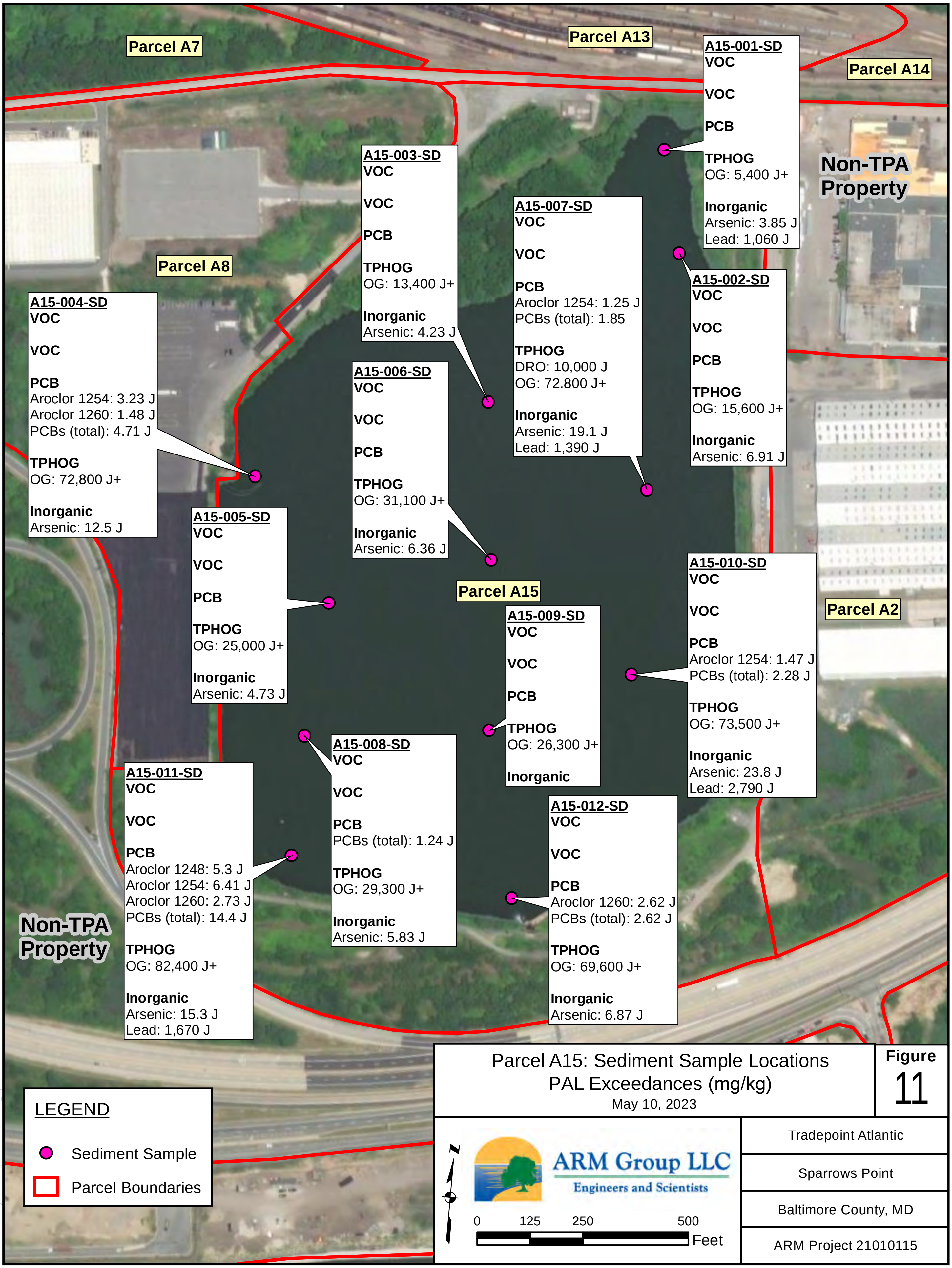
Tradepoint Atlantic
Sparrows Point
Baltimore County, MD
ARM Project 21010115



Parcel A15: Surface Water Sample Locations
PAL Exceedances (ug/L)
May 10, 2023

Figure 10

Tradepoint Atlantic
Sparrows Point
Baltimore County, MD
ARM Project 21010115



Parcel A7
Parcel A13
Parcel A14
Parcel A8
Parcel A15
Parcel A2
Non-TPA Property
Non-TPA Property
A15-001-SD
VOC
VOC
PCB
TPHOG
OG: 5,400 J+
Inorganic
Arsenic: 3.85 J
Lead: 1,060 J
A15-002-SD
VOC
VOC
PCB
TPHOG
OG: 15,600 J+
Inorganic
Arsenic: 6.91 J
A15-003-SD
VOC
VOC
PCB
TPHOG
OG: 13,400 J+
Inorganic
Arsenic: 4.23 J
A15-004-SD
VOC
VOC
PCB
Aroclor 1254: 3.23 J
Aroclor 1260: 1.48 J
PCBs (total): 4.71 J
TPHOG
OG: 72,800 J+
Inorganic
Arsenic: 12.5 J
A15-005-SD
VOC
VOC
PCB
TPHOG
OG: 25,000 J+
Inorganic
Arsenic: 4.73 J
A15-006-SD
VOC
VOC
PCB
TPHOG
OG: 31,100 J+
Inorganic
Arsenic: 6.36 J
A15-007-SD
VOC
VOC
PCB
Aroclor 1254: 1.25 J
PCBs (total): 1.85
TPHOG
DRO: 10,000 J
OG: 72.800 J+
Inorganic
Arsenic: 19.1 J
Lead: 1,390 J
A15-008-SD
VOC
VOC
PCB
PCBs (total): 1.24 J
TPHOG
OG: 29,300 J+
Inorganic
Arsenic: 5.83 J
A15-009-SD
VOC
VOC
PCB
TPHOG
OG: 26,300 J+
Inorganic
A15-010-SD
VOC
VOC
PCB
Aroclor 1254: 1.47 J
PCBs (total): 2.28 J
TPHOG
OG: 73,500 J+
Inorganic
Arsenic: 23.8 J
Lead: 2,790 J
A15-011-SD
VOC
VOC
PCB
Aroclor 1248: 5.3 J
Aroclor 1254: 6.41 J
Aroclor 1260: 2.73 J
PCBs (total): 14.4 J
TPHOG
OG: 82,400 J+
Inorganic
Arsenic: 15.3 J
Lead: 1,670 J
A15-012-SD
VOC
VOC
PCB
Aroclor 1260: 2.62 J
PCBs (total): 2.62 J
TPHOG
OG: 69,600 J+
Inorganic
Arsenic: 6.87 J
LEGEND
Sediment Sample
Parcel Boundaries
N
0 125 250 500
Feet
ARM Group LLC
Engineers and Scientists
Parcel A15: Sediment Sample Locations
PAL Exceedances (mg/kg)
May 10, 2023
Figure
11
Tradepoint Atlantic
Sparrows Point
Baltimore County, MD
ARM Project 21010115

TABLES

TABLE 1 GROUNDWATER ELEVATION DATA				
Location Name	TOC Elevation (feet AMSL)	Ground Elevation (feet AMSL)	Measured DTW (ft)	Groundwater Elevation (feet AMSL)
A15-015-PZ	14.17	11.33	7.04	7.13
A15-016-PZ	12.76	10.53	2.65	10.11
A15-019-PZ	10.61	8.18	5.19	5.42
SG03-PDM007	13.93	12.09	5.19	8.74
SG04-PDM008	7.50	4.84	5.85	1.65
SW-099-MWS	17.68	14.01	10.49	7.19

DTW = Depth to water
TOC = Top of casing
AMSL = Above mean sea level

Table 2 - Parcel A15
Historical Site Drawing Details

Set Name	Typical Features Shown	Drawing Number	Original Date Drawn	Latest Revision Date
Plant Arrangement	Roads, water bodies, building/structure footprints, electric lines, above-ground pipelines (e.g., steam, nitrogen, etc.)	5051	6/1/1960	3/19/1982
		5052	6/30/1959	3/11/1982
		5056	1/27/1959	3/11/1982
		5057	4/27/1959	3/11/1982
		5061	2/8/1962	3/11/1982
		5062	2/8/1962	3/11/1982
Plant Index	Roads, water bodies, demolished buildings/structures, electric lines, above-ground pipelines	5151	*Unknown*	2/21/2008
		5152	*Unknown*	2/25/2008
		5156	*Unknown*	11/10/2008
		5157	*Unknown*	11/10/2008
		5161	*Unknown*	3/6/2008
		5162	*Unknown*	3/6/2008
Plant Sewer Lines	Same as above plus trenches, sumps, underground piping (includes pipe materials)	5551	9/16/1959	3/5/1976
		5552	9/16/1959	3/9/1976
		5556	*4/5/1961*	2/41/76
		5557	*Unknown*	2/2/1976
		5561	2/5/1976	2/5/1976
		5562	3/15/1976	3/15/1976

Table 3 - Parcel A15
Field Shifted Boring Locations

Location ID	Sample Target	Proposed Location*		Final Location*		Relocation Distance (ft.) & Direction		Reason for Shift
		Northing	Easting	Northing	Easting			
A15-004-SB	Underground Storage Tank	574,114	1,463,310	574,141	1,463,324	29	SE	Inaccessible due to Vegetation
A15-005-SB	Underground Storage Tank	574,101	1,463,310	574,094	1,463,329	16	NE	Inaccessible due to Vegetation
A15-016-SB	Parcel A15 Coverage	574,491	1,462,880	574,490	1,462,897	21	E	Overhead Utility
A15-017-SB	Parcel A15 Coverage	574,196	1,462,460	574,183	1,462,572	111	E	Overhead Utility
A15-018-SB	Parcel A15 Coverage	572,547	1,462,480	572,527	1,462,492	23	SE	Inaccessible due to Topography
A15-019-SB	Parcel A15 Coverage	573,192	1,463,460	573,241	1,463,453	49	N	Inaccessible due to Vegetation
A15-020-SB	Parcel A15 Coverage	573,677	1,463,370	572,946	1,463,433	734	S	Inaccessible due to Fence

*Reported northings and eastings are not survey accurate. Coordinates are reported in NAD 1983 Maryland State Plane (US feet).

Table 4 - Parcel A15
Summary of Organics Detected in Soil

Parameter	Units	PAL	A15-004-SB-2* 11/8/2022	A15-004-SB-3* 11/8/2022	A15-005-SB-2* 11/8/2022	A15-006-SB-2 12/20/2022	A15-006-SB-3 12/20/2022	A15-007-SB-2 12/20/2022	A15-007-SB-7 12/20/2022	A15-008-SB-2 12/20/2022	A15-008-SB-9 12/20/2022	A15-009-SB-2 12/20/2022
Semi-Volatile Organic Compounds^												
2-Methylnaphthalene	mg/kg	3,000	**0.0028 J**	*0.0076 U*	**0.0046 J**	**0.01**	**0.0026 J**	*0.008 U*	*0.0082 U*	*0.0078 U*	**0.0023 J**	**0.0064 J**
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	*0.28 U*	*0.27 U*	*0.26 U*	*0.28 U*	*0.27 U*	*0.29 U*	*0.29 U*	*0.28 U*	*0.29 U*	*0.27 U*
Acenaphthene	mg/kg	45,000	*0.0078 U*	*0.0076 U*	**0.0016 J**	**0.0021 J**	*0.0076 U*	*0.008 U*	*0.0082 U*	*0.0078 U*	**0.0074 J**	*0.0074 U*
Acenaphthylene	mg/kg	45,000	**0.026**	*0.0076 U*	**0.033**	**0.012**	*0.0076 U*	*0.008 U*	*0.0082 U*	*0.0078 U*	*0.008 U*	**0.0018 J**
Anthracene	mg/kg	230,000	**0.014**	*0.0076 U*	**0.015**	**0.011**	**0.00068 J**	*0.008 U*	*0.0082 U*	*0.0078 U*	*0.008 U*	**0.0022 J**
Benz[a]anthracene	mg/kg	21	**0.064**	*0.0076 U*	**0.076**	**0.085**	**0.0052 J**	**0.0048 J**	*0.0082 U*	**0.0024 J**	*0.008 U*	**0.0064 J**
Benzaldehyde	mg/kg	120,000	*0.26 U*	*0.25 U*	*0.24 U*	**0.054 J**	*0.25 U*	*0.26 U*	*0.27 U*	*0.26 U*	*0.26 U*	*0.24 U*
Benzo[a]pyrene	mg/kg	2.1	**0.06**	*0.0076 U*	**0.076**	**0.072**	**0.0038 J**	**0.0034 J**	*0.0082 U*	**0.0019 J**	*0.008 U*	**0.0071 J**
Benzo[b]fluoranthene	mg/kg	21	**0.076**	*0.0076 U*	**0.096**	**0.099**	**0.005 J**	**0.0039 J**	*0.0082 U*	**0.0025 J**	*0.008 U*	**0.013**
Benzo[g,h,i]perylene	mg/kg		**0.028**	*0.0076 U*	**0.034**	**0.044**	**0.0034 J**	**0.0021 J**	*0.0082 U*	**0.0011 J**	*0.008 U*	**0.007 J**
Benzo[k]fluoranthene	mg/kg	210	**0.027**	*0.0076 U*	**0.027**	**0.032**	**0.0014 J**	**0.0014 J**	*0.0082 U*	*0.0078 U*	*0.008 U*	**0.0028 J**
Carbazole	mg/kg		*0.2 U*	*0.19 U*	*0.18 U*	*0.2 U*	*0.19 U*	*0.2 U*	*0.2 U*	*0.2 U*	*0.2 U*	*0.18 U*
Chrysene	mg/kg	2,100	**0.045**	*0.0076 U*	**0.056**	**0.059**	**0.0033 J**	**0.0039 J**	*0.0082 U*	**0.0016 J**	*0.008 U*	**0.0087**
Dibenz[a,h]anthracene	mg/kg	2.1	**0.0088**	*0.0076 U*	**0.01**	**0.012**	*0.0076 U*	*0.008 U*	*0.0082 U*	*0.0078 U*	*0.008 U*	**0.0018 J**
Di-n-butylphthalate	mg/kg	82,000	*0.2 U*	*0.19 U*	*0.18 U*	*0.2 U*	*0.19 U*	*0.2 U*	*0.2 U*	*0.2 U*	*0.2 U*	*0.18 U*
Fluoranthene	mg/kg	30,000	**0.095**	*0.0076 U*	**0.1**	**0.13**	**0.0055 J**	**0.0053 J**	**0.00066 J**	**0.0032 J**	**0.0012 J**	**0.013**
Fluorene	mg/kg	30,000	**0.002 J**	*0.0076 U*	**0.0022 J**	**0.0035 J**	*0.0076 U*	*0.008 U*	**0.001 J**	*0.0078 U*	**0.0012 J**	**0.001 J**
Indeno[1,2,3-c,d]pyrene	mg/kg	21	**0.041**	*0.0076 U*	**0.051**	**0.06 J**	**0.004 J**	**0.0027 J**	*0.0082 UJ*	**0.0016 J**	*0.008 U*	**0.0083**
Naphthalene	mg/kg	8.6	**0.0095**	*0.0076 U*	**0.016**	**0.016**	**0.0027 J**	**0.0015 J**	*0.0082 U*	*0.0078 U*	**0.033**	**0.0063 J**
Phenanthrene	mg/kg		**0.021**	*0.0076 U*	**0.024**	**0.052**	**0.0035 J**	**0.0021 J**	**0.00086 J**	**0.0016 J**	**0.0011 J**	**0.0087**
Pyrene	mg/kg	23,000	**0.079**	*0.0076 U*	**0.085**	**0.11**	**0.0052 J**	**0.0046 J**	*0.0082 U*	**0.0029 J**	**0.001 J**	**0.012**
PCBs												
Aroclor 1248	mg/kg	0.94	*0.0379 U*	*N/A*	*0.0378 U*	**0.0184 J**	*N/A*	*0.038 U*	*N/A*	*0.0395 U*	*N/A*	*0.036 U*
Aroclor 1254	mg/kg	0.97	*0.0379 U*	*N/A*	*0.0378 U*	**0.0225 J**	*N/A*	*0.038 U*	*N/A*	*0.0395 U*	*N/A*	*0.036 U*
Aroclor 1260	mg/kg	0.99	*0.0379 U*	*N/A*	*0.0378 U*	**0.0376 J**	*N/A*	*0.038 U*	*N/A*	*0.0395 U*	*N/A*	**0.0192 J**
Aroclor 1268	mg/kg		*0.0379 U*	*N/A*	*0.0378 U*	**0.0161 J**	*N/A*	*0.038 U*	*N/A*	*0.0395 U*	*N/A*	**0.012 J**
PCBs (total)	mg/kg	0.97	*0.0379 U*	*N/A*	*0.0378 U*	**0.0946 J**	*N/A*	*0.038 U*	*N/A*	*0.0395 U*	*N/A*	**0.0312 J**
TPH/Oil & Grease												
Diesel Range Organics	mg/kg	6,200	*6.2 B*	*4.2 B*	*6.5 B*	*36 B*	*6.4 B*	*3.7 B*	*3.4 B*	*8.2 B*	*6.5 B*	*5.1 B*
Gasoline Range Organics	mg/kg	6,200	*2 B*	*0.5 B*	*1.1 B*	*0.62 B*	*0.73 B*	*0.62 B*	*0.63 B*	*0.69 B*	*0.97 B*	*0.62 B*
Oil & Grease	mg/kg	6,200	**410**	*231 U*	**422**	**251**	**388**	**295**	*224 U*	*239 U*	*244 U*	**210**

Detections in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
N/A indicates that the parameter was not analyzed for this sample
*indicates non-validated data
^PAH compounds were analyzed via SIM

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.
UJ: This analyte was not detected in the sample. The actual quantitation/detection limit may be higher than reported.
J: The positive result reported for this analyte is a quantitative estimate.
B: This analyte was not detected substantially above the level of the associated method blank or field blank.

Table 4 - Parcel A15
Summary of Organics Detected in Soil

Parameter	Units	PAL	A15-010-SB-2* 12/21/2022	A15-010-SB-3* 12/21/2022	A15-011-SB-2* 12/21/2022	A15-012-SB-2* 12/21/2022	A15-013-SB-2* 12/21/2022	A15-013-SB-3* 12/21/2022	A15-014-SB-2* 12/21/2022	A15-014-SB-3* 12/21/2022	A15-015-SB-2* 12/21/2022	A15-015-SB-3* 12/21/2022
Semi-Volatile Organic Compounds^												
2-Methylnaphthalene	mg/kg	3,000	**0.0037 J**	*0.008 U*	*0.078 U*	*0.039 U*	**0.022 J**	*0.0079 U*	**0.011**	**0.038**	**0.006 J**	*0.0081 U*
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	*1.4 U*	*0.29 U*	*2.8 U*	*1.4 U*	*0.84 U*	*0.28 U*	*0.28 U*	*0.3 U*	*0.26 U*	*0.29 U*
Acenaphthene	mg/kg	45,000	*0.0079 U*	*0.008 U*	*0.078 U*	*0.039 U*	*0.023 U*	*0.0079 U*	**0.0078**	**0.12**	**0.0095**	*0.0081 U*
Acenaphthylene	mg/kg	45,000	**0.0035 J**	**0.001 J**	*0.078 U*	*0.039 U*	**0.02 J**	*0.0079 U*	**0.0066 J**	**0.007 J**	**0.0025 J**	*0.0081 U*
Anthracene	mg/kg	230,000	**0.003 J**	**0.0017 J**	**0.013 J**	*0.039 U*	**0.024**	**0.00087 J**	**0.024**	**0.03**	**0.076**	*0.0081 U*
Benz[a]anthracene	mg/kg	21	**0.012**	*0.0037 B*	**0.13**	*0.039 U*	**0.1**	*0.002 B*	**0.088**	**0.22**	**0.66**	*0.00093 B*
Benzaldehyde	mg/kg	120,000	*1.3 U*	*0.26 U*	*2.6 U*	*1.3 U*	*0.78 U*	*0.26 U*	*0.26 U*	*0.27 U*	*0.24 U*	*0.27 U*
Benzo[a]pyrene	mg/kg	2.1	**0.0093**	*0.008 U*	**0.12**	*0.039 U*	**0.1**	**0.0016 J**	**0.093**	**0.46**	**0.71**	*0.0081 U*
Benzo[b]fluoranthene	mg/kg	21	**0.017**	*0.0045 B*	**0.18**	*0.039 U*	**0.12**	*0.002 B*	**0.1**	**0.4**	**0.72**	*0.0081 U*
Benzo[g,h,i]perylene	mg/kg		*0.0079 U*	**0.0026 J**	**0.067 J**	**0.0094 J**	**0.074**	**0.0013 J**	**0.055**	**0.32**	**0.34**	*0.0081 U*
Benzo[k]fluoranthene	mg/kg	210	*0.0079 U*	**0.0012 J**	**0.053 J**	*0.039 U*	**0.036**	**0.00075 J**	**0.035**	**0.14**	**0.27**	*0.0081 U*
Carbazole	mg/kg		*0.98 U*	*0.2 U*	*1.9 U*	*0.98 U*	*0.59 U*	*0.2 U*	*0.19 U*	*0.21 U*	**0.06 J**	*0.2 U*
Chrysene	mg/kg	2,100	**0.014**	**0.0096**	**0.14**	*0.039 U*	**0.093**	*0.0013 B*	**0.073**	**0.18**	**0.54**	*0.0081 U*
Dibenz[a,h]anthracene	mg/kg	2.1	**0.003 J**	*0.008 U*	**0.022 J**	*0.039 U*	**0.02 J**	*0.0079 U*	**0.018**	**0.096**	**0.11**	*0.0081 U*
Di-n-butylphthalate	mg/kg	82,000	**0.92 J**	*0.2 U*	*1.9 U*	*0.98 U*	*0.59 U*	*0.2 U*	*0.19 U*	*0.21 U*	*0.18 U*	*0.2 U*
Fluoranthene	mg/kg	30,000	**0.013**	**0.01**	**0.24**	*0.0076 B*	**0.2**	*0.0025 B*	**0.16**	**0.2**	**0.88**	*0.0013 B*
Fluorene	mg/kg	30,000	*0.0079 U*	**0.002 J**	*0.078 U*	*0.039 U*	**0.005 J**	*0.0079 U*	**0.0076 J**	**0.02**	**0.012**	*0.0081 U*
Indeno[1,2,3-c,d]pyrene	mg/kg	21	**0.011**	**0.0016 J**	**0.085**	*0.039 U*	**0.087**	**0.0015 J**	**0.073**	**0.42**	**0.46**	*0.0081 U*
Naphthalene	mg/kg	8.6	**0.0053 J**	**0.0033 J**	*0.078 U*	*0.039 U*	**0.053**	*0.0079 U*	**0.017**	**0.054**	**0.0072 J**	*0.0081 U*
Phenanthrene	mg/kg		*0.0048 B*	**0.0097**	*0.035 B*	*0.0039 B*	**0.097**	*0.0021 B*	**0.084**	**0.097**	**0.32**	*0.00085 B*
Pyrene	mg/kg	23,000	**0.013**	**0.0088**	**0.22**	*0.007 B*	**0.2**	*0.0019 B*	**0.15**	**0.2**	**0.82**	*0.0011 B*
PCBs												
Aroclor 1248	mg/kg	0.94	**0.0638**	*N/A*	**0.0356 J**	**0.0196 J**	*0.109 U*	*N/A*	*0.0395 U*	*N/A*	*0.0357 U*	*N/A*
Aroclor 1254	mg/kg	0.97	**0.0256 J**	*N/A*	**0.0313 J**	**0.0227 J**	*0.109 U*	*N/A*	**0.0258 J**	*N/A*	*0.0357 U*	*N/A*
Aroclor 1260	mg/kg	0.99	*0.0388 U*	*N/A*	*0.0384 U*	*0.0382 U*	*0.109 U*	*N/A*	**0.0187 J**	*N/A*	*0.0357 U*	*N/A*
Aroclor 1268	mg/kg		*0.0388 U*	*N/A*	*0.0384 U*	*0.0382 U*	*0.109 U*	*N/A*	**0.0092 J**	*N/A*	*0.0357 U*	*N/A*
PCBs (total)	mg/kg	0.97	**0.0894 J**	*N/A*	**0.0669 J**	**0.0423 J**	*0.109 U*	*N/A*	**0.0537 J**	*N/A*	*0.0357 U*	*N/A*
TPH/Oil & Grease												
Diesel Range Organics	mg/kg	6,200	**23 J**	**39**	**350**	**140**	**14 J**	*39 U*	**15 J**	**130**	**65**	*41 U*
Gasoline Range Organics	mg/kg	6,200	*0.83 B*	*0.72 B*	*0.88 B*	*1 B*	*0.77 B*	*0.8 B*	*1 B*	*1.9 B*	*0.84 B*	*0.65 B*
Oil & Grease	mg/kg	6,200	**1,950**	**312**	**1,060**	**666**	**380**	**290**	**878**	**879**	**438**	**235**

Detections in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
N/A indicates that the parameter was not analyzed for this sample
*indicates non-validated data
^PAH compounds were analyzed via SIM

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.
UJ: This analyte was not detected in the sample. The actual quantitation/detection limit may be higher than reported.
J: The positive result reported for this analyte is a quantitative estimate.
B: This analyte was not detected substantially above the level of the associated method blank or field blank.

Table 4 - Parcel A15
Summary of Organics Detected in Soil

Parameter	Units	PAL	A15-016-SB-2* 11/8/2022	A15-016-SB-3* 11/8/2022	A15-017-SB-2* 11/8/2022	A15-017-SB-3* 11/8/2022	A15-018-SB-2 12/20/2022	A15-018-SB-3 12/20/2022	A15-019-SB-2 12/20/2022	A15-019-SB-3 12/20/2022	A15-020-SB-2 12/20/2022	A15-020-SB-4 12/20/2022
Semi-Volatile Organic Compounds^												
2-Methylnaphthalene	mg/kg	3,000	**0.01**	*0.008 U*	*0.0075 U*	*0.0071 U*	*0.02 U*	*0.025 U*	**0.0036 J**	*0.0076 U*	*0.037 U*	*0.0076 U*
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	**0.16 J**	*0.29 U*	*0.27 U*	*0.26 U*	*0.72 U*	*0.9 U*	*0.28 U*	*0.27 U*	*1.3 U*	*0.27 U*
Acenaphthene	mg/kg	45,000	*0.0076 U*	*0.008 U*	*0.0075 U*	*0.0071 U*	*0.02 U*	*0.025 U*	*0.0077 U*	*0.0076 U*	*0.037 U*	*0.0076 U*
Acenaphthylene	mg/kg	45,000	**0.0065 J**	*0.008 U*	**0.0012 J**	*0.0071 U*	*0.02 U*	*0.025 U*	**0.003 J**	*0.0076 U*	*0.037 U*	*0.0076 U*
Anthracene	mg/kg	230,000	**0.0071 J**	*0.008 U*	**0.0016 J**	*0.0071 U*	*0.02 U*	*0.025 U*	**0.0013 J**	**0.002 J**	*0.037 U*	*0.0076 U*
Benz[a]anthracene	mg/kg	21	**0.026**	**0.0024 J**	**0.0091**	*0.0071 U*	**0.0085 J**	**0.005 J**	**0.008**	**0.0037 J**	**0.0085 J**	*0.0076 U*
Benzaldehyde	mg/kg	120,000	**0.051 J**	*0.26 U*	*0.25 U*	*0.23 U*	*0.66 U*	*0.82 U*	*0.25 U*	*0.25 U*	*1.2 U*	*0.25 U*
Benzo[a]pyrene	mg/kg	2.1	**0.025**	**0.002 J**	**0.0088**	*0.0071 U*	**0.0076 J**	**0.0032 J**	**0.0094**	**0.0028 J**	**0.012 J**	*0.0076 U*
Benzo[b]fluoranthene	mg/kg	21	**0.035**	**0.0026 J**	**0.011**	*0.0071 U*	**0.0097 J**	**0.0046 J**	**0.0098**	**0.0031 J**	**0.015 J**	*0.0076 U*
Benzo[g,h,i]perylene	mg/kg		**0.017**	**0.0013 J**	**0.0063 J**	*0.0071 U*	**0.0055 J**	*0.025 U*	**0.0068 J**	**0.0026 J**	**0.015 J**	*0.0076 U*
Benzo[k]fluoranthene	mg/kg	210	**0.011**	**0.0008 J**	**0.004 J**	*0.0071 U*	**0.0034 J**	*0.025 U*	**0.0035 J**	**0.0023 J**	**0.0044 J**	*0.0076 U*
Carbazole	mg/kg		*0.19 U*	*0.2 U*	*0.19 U*	*0.18 U*	*0.5 U*	*0.62 U*	*0.19 U*	*0.19 U*	*0.92 U*	*0.19 U*
Chrysene	mg/kg	2,100	**0.024**	**0.0019 J**	**0.008**	*0.0071 U*	**0.006 J**	**0.0027 J**	**0.0063 J**	**0.0026 J**	**0.016 J**	*0.0076 U*
Dibenz[a,h]anthracene	mg/kg	2.1	*0.0041 B*	*0.008 U*	*0.0019 B*	*0.0071 U*	*0.02 U*	*0.025 U*	**0.0015 J**	**0.0021 J**	*0.037 U*	*0.0076 U*
Di-n-butylphthalate	mg/kg	82,000	*0.19 U*	*0.2 U*	*0.19 U*	*0.18 U*	*0.5 U*	*0.62 U*	*0.19 U*	*0.19 U*	*0.92 U*	*0.19 U*
Fluoranthene	mg/kg	30,000	**0.053**	**0.0037 J**	**0.016**	*0.0071 U*	**0.0095 J**	**0.0058 J**	**0.015**	**0.0038 J**	**0.011 J**	**0.00061 J**
Fluorene	mg/kg	30,000	**0.0018 J**	*0.008 U*	*0.0075 U*	*0.0071 U*	*0.02 U*	*0.025 U*	*0.0077 U*	**0.0015 J**	*0.037 U*	*0.0076 U*
Indeno[1,2,3-c,d]pyrene	mg/kg	21	**0.02**	**0.0017 J**	**0.0078**	*0.0071 U*	**0.0074 J**	**0.003 J**	**0.0084**	**0.0034 J**	**0.011 J**	*0.0076 UJ*
Naphthalene	mg/kg	8.6	**0.015**	*0.008 U*	**0.0021 J**	*0.0071 U*	*0.02 U*	*0.025 U*	**0.0082**	**0.0015 J**	*0.037 U*	*0.0076 U*
Phenanthrene	mg/kg		**0.024**	**0.0014 J**	**0.0081**	*0.0071 U*	**0.0043 J**	**0.0032 J**	**0.0054 J**	**0.0031 J**	**0.0042 J**	**0.00072 J**
Pyrene	mg/kg	23,000	**0.043**	**0.0035 J**	**0.014**	**0.0005 J**	**0.0084 J**	**0.0047 J**	**0.013**	**0.0036 J**	**0.013 J**	*0.0076 U*
PCBs												
Aroclor 1248	mg/kg	0.94	*0.0374 U*	*N/A*	*0.0359 U*	*N/A*	*0.0344 U*	*N/A*	*0.0377 U*	*N/A*	*0.0368 U*	*N/A*
Aroclor 1254	mg/kg	0.97	*0.0374 U*	*N/A*	*0.0359 U*	*N/A*	**0.00465 J**	*N/A*	*0.0377 U*	*N/A*	*0.0368 U*	*N/A*
Aroclor 1260	mg/kg	0.99	**0.0105 J**	*N/A*	*0.0359 U*	*N/A*	**0.00873 J**	*N/A*	*0.0377 U*	*N/A*	*0.0368 U*	*N/A*
Aroclor 1268	mg/kg		*0.0374 U*	*N/A*	*0.0359 U*	*N/A*	*0.0344 U*	*N/A*	*0.0377 U*	*N/A*	*0.0368 U*	*N/A*
PCBs (total)	mg/kg	0.97	**0.0105 J**	*N/A*	*0.0359 U*	*N/A*	**0.0134 J**	*N/A*	*0.0377 U*	*N/A*	*0.0368 U*	*N/A*
TPH/Oil & Grease												
Diesel Range Organics	mg/kg	6,200	*13 B*	*8.9 B*	*5 B*	*3.7 B*	*2.6 B*	*4.5 B*	*5.4 B*	*4.1 B*	**44**	*3.6 B*
Gasoline Range Organics	mg/kg	6,200	*0.68 B*	*0.85 B*	*0.87 B*	*0.87 B*	*1 B*	*0.92 B*	*0.61 B*	*0.59 B*	*0.67 B*	*0.62 B*
Oil & Grease	mg/kg	6,200	**313**	**255**	**305**	*218 U*	**394**	**312**	*214 U*	*231 U*	*200 U*	*212 U*

Detections in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
N/A indicates that the parameter was not analyzed for this sample
*indicates non-validated data
^PAH compounds were analyzed via SIM

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UJ: This analyte was not detected in the sample. The actual quantitation/detection limit may be higher than reported.
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B: This analyte was not detected substantially above the level of the associated method blank or field blank.

Table 5 - Parcel A15
Summary of Inorganics Detected in Soil

Parameter	Units	PAL	A15-004-SB-2* 11/8/2022	A15-004-SB-3* 11/8/2022	A15-005-SB-2* 11/8/2022	A15-006-SB-2 12/20/2022	A15-006-SB-3 12/20/2022	A15-007-SB-2 12/20/2022	A15-007-SB-7 12/20/2022	A15-007-SB-10* 12/20/2022	A15-008-SB-2 12/20/2022	A15-008-SB-9 12/20/2022	A15-008-SB-10* 12/20/2022
Metals													
Aluminum	mg/kg	1,100,000	**15,100**	**7,640**	**16,300**	**8,170**	**9,640**	**8,010**	**11,900**	*N/A*	**8,560**	**11,000**	*N/A*
Arsenic	mg/kg	3	**4.44**	**5.3**	**3.93**	**4.33**	**6.25**	**5.96**	**7.24**	**4.19**	**7.02**	**5.18**	**1.88**
Barium	mg/kg	220,000	**176**	**34.2**	**165**	**74.9**	**23.7**	**29.7**	**32.1**	*N/A*	**38.3**	**29.2**	*N/A*
Beryllium	mg/kg	2,300	**1.8**	**0.472**	**1.85**	**0.542**	**0.541**	**0.399 J**	**0.626**	*N/A*	**0.604**	**0.579**	*N/A*
Cadmium	mg/kg	100	**0.36 J**	*0.887 U*	**0.442 J**	**0.459 J**	**0.157 J**	**0.212 J**	**0.172 J**	*N/A*	**0.326 J**	**0.145 J**	*N/A*
Chromium	mg/kg	1,800,000	**30.2**	**13.4**	**29.4**	**17**	**16.1**	**14.5**	**21.2**	*N/A*	**19.2**	**18.2**	*N/A*
Chromium VI	mg/kg	6.3	**0.253 J**	**1.06**	*0.912 U*	**0.849 J-**	**0.65 J-**	**0.64 J-**	**1.18 J-**	*N/A*	**0.513 J-**	**0.757 J-**	*N/A*
Cobalt	mg/kg	350	**5.34**	**3.7**	**2.84**	**4.98**	**6.48**	**3.94**	**5.06**	*N/A*	**7.32**	**5.05**	*N/A*
Copper	mg/kg	47,000	**14.2**	**6.12**	**11.9**	**15**	**10.4**	**11.4**	**10.2**	*N/A*	**71.6**	**10.1**	*N/A*
Iron	mg/kg	820,000	**28,200**	**14,600**	**18,400**	**9,750**	**16,300**	**14,400**	**19,000**	*N/A*	**15,200**	**13,700**	*N/A*
Lead	mg/kg	800	**18.5**	**9.21**	**23.2**	**32.7**	**19.4**	**22.7**	**11.5**	*N/A*	**28.3**	**15.2**	*N/A*
Manganese	mg/kg	26,000	**2,300**	**57.2**	**2,790**	**477**	**77.4**	**65.3**	**64.4**	*N/A*	**680**	**52**	*N/A*
Mercury	mg/kg	350	**0.06 J**	*0.075 U*	**0.093**	**0.06 J**	**0.221**	*0.088 U*	*0.081 U*	*N/A*	*0.081 U*	*0.087 U*	*N/A*
Nickel	mg/kg	22,000	**8.87**	**6.42**	**5.24**	**7.1**	**11.6**	**7**	**9.54**	*N/A*	**19.3**	**10.7**	*N/A*
Selenium	mg/kg	5,800	**0.583 J**	*1.77 U*	**0.914 J**	*1.86 U*	*1.74 U*	*1.88 U*	*1.99 U*	*N/A*	*1.82 U*	*1.9 U*	*N/A*
Silver	mg/kg	5,800	*0.466 U*	*0.444 U*	*0.441 U*	*0.464 U*	*0.435 U*	*0.471 U*	*0.496 U*	*N/A*	*0.456 U*	*0.476 U*	*N/A*
Thallium	mg/kg	12	**0.679 J**	*1.77 U*	**0.279 J**	*1.86 U*	*1.74 U*	*1.88 U*	*1.99 U*	*N/A*	*1.82 U*	*1.9 U*	*N/A*
Vanadium	mg/kg	5,800	**161**	**30.9**	**146**	**216**	**22.3**	**22.9**	**30.6**	*N/A*	**68.2**	**27.1**	*N/A*
Zinc	mg/kg	350,000	**79.6**	**21.4**	**158**	**68.6**	**41.8**	**34**	**28.6**	*N/A*	**39.6**	**31.6**	*N/A*

Detections in bold
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J-: The positive result reported for this analyte is a quantitative estimate, but may be biased low.

Table 5 - Parcel A15
Summary of Inorganics Detected in Soil

Parameter	Units	PAL	A15-009-SB-2	A15-010-SB-2*	A15-010-SB-3*	A15-011-SB-2*	A15-012-SB-2*	A15-013-SB-2*	A15-013-SB-3*	A15-014-SB-2*	A15-014-SB-3*	A15-015-SB-2*	A15-015-SB-3*
			12/20/2022	12/21/2022	12/21/2022	12/21/2022	12/21/2022	12/21/2022	12/21/2022	12/21/2022	12/21/2022	12/21/2022	12/21/2022
Metals													
Aluminum	mg/kg	1,100,000	**6,670**	**11,800**	**12,200**	**22,000**	**18,600**	**6,300**	**12,300**	**10,700**	**13,000**	**7,560**	**15,200**
Arsenic	mg/kg	3	*0.88 U*	**4.38**	**4.25**	**3.9**	**3.24**	**3.4**	**3.18**	**6**	**4.57**	**1.85**	**6.39**
Barium	mg/kg	220,000	**61.4**	**68.8**	**50.2**	**200**	**219**	**43.9**	**33.8**	**61.4**	**61.2**	**92.6**	**172**
Beryllium	mg/kg	2,300	**0.663**	**0.771**	**0.701**	**3.14**	**2.22**	**0.422 J**	**0.44 J**	**0.788**	**0.565**	**0.625**	**0.605**
Cadmium	mg/kg	100	**1.54**	**0.205 J**	**0.155 J**	**1.35**	**0.635 J**	**0.342 J**	**0.102 J**	**0.373 J**	**0.963**	**1.43**	**0.18 J**
Chromium	mg/kg	1,800,000	**669**	**19.2**	**18.4**	**28.8**	**660**	**36.9**	**13.4**	**76.7**	**171**	**531**	**22.6**
Chromium VI	mg/kg	6.3	**2.59 J-**	*0.972 U*	*0.964 U*	*0.952 U*	*0.946 U*	**1.12**	**0.192 J**	*0.948 U*	**0.769 J**	**0.757 J**	**0.926 J**
Cobalt	mg/kg	350	**1.55 J**	**5.46**	**5.23**	**2.04**	**2.26**	**4.88**	**3.22**	**5**	**6.14**	**4.89**	**4.25**
Copper	mg/kg	47,000	**21**	**9.53**	**10.1**	**38.2**	**14.5**	**10.2**	**6.9**	**20.5**	**19.1**	**56.6**	**13.2**
Iron	mg/kg	820,000	**145,000**	**14,700**	**12,800**	**19,900**	**38,100**	**11,600**	**12,600**	**24,400**	**36,700**	**105,000**	**18,300**
Lead	mg/kg	800	**17.9**	**13.4**	**13.3**	**113**	**31.1**	**30.8**	**9.61**	**29.2**	**59.9**	**108**	**11.5**
Manganese	mg/kg	26,000	**22,400**	**554**	**394**	**2,530**	**22,300**	**704**	**55.2**	**2,170**	**5,520**	**24,700**	**41.6**
Mercury	mg/kg	350	*0.071 U*	*0.081 U*	**0.068 J**	**0.231**	*0.09 U*	**0.202**	*0.091 U*	*0.089 U*	*0.08 U*	*0.073 U*	*0.08 U*
Nickel	mg/kg	22,000	**6.84**	**7.92**	**8.58**	**10.9**	**4.73**	**6.71**	**7.49**	**15**	**15.7**	**21.8**	**9.06**
Selenium	mg/kg	5,800	**0.76 J**	**0.432 J**	**0.248 J**	**1.38 J**	**1.15 J**	*1.89 U*	*1.84 U*	*1.79 U*	*1.92 U*	**0.53 J**	*1.89 U*
Silver	mg/kg	5,800	*0.44 U*	*0.462 U*	*0.454 U*	**0.503**	**0.652**	*0.472 U*	*0.46 U*	*0.448 U*	**0.411 J**	**0.879**	*0.472 U*
Thallium	mg/kg	12	*1.76 U*	*1.85 U*	*1.81 U*	*1.8 U*	**2.52**	*1.89 U*	*1.84 U*	*1.79 U*	*1.92 U*	**1.05 J**	*1.89 U*
Vanadium	mg/kg	5,800	**409**	**36.8**	**27.6**	**57.2**	**2,170**	**35.4**	**19.5**	**185**	**463**	**1,320**	**37**
Zinc	mg/kg	350,000	**83.7**	**46**	**49**	**3,280**	**274**	**78.4**	**21.2**	**66.8**	**102**	**157**	**26.3**

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Table 5 - Parcel A15
Summary of Inorganics Detected in Soil

Parameter	Units	PAL	A15-015-SB-10* 12/21/2022	A15-016-SB-2* 11/8/2022	A15-016-SB-3* 11/8/2022	A15-017-SB-2* 11/8/2022	A15-017-SB-3* 11/8/2022	A15-018-SB-2 12/20/2022	A15-018-SB-3 12/20/2022	A15-019-SB-2 12/20/2022	A15-019-SB-3 12/20/2022	A15-020-SB-2 12/20/2022	A15-020-SB-4 12/20/2022
Metals													
Aluminum	mg/kg	1,100,000	*N/A*	**8,720**	**10,500**	**8,260**	**10,800**	**22,100**	**52,600**	**9,620**	**8,940**	**6,480**	**10,200**
Arsenic	mg/kg	3	**3.22**	**5.72**	**4.72**	**5.17**	**6.86**	**1.26**	**2.58**	**4.79**	**6.25**	**5.66**	**8.48**
Barium	mg/kg	220,000	*N/A*	**57.5**	**46.2**	**49.5**	**88.1**	**163**	**175**	**47.3**	**27.6**	**59.3**	**18.7**
Beryllium	mg/kg	2,300	*N/A*	**0.569**	**0.43 J**	**0.506**	**1.08**	**2.32**	**3.48**	**0.539**	**0.485**	**0.501**	**0.471**
Cadmium	mg/kg	100	*N/A*	**0.594 J**	**0.183 J**	**0.11 J**	**0.259 J**	*0.825 U*	*0.947 U*	**0.155 J**	**0.158 J**	**0.431 J**	**0.159 J**
Chromium	mg/kg	1,800,000	*N/A*	**46.2**	**20.6**	**14.1**	**17.6**	**44.9**	**15.3**	**14**	**19.8**	**18.3**	**20.3**
Chromium VI	mg/kg	6.3	*N/A*	*0.927 U*	*0.971 U*	**0.362 J**	**0.523 J**	**0.281 J-**	*1 UJ*	**1.1 J-**	**0.312 J-**	*0.888 UJ*	**0.918 J-**
Cobalt	mg/kg	350	*N/A*	**9.01**	**4.23**	**2.97**	**18**	**0.652 J**	**0.255 J**	**5.56**	**4.32**	**4.3**	**3.32**
Copper	mg/kg	47,000	*N/A*	**29.8**	**17.6**	**4.91**	**16.8**	**5.93**	**4.11**	**9.64**	**9.69**	**21**	**10.1**
Iron	mg/kg	820,000	*N/A*	**25,500**	**11,600**	**14,400**	**17,300**	**8,450**	**5,830**	**12,500**	**15,200**	**12,400**	**20,200**
Lead	mg/kg	800	*N/A*	**34.4**	**21.3**	**10.2**	**47.5**	**0.843 J**	**6.13**	**13**	**11.5**	**69.7**	**11**
Manganese	mg/kg	26,000	*N/A*	**2,220**	**174**	**80.4**	**1,000**	**4,660**	**4,650**	**112**	**340**	**310**	**42.4**
Mercury	mg/kg	350	*N/A*	**0.128**	**0.26**	**0.058 J**	**0.191**	*0.07 U*	**0.075 J**	*0.081 U*	*0.078 U*	**0.346**	*0.074 U*
Nickel	mg/kg	22,000	*N/A*	**10.3**	**6.55**	**5.08**	**10.4**	**1.47 J**	**1.95 J**	**8.38**	**8.59**	**7.29**	**7.1**
Selenium	mg/kg	5,800	*N/A*	*1.81 U*	*1.88 U*	*1.78 U*	*1.7 U*	**0.527 J**	**0.452 J**	*1.89 U*	*1.82 U*	**0.284 J**	**0.301 J**
Silver	mg/kg	5,800	*N/A*	**0.284 J**	*0.47 U*	*0.445 U*	**0.241 J**	**0.266 J**	*0.474 U*	*0.473 U*	*0.456 U*	**0.39 J**	*0.454 U*
Thallium	mg/kg	12	*N/A*	*1.81 U*	*1.88 U*	*1.78 U*	*1.7 U*	*1.65 U*	*1.89 U*	*1.89 U*	*1.82 U*	*1.73 U*	*1.82 U*
Vanadium	mg/kg	5,800	*N/A*	**59**	**25.8**	**23.4**	**29.1**	**321**	**162**	**21.8**	**43.6**	**23.6**	**28.8**
Zinc	mg/kg	350,000	*N/A*	**173**	**76.9**	**26.2**	**60.3**	**1.52 J**	**36.2**	**47.2**	**37.4**	**146**	**26.4**

Detections in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
N/A indicates that the parameter was not analyzed for this sample
*indicates non-validated data

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.
UJ: This analyte was not detected in the sample. The actual quantitation/detection limit may be higher than reported.
J: The positive result reported for this analyte is a quantitative estimate.
B: This analyte was not detected substantially above the level of the associated method blank or field blank.
J-: The positive result reported for this analyte is a quantitative estimate, but may be biased low.

TABLE 6
SUMMARY OF SOIL PAL EXCEEDANCES

Parameter	CAS#	Frequency of Detections (%)	Frequency of PAL Exceedances (%)	Sample ID of Max Result	Max Result	PAL	Unit
Arsenic	7440-38-2	97	85	A15-020-SB-4	8.48	3	mg/kg

Table 7 - Parcel A15
Summary of Organics Detected in Groundwater

Parameter	Units	PAL	A15-015-PZ* 1/4/2023	A15-016-PZ* 1/4/2023	A15-019-PZ* 1/4/2023	SG03-PDM007* 12/30/2022	SG04-PDM008 12/29/2022	SW-099-MWS 1/19/2023
Volatile Organic Compounds								
1,1-Dichloroethane	µg/L	2.7	**1.2**	*0.75 U*	*0.75 U*	*0.75 U*	*0.75 U*	**1**
1,1-Dichloroethene	µg/L	7	**1.6**	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*	**1.2**
1,2-Dichloroethene (Total)	µg/L	70	**0.52**	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*
Benzene	µg/L	5	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*	**0.19 J**	**0.3 J**
Carbon disulfide	µg/L	810	*5 U*	**0.31 J**	*5 U*	*5 U*	*5 U*	*5 U*
cis-1,2-Dichloroethene	µg/L	70	**0.52**	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*
Isopropylbenzene	µg/L	450	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*	**0.55**
Toluene	µg/L	1,000	*0.75 U*	*0.75 U*	*0.75 U*	*0.75 U*	**0.28 J**	*0.75 U*
Trichloroethene	µg/L	5	**9.5**	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*	**0.19 J**
Semi-Volatile Organic Compounds^								
2,4-Dimethylphenol	µg/L	360	*5 U*	*5 U*	*5 U*	*5 U*	**20**	*5 UJ*
2-Methylnaphthalene	µg/L	36	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*	**0.16**	**0.02 J**
2-Methylphenol	µg/L	930	*5 U*	*5 U*	*5 U*	*5 U*	**1.3 J**	*5 U*
3&4-Methylphenol(m&p Cresol)	µg/L	930	*5 U*	*5 U*	*5 U*	*5 U*	**12**	*5 U*
Acenaphthene	µg/L	530	*0.1 U*	*0.1 U*	**0.04 J**	*0.1 U*	**0.07 J**	**0.19**
Acenaphthylene	µg/L	530	*0.1 U*	**0.02 J**	*0.1 U*	*0.1 U*	**0.03 J**	*0.1 U*
Anthracene	µg/L	1,800	*0.1 U*	**0.05 J**	**0.03 J**	*0.1 U*	**0.02 J**	*0.03 B*
Benz[a]anthracene	µg/L	0.03	*0.05 U*	**0.03 J**	*0.05 U*	*0.05 U*	*0.05 U*	*0.05 U*
Benzo[a]pyrene	µg/L	0.2	*0.1 U*	**0.02 J**	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*
Benzo[b]fluoranthene	µg/L	0.25	**0.02 J**	**0.04 J**	*0.05 U*	*0.05 U*	*0.05 U*	*0.05 U*
Benzo[g,h,i]perylene	µg/L		*0.1 U*	**0.02 J**	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*
Benzo[k]fluoranthene	µg/L	2.5	*0.1 U*	**0.02 J**	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*
Chrysene	µg/L	25	*0.1 U*	**0.02 J**	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*
Fluoranthene	µg/L	800	*0.1 U*	*0.03 B*	**0.12**	*0.1 U*	**0.04 J**	*0.1 U*
Fluorene	µg/L	290	*0.1 U*	*0.1 U*	**0.04 J**	*0.1 U*	**0.07 J**	**0.61**
Indeno[1,2,3-c,d]pyrene	µg/L	0.25	*0.1 U*	**0.03 J**	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*
Naphthalene	µg/L	0.12	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*	**3.4**	**0.19**
Phenanthrene	µg/L		*0.05 U*	*0.05 U*	*0.03 B*	*0.05 U*	**0.11**	**0.11**
Pyrene	µg/L	120	*0.1 U*	**0.02 J**	**0.38**	*0.1 U*	**0.03 J**	**0.03 J**
TPH								
Diesel Range Organics	µg/L	47	**85 J**	*500 U*	**80 J**	**76 J**	**170 J**	**210 J**
Gasoline Range Organics	µg/L	47	*26 B*	*20 B*	*26 B*	*35 B*	*31 B*	*42 B*

Detections in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
* indicates non-validated data
^ PAH compounds were analyzed via SIM
U: This analyte was not detected in the sample. The numeric value repesents the sample quantitation/detection limit.
J: The positive result reported for this analyte is a quantitative estimate.
B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank.

Table 8 - Parcel A15
Summary of Inorganics Detected in Groundwater

Parameter	Units	PAL	A15-015-PZ* 1/4/2023	A15-016-PZ* 1/4/2023	A15-019-PZ* 1/4/2023	SG03-PDM007* 12/30/2022	SG04-PDM008 12/29/2022	SW-099-MWS 1/19/2023
Metals								
Aluminum, Dissolved	µg/L	20,000	**363**	**10,900**	**102**	**7.67 J**	**1,210**	**214**
Antimony, Dissolved	µg/L	6	*4 U*	*4 U*	*4 U*	**0.4762 J**	*4 U*	**0.5913 J**
Arsenic, Dissolved	µg/L	10	**4.588**	**4.528**	**3.481**	**2.954**	**0.7354**	**8.853**
Barium, Dissolved	µg/L	2,000	**21.87**	**257.8**	**17.33**	**31.44**	**73.21**	**29.71**
Beryllium, Dissolved	µg/L	4	**0.2054 J**	**2.606**	*0.5 U*	*0.5 U*	*0.5 U*	**1.486**
Cadmium, Dissolved	µg/L	5	**0.28**	**0.239**	*0.2 U*	*0.2 U*	*0.2 U*	**0.146 J**
Chromium, Dissolved	µg/L	100	**0.8502 J**	**31.55**	**0.2886 J**	**0.5949 J**	*1 U*	**1.112**
Cobalt, Dissolved	µg/L	6	**45.71**	**17.95**	**2.399**	**0.3946 J**	*0.5 U*	**52.94**
Copper, Dissolved	µg/L	1,300	**0.9212 J**	**31.1**	**0.4616 J**	**2.095**	*1 U*	**0.8403 J**
Iron, Dissolved	µg/L	14,000	**10,800**	**16,000**	**5,820**	**127**	**22.6 J**	**9,570**
Lead, Dissolved	µg/L	15	**0.516 J**	**38.19**	*1 U*	*1 U*	*1 U*	**0.9063 J**
Manganese, Dissolved	µg/L	430	**306.6**	**1,478**	**170.1**	**5.243**	**1.553**	**328.9**
Mercury, Dissolved	µg/L	2	*0.2 U*	**0.266**	*0.2 U*	*0.2 U*	*0.2 U*	*0.2 U*
Nickel, Dissolved	µg/L	390	**58.1**	**37.62**	**2.269**	**1.302 J**	**0.6844 J**	**80.68**
Selenium, Dissolved	µg/L	50	*5 U*	**10.1**	*5 U*	**4.79 J**	*5 R*	**1.84 J**
Thallium, Dissolved	µg/L	2	*1 U*	**0.1645 J**	*1 U*	**0.1963 J**	*1 U*	*1 U*
Vanadium, Dissolved	µg/L	86	*5 U*	**68.39**	*5 U*	**18.61**	**29.52**	**1.66 J**
Zinc, Dissolved	µg/L	6,000	**57.3**	**86.41**	*10 U*	*10 U*	*10 U*	**109.7**

Detections in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
*indicates non-validated data

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.
J: The positive result reported for this analyte is a quantitative estimate.
R: The result for this analyte is unreliable. Additional data is needed to confirm or disprove the presence of this compound/analyte in the sample.

Table 9
Cumulative Vapor Intrusion Criteria Comparison

				A15-015-PZ		A15-016-PZ		A15-019-PZ		SG03-PDM007		SG04-PDM008		SW-099-MWS	
Parameter	Type	Organ Systems	VI Screening Criteria (ug/L)	Conc. (ug/L)	Cancer Risk	Conc. (ug/L)	Cancer Risk	Conc. (ug/L)	Cancer Risk	Conc. (ug/L)	Cancer Risk	Conc. (ug/L)	Cancer Risk	Conc. (ug/L)	Cancer Risk
Cancer Risk															
1,1-Dichloroethane	VOC	None Specified	330	1.2	4.E-08	0.75 U	0	0.75 U	0	0.75 U	0	0.75 U	0	1	3.E-08
Benzene	VOC	Immune	69	0.5 U	0	0.5 U	0	0.5 U	0	0.5 U	0	0.19 J	3.E-08	0.3 J	4.E-08
Cumulative Vapor Intrusion Cancer Risk					4E-08		0E+00		0E+00		0E+00		3E-08		7E-08
Non-Cancer Hazard															
Trichloroethene	VOC	Cardiovascular; Developmental; Immune	22	9.5	0.4	0.5 U	0	0.5 U	0	0.5 U	0	0.5 U	0	0.19 J	0.009
Cumulative Vapor Intrusion Non-Cancer Hazard					0		0		0		0		0		0

Highlighted values indicate exceedances of the cumulative vapor intrusion criteria: TCR > 1E-05 or THI > 1
Conc. = Concentration
U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.
J: The positive result reported for this analyte is a quantitative estimate.

Table 10 - Parcel A15
Summary of Organics Detected in Surface Water

Parameter	Units	PAL	A15-001-SW 1/17/2023	A15-002-SW 1/17/2023	A15-004-SW 1/17/2023	A15-006-SW 1/17/2023	A15-007-SW 1/17/2023	A15-008-SW* 1/18/2023	A15-010-SW* 1/18/2023	A15-012-SW* 1/18/2023
Volatile Organic Compounds										
Acetone	µg/L	14,000	**3.9 J**	**3.8 J**	**3 J**	**3 J**	**3.4 J**	**3 J**	**3.2 J**	**2.5 J**
Bromodichloromethane	µg/L	0.13	**0.86**	**0.59**	**0.49 J**	**0.49 J**	**0.46 J**	**0.44 J**	**0.45 J**	**0.4 J**
Bromoform	µg/L	3.3	**1.6 J**	**1.4 J**	**1.3 J**	**1.3 J**	**1.3 J**	**1.2 J**	*2 U*	*2 U*
Bromomethane	µg/L	7.5	*1 UJ*	*1 UJ*	*1 UJ*	**0.27 J**	**0.27 J**	*1 U*	*1 U*	**0.3 J**
Carbon disulfide	µg/L	810	**0.33 J**	*5 U*	*5 U*	*5 U*	*5 U*	*5 U*	*5 U*	*5 U*
Chloroform	µg/L	0.22	**1.2**	**0.96**	**0.74 J**	**0.73 J**	**0.76**	**0.74 J**	**0.76**	**0.66 J**
Dibromochloromethane	µg/L	0.17	**0.89**	**0.7**	**0.47 J**	**0.46 J**	**0.49 J**	**0.48 J**	**0.47 J**	**0.4 J**
Semi-Volatile Organic Compounds^										
2-Methylnaphthalene	µg/L	36	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*	**0.05 J**	*0.1 U*	**0.06 J**	**0.05 J**
Acenaphthene	µg/L	530	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*	**0.03 J**
Acenaphthylene	µg/L	530	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*	**0.02 J**	**0.03 J**	*0.1 U*	**0.04 J**
Anthracene	µg/L	1,800	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*	**0.03 J**	*0.1 U*	*0.1 U*	**0.05 J**
Benz[a]anthracene	µg/L	0.03	*0.05 U*	*0.05 U*	*0.05 U*	*0.05 U*	**0.02 J**	**0.07**	**0.02 J**	**0.04 J**
Benzo[a]pyrene	µg/L	0.2	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*	**0.04 J**	*0.1 U*	**0.02 J**
Benzo[b]fluoranthene	µg/L	0.25	*0.05 U*	*0.05 U*	*0.05 U*	*0.05 U*	*0.05 U*	**0.04 J**	*0.05 U*	**0.02 J**
Benzo[g,h,i]perylene	µg/L		*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*	**0.02 J**	*0.1 U*	*0.1 U*
Benzo[k]fluoranthene	µg/L	2.5	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*	**0.02 J**	*0.1 U*	**0.01 J**
Chrysene	µg/L	25	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*	**0.01 J**	**0.05 J**	*0.1 U*	**0.02 J**
Fluoranthene	µg/L	800	*0.1 U*	**0.05 J**	**0.02 J**	*0.1 U*	**0.03 J**	**0.06 J**	**0.02 J**	**0.05 J**
Fluorene	µg/L	290	*0.1 U*	**0.02 J**	**0.02 J**	*0.1 U*	**0.04 J**	*0.1 U*	*0.1 U*	**0.05 J**
Indeno[1,2,3-c,d]pyrene	µg/L	0.25	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*	*0.1 U*	**0.02 J**	*0.1 U*	*0.1 U*
Naphthalene	µg/L	0.12	**0.07 J**	**0.09 J**	**0.07 J**	**0.06 J**	**0.17**	*0.1 U*	**0.13**	**0.06 J**
Phenanthrene	µg/L		**0.03 J**	**0.05**	**0.03 J**	*0.05 U*	**0.05 J**	**0.04 J**	*0.05 U*	**0.12**
Pyrene	µg/L	120	*0.1 U*	**0.04 J**	**0.02 J**	*0.1 U*	**0.03 J**	**0.07 J**	**0.02 J**	**0.05 J**
TPH/Oil & Grease										
Diesel Range Organics	µg/L	47	*140 B*	*93 B*	*130 B*	**870**	*90 B*	**180 J**	**110 J**	**80 J**
Gasoline Range Organics	µg/L	47	*20 B*	*19 B*	*23 B*	*21 B*	*23 B*	*20 B*	*20 B*	*18 B*
Oil & Grease	µg/L	47	*3,600 U*	*3,600 U*	**5,800**	*3,600 U*	*3,600 U*	*3,600 U*	*3,600 U*	*3,600 U*

Detections in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
* indicates non-validated data
^ PAH compounds were analyzed via SIM
U: This analyte was not detected in the sample. The numeric value repesents the sample quantitation/detection limit.
J: The positive result reported for this analyte is a quantitative estimate.
B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank.
UJ: This analyte was not detected in the sample. The actual quantitation/detection limit may be higher than reported.

Table 11 - Parcel A15
Summary of Inorganics Detected in Surface Water

Parameter	Units	PAL	NRWQC Freshwater	A15-001-SW 1/17/2023	A15-002-SW 1/17/2023	A15-004-SW 1/17/2023	A15-006-SW 1/17/2023	A15-007-SW 1/17/2023	A15-008-SW* 1/18/2023	A15-010-SW* 1/18/2023	A15-012-SW* 1/18/2023
Metals											
Aluminum, Dissolved	µg/L	20,000		**10.3**	**10**	**9.06 J**	**8.99 J**	**9.12 J**	**9.93 J**	**9.08 J**	**10.9**
Antimony, Dissolved	µg/L	6		*4 U*	*4 U*	*4 U*	*4 U*	*4 U*	*0.8088 B*	*0.7259 B*	*0.7678 B*
Arsenic, Dissolved	µg/L	10	150	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*	*0.5 U*	**0.3402 J**	**0.2296 J**	**0.2047 J**
Barium, Dissolved	µg/L	2,000		**14.69**	**14.22**	**13.67**	**13.5**	**13.41**	**15.3**	**14.11**	**13.56**
Chromium, Dissolved	µg/L	100	74	**0.414 J**	**0.3504 J**	**0.2238 J**	**0.2806 J**	**0.3597 J**	**0.1806 J**	**0.2064 J**	**0.297 J**
Cobalt, Dissolved	µg/L	6		**0.569**	**0.6343**	**0.6803**	**0.5962**	**0.6087**	**0.6582**	**0.7062**	**0.692**
Copper, Dissolved	µg/L	1,300		*0.945 B*	*0.9443 B*	*0.9359 B*	*0.8763 B*	**1.186**	**0.9216 J**	**0.995 J**	**1.02**
Iron, Dissolved	µg/L	14,000	1,000	*31.2 B*	*28.1 B*	*30.2 B*	*22.4 B*	*28.2 B*	**33.7 J**	**30.8 J**	**34.8 J**
Manganese, Dissolved	µg/L	430		**1.541**	**1.675**	**0.9707 J**	**1.164**	**0.593 J**	**1.058**	**1.35**	*1 U*
Nickel, Dissolved	µg/L	390	52	**3.47**	**3.784**	**3.534**	**3.425**	**3.306**	**3.574**	**3.202**	**3.562**
Thallium, Dissolved	µg/L	2		*1 U*	*1 U*	*1 U*	*1 U*	*1 U*	*0.2193 B*	*1 U*	*0.2116 B*
Vanadium, Dissolved	µg/L	86		**1.734 J**	*5 U*	*5 U*	*5 U*	*5 U*	*5 U*	*5 U*	*5 U*
Zinc, Dissolved	µg/L	6,000	120	**8.115 J**	**11.03**	**6.933 J**	**6.816 J**	**6.887 J**	**7.399 J**	**5.664 J**	**5.813 J**

Detections in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
Values indicate an exceedance of National Recommended Water Quality Criteria (NRWQC) Aquatic Life Chronic Criteria for Freshwater Screening Value
* indicates non-validated data
U: This analyte was not detected in the sample. The numeric value repesents the sample quantitation/detection limit.
J: The positive result reported for this analyte is a quantitative estimate.
B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank.

Table 12 - Parcel A15
Summary of Oorganics Detected in Sediment

Parameter	Units	PAL	BTAG Freshwater	A15-001-SD 1/17/2023	A15-002-SD 1/17/2023	A15-003-SD 1/17/2023	A15-004-SD 1/17/2023	A15-005-SD 1/17/2023	A15-006-SD 1/17/2023	A15-007-SD 1/17/2023	A15-008-SD 1/18/2023	A15-009-SD 1/18/2023	A15-010-SD 1/18/2023	A15-011-SD 1/18/2023	A15-012-SD 1/18/2023
Volatile Organic Compounds															
1,2,4-Trichlorobenzene	mg/kg	110	2.1	**0.00052 J**	*0.012 UJ*	*0.014 UJ*	*0.035 UJ*	*0.016 UJ*	*0.016 UJ*	*0.017 UJ*	*0.016 UJ*	*0.02 UJ*	*0.021 UJ*	*0.031 UJ*	*0.026 UJ*
1,2-Dichlorobenzene	mg/kg	9,300	0.0165	**0.0005 J**	**0.0011 J**	*0.014 UJ*	*0.035 UJ*	**0.0059 J**	**0.0016 J**	*0.017 UJ*	*0.016 UJ*	*0.02 UJ*	*0.021 UJ*	*0.031 UJ*	*0.026 UJ*
1,3-Dichlorobenzene	mg/kg		4.43	*0.0036 UJ*	**0.001 J**	*0.014 UJ*	*0.035 UJ*	**0.016 J**	**0.0044 J**	**0.018 J**	*0.016 UJ*	*0.02 UJ*	**0.0038 J**	**0.0031 J**	**0.0042 J-**
1,4-Dichlorobenzene	mg/kg	11	0.599	**0.0015 J**	**0.0071 J**	**0.0046 J**	**0.016 J**	**0.057 J**	**0.02 J**	**0.12 J**	**0.0034 J**	**0.0056 J**	**0.059 J**	**0.044 J**	**0.02 J-**
2-Butanone (MEK)	mg/kg	190,000		**0.031 J**	**0.28 J**	**0.4 J**	**1.5 J**	**0.87 J**	**1.1 J**	**1.7 J**	**0.3 J**	**0.65 J**	**2.2 J**	**2 J**	**1.5 J-**
Acetone	mg/kg	670,000		**0.11 J**	**0.95 J**	**1.4 J**	**5.6 J**	**11 J**	**3.6 J**	**10 J**	**0.98 J**	**2.5 J**	**14 J**	**14 J**	**6.4 J**
Benzene	mg/kg	5.1		*0.0009 UJ*	**0.0025 J**	*0.0036 UJ*	**0.0031 J**	**0.0034 J**	**0.0015 J**	**0.0077 J**	*0.004 UJ*	*0.005 UJ*	**0.0083 J**	**0.0078 J**	**0.004 J-**
Carbon disulfide	mg/kg	3,500	0.000851	*0.018 UJ*	*0.062 UJ*	*0.071 UJ*	*0.18 UJ*	**0.099 J**	**0.084 J**	**0.2 J**	*0.08 UJ*	*0.1 UJ*	**0.28 J**	**0.3 J**	**0.15 J-**
Chlorobenzene	mg/kg	1,300	0.00842	**0.00024 J**	**0.0047 J**	**0.0019 J**	**0.05 J**	**0.12 J**	**0.072 J**	**0.18 J**	**0.0028 J**	**0.0046 J**	**0.042 J**	**0.019 J**	**0.064 J-**
Ethylbenzene	mg/kg	25	1.1	**0.00036 J**	**0.001 J**	**0.0021 J**	**0.0026 J**	**0.0048 J**	**0.0021 J**	**0.014 J**	*0.008 UJ*	*0.0025 B*	**0.0068 J**	**0.0084 J**	*0.013 UJ*
Isopropylbenzene	mg/kg	9,900	0.086	**0.001 J**	**0.0027 J**	**0.00093 J**	**0.0095 J**	*0.024 UJ*	**0.0077 J**	*0.084 UJ*	*0.008 UJ*	*0.01 UJ*	**0.032 J**	**0.015 J**	**0.024 J-**
Methyl Acetate	mg/kg	1,200,000		*0.0072 UJ*	*0.025 UJ*	*0.028 UJ*	*0.071 UJ*	*0.032 UJ*	*0.032 UJ*	*0.034 UJ*	*0.032 UJ*	*0.04 UJ*	*0.041 UJ*	**0.17 J**	*0.052 UJ*
Styrene	mg/kg	35,000	0.559	*0.0018 UJ*	*0.0062 UJ*	*0.0071 UJ*	*0.018 UJ*	*0.0018 B*	*0.0018 B*	*0.0035 B*	*0.008 UJ*	*0.01 UJ*	*0.01 UJ*	*0.016 UJ*	*0.013 UJ*
Toluene	mg/kg	47,000		*0.0018 UJ*	*0.0062 UJ*	*0.0071 UJ*	*0.018 UJ*	**0.0075 J**	*0.008 UJ*	**0.011 J**	*0.008 UJ*	*0.01 UJ*	*0.01 UJ*	*0.016 UJ*	*0.013 UJ*
Xylenes	mg/kg	2,800	0.0252	*0.0018 UJ*	**0.019 J**	*0.0071 UJ*	**0.037 J**	**0.15 J**	**0.063 J**	**0.4 J**	*0.008 UJ*	**0.0064 J**	**0.18 J**	**0.082 J**	**0.21 J**
Semi-Volatile Organic Compounds^															
1,1-Biphenyl	mg/kg	200	1.22	*0.64 UJ*	*1.7 UJ*	*5.2 UJ*	*2.9 UJ*	*2 UJ*	*7.2 UJ*	*7.6 UJ*	*2.1 UJ*	*2.1 UJ*	**0.16 J**	*2.6 UJ*	*2.5 UJ*
2-Methylnaphthalene	mg/kg	3,000	0.0202	**0.25 J**	**0.11 J**	**0.13 J**	**0.14 J**	**0.11 J**	**0.16 J**	**0.95 J**	**0.35 J**	**0.14 J**	**0.57 J**	**1.7 J**	**0.57 J**
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000		*0.41 UJ*	*1 UJ*	*3.3 UJ*	**0.32 J**	*1.3 UJ*	*4.6 UJ*	*4.8 UJ*	**0.18 J**	**0.15 J**	**0.25 J**	**0.3 J**	**0.48 J**
4-Chloroaniline	mg/kg	11		*0.28 UJ*	*0.73 UJ*	*2.3 UJ*	*1.3 UJ*	*0.89 UJ*	**0.66 J**	**5 J**	**0.31 J**	*0.93 UJ*	**2.2 J**	**7.6 J**	**2.5 J-**
Acenaphthene	mg/kg	45,000	0.0067	**0.37 J**	**0.038 J**	**0.033 J**	**0.079 J**	**0.027 J**	**0.051 J**	**0.76 J**	**0.071 J**	**0.035 J**	**0.69 J**	**1.4 J**	**0.26 J**
Acenaphthylene	mg/kg	45,000	0.0059	**0.11 J**	**0.03 J**	**0.027 J**	**0.051 J**	**0.024 J**	**0.062 J**	**0.18 J**	**0.081 J**	**0.043 J**	**0.15 J**	**0.35 J**	**0.11 J**
Anthracene	mg/kg	230,000	0.0572	**0.27 J**	**0.079 J**	**0.064 J**	**0.069 J**	**0.048 J**	**0.058 J**	**0.8 J**	**0.2 J**	**0.083 J**	**0.92 J**	**1.9 J**	**0.35 J**
Benz[a]anthracene	mg/kg	21	0.108	**0.6 J**	**0.15 J**	**0.16 J**	**0.12 J**	**0.098 J**	**0.066 J**	**0.74 J**	**0.3 J**	**0.16 J**	**0.89 J**	**4.1 J**	**0.44 J**
Benzo[a]pyrene	mg/kg	2.1	0.15	**0.49 J**	**0.15 J**	**0.12 J**	**0.078 J**	**0.081 J**	**0.048 J**	**0.3 J**	**0.23 J**	**0.16 J**	**0.35 J**	**2 J**	**0.24 J**
Benzo[b]fluoranthene	mg/kg	21	0.0272	**0.3 J**	**0.2 J**	**0.17 J**	**0.12 J**	**0.11 J**	**0.066 J**	**0.45 J**	**0.37 J**	**0.21 J**	**0.64 J**	**3 J**	**0.4 J**
Benzo[g,h,i]perylene	mg/kg		0.17	**0.34 J**	**0.12 J**	**0.068 J**	*0.1 UJ*	*0.071 UJ*	*0.13 UJ*	*0.093 UJ*	**0.15 J**	**0.11 J**	*0.047 UJ*	*0.22 UJ*	*0.045 UJ*
Benzo[k]fluoranthene	mg/kg	210	0.24	**0.08 J**	**0.06 J**	**0.066 J**	**0.032 J**	**0.039 J**	**0.022 J**	**0.15 J**	**0.11 J**	**0.064 J**	**0.21 J**	**1.1 J**	**0.13 J**
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.18	**1.9 J**	**3 J**	**1.2 J**	**14 J**	**3.7 J**	**6.1 J**	**25 J**	**9.2 J**	**3.9 J**	**18 J**	**44 J**	**30 J-**
Chrysene	mg/kg	2,100	0.166	**0.4 J**	**0.14 J**	**0.19 J**	**0.12 J**	**0.083 J**	**0.062 J**	**0.55 J**	**0.28 J**	**0.14 J**	**0.69 J**	**3.2 J**	**0.39 J-**
Dibenz[a,h]anthracene	mg/kg	2.1	0.033	**0.041 J**	*0.029 UJ*	**0.023 J**	*0.1 UJ*	*0.071 UJ*	*0.13 UJ*	*0.093 UJ*	*0.037 UJ*	**0.037 J**	*0.047 UJ*	**0.22 J**	*0.045 UJ*
Fluoranthene	mg/kg	30,000	0.423	**1.3 J**	**0.3 J**	**0.19 J**	**0.39 J**	**0.2 J**	**0.23 J**	**2.9 J**	*0.037 UJ*	**0.31 J**	*0.047 UJ*	**12 J**	*0.045 UJ*
Fluorene	mg/kg	30,000	0.0774	**0.46 J**	**0.062 J**	**0.058 J**	**0.1 J**	**0.049 J**	**0.08 J**	**0.96 J**	**0.15 J**	**0.06 J**	**0.97 J**	**2.3 J**	**0.35 J**
Indeno[1,2,3-c,d]pyrene	mg/kg	21	0.017	**0.17 J**	**0.13 J**	**0.084 J**	*0.1 UJ*	**0.065 J**	*0.13 UJ*	*0.093 UJ*	*0.037 UJ*	*0.037 UJ*	*0.047 UJ*	*0.22 UJ*	**0.14 J**
Naphthalene	mg/kg	8.6	0.176	**0.05 J**	**0.075 J**	**0.087 J**	**0.096 J**	**0.082 J**	**0.1 J**	**0.54 J**	**0.24 J**	**0.094 J**	**0.36 J**	**0.39 J**	**0.36 J**
Phenanthrene	mg/kg		0.204	**0.3 J**	**0.19 J**	**0.13 J**	**0.35 J**	**0.14 J**	**0.18 J**	**3.2 J**	**0.41 J**	**0.17 J**	**3.2 J**	**8 J**	**1.1 J-**
Pyrene	mg/kg	23,000	0.195	**1.8 J**	**0.33 J**	**0.19 J**	**0.42 J**	**0.21 J**	**0.26 J**	**3 J**	**0.76 J**	**0.31 J**	**3.6 J**	**12 J**	**1.8 J-**
PCBs															
Aroclor 1248	mg/kg	0.94		**0.362 J**	*0.399 UJ*	*0.402 UJ*	*0.745 UJ*	*0.461 UJ*	*0.562 UJ*	*0.658 UJ*	*0.182 UJ*	*0.177 UJ*	*0.243 UJ*	**5.3 J**	*0.604 UJ*
Aroclor 1254	mg/kg	0.97		**0.337 J**	**0.559 J**	**0.318 J**	**3.23 J**	**0.435 J**	**0.434 J**	**1.25 J**	**0.753 J**	**0.434 J**	**1.47 J**	**6.41 J**	*0.604 UJ*
Aroclor 1260	mg/kg	0.99		**0.0982 J**	**0.354 J**	**0.205 J**	**1.48 J**	**0.292 J**	**0.26 J**	**0.604 J**	**0.486 J**	**0.312 J**	**0.809 J**	**2.73 J**	**2.62 J**
PCBs (total)	mg/kg	0.97	0.0598	**0.797 J**	**0.913 J**	**0.523 J**	**4.71 J**	**0.727 J**	**0.694 J**	**1.85 J**	**1.24 J**	**0.746 J**	**2.28 J**	**14.4 J**	**2.62 J**
TPH/Oil & Grease															
Diesel Range Organics	mg/kg	6,200		**710 J**	**820 J**	**590 J**	**5,000 J**	**1,300 J**	**1,100 J**	**10,000 J**	**160 J**	**72 J**	**2,800 J**	**3,300 J**	**3,500 J**
Gasoline Range Organics	mg/kg	6,200		*2.1 B*	*5.3 B*	*8.4 B*	**50 J**	**120 J**	*16 B*	**110 J**	*14 B*	*27 B*	**240 J**	**140 J**	**48 J**
Oil & Grease	mg/kg	6,200		**5,400 J+**	**15,600 J+**	**13,400 J+**	**72,800 J+**	**25,000 J+**	**31,100 J+**	**72,800 J+**	**29,300 J+**	**26,300 J+**	**73,500 J+**	**82,400 J+**	**69,600 J+**

Detections in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
Values indicate an exceedance of the Freshwater Biological Technical Assistance Group (BTAG) Screening Value
All Samples Validated
^ PAH compounds were analyzed via SIM
U: This analyte was not detected in the sample. The numeric value repesents the sample quantitation/detection limit.
J: The positive result reported for this analyte is a quantitative estimate.
B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank.
UJ: This analyte was not detected in the sample. The actual quantitation/detection limit may be higher than reported.
J+: The positive result reported for this analyte is a quantitative estimate, but may be biased high.
J-: The positive result reported for this analyte is a quantitative estimate, but may be biased low.

Table 13 - Parcel A15
Summary of Inorganics Detected in Sediment

Parameter	Units	PAL	BTAG Freshwater	A15-001-SD 1/17/2023	A15-002-SD 1/17/2023	A15-003-SD 1/17/2023	A15-004-SD 1/17/2023	A15-005-SD 1/17/2023	A15-006-SD 1/17/2023	A15-007-SD 1/17/2023	A15-008-SD 1/18/2023	A15-009-SD 1/18/2023	A15-010-SD 1/18/2023	A15-011-SD 1/18/2023	A15-012-SD 1/18/2023
Metals															
Aluminum	mg/kg	1,100,000		**11,000 J**	**11,500 J**	**7,500 J**	**13,600 J**	**7,900 J**	**9,040 J**	**17,000 J**	**11,800 J**	**10,400 J**	**20,300 J**	**12,500 J**	**13,300 J**
Antimony	mg/kg	470	2	*33.2 UJ*	*17.5 UJ*	*18.4 UJ*	**63.7 J**	**7.87 J**	**47.1 J**	**23.6 J**	**13.8 J**	**6.42 J**	**15.4 J**	**27.5 J**	**70.5 J**
Arsenic	mg/kg	3	9.8	**3.85 J**	**6.91 J**	**4.23 J**	**12.5 J**	**4.73 J**	**6.36 J**	**19.1 J**	**5.83 J**	**2.4 J**	**23.8 J**	**15.3 J**	**6.87 J**
Barium	mg/kg	220,000		**131 J**	**337 J**	**294 J**	**1,170 J**	**488 J**	**658 J**	**1,690 J**	**706 J**	**601 J**	**1,160 J**	**950 J**	**1,620 J**
Beryllium	mg/kg	2,300		**1 J**	*1.08 B*	*0.799 B*	*0.941 B*	*0.928 B*	*0.737 B*	*1.4 B*	**1.6 J**	**1.47 J**	**2.42 J**	**1.68 J**	**1.65 J**
Cadmium	mg/kg	100	0.99	**1.87 J**	**6.53 J**	**7.17 J**	**47.5 J**	**12.3 J**	**23.2 J**	**38.8 J**	**19 J**	**16.3 J**	**43.3 J**	**35.7 J**	**27.6 J**
Chromium	mg/kg	1,800,000	43.4	**86.8 J**	**521 J**	**383 J**	**1,160 J**	**596 J**	**432 J**	**3,320 J**	**1,050 J**	**803 J**	**3,430 J**	**1,440 J**	**2,230 J**
Cobalt	mg/kg	350	50	**4.39 J**	**13.2 J**	**11.9 J**	**15.3 J**	**14.8 J**	**15.7 J**	**23.1 J**	**19.7 J**	**18.2 J**	**24.3 J**	**21.1 J**	**19.5 J**
Copper	mg/kg	47,000	31.6	**53.5 J**	**506 J**	**423 J**	**1,850 J**	**1,300 J**	**640 J**	**3,530 J**	**1,240 J**	**934 J**	**3,790 J**	**2,100 J**	**2,370 J**
Iron	mg/kg	820,000	20,000	**13,300 J**	**116,000 J**	**41,800 J**	**124,000 J**	**52,400 J**	**79,900 J**	**76,000 J**	**79,100 J**	**65,300 J**	**65,100 J**	**54,500 J**	**72,000 J**
Lead	mg/kg	800	35.8	**1,060 J**	**474 J**	**288 J**	**727 J**	**410 J**	**381 J**	**1,390 J**	**720 J**	**557 J**	**2,790 J**	**1,670 J**	**711 J**
Manganese	mg/kg	26,000	460	**712 J**	**578 J**	**450 J**	**643 J**	**549 J**	**493 J**	**604 J**	**783 J-**	**694 J-**	**834 J-**	**577 J-**	**550 J-**
Mercury	mg/kg	350	0.18	**0.501 J**	**1.86 J**	**2.15 J**	**4.66 J**	**3.44 J**	**3.27 J**	**9.52 J**	**5.02 J-**	**4.01 J-**	**14.9 J-**	**19.6 J-**	**7.8 J-**
Nickel	mg/kg	22,000	22.7	**8.23 J**	**27.5 J**	**23.3 J**	**119 J**	**68.1 J**	**52 J**	**402 J**	**55.4 J**	**40.1 J**	**525 J**	**109 J**	**251 J**
Selenium	mg/kg	5,800	2	**1.09 J**	**4.85 J**	**2.83 J**	**11.6 J**	**3.14 J**	**7.34 J**	**8.18 J**	**5.97 J**	**3.52 J**	**5.02 J**	**4.46 J**	**8.29 J**
Silver	mg/kg	5,800	1	**1.64 J**	**13.9 J**	**15.4 J**	**93.4 J**	**27 J**	**46.7 J**	**105 J**	**48.3 J**	**36.1 J**	**112 J**	**122 J**	**70.6 J**
Thallium	mg/kg	12		*2.66 UJ*	**1.83 J**	**1.87 J**	**2.25 J**	**1.39 J**	**2.11 J**	*11 UJ*	**2.63 J**	*8.6 UJ*	**2 J**	*10.4 UJ*	*10.6 UJ*
Vanadium	mg/kg	5,800		**32.3 J**	**66.9 J**	**31.1 J**	**41.3 J**	**38.5 J**	**28.9 J**	**51.3 J**	**60.8 J**	**42.2 J**	**85.2 J**	**54.3 J**	**46 J**
Zinc	mg/kg	350,000	121	**756 J**	**1,120 J**	**1,080 J**	**3,090 J**	**1,490 J**	**1,660 J**	**6,080 J**	**2,300 J**	**1,970 J**	**7,010 J**	**5,080 J**	**3,350 J**

Detections in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
Values indicate an exceedance of the Freshwater Biological Technical Assistance Group (BTAG) Screening Value
All Samples Validated
U: This analyte was not detected in the sample. The numeric value repesents the sample quantitation/detection limit.
J: The positive result reported for this analyte is a quantitative estimate.
B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank.
UJ: This analyte was not detected in the sample. The actual quantitation/detection limit may be higher than reported.
J-: The positive result reported for this analyte is a quantitative estimate, but may be biased low.

Table 14 - Parcel A15
Rejected Analytical Results

Sample ID	Parameter	Result (mg/kg)	PAL (mg/kg)	Exceeds PAL?
A15-001-SD	Chromium VI	1.38	6.3	no
A15-002-SD	Chromium VI	3.6	6.3	no
A15-003-SD	Chromium VI	3.85	6.3	no
A15-004-SD	Chromium VI	6.25	6.3	no
A15-005-SD	Chromium VI	4.3	6.3	no
A15-006-SD	Chromium VI	5.19	6.3	no
A15-007-SD	Chromium VI	5.67	6.3	no
A15-008-SD	Chromium VI	4.6	6.3	no
A15-009-SD	Chromium VI	4.47	6.3	no
A15-010-SD	Chromium VI	5.84	6.3	no
A15-011-SD	Chromium VI	5.48	6.3	no
A15-012-SD	2,4-Dinitrophenol	5.4	1,600	no
	Chromium VI	5.44	6.3	no
	Hexachlorocyclopentadiene	3.2	7.5	no
A15-020-SB-2	2,4-Dinitrophenol	4.4	1,600	no
	Hexachlorocyclopentadiene	2.6	7.5	no
SG04-PDM008	Selenium	5	50	no

Note: There were no rejected results for surface water sample results.

APPENDIX A

Parcel A15 Sampling Plan Summary
Former Sparrows Point Steel Mill
Sparrows Point, Maryland

Table 1 - Soil Sampling Summary

Source Area/ Description	REC & Finding/ SWMU/ AOC	Figure or Drawing of Reference	Rationale	Number of Locations	Sample Locations	Boring Depth	Sample Depth	Analytical Parameters: Soil Samples
Underground Storage Tank	REC 28A, Finding 281	2019 Site Visit	Investigate potential impacts related to a tank of unknown contents at the Site (potential leaks or releases).	2	A15-004 and A15-005	Total depth of 20 feet or groundwater.	0-2', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC^, SVOC, PAHs, Metals, DRO/GRO, O&G, PCBs (0-2')
Pumping Station #1		Site Visit, Aerial, Drawings 5057, 5157, 5557	Investigate potential impacts related to the pumping station and its associated electrical equipment (potential leaks or releases).	4	A15-006 through A15-009	Total depth of 20 feet or groundwater.	0-2', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC^, SVOC, PAHs, Metals, DRO/GRO, O&G, PCBs (0-2')
Pumping Station #2		Site Visit, Aerial, Drawings 5056, 5156, 5556	Investigate potential impacts related to the pumping station and its associated electrical equipment (potential leaks or releases).	4	A15-010 through A15-013	Total depth of 20 feet or groundwater.	0-2', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC^, SVOC, PAHs, Metals, DRO/GRO, O&G, PCBs (0-2')
Electrical Sub-Station		Site Visit, Aerial, Drawings 5056, 5156, 5556	Investigate potential impacts related to the sub-station and its associated electrical equipment (potential leaks or releases).	2	A15-014 and A15-015	Total depth of 20 feet or groundwater.	0-2', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC^, SVOC, PAHs, Metals, DRO/GRO, O&G, PCBs (0-2')
Parcel A15 Coverage		N/A	Investigate potential impacts related to unknown historical activities, and characterize soil in areas not previously sampled.	5	A15-016 through A15-020	Total depth of 20 feet or groundwater.	0-2', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	VOC^, SVOC, PAHs, Metals, DRO/GRO, O&G, PCBs (0-2')
			Total:	17				

Soil Borings Sampling Density Requirements (from **Worksheet 17 - Sampling Design and Rationale**)
No Engineered Barrier (16-40 acres): 1 boring per 1.5 acres with no less than 15 borings.
Engineered Barrier (N/A)
No Engineered Barrier (20.9 acres) = **14 borings required, 17 completed**
Includes Building Footprints (0.2 acres)
Reservoir (40.4 acres)

VOCs - Volatile Organic Compounds (Target Compound List) by EPA Method 8260C
^VOCs are only collected if the PID reading exceeds 10 ppm
SVOCs - Semivolatile Organic Compounds (Target Compound List) by EPA Method 8270D
PAHs - Polycyclic Aromatic Hydrocarbons by EPA Method 8270D SIM
Metals - (Target Analyte List plus Hexavalent Chromium and Cyanide)
by EPA Method 6010D/6010B; 7196A; 9012B
O&G - Oil and Grease by EPA Method 9071B
DRO/GRO - Diesel Range Organics/Gasoline Range Organics by EPA Method 8015D
PCBs - Polychlorinated Biphenyls by EPA Method 8082A
bgs - Below Ground Surface

Parcel A15 Sampling Plan Summary
Former Sparrows Point Steel Mill
Sparrows Point, Maryland

Table 2 - Groundwater Sampling Summary

Source Area/ Description	REC & Finding/ SWMU/ AOC	Figure or Drawing of Reference	Condition of Existing Well	Number of Locations	Sample Locations	Boring Depth	Screen Interval	Analytical Parameters: Groundwater Samples
Electrical Sub-Station		Site Visit, Aerial, Drawings 5056, 5156, 5556	N/A	1	A15-015-PZ	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, PAHs, Metals (total/dissolved), Cyanide (total/available), O&G, DRO/GRO
Parcel A15 Coverage		N/A	N/A	2	A15-016-PZ, A15-019-PZ	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, PAHs, Metals (total/dissolved), Cyanide (total/available), O&G, DRO/GRO
Existing Well SG03-PDM007		N/A	Refer to Well Inspection Form	1	SG03-PDM007	18.5 feet bgs	8.5 ft to 18.5 ft bgs	VOC, SVOC, PAHs, Metals (total/dissolved), Cyanide (total/available), O&G, DRO/GRO
Existing Well SW-099-MWS		N/A	Refer to Well Inspection Form	1	SW-099-MWS	23 feet bgs	3 ft to 23 ft bgs	VOC, SVOC, PAHs, Metals (total/dissolved), Cyanide (total/available), O&G, DRO/GRO
Existing Well SG04-PDM008		N/A	Refer to Well Inspection Form	1	SG04-PDM008	12 feet bgs	2 ft to 12 ft bgs	VOC, SVOC, PAHs, Metals (total/dissolved), Cyanide (total/available), O&G, DRO/GRO
			Total:	6				

Field measurements include pH, DO, ORP, conductivity, temperature.
Metals analysis will include dissolved hexavalent chromium

VOCs - Volatile Organic Compounds (Target Compound List) by EPA Method 8260C
SVOCs - Semivolatile Organic Compounds (Target Compound List) by EPA Method 8270D
PAHs - Polycyclic Aromatic Hydrocarbons by EPA Method 8270D SIM
Metals - (Target Analyte List plus Hexavalent Chromium
by EPA Method 6010D/6010B; 7196A; 9012B
O&G - Oil and Grease by EPA Method 9071B
DRO/GRO - Diesel Range Organics/Gasoline Range Organics by EPA Method 8015D

Parcel A15 Sampling Plan Summary
Former Sparrows Point Steel Mill
Sparrows Point, Maryland

Table 3 - Sediment Sampling Summary

Source Area/ Description	REC & Finding/ SWMU/ AOC	Figure or Drawing of Reference	Rationale	Number of Locations	Sample Locations	Reservoir Depth	Sample Depth	Analytical Parameters: Sediment Samples
Historic Effluent Locations	N/A	Aerials, Drawing 5500	Investigate potential impacts in the vicinity of historic effluent locations.	2	A15-001-SD and A15-002-SD	Assumed <10'	0-6" below reservoir bed	VOC^, SVOC, PAHs, Metals, DRO/GRO, O&G, PCBs
Air Products Discharge Pipe	REC 11B	Aerials, site visit	Investigate potential impacts related to historic discharges and the previously identified REC	1	A15-004-SD	Assumed <10'	0-6" below reservoir bed	VOC^, SVOC, PAHs, Metals, DRO/GRO, O&G, PCBs
Pumping Stations	N/A	Aerials, site visit	Investigate potential impacts in the vicinity of historic and current effluent locations.	2	A15-011-SD and A15-012-SD	Assumed <10'	0-6" below reservoir bed	VOC^, SVOC, PAHs, Metals, DRO/GRO, O&G, PCBs
Parcel A15 Coverage	N/A	N/A	Investigate potential impacts in Industrial Water Reservoir sediment.	7	A15-003-SD, A15-005-SD through A15-010-SD	Assumed <10'	0-6" below reservoir bed	VOC^, SVOC, PAHs, Metals, DRO/GRO, O&G, PCBs
			Total:	12				

Total area of Reservoir: 40.4 acres

VOCs - Volatile Organic Compounds (Target Compound List) by EPA Method 8260C
^VOCs are only collected if the PID reading exceeds 10 ppm
SVOCs - Semivolatile Organic Compounds (Target Compound List) by EPA Method 8270D
PAHs - Polycyclic Aromatic Hydrocarbons by EPA Method 8270D SIM
Metals - (Target Analyte List plus Hexavalent Chromium and Cyanide) by EPA Method 6010D/6010B; 7196A; 9012B
O&G - Oil and Grease by EPA Method 9071B
DRO/GRO - Diesel Range Organics/Gasoline Range Organics by EPA Method 8015D
PCBs - Polychlorinated Biphenyls by EPA Method 8082A

Parcel A15 Sampling Plan Summary
Former Sparrows Point Steel Mill
Sparrows Point, Maryland

Table 4 - Surface Water Sampling Summary

Source Area/ Description	REC & Finding/ SWMU/ AOC	Figure or Drawing of Reference	Rationale	Number of Locations	Sample Locations	Reservoir Depth	Sample Depth	Analytical Parameters: Surface Water Samples
Historic Effluent Locations	N/A	Aerials, Drawing 5500	Investigate potential impacts in the vicinity of historic effluent locations.	2	A15-001-SW and A15-002-SW	Assumed <10'	Middle of water column	VOC, SVOC, PAHs, Metals (dissolved), Cyanide (total/available), O&G, DRO/GRO
Air Products Discharge Pipe	REC 11B	Aerials, site visit	Investigate potential impacts related to historic discharges and the previously identified REC	1	A15-004-SW	Assumed <10'	Middle of water column	VOC, SVOC, PAHs, Metals (dissolved), Cyanide (total/available), O&G, DRO/GRO
Parcel A15 Coverage	N/A	N/A	Investigate potential impacts in Industrial Water Reservoir surface water.	5	A15-006-SW, A15-007-SW, A15-008-SW, A15-010-SW and A15-012-SW (colocated with sediment locations)	Assumed <10'	Middle of water column	VOC, SVOC, PAHs, Metals (dissolved), Cyanide (total/available), O&G, DRO/GRO
			Total:	8				

Total area of Reservoir: 40.4 acres

Field measurements include pH, DO, ORP, conductivity, temperature.
Metals analysis will include dissolved hexavalent chromium

VOCs - Volatile Organic Compounds (Target Compound List) by EPA Method 8260C
SVOCs - Semivolatile Organic Compounds (Target Compound List) by EPA Method 8270D
PAHs - Polycyclic Aromatic Hydrocarbons by EPA Method 8270D SIM
Metals - (Target Analyte List plus Hexavalent Chromium and Cyanide) by EPA Method 6010D/6010B; 7196A; 9012B
O&G - Oil and Grease by EPA Method 9071B
DRO/GRO - Diesel Range Organics/Gasoline Range Organics by EPA Method 8015D

APPENDIX B

ARM Group LLC
Engineers and Scientists

Boring ID: A15-004-SB

Client	: Tradepoint Atlantic
ARM Project No.	: 21010115
Project Description	: A15 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Kevin
Drilling Equipment	: Geoprobe 78220T

Date	: 11/8/2022
Weather:	: Sunny, 60s
Total Depth (ft):	: 10' bgs
Depth to Water (0hr.):	: 5' bgs

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	REMARKS
0					
1		0.3	A15-004-SB-2	(0-2') FILL Gray GRAVEL (slag) and light brown silt with sand (fine), no plasticity, low cohesion, moderately stiff (DAMP)	
2		0.0			
3	55	0.1	A15-004-SB-3	(2-2.8') Light gray/brown SILT Some sand (fine), trace gravel, very stiff, no plasticity, low cohesion (DAMP) (2.8-5') No Recovery	
4					
5					Wet at 5' bgs
6		1.9		(5-8.1') Gray SILT Trace sand (fine), very soft to soft, no plasticity, cohesive, bottom 2-3" stiff dry silt (WET)	
7		0.1			
8	60	0.1		(8.1-10') No Recovery	
9					
10				End of Boring	
11					

Total Borehole Depth: 10 bgs due to water.
bgs: Below ground surface

ARM Group LLC
Engineers and Scientists

Boring ID: A15-005-SB

Client	: Tradepoint Atlantic
ARM Project No.	: 21010115
Project Description	: A15 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Kevin
Drilling Equipment	: Geoprobe 78220T

Date	: 11/8/2022
Weather:	: Sunny, 60s
Total Depth (ft):	: 5' bgs
Depth to Water (0hr.):	: 2.5' bgs

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	REMARKS
0					
1	100	0.3	A15-005-SB-2	(0-3.4') FILL Gray SAND (fine) to coarse GRAVEL (slag), with some light brown silt, loose, no plasticity, no cohesion (DAMP/WET)	Wet at 2.5' bgs
2		2.4			
3		2.0			
4		1.5		(3.4-5) Light gray/brown SILT Some sand (fine), very stiff, no plasticity, low cohesion (DAMP)	
5		0.5		End of Boring	
6					

Total Borehole Depth: 5 bgs due to water.
bgs: Below ground surface

ARM Group LLC
Engineers and Scientists

Boring ID: A15-006-SB

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Client	: Tradepoint Atlantic
ARM Project No.	: 21010115
Project Description	: A15 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Don
Drilling Equipment	: Geoprobe 78220T

Date	: 12/20/22
Weather:	: Sunny, 30s
Total Depth (ft):	: 10' bgs
Depth to Water (0hr.):	: 4.5' bgs

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	REMARKS
0					
1		0.7	A15-006-SB-2	(0-0.4') TOP SOIL Organic matter (roots), brown silt, with some sand	
2		0.6		(0.4-0.9') Dark to light brown clayey SILT With sand (fine), moderately stiff, low cohesion, low plasticity (DAMP)	
3	85	0.5	A15-006-SB-3	(0.9-1.4) FILL Gray GRAVEL (slag), some light brown sand (fine), moderately stiff, no cohesion, no plasticity (DAMP/WET)	
4		0.3		(1.4-4.2') Light gray/brown SILT With sand (fine), trace gravel and sand lenses, very stiff to stiff, plastic/cohesive in moist region, no plasticity, low cohesion (DAMP)	
5				(4.2-5') No Recovery	Wet at 4.5' bgs
6		0.2		(5-6.8') Light brown/gray SILT Intermittent black layers, some sand (fine), trace sand lenses (10" to 15"), soft, low cohesion, low plasticity (DAMP)	
7	85	0.0		(6.8-9.3') Brown and dark gray sandy SILT Some organic matter, trace sand (fine) and gravel, varying layers of moisture, plastic/cohesive where moist, very to moderately stiff, low cohesion, no plasitcity (DAMP)	
8		0.0			
9				(9.3-10') No Recovery	
10				End of Boring	
11					

Total Borehole Depth: 10 bgs due to water. Max planned depth reached.
bgs: Below ground surface

ARM Group LLC
Engineers and Scientists

Boring ID: A15-007-SB

(page 1 of 1)

Client	: Tradepoint Atlantic
ARM Project No.	: 21010115
Project Description	: A15 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Don
Drilling Equipment	: Geoprobe 78220T

Date	: 12/20/22
Weather:	: Sunny, 30s
Total Depth (ft):	: 10' bgs

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	REMARKS
0					
1	80	0.7	A15-007-SB-2	(0-0.4') TOP SOIL Brown silt, with some sand	
2		0.3		(0.4-10') Light brown/gray SILT, Dark gray (16-20"), trace lenses of sand (fine), soft to stiff, plastic/cohesive where wet, more sand present within the wet layers, low cohesion, low plasticity (DAMP/WET)	
3		0.0			
4		0.1			
5					
6	100	0.3	A15-007-SB-7		
7		1.0			
8		0.7			
9		0.3	A15-007-SB-10		
10		0.0		End of Boring	
11					

Total Borehole Depth: 10 bgs. Max planned depth reached.
bgs: Below ground surface

ARM Group LLC
Engineers and Scientists

Boring ID: A15-008-SB

(page 1 of 1)

Client	: Tradepoint Atlantic
ARM Project No.	: 21010115
Project Description	: A15 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Don
Drilling Equipment	: Geoprobe 78220T

Date	: 12/20/22
Weather:	: Sunny, 30s
Total Depth (ft):	: 15' bgs

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	REMARKS
0					
1	60	0.4	A15-008-SB-2	(0-0.3') TOP SOIL brown silt, with some sand	
2		0.2		(0.3-2.8') Dark to light brown SILT Trace sand (fine), trace gravel, variation in moisture levels, plastic/cohesive where damp, low cohesion, no plasticity, stiff to very stiff (DAMP/WET)	
3		0.2		(2.8-5') No Recovery	
4					
5	50			(5-7.5') No Recovery	
6					
7		0.6		(7.5-10') Light brown SILT Trace sand (fine), plastic/cohesive where damp, soft to stiff, low cohesion, no plasticity (DAMP)	
8		0.7	A15-008-SB-9		
9		0.5	A15-008-SB-10		
10	65	0.3		(10-10.8') Light brown and gray clayey SILT Trace sand (fine), soft, low cohesion, low plasticity (DAMP/WET)	
11		0.1		(10.8-11.6') Dark brown SILT Trace sand (fine), gravel, organic matter, soft, low cohesion, no plasiticty (DAMP)	
12		0.2		(11.6-12.9') Dark gray to light brown clayey SILT to SANDY SILT Trace gravel, soft, low conhesion, low plasticity (WET)	
13				(12.9-13.2') Gray SAND (fine) Some silt, loose, no cohesion, no plasiticity (WET)	
14				(13.2-15') No Recovery	
15				End of Boring	
16					

Total Borehole Depth: 15 bgs. Max planned depth reached.
bgs: Below ground surface

ARM Group LLC
Engineers and Scientists

Boring ID: A15-009-SB

(page 1 of 1)

Client	: Tradepoint Atlantic
ARM Project No.	: 21010115
Project Description	: A15 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Don
Drilling Equipment	: Geoprobe 78220T

Date	: 12/20/22
Weather:	: Sunny, 30s
Total Depth (ft):	: 5' bgs
Depth to Water (0hr.):	: 1' bgs

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	REMARKS
0				(0-0.3') FILL Top soil, organic matter, brown silt, with some sand	Wet at 1' bgs observed within boring hole.
		1.6	A15-009-SB-2	(0.3-0.9') FILL Drak brown GRAVEL, some sand (fine to coarse), loose, no cohesion, no plasticity (DAMP)	Only sampled from top 1' of core.
1				(0.9-2.7') Light gray clayey SILT With trace sand (fine), increase in sand and gravel within the last 2",very stiff to stiff, low cohesion, low plasticity (DAMP/WET)	
		1.2			
2					
	60	0.0			
				(2.7-2.9') Black SILT and SAND (fine) soft, low cohesion, no plasiticty (DAMP)	
3				(2.9-3.2') FILL Gray GRAVEL (slag), coarse grained, loose, no cohesion, no plasticity (WET)	
				(3.2-5') No Recovery	
4					
5				End of Boring	
6					

Total Borehole Depth: 5' bgs due to water.
bgs: Below ground surface

ARM Group LLC
Engineers and Scientists

Boring ID: A15-010-SB

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Client	: Tradepoint Atlantic
ARM Project No.	: 21010115
Project Description	: A15 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Don
Drilling Equipment	: Geoprobe 78220T

Date	: 12/21/22
Weather:	: Sunny, 30s
Total Depth (ft):	: 5' bgs

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	REMARKS
0				(0-0.2') FILL Brown GRAVEL and silty SAND,organic matter, no cohesion, no plasticity (WET)	Water at surface of boring hole.
		0.4		(0.2-1') Brown GRAVEL and silty SAND With light gray clayey silt, loose, soft to very stiff, no cohesion, no plasticity (WET)	
1			A15-010-SB-2	(1-4.6') Light gray and mottled black clayey SILT Trace sand and gravel (slag), variations in moisture observed, very stiff to soft where wet, low cohesion, no plasticity (WET)	
		0.4			
2					
	100	0.6	A15-010-SB-3		
3					
		0.4			
4					
		0.1			
5				(4.6-5') FILL GRAVEL (slag) with some dark gray silt and sand (fine), loose, no cohesion, no plasticity (WET)	Possible groundwater.
				End of Boring	
6					

Total Borehole Depth: 5 bgs due to water.
bgs: Below ground surface

ARM Group LLC
Engineers and Scientists

Boring ID: A15-011-SB

(page 1 of 1)

Client	: Tradepoint Atlantic
ARM Project No.	: 21010115
Project Description	: A15 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Don
Drilling Equipment	: Geoprobe 78220T

Date	: 12/21/22
Weather:	: Sunny, 30s
Total Depth (ft):	: 5' bgs

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	REMARKS
0					
		0.6		(0-0.3') FILL Brown silty SAND and gravel, organic matter, loose, no cohesion, no plasticity (WET)	
				(0.3-1.1') FILL Gray GRAVEL (slag) and sand (fine), trace brown silt, moderately dense, no cohesion, no plasticity (WET)	
1			A15-011-SB-2		Water at surface of boring hole. Not believed to be groundwater.
		1.0		(1.1-2.8') FILL Light gray silt, gravel (slag) within the first 9", low cohesion, no plasticity, very stiff to stiff (DAMP)	
2					
	60	0.3			
3				(2.8-5') No Recovery	
4					
5				End of Boring	
6					

Total Borehole Depth: 5 bgs due to water.
bgs: Below ground surface

ARM Group LLC
Engineers and Scientists

Boring ID: A15-012-SB

(page 1 of 1)

Client	: Tradepoint Atlantic
ARM Project No.	: 21010115
Project Description	: A15 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Don
Drilling Equipment	: Geoprobe 78220T

Date	: 12/21/22
Weather:	: Sunny, 30s
Total Depth (ft):	: 5' bgs
Depth to Water (0hr.):	: 0.5' bgs

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	REMARKS
0				(0-0.8') FILL Dark brown to brown silty SAND and gravel, moderately dense, no cohesion, no plasticity (WET)	
		0.3		(0.8-5') FILL Gray and light brown SILT and silty SAND, intermittent layers of increased moisture content, plastic/cohesive where damp, stiff to very stiff, low cohesion, no plasticity (DAMP/WET)	Wet at 0.5' bgs
1			A15-012-SB-2		
		0.1			
2					
	100	0.0			
3					
		1.0			
4					
		0.5			
5				End of Boring	
6					

Total Borehole Depth: 5' bgs due to water.
bgs: Below ground surface

ARM Group LLC
Engineers and Scientists

Boring ID: A15-013-SB

(page 1 of 1)

Client	: Tradepoint Atlantic
ARM Project No.	: 21010115
Project Description	: A15 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Don
Drilling Equipment	: Geoprobe 78220T

Date	: 12/21/22
Weather:	: Sunny, 30s
Total Depth (ft):	: 5' bgs

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	REMARKS
0					
		0.4		(0-1.2') FILL Rubble (concrete and brick), some brown silt and sand loose to moderately dense, no cohesion, no plasticity (DAMP)	
1			A15-013-SB-2	(1.2-4.3') Dark brown to light brown SILT Some sand (fine), trace fine sand lenses, trace gravel slag, intermittent layers of increased moisture content, plastic/cohesive where wet, moderately stiff to very stiff, low cohesion, no plasticity (DAMP)	
		0.3			
2					
	90	0.3	A15-013-SB-3		
3					
		0.0			
4					
				(4.3-5') No Recovery	
5				End of Boring	
6					

Total Borehole Depth: 5' bgs. Reached level of percieved area groundwater.
bgs: Below ground surface

ARM Group LLC
Engineers and Scientists

Boring ID: A15-014-SB

(page 1 of 1)

Client	: Tradepoint Atlantic
ARM Project No.	: 21010115
Project Description	: A15 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Don
Drilling Equipment	: Geoprobe 78220T

Date	: 12/21/22
Weather:	: Sunny, 30s
Total Depth (ft):	: 5' bgs

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	REMARKS
0					
		0.6		(0-0.8') FILL GRAVEL,with silt and sand, loose, no cohesion, no plasticity (DAMP)	
1			A15-014-SB-2	(0.8-1.7') FILL Gray GRAVEL slag, some light to dark brown brown silt and sand, dense to moderately dense, no cohesion, no plasticity (WET/DAMP)	
		1.3			
2				(1.7-2.2') FILL Light brown SILT, some gravel (slag) and sand (coarse), stiff, no plasticity, low cohesion (DAMP)	
	90	0.5	A15-014-SB-3	(2.2-2.7') FILL Dark brown GRAVEL (slag) and sand (fine), moderately dense, no plasticity, no cohesion (DAMP)	
3				(2.7-4.4') Light brown SILT Trace sand (fine), plastic/cohesive where wet, stiff, low cohesion, no plasticity (DAMP)	
		0.3			
4					
				(4.4-5') No Recovery	
5				End of Boring	
6					

Total Borehole Depth: 5' bgs.
bgs: Below ground surface

ARM Group LLC
Engineers and Scientists

Boring ID: A15-015-SB/PZ

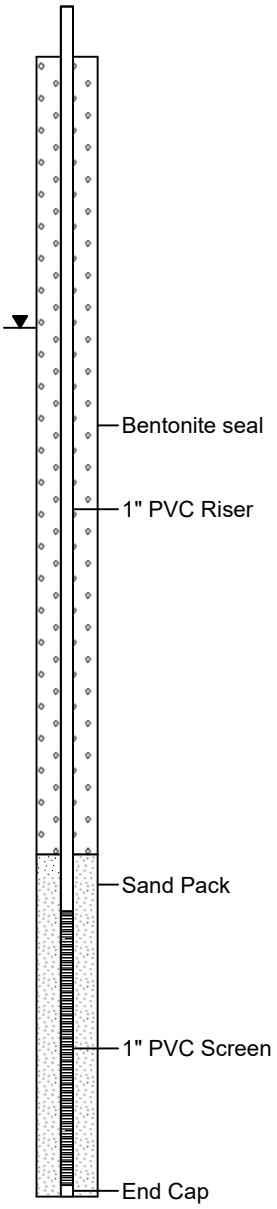
(page 1 of 1)

Client	: Tradepoint Atlantic
ARM Project No.	: 21010115
Project Description	: A15 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Don
Drilling Equipment	: Geoprobe 78220T

Soil Boring Installation Date	: 12/21/22
Piezometer Installation Date	: 12/21/22
Casing/Riser/Screen Type	: PVC
Borehole Diameter	: 2.25"
Riser/Screen Diameter	: 1"
0-Hr DTW	: 7.60' TOC
48-Hr DTW	: 7.04' TOC

No LNAPL or DNAPL detected at 0 or 48 hours

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION
0				
1	100	6.5	A15-015-SB-2	(0-0.7') FILL Brown to light brown clayey SILT with trace sand and gravel, moderately dense, low cohesion, no plasticity (DAMP)
2		3.9		
3		0.1	A15-015-SB-3	(0.7-1.3') FILL Dark brown or black GRAVEL slag, and sand (fine), moderately dense, no cohesion, no plasticity (DAMP)
4		0.0		(1.3-5.2') Mottled light brown/gray clayey SILT Some gravel, trace sand, stiff to very stiff, low cohesion, no plasticity (DAMP)
5		0.0		
6	100	0.0		(5.2-7') Light brown clayey silty SAND Soft, low plasticity, low plasticity (DAMP)
7		0.0		
8		0.0		(7-10') Light brown/gray clayey silty SAND to SILT Trace amounts of gravel, stiff, low cohesion, low plasticity (DAMP)
9		0.0		
10		0.0	A15-015-SB-10	
11	60	0.3		(10-10.2') Light brown or gray SILT With some sand, stiff, low cohesion, no plasticity (DAMP)
12		0.0		(10.2-13') Light brown to gray clayey SILT Trace sand (fine) and gravel, increased concentration of sand and gravel with increasing depth, soft to stiff, low cohesion, no plasticity (DAMP)
13		0.0		
14				(13-15') No Recovery
15				
16	100	0.0		(15-18.4') Light gray sandy CLAY Soft, cohesive, low plasticity, increased sand concentration with depth (WET)
17		0.0		
18		0.0		
19		0.0		(18.4-20') Light reddish/brown silty SAND (fine) No cohesion, no plasticity (WET)
20		0.0		End of Boring
21				



REMARKS

Total Borehole Depth: 20' bgs. Found water-bearing sand layer.
bgs: Below ground surface

Riser Stickup: 2.84'
Riser: 0 - 15' bgs
Screen: 15 - 20' bgs [Slot Size: 0.010"]
Sand Pack: 14 - 20' bgs [Grain Size: WG #2]
Bentonite Seal: 0 - 14' bgs [Grain Size: 3/8" chips/granular (30-50 mesh)]

ARM Group LLC
Engineers and Scientists

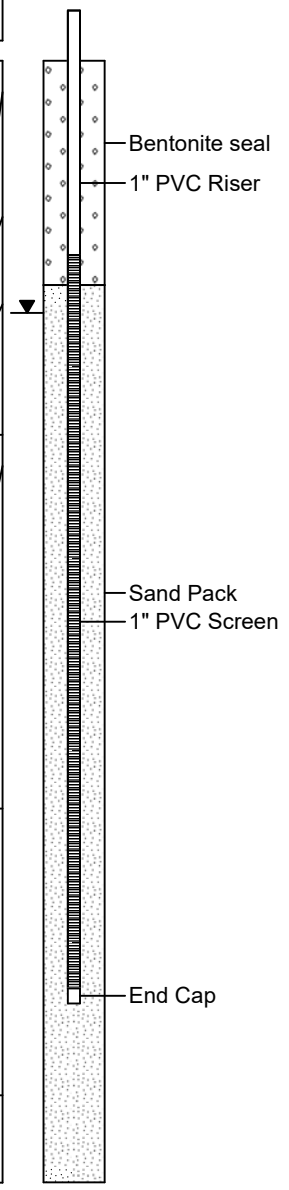
Boring ID: A15-016-SB/PZ

Client	: Tradepoint Atlantic
ARM Project No.	: 21010115
Project Description	: A15 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Kevin
Drilling Equipment	: Geoprobe 78220T

Soil Boring Installation Date	: 11/8/22
Piezometer Installation Date	: 11/8/22
Casing/Riser/Screen Type	: PVC
Borehole Diameter	: 2.25"
Riser/Screen Diameter	: 1"
0-Hr DTW	: 5.60' TOC
48-Hr DTW	: 5.75' TOC

No LNAPL or DNAPL detected at 0 or 48 hours

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION
0		0.1	A15-016-SB-2	(0-0.4') Brown SILT With sand and gravel, loose, no plasticity, no cohesion (DAMP)
1		0.1		(0.4-2') Light gray/brown SILT With some silty sand (fine), moderate to very stiff, no plasticity, low cohesion (DAMP)
2	65	0.1	A15-016-SB-3	(2-3.3') Light brown silty SAND (fine) Moderately dense, low cohesion, no plasticity (DAMP)
3				
4				(3.3-5') No Recovery
5		0.1		(5-5.4') Gray CLAY and brown GRAVEL With some sand (fine to coarse), stiff, no plasticty, no cohesion (DAMP)
6		0.2		(5.4-10') Light brown clayey silty SAND (fine) Dense, thin layer of gravel near bottom of section, low cohesion, no plasticity (DAMP/WET)
7	100	0.1		
8		0.0		
9		0.3		
10		0.1		(10-13.8') Light gray silty SAND (fine) and SILT Moderately dense to dense, increased silt concentrtaion near bottom, no plasticity, low cohesion (WET)
11		0.2		
12	90	0.2		
13		0.1		
14				(13.8-15') Light gray/brown silty SAND (fine) Moderately dense, no plasticity, no cohesion (WET)
15				End of Boring
16				



REMARKS

Wet at 6' bgs

Note piezometer was initially installed with a screen interval 5-15' bgs. 0-Hr groundwater was observed above the screened interval, so the PVC riser and screen was shifted upward 2.4' to be screened over the water table.

Total Borehole Depth: 15' bgs due to water.
Extended to 15' to set PZ screen.
bgs: Below ground surface

Riser Stickup: 2.23'
Riser: 0 - 2.6' bgs
Screen: 2.6 - 12.6' bgs [Slot Size: 0.010"]
Sand Pack: 3 - 15' bgs [Grain Size: WG #2]
Bentonite Seal: 0 - 3' bgs [Grain Size: 3/8" chips/granular (30-50 mesh)]

ARM Group LLC
Engineers and Scientists

Boring ID: A15-017-SB

Client	: Tradepoint Atlantic
ARM Project No.	: 21010115
Project Description	: A15 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Kevin
Drilling Equipment	: Geoprobe 78220T

Date	: 11/8/22
Weather:	: Sunny, 30s
Total Depth (ft):	: 10' bgs
Depth to Water (0hr.):	: 5' bgs

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	REMARKS
0					
1	100	0.8	A15-017-SB-2	(0-5') Light gray/brown SILT With some silty sand (fine), trace amounts of sand (fine) and gravel, very stiff to stiff, no plasticity, no cohesion (DAMP)	
2		1.1			
3		4.0	A15-017-SB-3		
4		2.0			
5		0.6			
6	100	1.5		(5-9.5') Light gray/brown SILT Some silty sand (fine), soft to stiff, low plasticity, low cohesion (WET)	Wet at 5' bgs
7		1.7			
8		1.0			
9		3.4			
10		4.3		(9.5-10') Light brown SAND (fine) Loose, no cohesion, no plasticty (WET)	
11				End of Boring	

Total Borehole Depth: 10' bgs due to water.
bgs: Below ground surface

ARM Group LLC
Engineers and Scientists

Boring ID: A15-018-SB

(page 1 of 1)

Client	: Tradepoint Atlantic
ARM Project No.	: 21010115
Project Description	: A15 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Don
Drilling Equipment	: Geoprobe 78220T

Date	: 12/20/22
Weather:	: Sunny, 30s
Total Depth (ft):	: 20' bgs

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	REMARKS
0					
1	80	1.3	A15-018-SB-2	(0-0.3') TOP SOIL Brown SILT with some sand, organic matter (roots)	
2		3.0		(0.3-0.5') FILL Brown GRAVEL, and silty sand (fine), loose, no cohesion, no plasticity (DAMP)	
3		0.3	A15-018-SB-3	(0.5-0.7') FILL Light reddish brown silty SAND, with gray gravel moderately dense, no cohesion, no plasticty (DAMP)	
4		0.0		(0.7-3.3') FILL Gray GRAVEL (slag), with some dark brown and black silty sand (fine), loose to moderately dense, no cohesion, no plasticity (DAMP)	
5	100	0.0		(3.3-10') Light brown and gray SILT With trace amounts of sand (fine), dry, very stiff, no plasticity, no cohesion	
6		0.0			
7		0.0			
8		0.0			
9		0.0	A15-018-SB-10		
10	80	0.1		(10-11.8') Gray clayey SILT With trace sand, soft to stiff, low plastciity, low cohesion (DAMP)	
11		0.0			
12		0.1		(11.8-11.9') Black brown SAND (fine) Some silt, trace gravel and organic matter, moderately dense, no cohesion, no plasticity (DAMP)	
13		0.0			
14					
15	70	0.3		(11.9-18.5') Reddish brown and light gray SILT With sand (fine), variation in moisture content throughout, plastic/cohesive where wet, low cohesion, no plasticity (DAMP)	
16		0.1			
17		0.0			
18		0.0			
19				(18.5-20) No Recovery	
20					

Total Borehole Depth: 20' bgs. Reached max extended depth.
bgs: Below ground surface

ARM Group LLC
Engineers and Scientists

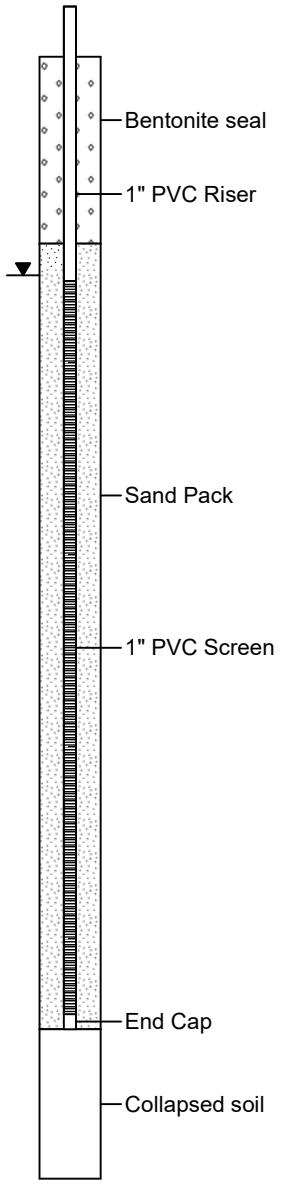
Boring ID: A15-019-SB/PZ

Client	: Tradepoint Atlantic
ARM Project No.	: 21010115
Project Description	: A15 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Don
Drilling Equipment	: Geoprobe 78220T

Soil Boring Installation Date	: 12/20/22
Piezometer Installation Date	: Sunny, 30s
Casing/Riser/Screen Type	: PVC
Borehole Diameter	: 2.25"
Riser/Screen Diameter	: 1"
0-Hr DTW	: 5.34' TOC
48-Hr DTW	: 5.19' TOC

No LNAPL or DNAPL detected at 0 or 48 hours

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	REMARKS
0					
1		0.4	A15-019-SB-2	(0-12') Light brown and gray clayey SILT Trace sand (fine) and gravel, sand appears within lenses throughout, soft to very stiff, low cohesion, no plasticity (DAMP)	
2		0.5			
3	80	0.6	A15-019-SB-3		
4		0.4			
5					
6		0.5			
7		0.3			
8	90	0.4			
9		0.2			
10		0.2			
11		0.4			
12		0.2			
13	90	0.1		(12-15') Light brown to brown SAND (fine) Some silt observed, loose, moderately dense, no cohesion, no plasticity (WET)	
14		0.1			
15		0.1		End of Boring	
16					



Total Borehole Depth: 15' bgs. Reached planned piezometer depth.
bgs: Below ground surface

Riser Stickup: 2.42'
Riser: 0 - 3' bgs
Screen: 3 - 13' bgs [Slot Size: 0.010"]
Sand Pack: 2.5 - 13' bgs [Grain Size: WG #2]
Bentonite Seal: 0 - 2.5' bgs [Grain Size: 3/8" chips/granular (30-50 mesh)]

ARM Group LLC
Engineers and Scientists

Boring ID: A15-020-SB

Client	: Tradepoint Atlantic
ARM Project No.	: 21010115
Project Description	: A15 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Don
Drilling Equipment	: Geoprobe 78220T

Date	: 12/20/22
Weather:	: Sunny, 30s
Total Depth (ft):	: 10' bgs
Depth to Water (0hr.):	: 9' bgs

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	REMARKS
0				(0-0.3') Dark brown silty SAND (fine) and GRAVEL Low cohesion, no plastcity (DAMP)	Roots/Organic Matter
1		0.6	A15-020-SB-2	(0.3-10') Dark to light brown and gray SILT Trace sand (fine), plastic/cohesive where damp, stiff to very stiff, low cohesion, no plasticity (DAMP)	
2		0.4			
	100	0.3			
3					
		0.4	A15-020-SB-4		
4					
		0.1			
5					
		0.1			
6					
		0.1			
7					
	90	0.4			
8					
		0.1			
9					Wet at 9' bgs
		0.3			
10				End of Boring	
11					

Total Borehole Depth: 10' bgs. Reached planned depth.
bgs: Below ground surface

APPENDIX C

Parcel A15 - PID Calibration Log

PROJECT NAME: Area A, Parcel A15 Phase II				**SAMPLER NAME:** L. Parker			
PROJECT NUMBER: 21010115				**DATE: December 2022**		**PAGE** 1 of 1	
DATE/TIME	SAMPLER INITIALS	PID SERIAL #	FRESH AIR CAL	STANDARD	STANDARD CONCENTRATION	METER READING	COMMENTS
12/20/2022 8:00	LEP	42222	0.0	Isobutylene	100 ppm	100.0	-
12/21/2022 8:00	LEP	42222	0.0	Isobutylene	100 ppm	98.5	-

APPENDIX D

Low Flow Sampling Purge Log

ARM Group Enterprises LLC
Engineers and Scientists

Well Number:	SW-098-MW5	Project Name:	AIS Phase II GW
Well Diameter (in):	2"	Project Number:	21010115
Depth to Product (ft):	None	Date:	1/19/22
Depth to Water (ft):	10.49	One Well Volume (gal):	0.68
Product Thickness (ft):	—	Flow Rate (mL/min)	300
Depth to Bottom (ft):	27.05	Length of time Purged (min)	40

PURGING RECORD

Time	Volume Purged (gallons)	DTW (feet)	Temp (°C)	pH (s.u.) ± 0.1	Specific Conductance (ms/cm) ± 3%	Dissolved Oxygen (mg/L) ± 0.3	ORP (mV) ± 10	Turbidity (NTU) ± 10% or < 5	Comments	
1150			12.54	7.52	0.542	14.09	5	93.4		
1155		10.52	14.69	6.39	0.619	4.13	73	101.6		
1200		10.53	15.02	6.25	0.623	3.57	76	69.1		
1205		10.53	15.13	6.12	0.629	3.32	76	69.3		
1210		10.53	15.14	6.04	0.637	3.08	75	58.6		
1215		10.53	15.14	5.97	0.659	2.99	73	60.2	7	
1220			15.35	5.92	0.657	2.89	74	57.8		
1225			15.47	5.88	0.661	2.88	74	56.4		

SAMPLE RECORD AND WELL DETAILS

Sample ID	Time Collected
SW-098-MW5	1235

Sampling Parameters

Parameter	Collected?	Parameter	Collected?
TCL-VOCs	X	Dissolved Zn and Cd	
TPH-GRO	X		
TPH-DRO	X	BTEX and naphthalene	
O&G	X		
Total Cyanide	X	VOC, SVOC, TAL Metals and mercury, Sulfate, Nitrate, Ammonia, COD, Alkalinity, Chloride, Turbidity, TDS, Specific Conductance	
TCL SVOCs	✓		
TAL Metals and Mercury (**total**)			
TAL Metals and Mercury (**dissolved**)	X		
Hexavalent Chromium	X		
PCB			
Matrix Spike			
Duplicate			

Well Inspection

Well has been found and is accessible without hazards. If no, explain in the comments section.	✓

Well Pad Condition

Good: no visible cracks and is sloping	
Fair: some visible cracks and/or not sloping	
Poor: heavily cracked	
Unsure: pad has been buried by site activities	✓
Bolts in place	
Bolts are missing	

Well Casing Condition

Casing is free from damage and visibly marked with the Well ID	No

Well Condition

Casing Volume: 1" I.D. = 0.041 gal/ft - 2" I.D. = 0.163 gal/ft - 4" I.D. = 0.653 gal/ft - 6" I.D. = 1.47 gal/ft

_____ ft x _____ gal/ft = _____ (gal)

Well is structurally sound: not bent, broken, and no blockage identified	✓
Well is bent or broken but is able to be used	
Well is broken and is not able to be used	
Well is blocked and is not able to be used	
Cap is present	✓
Well permit is present	No

Sampled By: DP

Comments:

Low Flow Sampling Purge Log

ARM Group Enterprises LLC
Engineers and Scientists

Well Number:	SG04-PDM008	Project Name:	AIS-Phase II
Well Diameter (in):	2	Project Number:	21010115
Depth to Product (ft):	—	Date:	12/29/22
Depth to Water (ft):	5.85	One Well Volume (gal):	0.37
Product Thickness (ft):	—	Flow Rate (mL/min)	280
Depth to Bottom (ft):	14.96	Length of time Purged (min)	40

PURGING RECORD

Time	Volume Purged (gallons)	DTW (feet)	Temp (°C)	pH (s.u.) ± 0.1	Specific Conductance (ms/cm) ± 3%	Dissolved Oxygen (mg/L) ± 0.3	ORP (mV) ± 10	Turbidity (NTU) ± 10% or < 5	Comments	
1305		5.90	13.98	11.58	3.485	1.07	-127	12.0		
1310		☆	14.20	11.58	3.170	0.59	-226	5.58		
1315			14.07	11.53	2.372	0.46	-216	4.37		
1320			13.78	11.42	2.255	0.44	-196	3.51		
1325			13.43	11.40	2.121	0.45	-189	3.04		
1330			13.50	11.41	2.059	0.46	-187	2.93	?	
1335			13.54	11.41	2.051	0.45	-186	2.04		✓
1340		↓	13.35	11.41	2.041	0.42	-188	1.99	✓	

SAMPLE RECORD AND WELL DETAILS

Sample ID	Time Collected
SG04-PDM008	1355

Sampling Parameters

Parameter	Collected?	Parameter	Collected?
TCL-VOCs		Dissolved Zn and Cd	
TPH-GRO			
TPH-DRO		BTEX and naphthalene	
O&G			
Total Cyanide		VOC, SVOC, TAL Metals and mercury, Sulfate, Nitrate, Ammonia, COD, Alkalinity, Chloride, Turbidity, TDS, Specific Conductance	
TCL SVOCs			
TAL Metals and Mercury **(total)**			
TAL Metals and Mercury **(dissolved)**			
Hexavalent Chromium			
PCB			
Matrix Spike			
Duplicate			

Well Inspection

Well has been found and is accessible without hazards. If no, explain in the comments section.	✓

Well Pad Condition

Good: no visible cracks and is sloping	
Fair: some visible cracks and/or not sloping	
Poor: heavily cracked	
Unsure: pad has been buried by site activities	✓
Bolts in place	
Bolts are missing	

Well Casing Condition

Casing is free from damage and visibly marked with the Well ID	✓

Well Condition

Casing Volume 1" I.D. = 0.041 gal/ft - 2" I.D. = 0.163 gal/ft - 4" I.D. = 0.653 gal/ft - 6" I.D. = 1.47 gal/ft

_____ ft x _____ gal/ft = _____ (gal)

Well is structurally sound: not bent, broken, and no blockage identified	✓
Well is bent or broken but is able to be used	
Well is broken and is not able to be used	
Well is blocked and is not able to be used	
Cap is present	✓
Well permit is present	No

Sampled By _____

Comments:

Low Flow Sampling Purge Log

ARM Group Enterprises LLC
Engineers and Scientists

Well Number: A15-016-P2	Project Name: A15 - Phase II - GW
Well Diameter (in): 1	Project Number: 210115
Depth to Product (ft): —	Date: 1/4/22
Depth to Water (ft): 2.65	One Well Volume (gal): 0.5
Product Thickness (ft): —	Flow Rate (mL/min) 300
Depth to Bottom (ft): 14.95	Length of time Purged (min) 25

PURGING RECORD

Time	Volume Purged (gallons)	DTW (feet)	Temp (°C)	pH (s.u.) ± 0.1	Specific Conductance (ms/cm) ± 3%	Dissolved Oxygen (mg/L) ± 0.3	ORP (mV) ± 10	Turbidity (NTU) ± 10% or < 5	Comments
1455	0.4		10.95	6.44	0.292	7.19	69	OK	YLKBN
1500	0.79	4.95	9.36	6.64	0.251	7.40	83	100.3	Cloudy/clear
1505	1.19	5.32	9.82	6.49	0.234	6.34	89	80.9	
1510	1.59	5.50	9.83	6.35	0.231	5.46	98	71.2	
1515	1.98	5.83	10.01	6.23	0.229	4.91	99	59.7	
1520	2.38	5.94	10.07	6.16	0.227	4.45	99	60.4	
1525	2.77	6.18	10.17	6.06	0.226	4.16	104	64.9	
1530	3.17	6.22	10.23	6.04	0.226	4.11	106	65.3	
1535	3.57	✓	10.25	6.03	0.226	4.02	105	59.9	

SAMPLE RECORD AND WELL DETAILS

Sample ID	Time Collected
A15-016-P2	1535

Sampling Parameters

Parameter	Collected?	Parameter	Collected?
TCL-VOCs		Dissolved Zn and Cd	
TPH-GRO			
TPH-DRO		BTEX and naphthalene	
O&G			
Total Cyanide		VOC, SVOC, TAL Metals and mercury, Sulfate, Nitrate, Ammonia, COD, Alkalinity, Chloride, Turbidity, TDS, Specific Conductance	
TCL SVOCs			
TAL Metals and Mercury **(total)**			
TAL Metals and Mercury **(dissolved)**			
Hexavalent Chromium			
PCB			
Matrix Spike			
Duplicate			

Well Inspection

Well has been found and is accessible without hazards. If no, explain in the comments section.	

Well Pad Condition

Good: no visible cracks and is sloping	
Fair: some visible cracks and/or not sloping	
Poor: heavily cracked	
Unsure: pad has been buried by site activities	
Bolts in place	
Bolts are missing	

Well Casing Condition

Casing is free from damage and visibly marked with the Well ID	

Well Condition

Casing Volume: 1" I.D. = 0.041 gal/ft - 2" I.D. = 0.163 gal/ft - 4" I.D. = 0.653 gal/ft - 6" I.D. = 1.47 gal/ft

_____ ft x _____ gal/ft = _____ (gal)

Well is structurally sound: not bent, broken, and no blockage identified	
Well is bent or broken but is able to be used	
Well is broken and is not able to be used	
Well is blocked and is not able to be used	
Cap is present	
Well permit is present	

Sampled By _____

Comments:

Low Flow Sampling Purge Log

ARM Group Enterprises LLC
Engineers and Scientists

Well Number: A15-015-PZ-1	Project Name: A15 Phase II GW
Well Diameter (in): 1	Project Number: 21010115
Depth to Product (ft): None	Date: 1/4/22
Depth to Water (ft): 7.04	One Well Volume (gal): 0.63
Product Thickness (ft): —	Flow Rate (mL/min) 300
Depth to Bottom (ft): 22.60	Length of time Purged (min) 40

PURGING RECORD

Time	Volume Purged (gallons)	DTW (feet)	Temp (°C)	pH (s.u.) ± 0.1	Specific Conductance (ms/cm) ± 3%	Dissolved Oxygen (mg/L) ± 0.3	ORP (mV) ± 10	Turbidity (NTU) ± 10% or < 5	Comments	
1320	0.4	7.07	15.56	5.93	0.610	0.66	27	OK		
1325	0.79	7.09	15.66	5.89	0.618	0.61	26	OK		
1330	1.19	7.09	15.75	5.79	0.645	0.50	27	OK		
1335	1.59	7.09	5.76	5.76	0.658	0.50	28	OK		
1340	1.98	7.09	15.81	5.61	0.679	0.52	29	OK		
1345	2.38		15.79	5.70	0.680	0.55	30	OK	clear	NP
1350	2.77	7.09	15.65	5.66	0.685	0.66	33	OK	Brt	SW11 OK
1355	3.17	7.09	15.66	5.65	0.689	0.68	34	OK	✓	

SAMPLE RECORD AND WELL DETAILS

Sample ID	Time Collected
A15-015-PZ-1	1410

Sampling Parameters

Parameter	Collected?	Parameter	Collected?
TCL-VOCs		Dissolved Zn and Cd	
TPH-GRO			
TPH-DRO		BTEX and naphthalene	
O&G			
Total Cyanide		VOC, SVOC, TAL Metals and mercury, Sulfate, Nitrate, Ammonia, COD, Alkalinity, Chloride, Turbidity, TDS, Specific Conductance	
TCL SVOCs			
TAL Metals and Mercury **(total)**			
TAL Metals and Mercury **(dissolved)**			
Hexavalent Chromium			
PCB			
Matrix Spike			
Duplicate			

Well Inspection

Well has been found and is accessible without hazards. If no, explain in the comments section.	

Well Pad Condition

Good: no visible cracks and is sloping	
Fair: some visible cracks and/or not sloping	
Poor: heavily cracked	
Unsure: pad has been buried by site activities	
Bolts in place	
Bolts are missing	

Well Casing Condition

Casing is free from damage and visibly marked with the Well ID	

Well Condition

Casing Volume: 1" I.D. = 0.041 gal/ft - 2" I.D. = 0.163 gal/ft - 4" I.D. = 0.653 gal/ft - 6" I.D. = 1.47 gal/ft

_____ ft x _____ gal/ft = _____ (gal)

Well is structurally sound: not bent, broken, and no blockage identified	
Well is bent or broken but is able to be used	
Well is broken and is not able to be used	
Well is blocked and is not able to be used	
Cap is present	
Well permit is present	

Sampled By

Comments: Very turbid

Low Flow Sampling Purge Log

ARM Group Enterprises LLC
Engineers and Scientists

Well Number: A15-019-P2	Project Name: A15 Phase II GW
Well Diameter (in): 2	Project Number: 2101115
Depth to Product (ft): None	Date: 1/4/22
Depth to Water (ft): 5.19	One Well Volume (gal): 0.39
Product Thickness (ft): —	Flow Rate (mL/min) 300
Depth to Bottom (ft): 14.85	Length of time Purged (min) 35

PURGING RECORD

Time	Volume Purged (gallons)	DTW (feet)	Temp (°C)	pH (s.u.) ± 0.1	Specific Conductance (ms/cm) ± 3%	Dissolved Oxygen (mg/L) ± 0.3	ORP (mV) ± 10	Turbidity (NTU) ± 10% or < 5	Comments	
1155	0.4	5.46	15.60	5.84	0.535	2.09	-17	OR		
1200	0.79	5.39	15.42	6.18	0.521	1.40	-23	OR		
1205	1.19	5.33	15.25	6.32	0.516	0.59	-31	OR		
1210	1.59	5.32	15.25	6.34	0.515	0.57	-32	OR		
1215	1.98	5.32	15.17	6.39	0.515	0.59	-35	OR		
1220	2.38	5.33	15.17	6.42	0.514	0.78	-30	OR		
1225	2.77	—	5.14	6.43	0.516	0.88	-33	OK		

SAMPLE RECORD AND WELL DETAILS

Sample ID	Time Collected
A15-019-P2	1240

Sampling Parameters

Parameter	Collected?	Parameter	Collected?
TCL-VOCs		Dissolved Zn and Cd	
TPH-GRO			
TPH-DRO		BTEX and naphthalene	
O&G			
Total Cyanide		VOC, SVOC, TAL Metals and mercury, Sulfate, Nitrate, Ammonia, COD, Alkalinity, Chloride, Turbidity, TDS, Specific Conductance	
TCL SVOCs			
TAL Metals and Mercury **(total)**			
TAL Metals and Mercury **(dissolved)**			
Hexavalent Chromium			
PCB			
Matrix Spike			
Duplicate	X		

Well Inspection

Well has been found and is accessible without hazards. If no, explain in the comments section.	

Well Pad Condition

Good: no visible cracks and is sloping	
Fair: some visible cracks and/or not sloping	
Poor: heavily cracked	
Unsure: pad has been buried by site activities	
Bolts in place	
Bolts are missing	

Well Casing Condition

Casing is free from damage and visibly marked with the Well ID	

Well Condition

Casing Volume: 1" I.D. = 0.041 gal/ft - 2" I.D. = 0.163 gal/ft - 4" I.D. = 0.653 gal/ft - 6" I.D. = 1.47 gal/ft

_____ ft x _____ gal/ft = _____ (gal)

Well is structurally sound: not bent, broken, and no blockage identified	
Well is bent or broken but is able to be used	
Well is broken and is not able to be used	
Well is blocked and is not able to be used	
Cap is present	
Well permit is present	

Sampled By: TJP

Comments: Sampled for Phase II GW 1,3,5

Low Flow Sampling Purge Log

ARM Group Enterprises LLC
Engineers and Scientists

Well Number:	SG03-PDN007	Project Name:	AIS Phase II GW
Well Diameter (in):	2"	Project Number:	210110115
Depth to Product (ft):	N/A	Date:	12/30/22
Depth to Water (ft):	5.19	One Well Volume (gal):	0.6
Product Thickness (ft):	—	Flow Rate (mL/min)	300
Depth to Bottom (ft):	19.94	Length of time Purged (min)	40

PURGING RECORD

Time	Volume Purged (gallons)	DTW (feet)	Temp (°C)	pH (s.u.) ± 0.1	Specific Conductance (ms/cm) ± 3%	Dissolved Oxygen (mg/L) ± 0.3	ORP (mV) ± 10	Turbidity (NTU) ± 10% or < 5	Comments	
1130		5.42	14.94	6.84	0.897	10.30	230	54.6		
1135		5.45	15.46	7.20	0.871	1.55	200	29.2		
1140		5.45	15.27	7.32	0.869	1.09	178	23.2		
1145		5.45	15.36	7.42	0.867	0.90	159	20.0		
1150		5.45	15.61	7.47	0.870	0.81	149	35.5	Turb.	
1155		5.45	15.71	7.52	0.868	0.79	156	41.5		
1200		5.45	15.72	7.54	0.868	0.90	155	40.3		
1205		5.45	15.80	7.56	0.868	0.79	154	40.0		

SAMPLE RECORD AND WELL DETAILS

Sample ID	Time Collected
SG03-PDN007	SG03-PDN007 1215

Sampling Parameters

Parameter	Collected?	Parameter	Collected?
TCL-VOCs		Dissolved Zn and Cd	
TPH-GRO			
TPH-DRO		BTEX and naphthalene	
O&G			
Total Cyanide		VOC, SVOC, TAL Metals and mercury, Sulfate, Nitrate, Ammonia, COD, Alkalinity, Chloride, Turbidity, TDS, Specific Conductance	
TCL SVOCs			
TAL Metals and Mercury **(total)**			
TAL Metals and Mercury **(dissolved)**			
Hexavalent Chromium			
PCB			
Matrix Spike			
Duplicate			

Well Inspection

Well has been found and is accessible without hazards. If no, explain in the comments section.	✓

Well Pad Condition

Good: no visible cracks and is sloping	✓
Fair: some visible cracks and/or not sloping	
Poor: heavily cracked	
Unsure: pad has been buried by site activities	
Bolts in place	
Bolts are missing	

Well Casing Condition

Casing is free from damage and visibly marked with the Well ID	✓

Well Condition

Casing Volume: 1" I.D. = 0.041 gal/ft - 2" I.D. = 0.163 gal/ft - 4" I.D. = 0.653 gal/ft - 6" I.D. = 1.47 gal/ft

_____ft x _____gal/ft = _____(gal)

Well is structurally sound: not bent, broken, and no blockage identified	✓
Well is bent or broken but is able to be used	
Well is broken and is not able to be used	
Well is blocked and is not able to be used	
Cap is present	✓
Well permit is present	NO

Sampled By: TJR

Comments:

TABLE 1
MULTIPARAMETER CALIBRATION LOG

Project Name Area A Parcel A15 Phase II Date 1/4/23
Weather Fog, 40s
Calibrated by T. Palank Instrument YSI 556 MPS
Serial Number 018952

Parameters	Morning Calibration	Morning Temperature	End of Day Calibration Check	End of Day Temperature
Specific Conductance Standard #1	4.49	46°	4.311	56°
Specific Conductance Standard #2	-		-	
pH (7)	7.00		7.13	
pH (4)	4.00		4.04	
pH(10)	10.00		10.20	
ORP Zobel Solution	240.0		240.9	
Dissolved Oxygen 100% water saturated air mg/L	8.58¥		9.06¥	
Dissolved Oxygen Zero Dissolved Oxygen Solution mg/L	0.0¥		0.0¥	
Barometric Pressure inches Hg	29.92		29.80	
Turbidity #1 (0 NTU)	0.00		-0.05¥	
Turbidity #2 (1 NTU)	1.00		0.51¥	
Turbidity #3 (10 NTU)	10.00		9.42¥	

¥ Turbidity is outside of the post-calibration acceptance criteria. DO was recorded as mg/L. Values displayed on field purge logs may be inaccurate.

TABLE 1
MULTIPARAMETER CALIBRATION LOG

Project Name Area A Parcel A15 Phase II Date 1/19/23
Weather Rain, 40s
Calibrated by T. Palank Instrument YSI 556 MPS
Serial Number 018952

Parameters	Morning Calibration	Morning Temperature	End of Day Calibration Check	End of Day Temperature
Specific Conductance Standard #1	1.413	40°	1.252	43°
Specific Conductance Standard #2	-		-	
pH (7)	7.00		7.17	
pH (4)	4.00		4.21	
pH(10)	10.00		10.26	
ORP Zobel Solution	240.0		243.4	
Dissolved Oxygen 100% water saturated air mg/L	9.45¥		8.27¥	
Dissolved Oxygen Zero Dissolved Oxygen Solution mg/L				
Barometric Pressure inches Hg	30.02			
Turbidity #1 (0 NTU)	0.00		0.54¥	
Turbidity #2 (1 NTU)	1.00		1.44¥	
Turbidity #3 (10 NTU)	10.00		10.54¥	

¥ Turbidity is outside of the post-calibration acceptance criteria. DO was recorded as mg/L. Values displayed on field purge logs may be inaccurate.

TABLE 1
MULTIPARAMETER CALIBRATION LOG

Project Name Area A Parcel A15 Phase II Date 12/29/22
Weather Sunny, 30s
Calibrated by T. Palank Instrument YSI 556 MPS
Serial Number 018952

Parameters	Morning Calibration	Morning Temperature	End of Day Calibration Check	End of Day Temperature
Specific Conductance Standard #1	4.49	31°	4.307	48°
Specific Conductance Standard #2	-		-	
pH (7)	7.00		7.08	
pH (4)	4.00		4.22	
pH(10)	10.00		10.20	
ORP Zobel Solution	240.0		238.7	
Dissolved Oxygen 100% water saturated air mg/L	9.09¥		9.68¥	
Dissolved Oxygen Zero Dissolved Oxygen Solution mg/L	0.0¥			
Barometric Pressure inches Hg	30.36		30.29	
Turbidity #1 (0 NTU)	0.00		0.06¥	
Turbidity #2 (1 NTU)	1.00		0.42¥	
Turbidity #3 (10 NTU)	10.00		7.36¥	

¥ Turbidity is outside of the post-calibration acceptance criteria. DO was recorded as mg/L. Values displayed on field purge logs may be inaccurate.

TABLE 1
MULTIPARAMETER CALIBRATION LOG

Project Name Area A Parcel A15 Phase II Date 12/30/22
Weather Sunny, 30s
Calibrated by T. Palank Instrument YSI 556 MPS
Serial Number 018952

Parameters	Morning Calibration	Morning Temperature	End of Day Calibration Check	End of Day Temperature
Specific Conductance Standard #1	4.49	34°	4.304	54°
Specific Conductance Standard #2	-		-	
pH (7)	7.00		7.22	
pH (4)	4.00		4.40	
pH(10)	10.00		10.10	
ORP Zobel Solution	240.0		242.0	
Dissolved Oxygen 100% water saturated air mg/L	9.39¥		9.86¥	
Dissolved Oxygen Zero Dissolved Oxygen Solution mg/L	0.0¥		0.18¥	
Barometric Pressure inches Hg	30.32		30.24	
Turbidity #1 (0 NTU)	0.00		0.01	
Turbidity #2 (1 NTU)	1.00		0.74	
Turbidity #3 (10 NTU)	10.00		10.19	

¥ DO was recorded as mg/L. Values displayed on field purge logs may be inaccurate.

APPENDIX E

QA/QC Tracking Log

Trip Blank:	Date:	Sample IDs:	
TB wt	11/8/2022	1) A15-017-SB-2	QA/QC for A15 soil samples
		2) A15-017-SB-3	
		3) A15-016-SB-2	
		4) A15-016-SB-3	
		5) A15-005-SB-2	
		6) A15-004-SB-2	
		7) A15-004-SB-3	Duplicate: A15-017-SB-3
	12/20/2022	8) A15-019-SB-2	Date: 11/8/2022
		9) A15-019-SB-3	MS/MSD: A15-020-SB-2
		10) A15-020-SB-2	Date: 12/20/2022
		11) A15-020-SB-4	Field Blank:
		12) A15-009-SB-2	Date: 11/8/2022
		13) A15-008-SB-2	Eq. Blank:
		14) A15-008-SB-9	Date: 11/8/2022
		15) A15-008-SB-10	
		16) A15-007-SB-2	
		17) A15-007-SB-7	
		18) A15-007-SB-10	
		19) A15-006-SB-2	
		20) A15-006-SB-3	

Trip Blank:	Date:	Sample IDs:	
TB	1/17/2023	1) A15-004-SW	QA/QC for A15 SW Samples
		2) A15-006-SW	
		3) A15-007-SW	
		4) A15-002-SW	
		5) A15-001-SW	
TB	1/18/2023	6) A15-008-SW	
		7) A15-010-SW	Duplicate: A15-004-SW
		8) A15-012-SW	Date: 1/17/2023
		9)	MS/MSD: A15-012-SW
		10)	Date: 1/18/2023
		11)	Field Blank:
		12)	Date: 1/18/2023
		13)	Eq. Blank:
		14)	Date: 1/28/2023
		15)	
		16)	
		17)	
		18)	
		19)	
		20)	

		1) A15-018-SB-3	QA/QC for A15 soil samples
		2) A15-018-SB-10	
		3) A15-018-SB-2	
	12/21/2022	4) A15-012-SB-2	
		5) A15-011-SB-2	
		6) A15-010-SB-2	
		7) A15-010-SB-3	Duplicate: A15-014-SB-2
		8) A15-013-SB-2	Date: 12/21/2022
		9) A15-013-SB-3	MS/MSD: A15-013-SB-2
		10) A15-014-SB-2	Date: 12/21/2022
		11) A15-014-SB-3	Field Blank:
		12) A15-015-SB-2	Date: 12/21/2022
		13) A15-015-SB-3	Eq. Blank:
		14) A15-015-SB-10	Date: 12/21/2022
		15)	
		16)	
		17)	
		18)	
		19)	
		20)	

TB	1/17/2023	1) A15-004-SD	QA/QC for A15 Sediment Samples
		2) A15-005-SD	
		3) A15-003-SD	
		4) A15-006-SD	
		5) A15-007-SD	
		6) A15-002-SD	
		7) A15-001-SD	Duplicate: A15-004-SD
TB	1/18/2023	8) A15-011-SD	Date: 1/17/2023
		9) A15-009-SD	MS/MSD: A15-012-SD
		10) A15-008-SD	Date: 1/18/2023
		11) A15-010-SD	Field Blank:
		12) A15-012-SD	Date: 1/18/2023
		13)	Eq. Blank:
		14)	Date: 1/28/2023
		15)	
		16)	
		17)	
		18)	
		19)	
		20)	

Soil samples with a sustained PID reading of 10 ppm or greater were collected for VOCs.
VOC samples were placed in a cooler with a trip blank.

QA/QC Tracking Log

Trip Blank:	Date:		Sample IDs:	
TB wt-1	12/29/2022	1)	SG04-PDM004	QA/QC for A15 GW samples
TB wt-1	12/30/2022	2)	SG03-PDM007	
TB wt-1 TB wt-2	1/4/2022	3)	A15-019-PZ	
		4)	A15-015-PZ	
		5)	A15-016-PZ	
TB wt-1	1/19/2023	6)	SW-098-MWS	
		7)		Duplicate: A15-019-PZ
		8)		Date: 1/4/2023
		9)		MS/MSD: SG04-PZM004
		10)		Date: 12/29/2022
		11)		Field Blank:
		12)		Date: 12/30/2022
		13)		Eq. Blank:
		14)		Date: 1/19/2023
		15)		
		16)		
		17)		
		18)		
		19)		
		20)		

Trip Blank:	Date:	Sample IDs:	
		1)	
		2)	
		3)	
		4)	
		5)	
		6)	
		7)	Duplicate:
		8)	Date:
		9)	MS/MSD:
		10)	Date:
		11)	Field Blank:
		12)	Date:
		13)	Eq. Blank:
		14)	Date:
		15)	
		16)	
		17)	
		18)	
		19)	
		20)	

1)		
2)		
3)		
4)		
5)		
6)		
7)		Duplicate:
8)		Date:
9)		MS/MSD:
10)		Date:
11)		Field Blank:
12)		Date:
13)		Eq. Blank:
14)		Date:
15)		
16)		
17)		
18)		
19)		
20)		

1)		
2)		
3)		
4)		
5)		
6)		
7)		Duplicate:
8)		Date:
9)		MS/MSD:
10)		Date:
11)		Field Blank:
12)		Date:
13)		Eq. Blank:
14)		Date:
15)		
16)		
17)		
18)		
19)		
20)		

APPENDIX F

EVALUATION OF DATA COMPLETENESS
Percentage of Non-Rejected Results vs. Total Results
(Only data which underwent validation are included)

Parameter	Parameter Group	Matrix	Unit	# of Validated Results	Detections	# of Rejected Results	# of Non-rejected Results	Completeness
1,1-Biphenyl	SVOC	Soil	mg/kg	13	0	0	13	100%
1,2,4,5-Tetrachlorobenzene	SVOC	Soil	mg/kg	13	0	0	13	100%
1,4-Dioxane	VOC/SVOC	Soil	mg/kg	13	0	0	13	100%
2,3,4,6-Tetrachlorophenol	SVOC	Soil	mg/kg	13	0	0	13	100%
2,4,5-Trichlorophenol	SVOC	Soil	mg/kg	13	0	0	13	100%
2,4,6-Trichlorophenol	SVOC	Soil	mg/kg	13	0	0	13	100%
2,4-Dichlorophenol	SVOC	Soil	mg/kg	13	0	0	13	100%
2,4-Dimethylphenol	SVOC	Soil	mg/kg	13	0	0	13	100%
2,4-Dinitrophenol	SVOC	Soil	mg/kg	13	0	1	12	92%
2,4-Dinitrotoluene	SVOC	Soil	mg/kg	13	0	0	13	100%
2,6-Dinitrotoluene	SVOC	Soil	mg/kg	13	0	0	13	100%
2-Chloronaphthalene	SVOC	Soil	mg/kg	13	0	0	13	100%
2-Chlorophenol	SVOC	Soil	mg/kg	13	0	0	13	100%
2-Methylnaphthalene	SVOC	Soil	mg/kg	13	5	0	13	100%
2-Methylphenol	SVOC	Soil	mg/kg	13	0	0	13	100%
2-Nitroaniline	SVOC	Soil	mg/kg	13	0	0	13	100%
2-Nitrophenol	SVOC	Soil	mg/kg	13	0	0	13	100%
3&4-Methylphenol(m&p Cresol)	SVOC	Soil	mg/kg	13	0	0	13	100%
3,3'-Dichlorobenzidine	SVOC	Soil	mg/kg	13	0	0	13	100%
4,6-Dinitro-2-methylphenol	SVOC	Soil	mg/kg	13	0	0	13	100%
4-Bromophenyl phenyl ether	SVOC	Soil	mg/kg	13	0	0	13	100%
4-Chloro-3-methylphenol	SVOC	Soil	mg/kg	13	0	0	13	100%
4-Chloroaniline	SVOC	Soil	mg/kg	13	0	0	13	100%
4-Chlorophenyl phenyl ether	SVOC	Soil	mg/kg	13	0	0	13	100%
4-Nitroaniline	SVOC	Soil	mg/kg	13	0	0	13	100%
4-Nitrophenol	SVOC	Soil	mg/kg	13	0	0	13	100%
Acenaphthene	SVOC	Soil	mg/kg	13	2	0	13	100%
Acenaphthylene	SVOC	Soil	mg/kg	13	3	0	13	100%
Acetophenone	SVOC	Soil	mg/kg	13	0	0	13	100%
Aluminum	Metal	Soil	mg/kg	13	13	0	13	100%
Anthracene	SVOC	Soil	mg/kg	13	5	0	13	100%
Antimony	Metal	Soil	mg/kg	13	0	0	13	100%
Aroclor 1016	PCB	Soil	mg/kg	7	0	0	7	100%
Aroclor 1221	PCB	Soil	mg/kg	7	0	0	7	100%
Aroclor 1232	PCB	Soil	mg/kg	7	0	0	7	100%
Aroclor 1242	PCB	Soil	mg/kg	7	0	0	7	100%
Aroclor 1248	PCB	Soil	mg/kg	7	1	0	7	100%
Aroclor 1254	PCB	Soil	mg/kg	7	2	0	7	100%
Aroclor 1260	PCB	Soil	mg/kg	7	3	0	7	100%
Aroclor 1262	PCB	Soil	mg/kg	7	0	0	7	100%
Aroclor 1268	PCB	Soil	mg/kg	7	2	0	7	100%
Arsenic	Metal	Soil	mg/kg	13	12	0	13	100%
Barium	Metal	Soil	mg/kg	13	13	0	13	100%
Benz[a]anthracene	SVOC	Soil	mg/kg	13	10	0	13	100%
Benzaldehyde	SVOC	Soil	mg/kg	13	1	0	13	100%
Benzo[a]pyrene	SVOC	Soil	mg/kg	13	10	0	13	100%
Benzo[b]fluoranthene	SVOC	Soil	mg/kg	13	10	0	13	100%
Benzo[g,h,i]perylene	SVOC	Soil	mg/kg	13	9	0	13	100%
Benzo[k]fluoranthene	SVOC	Soil	mg/kg	13	8	0	13	100%
Beryllium	Metal	Soil	mg/kg	13	13	0	13	100%
bis(2-chloroethoxy)methane	SVOC	Soil	mg/kg	13	0	0	13	100%
bis(2-Chloroisopropyl)ether	SVOC	Soil	mg/kg	13	0	0	13	100%
bis(2-Ethylhexyl)phthalate	SVOC	Soil	mg/kg	13	0	0	13	100%
Butylbenzylphthalate	SVOC	Soil	mg/kg	13	0	0	13	100%
Cadmium	Metal	Soil	mg/kg	13	11	0	13	100%
Calcium	Metal	Soil	mg/kg	13	13	0	13	100%
Caprolactam	SVOC	Soil	mg/kg	13	0	0	13	100%
Carbazole	SVOC	Soil	mg/kg	13	0	0	13	100%
Chromium	Metal	Soil	mg/kg	13	13	0	13	100%
Chromium VI	Metal	Soil	mg/kg	13	11	0	13	100%
Chrysene	SVOC	Soil	mg/kg	13	10	0	13	100%
Cobalt	Metal	Soil	mg/kg	13	13	0	13	100%
Copper	Metal	Soil	mg/kg	13	13	0	13	100%
Cyanide, Total	CN	Soil	mg/kg	13	2	0	13	100%
Dibenz[a,h]anthracene	SVOC	Soil	mg/kg	13	4	0	13	100%
Diesel Range Organics	TPH	Soil	mg/kg	13	1	0	13	100%
Diethylphthalate	SVOC	Soil	mg/kg	13	0	0	13	100%
Dimethylphthalate	SVOC	Soil	mg/kg	13	0	0	13	100%
Di-n-butylphthalate	SVOC	Soil	mg/kg	13	0	0	13	100%
Di-n-ocytlphthalate	SVOC	Soil	mg/kg	13	0	0	13	100%
Fluoranthene	SVOC	Soil	mg/kg	13	13	0	13	100%
Fluorene	SVOC	Soil	mg/kg	13	5	0	13	100%
Gasoline Range Organics	TPH	Soil	mg/kg	13	0	0	13	100%
Hexachlorobenzene	SVOC	Soil	mg/kg	13	0	0	13	100%
Hexachlorobutadiene	SVOC	Soil	mg/kg	13	0	0	13	100%
Hexachlorocyclopentadiene	SVOC	Soil	mg/kg	13	0	1	12	92%

EVALUATION OF DATA COMPLETENESS
Percentage of Non-Rejected Results vs. Total Results
(Only data which underwent validation are included)

Parameter	Parameter Group	Matrix	Unit	# of Validated Results	Detections	# of Rejected Results	# of Non-rejected Results	Completeness
Hexachloroethane	SVOC	Soil	mg/kg	13	0	0	13	100%
Indeno[1,2,3-c,d]pyrene	SVOC	Soil	mg/kg	13	10	0	13	100%
Iron	Metal	Soil	mg/kg	13	13	0	13	100%
Isophorone	SVOC	Soil	mg/kg	13	0	0	13	100%
Lead	Metal	Soil	mg/kg	13	13	0	13	100%
Magnesium	Metal	Soil	mg/kg	13	13	0	13	100%
Manganese	Metal	Soil	mg/kg	13	13	0	13	100%
Mercury	Metal	Soil	mg/kg	13	4	0	13	100%
Naphthalene	SVOC	Soil	mg/kg	13	7	0	13	100%
Nickel	Metal	Soil	mg/kg	13	13	0	13	100%
Nitrobenzene	SVOC	Soil	mg/kg	13	0	0	13	100%
N-Nitrosodiphenylamine	SVOC	Soil	mg/kg	13	0	0	13	100%
Oil and Grease	TPH	Soil	mg/kg	13	6	0	13	100%
PCBs (total)	PCB	Soil	mg/kg	7	3	0	7	100%
Pentachlorophenol	SVOC	Soil	mg/kg	13	0	0	13	100%
Phenanthrene	SVOC	Soil	mg/kg	13	13	0	13	100%
Phenol	SVOC	Soil	mg/kg	13	0	0	13	100%
Potassium	Metal	Soil	mg/kg	13	13	0	13	100%
Pyrene	SVOC	Soil	mg/kg	13	11	0	13	100%
Selenium	Metal	Soil	mg/kg	13	5	0	13	100%
Silver	Metal	Soil	mg/kg	13	2	0	13	100%
Sodium	Metal	Soil	mg/kg	13	4	0	13	100%
Thallium	Metal	Soil	mg/kg	13	0	0	13	100%
Vanadium	Metal	Soil	mg/kg	13	13	0	13	100%
Zinc	Metal	Soil	mg/kg	13	13	0	13	100%
1,1,1-Trichloroethane	VOC	GW	ug/l	2	0	0	2	100%
1,1,2,2-Tetrachloroethane	VOC	GW	ug/l	2	0	0	2	100%
1,1,2-Trichloro-1,2,2-Trifluoroethane	VOC	GW	ug/l	2	0	0	2	100%
1,1,2-Trichloroethane	VOC	GW	ug/l	2	0	0	2	100%
1,1-Biphenyl	SVOC	GW	ug/l	2	0	0	2	100%
1,1-Dichloroethane	VOC	GW	ug/l	2	1	0	2	100%
1,1-Dichloroethene	VOC	GW	ug/l	2	1	0	2	100%
1,2,3-Trichlorobenzene	VOC	GW	ug/l	2	0	0	2	100%
1,2,4,5-Tetrachlorobenzene	SVOC	GW	ug/l	2	0	0	2	100%
1,2,4-Trichlorobenzene	VOC	GW	ug/l	2	0	0	2	100%
1,2-Dibromo-3-chloropropane	VOC	GW	ug/l	2	0	0	2	100%
1,2-Dibromoethane	VOC	GW	ug/l	2	0	0	2	100%
1,2-Dichlorobenzene	VOC	GW	ug/l	2	0	0	2	100%
1,2-Dichloroethane	VOC	GW	ug/l	2	0	0	2	100%
1,2-Dichloroethene (Total)	VOC	GW	ug/l	2	0	0	2	100%
1,2-Dichloropropane	VOC	GW	ug/l	2	0	0	2	100%
1,3-Dichlorobenzene	VOC	GW	ug/l	2	0	0	2	100%
1,3-Dichloropropene	VOC	GW	ug/l	2	0	0	2	100%
1,4-Dichlorobenzene	VOC	GW	ug/l	2	0	0	2	100%
1,4-Dioxane	VOC/SVOC	GW	ug/l	2	0	0	2	100%
2,3,4,6-Tetrachlorophenol	SVOC	GW	ug/l	2	0	0	2	100%
2,4,5-Trichlorophenol	SVOC	GW	ug/l	2	0	0	2	100%
2,4,6-Trichlorophenol	SVOC	GW	ug/l	2	0	0	2	100%
2,4-Dichlorophenol	SVOC	GW	ug/l	2	0	0	2	100%
2,4-Dimethylphenol	SVOC	GW	ug/l	2	1	0	2	100%
2,4-Dinitrophenol	SVOC	GW	ug/l	2	0	0	2	100%
2,4-Dinitrotoluene	SVOC	GW	ug/l	2	0	0	2	100%
2,6-Dinitrotoluene	SVOC	GW	ug/l	2	0	0	2	100%
2-Butanone (MEK)	VOC	GW	ug/l	2	0	0	2	100%
2-Chloronaphthalene	SVOC	GW	ug/l	2	0	0	2	100%
2-Chlorophenol	SVOC	GW	ug/l	2	0	0	2	100%
2-Hexanone	VOC	GW	ug/l	2	0	0	2	100%
2-Methylnaphthalene	SVOC	GW	ug/l	2	2	0	2	100%
2-Methylphenol	SVOC	GW	ug/l	2	1	0	2	100%
2-Nitroaniline	SVOC	GW	ug/l	2	0	0	2	100%
3&4-Methylphenol(m&p Cresol)	SVOC	GW	ug/l	2	1	0	2	100%
3,3'-Dichlorobenzidine	SVOC	GW	ug/l	2	0	0	2	100%
4-Chloroaniline	SVOC	GW	ug/l	2	0	0	2	100%
4-Methyl-2-pentanone (MIBK)	VOC	GW	ug/l	2	0	0	2	100%
4-Nitroaniline	SVOC	GW	ug/l	2	0	0	2	100%
Acenaphthene	SVOC	GW	ug/l	2	2	0	2	100%
Acenaphthylene	SVOC	GW	ug/l	2	1	0	2	100%
Acetone	VOC	GW	ug/l	2	0	0	2	100%
Acetophenone	SVOC	GW	ug/l	2	0	0	2	100%
Aluminum	Metal	GW	ug/l	2	2	0	2	100%
Anthracene	SVOC	GW	ug/l	2	1	0	2	100%
Antimony	Metal	GW	ug/l	2	1	0	2	100%
Arsenic	Metal	GW	ug/l	2	2	0	2	100%
Barium	Metal	GW	ug/l	2	2	0	2	100%
Benz[a]anthracene	SVOC	GW	ug/l	2	0	0	2	100%
Benzaldehyde	SVOC	GW	ug/l	2	0	0	2	100%

EVALUATION OF DATA COMPLETENESS
Percentage of Non-Rejected Results vs. Total Results
(Only data which underwent validation are included)

Parameter	Parameter Group	Matrix	Unit	# of Validated Results	Detections	# of Rejected Results	# of Non-rejected Results	Completeness
Benzene	VOC	GW	ug/l	2	2	0	2	100%
Benzo[a]pyrene	SVOC	GW	ug/l	2	0	0	2	100%
Benzo[b]fluoranthene	SVOC	GW	ug/l	2	0	0	2	100%
Benzo[g,h,i]perylene	SVOC	GW	ug/l	2	0	0	2	100%
Benzo[k]fluoranthene	SVOC	GW	ug/l	2	0	0	2	100%
Beryllium	Metal	GW	ug/l	2	1	0	2	100%
bis(2-chloroethoxy)methane	SVOC	GW	ug/l	2	0	0	2	100%
bis(2-Chloroethyl)ether	SVOC	GW	ug/l	2	0	0	2	100%
bis(2-Chloroisopropyl)ether	SVOC	GW	ug/l	2	0	0	2	100%
bis(2-Ethylhexyl)phthalate	SVOC	GW	ug/l	2	0	0	2	100%
Bromodichloromethane	VOC	GW	ug/l	2	0	0	2	100%
Bromoform	VOC	GW	ug/l	2	0	0	2	100%
Bromomethane	VOC	GW	ug/l	2	0	0	2	100%
Cadmium	Metal	GW	ug/l	2	1	0	2	100%
Calcium	Metal	GW	ug/l	2	2	0	2	100%
Caprolactam	SVOC	GW	ug/l	2	0	0	2	100%
Carbazole	SVOC	GW	ug/l	2	0	0	2	100%
Carbon disulfide	VOC	GW	ug/l	2	0	0	2	100%
Carbon tetrachloride	VOC	GW	ug/l	2	0	0	2	100%
Chlorobenzene	VOC	GW	ug/l	2	0	0	2	100%
Chloroethane	VOC	GW	ug/l	2	0	0	2	100%
Chloroform	VOC	GW	ug/l	2	0	0	2	100%
Chloromethane	VOC	GW	ug/l	2	0	0	2	100%
Chromium	Metal	GW	ug/l	2	1	0	2	100%
Chromium VI	Metal	GW	ug/l	2	0	0	2	100%
Chrysene	SVOC	GW	ug/l	2	0	0	2	100%
cis-1,2-Dichloroethene	VOC	GW	ug/l	2	0	0	2	100%
cis-1,3-Dichloropropene	VOC	GW	ug/l	2	0	0	2	100%
Cobalt	Metal	GW	ug/l	2	1	0	2	100%
Copper	Metal	GW	ug/l	2	1	0	2	100%
Cyanide, Available	CN	GW	ug/l	2	0	0	2	100%
Cyanide, Total	CN	GW	ug/l	2	0	0	2	100%
Cyclohexane	VOC	GW	ug/l	2	0	0	2	100%
Dibenz[a,h]anthracene	SVOC	GW	ug/l	2	0	0	2	100%
Dibromochloromethane	VOC	GW	ug/l	2	0	0	2	100%
Dichlorodifluoromethane	VOC	GW	ug/l	2	0	0	2	100%
Diesel Range Organics	TPH	GW	ug/l	2	2	0	2	100%
Diethylphthalate	SVOC	GW	ug/l	2	0	0	2	100%
Di-n-butylphthalate	SVOC	GW	ug/l	2	0	0	2	100%
Di-n-ocytlphthalate	SVOC	GW	ug/l	2	0	0	2	100%
Ethylbenzene	VOC	GW	ug/l	2	0	0	2	100%
Fluoranthene	SVOC	GW	ug/l	2	1	0	2	100%
Fluorene	SVOC	GW	ug/l	2	2	0	2	100%
Gasoline Range Organics	TPH	GW	ug/l	2	0	0	2	100%
Hexachlorobenzene	SVOC	GW	ug/l	2	0	0	2	100%
Hexachlorobutadiene	SVOC	GW	ug/l	2	0	0	2	100%
Hexachlorocyclopentadiene	SVOC	GW	ug/l	2	0	0	2	100%
Hexachloroethane	SVOC	GW	ug/l	2	0	0	2	100%
Indeno[1,2,3-c,d]pyrene	SVOC	GW	ug/l	2	0	0	2	100%
Iron	Metal	GW	ug/l	2	2	0	2	100%
Isophorone	SVOC	GW	ug/l	2	0	0	2	100%
Isopropylbenzene	VOC	GW	ug/l	2	1	0	2	100%
Lead	Metal	GW	ug/l	2	1	0	2	100%
Magnesium	Metal	GW	ug/l	2	1	0	2	100%
Manganese	Metal	GW	ug/l	2	2	0	2	100%
Mercury	Metal	GW	ug/l	2	0	0	2	100%
Methyl Acetate	VOC	GW	ug/l	2	0	0	2	100%
Methyl tert-butyl ether (MTBE)	VOC	GW	ug/l	2	0	0	2	100%
Methylene Chloride	VOC	GW	ug/l	2	0	0	2	100%
Naphthalene	SVOC	GW	ug/l	2	2	0	2	100%
Nickel	Metal	GW	ug/l	2	2	0	2	100%
Nitrobenzene	SVOC	GW	ug/l	2	0	0	2	100%
N-Nitroso-di-n-propylamine	SVOC	GW	ug/l	2	0	0	2	100%
N-Nitrosodiphenylamine	SVOC	GW	ug/l	2	0	0	2	100%
Oil and Grease	TPH	GW	ug/l	2	0	0	2	100%
Pentachlorophenol	SVOC	GW	ug/l	4	0	0	4	100%
Phenanthrene	SVOC	GW	ug/l	2	2	0	2	100%
Phenol	SVOC	GW	ug/l	2	0	0	2	100%
Potassium	Metal	GW	ug/l	2	2	0	2	100%
Pyrene	SVOC	GW	ug/l	2	2	0	2	100%
Selenium	Metal	GW	ug/l	2	1	1	1	50%
Silver	Metal	GW	ug/l	2	0	0	2	100%
Sodium	Metal	GW	ug/l	2	2	0	2	100%
Styrene	VOC	GW	ug/l	2	0	0	2	100%
Tetrachloroethene	VOC	GW	ug/l	2	0	0	2	100%
Thallium	Metal	GW	ug/l	2	0	0	2	100%

EVALUATION OF DATA COMPLETENESS
Percentage of Non-Rejected Results vs. Total Results
(Only data which underwent validation are included)

Parameter	Parameter Group	Matrix	Unit	# of Validated Results	Detections	# of Rejected Results	# of Non-rejected Results	Completeness
Toluene	VOC	GW	ug/l	2	1	0	2	100%
trans-1,2-Dichloroethene	VOC	GW	ug/l	2	0	0	2	100%
trans-1,3-Dichloropropene	VOC	GW	ug/l	2	0	0	2	100%
Trichloroethene	VOC	GW	ug/l	2	1	0	2	100%
Trichlorofluoromethane	VOC	GW	ug/l	2	0	0	2	100%
Vanadium	Metal	GW	ug/l	2	2	0	2	100%
Vinyl chloride	VOC	GW	ug/l	2	0	0	2	100%
Xylenes	VOC	GW	ug/l	2	0	0	2	100%
Zinc	Metal	GW	ug/l	2	1	0	2	100%
1,1,1-Trichloroethane	VOC	SW	ug/l	5	0	0	5	100%
1,1,2,2-Tetrachloroethane	VOC	SW	ug/l	5	0	0	5	100%
1,1,2-Trichloro-1,2,2-Trifluoroethane	VOC	SW	ug/l	5	0	0	5	100%
1,1,2-Trichloroethane	VOC	SW	ug/l	5	0	0	5	100%
1,1-Biphenyl	SVOC	SW	ug/l	5	0	0	5	100%
1,1-Dichloroethane	VOC	SW	ug/l	5	0	0	5	100%
1,1-Dichloroethene	VOC	SW	ug/l	5	0	0	5	100%
1,2,3-Trichlorobenzene	VOC	SW	ug/l	5	0	0	5	100%
1,2,4,5-Tetrachlorobenzene	SVOC	SW	ug/l	5	0	0	5	100%
1,2,4-Trichlorobenzene	VOC	SW	ug/l	5	0	0	5	100%
1,2-Dibromo-3-chloropropane	VOC	SW	ug/l	5	0	0	5	100%
1,2-Dibromoethane	VOC	SW	ug/l	5	0	0	5	100%
1,2-Dichlorobenzene	VOC	SW	ug/l	5	0	0	5	100%
1,2-Dichloroethane	VOC	SW	ug/l	5	0	0	5	100%
1,2-Dichloroethene (Total)	VOC	SW	ug/l	5	0	0	5	100%
1,2-Dichloropropane	VOC	SW	ug/l	5	0	0	5	100%
1,3-Dichlorobenzene	VOC	SW	ug/l	5	0	0	5	100%
1,3-Dichloropropene	VOC	SW	ug/l	5	0	0	5	100%
1,4-Dichlorobenzene	VOC	SW	ug/l	5	0	0	5	100%
1,4-Dioxane	VOC/SVOC	SW	ug/l	5	0	0	5	100%
2,3,4,6-Tetrachlorophenol	SVOC	SW	ug/l	5	0	0	5	100%
2,4,5-Trichlorophenol	SVOC	SW	ug/l	5	0	0	5	100%
2,4,6-Trichlorophenol	SVOC	SW	ug/l	5	0	0	5	100%
2,4-Dichlorophenol	SVOC	SW	ug/l	5	0	0	5	100%
2,4-Dimethylphenol	SVOC	SW	ug/l	5	0	0	5	100%
2,4-Dinitrophenol	SVOC	SW	ug/l	5	0	0	5	100%
2,4-Dinitrotoluene	SVOC	SW	ug/l	5	0	0	5	100%
2,6-Dinitrotoluene	SVOC	SW	ug/l	5	0	0	5	100%
2-Butanone (MEK)	VOC	SW	ug/l	5	0	0	5	100%
2-Chloronaphthalene	SVOC	SW	ug/l	5	0	0	5	100%
2-Chlorophenol	SVOC	SW	ug/l	5	0	0	5	100%
2-Hexanone	VOC	SW	ug/l	5	0	0	5	100%
2-Methylnaphthalene	SVOC	SW	ug/l	5	1	0	5	100%
2-Methylphenol	SVOC	SW	ug/l	5	0	0	5	100%
2-Nitroaniline	SVOC	SW	ug/l	5	0	0	5	100%
3&4-Methylphenol(m&p Cresol)	SVOC	SW	ug/l	5	0	0	5	100%
3,3'-Dichlorobenzidine	SVOC	SW	ug/l	5	0	0	5	100%
4-Chloroaniline	SVOC	SW	ug/l	5	0	0	5	100%
4-Methyl-2-pentanone (MIBK)	VOC	SW	ug/l	5	0	0	5	100%
4-Nitroaniline	SVOC	SW	ug/l	5	0	0	5	100%
Acenaphthene	SVOC	SW	ug/l	5	0	0	5	100%
Acenaphthylene	SVOC	SW	ug/l	5	1	0	5	100%
Acetone	VOC	SW	ug/l	5	5	0	5	100%
Acetophenone	SVOC	SW	ug/l	5	0	0	5	100%
Aluminum	Metal	SW	ug/l	5	5	0	5	100%
Anthracene	SVOC	SW	ug/l	5	1	0	5	100%
Antimony	Metal	SW	ug/l	5	0	0	5	100%
Arsenic	Metal	SW	ug/l	5	0	0	5	100%
Barium	Metal	SW	ug/l	5	5	0	5	100%
Benz[a]anthracene	SVOC	SW	ug/l	5	1	0	5	100%
Benzaldehyde	SVOC	SW	ug/l	5	0	0	5	100%
Benzene	VOC	SW	ug/l	5	0	0	5	100%
Benzo[a]pyrene	SVOC	SW	ug/l	5	0	0	5	100%
Benzo[b]fluoranthene	SVOC	SW	ug/l	5	0	0	5	100%
Benzo[g,h,i]perylene	SVOC	SW	ug/l	5	0	0	5	100%
Benzo[k]fluoranthene	SVOC	SW	ug/l	5	0	0	5	100%
Beryllium	Metal	SW	ug/l	5	0	0	5	100%
bis(2-chloroethoxy)methane	SVOC	SW	ug/l	5	0	0	5	100%
bis(2-Chloroethyl)ether	SVOC	SW	ug/l	5	0	0	5	100%
bis(2-Chloroisopropyl)ether	SVOC	SW	ug/l	5	0	0	5	100%
bis(2-Ethylhexyl)phthalate	SVOC	SW	ug/l	5	0	0	5	100%
Bromodichloromethane	VOC	SW	ug/l	5	5	0	5	100%
Bromoform	VOC	SW	ug/l	5	5	0	5	100%
Bromomethane	VOC	SW	ug/l	5	2	0	5	100%
Cadmium	Metal	SW	ug/l	5	0	0	5	100%
Calcium	Metal	SW	ug/l	5	5	0	5	100%
Caprolactam	SVOC	SW	ug/l	5	0	0	5	100%

EVALUATION OF DATA COMPLETENESS
Percentage of Non-Rejected Results vs. Total Results
(Only data which underwent validation are included)

Parameter	Parameter Group	Matrix	Unit	# of Validated Results	Detections	# of Rejected Results	# of Non-rejected Results	Completeness
Carbazole	SVOC	SW	ug/l	5	0	0	5	100%
Carbon disulfide	VOC	SW	ug/l	5	1	0	5	100%
Carbon tetrachloride	VOC	SW	ug/l	5	0	0	5	100%
Chlorobenzene	VOC	SW	ug/l	5	0	0	5	100%
Chloroethane	VOC	SW	ug/l	5	0	0	5	100%
Chloroform	VOC	SW	ug/l	5	5	0	5	100%
Chloromethane	VOC	SW	ug/l	5	0	0	5	100%
Chromium	Metal	SW	ug/l	5	5	0	5	100%
Chromium VI	Metal	SW	ug/l	5	0	0	5	100%
Chrysene	SVOC	SW	ug/l	5	1	0	5	100%
cis-1,2-Dichloroethene	VOC	SW	ug/l	5	0	0	5	100%
cis-1,3-Dichloropropene	VOC	SW	ug/l	5	0	0	5	100%
Cobalt	Metal	SW	ug/l	5	5	0	5	100%
Copper	Metal	SW	ug/l	5	1	0	5	100%
Cyanide, Available	CN	SW	ug/l	5	0	0	5	100%
Cyanide, Total	CN	SW	ug/l	5	0	0	5	100%
Cyclohexane	VOC	SW	ug/l	5	0	0	5	100%
Dibenz[a,h]anthracene	SVOC	SW	ug/l	5	0	0	5	100%
Dibromochloromethane	VOC	SW	ug/l	5	5	0	5	100%
Dichlorodifluoromethane	VOC	SW	ug/l	5	0	0	5	100%
Diesel Range Organics	TPH	SW	ug/l	5	1	0	5	100%
Diethylphthalate	SVOC	SW	ug/l	5	0	0	5	100%
Di-n-butylphthalate	SVOC	SW	ug/l	5	0	0	5	100%
Di-n-ocytlphthalate	SVOC	SW	ug/l	5	0	0	5	100%
Ethylbenzene	VOC	SW	ug/l	5	0	0	5	100%
Fluoranthene	SVOC	SW	ug/l	5	3	0	5	100%
Fluorene	SVOC	SW	ug/l	5	3	0	5	100%
Gasoline Range Organics	TPH	SW	ug/l	5	0	0	5	100%
Hexachlorobenzene	SVOC	SW	ug/l	5	0	0	5	100%
Hexachlorobutadiene	SVOC	SW	ug/l	5	0	0	5	100%
Hexachlorocyclopentadiene	SVOC	SW	ug/l	5	0	0	5	100%
Hexachloroethane	SVOC	SW	ug/l	5	0	0	5	100%
Indeno[1,2,3-c,d]pyrene	SVOC	SW	ug/l	5	0	0	5	100%
Iron	Metal	SW	ug/l	5	0	0	5	100%
Isophorone	SVOC	SW	ug/l	5	0	0	5	100%
Isopropylbenzene	VOC	SW	ug/l	5	0	0	5	100%
Lead	Metal	SW	ug/l	5	0	0	5	100%
Magnesium	Metal	SW	ug/l	5	5	0	5	100%
Manganese	Metal	SW	ug/l	5	5	0	5	100%
Mercury	Metal	SW	ug/l	5	0	0	5	100%
Methyl Acetate	VOC	SW	ug/l	5	0	0	5	100%
Methyl tert-butyl ether (MTBE)	VOC	SW	ug/l	5	0	0	5	100%
Methylene Chloride	VOC	SW	ug/l	5	0	0	5	100%
Naphthalene	SVOC	SW	ug/l	5	5	0	5	100%
Nickel	Metal	SW	ug/l	5	5	0	5	100%
Nitrobenzene	SVOC	SW	ug/l	5	0	0	5	100%
N-Nitroso-di-n-propylamine	SVOC	SW	ug/l	5	0	0	5	100%
N-Nitrosodiphenylamine	SVOC	SW	ug/l	5	0	0	5	100%
Oil and Grease	TPH	SW	ug/l	5	1	0	5	100%
Pentachlorophenol	SVOC	SW	ug/l	10	0	0	10	100%
Phenanthrene	SVOC	SW	ug/l	5	4	0	5	100%
Phenol	SVOC	SW	ug/l	5	0	0	5	100%
Potassium	Metal	SW	ug/l	5	5	0	5	100%
Pyrene	SVOC	SW	ug/l	5	3	0	5	100%
Selenium	Metal	SW	ug/l	5	0	0	5	100%
Silver	Metal	SW	ug/l	5	0	0	5	100%
Sodium	Metal	SW	ug/l	5	5	0	5	100%
Styrene	VOC	SW	ug/l	5	0	0	5	100%
Tetrachloroethene	VOC	SW	ug/l	5	0	0	5	100%
Thallium	Metal	SW	ug/l	5	0	0	5	100%
Toluene	VOC	SW	ug/l	5	0	0	5	100%
trans-1,2-Dichloroethene	VOC	SW	ug/l	5	0	0	5	100%
trans-1,3-Dichloropropene	VOC	SW	ug/l	5	0	0	5	100%
Trichloroethene	VOC	SW	ug/l	5	0	0	5	100%
Trichlorofluoromethane	VOC	SW	ug/l	5	0	0	5	100%
Vanadium	Metal	SW	ug/l	5	1	0	5	100%
Vinyl chloride	VOC	SW	ug/l	5	0	0	5	100%
Xylenes	VOC	SW	ug/l	5	0	0	5	100%
Zinc	Metal	SW	ug/l	5	5	0	5	100%
1,1,1-Trichloroethane	VOC	Sediment	mg/kg	12	0	0	12	100%
1,1,2,2-Tetrachloroethane	VOC	Sediment	mg/kg	12	0	0	12	100%
1,1,2-Trichloro-1,2,2-Trifluoroethane	VOC	Sediment	mg/kg	12	0	0	12	100%
1,1,2-Trichloroethane	VOC	Sediment	mg/kg	12	0	0	12	100%
1,1-Biphenyl	SVOC	Sediment	mg/kg	12	1	0	12	100%
1,1-Dichloroethane	VOC	Sediment	mg/kg	12	0	0	12	100%
1,1-Dichloroethene	VOC	Sediment	mg/kg	12	0	0	12	100%

EVALUATION OF DATA COMPLETENESS
Percentage of Non-Rejected Results vs. Total Results
(Only data which underwent validation are included)

Parameter	Parameter Group	Matrix	Unit	# of Validated Results	Detections	# of Rejected Results	# of Non-rejected Results	Completeness
1,2,3-Trichlorobenzene	VOC	Sediment	mg/kg	12	0	0	12	100%
1,2,4,5-Tetrachlorobenzene	SVOC	Sediment	mg/kg	12	0	0	12	100%
1,2,4-Trichlorobenzene	VOC	Sediment	mg/kg	12	1	0	12	100%
1,2-Dibromo-3-chloropropane	VOC	Sediment	mg/kg	12	0	0	12	100%
1,2-Dibromoethane	VOC	Sediment	mg/kg	12	0	0	12	100%
1,2-Dichlorobenzene	VOC	Sediment	mg/kg	12	4	0	12	100%
1,2-Dichloroethane	VOC	Sediment	mg/kg	12	0	0	12	100%
1,2-Dichloroethene (Total)	VOC	Sediment	mg/kg	12	0	0	12	100%
1,2-Dichloropropane	VOC	Sediment	mg/kg	12	0	0	12	100%
1,3-Dichlorobenzene	VOC	Sediment	mg/kg	12	7	0	12	100%
1,3-Dichloropropene	VOC	Sediment	mg/kg	12	0	0	12	100%
1,4-Dichlorobenzene	VOC	Sediment	mg/kg	12	12	0	12	100%
1,4-Dioxane	VOC/SVOC	Sediment	mg/kg	12	0	0	12	100%
2,3,4,6-Tetrachlorophenol	SVOC	Sediment	mg/kg	12	0	0	12	100%
2,4,5-Trichlorophenol	SVOC	Sediment	mg/kg	12	0	0	12	100%
2,4,6-Trichlorophenol	SVOC	Sediment	mg/kg	12	0	0	12	100%
2,4-Dichlorophenol	SVOC	Sediment	mg/kg	12	0	0	12	100%
2,4-Dimethylphenol	SVOC	Sediment	mg/kg	12	0	0	12	100%
2,4-Dinitrophenol	SVOC	Sediment	mg/kg	12	0	1	11	92%
2,4-Dinitrotoluene	SVOC	Sediment	mg/kg	12	0	0	12	100%
2,6-Dinitrotoluene	SVOC	Sediment	mg/kg	12	0	0	12	100%
2-Butanone (MEK)	VOC	Sediment	mg/kg	12	12	0	12	100%
2-Chloronaphthalene	SVOC	Sediment	mg/kg	12	0	0	12	100%
2-Chlorophenol	SVOC	Sediment	mg/kg	12	0	0	12	100%
2-Hexanone	VOC	Sediment	mg/kg	12	0	0	12	100%
2-Methylnaphthalene	SVOC	Sediment	mg/kg	12	12	0	12	100%
2-Methylphenol	SVOC	Sediment	mg/kg	12	0	0	12	100%
2-Nitroaniline	SVOC	Sediment	mg/kg	12	0	0	12	100%
3&4-Methylphenol(m&p Cresol)	SVOC	Sediment	mg/kg	12	6	0	12	100%
3,3'-Dichlorobenzidine	SVOC	Sediment	mg/kg	12	0	0	12	100%
4-Chloroaniline	SVOC	Sediment	mg/kg	12	6	0	12	100%
4-Methyl-2-pentanone (MIBK)	VOC	Sediment	mg/kg	12	0	0	12	100%
4-Nitroaniline	SVOC	Sediment	mg/kg	12	0	0	12	100%
Acenaphthene	SVOC	Sediment	mg/kg	12	12	0	12	100%
Acenaphthylene	SVOC	Sediment	mg/kg	12	12	0	12	100%
Acetone	VOC	Sediment	mg/kg	12	12	0	12	100%
Acetophenone	SVOC	Sediment	mg/kg	12	0	0	12	100%
Aluminum	Metal	Sediment	mg/kg	12	12	0	12	100%
Anthracene	SVOC	Sediment	mg/kg	12	12	0	12	100%
Antimony	Metal	Sediment	mg/kg	12	9	0	12	100%
Aroclor 1016	PCB	Sediment	mg/kg	12	0	0	12	100%
Aroclor 1221	PCB	Sediment	mg/kg	12	0	0	12	100%
Aroclor 1232	PCB	Sediment	mg/kg	12	0	0	12	100%
Aroclor 1242	PCB	Sediment	mg/kg	12	0	0	12	100%
Aroclor 1248	PCB	Sediment	mg/kg	12	2	0	12	100%
Aroclor 1254	PCB	Sediment	mg/kg	12	11	0	12	100%
Aroclor 1260	PCB	Sediment	mg/kg	12	12	0	12	100%
Aroclor 1262	PCB	Sediment	mg/kg	12	0	0	12	100%
Aroclor 1268	PCB	Sediment	mg/kg	12	0	0	12	100%
Arsenic	Metal	Sediment	mg/kg	12	12	0	12	100%
Barium	Metal	Sediment	mg/kg	12	12	0	12	100%
Benz[a]anthracene	SVOC	Sediment	mg/kg	12	12	0	12	100%
Benzaldehyde	SVOC	Sediment	mg/kg	12	0	0	12	100%
Benzene	VOC	Sediment	mg/kg	12	8	0	12	100%
Benzo[a]pyrene	SVOC	Sediment	mg/kg	12	12	0	12	100%
Benzo[b]fluoranthene	SVOC	Sediment	mg/kg	12	12	0	12	100%
Benzo[g,h,i]perylene	SVOC	Sediment	mg/kg	12	5	0	12	100%
Benzo[k]fluoranthene	SVOC	Sediment	mg/kg	12	12	0	12	100%
Beryllium	Metal	Sediment	mg/kg	12	6	0	12	100%
bis(2-chloroethoxy)methane	SVOC	Sediment	mg/kg	12	0	0	12	100%
bis(2-Chloroethyl)ether	SVOC	Sediment	mg/kg	12	0	0	12	100%
bis(2-Chloroisopropyl)ether	SVOC	Sediment	mg/kg	12	0	0	12	100%
bis(2-Ethylhexyl)phthalate	SVOC	Sediment	mg/kg	12	12	0	12	100%
Bromodichloromethane	VOC	Sediment	mg/kg	12	0	0	12	100%
Bromoform	VOC	Sediment	mg/kg	12	0	0	12	100%
Bromomethane	VOC	Sediment	mg/kg	12	0	0	12	100%
Cadmium	Metal	Sediment	mg/kg	12	12	0	12	100%
Calcium	Metal	Sediment	mg/kg	12	12	0	12	100%
Caprolactam	SVOC	Sediment	mg/kg	12	0	0	12	100%
Carbazole	SVOC	Sediment	mg/kg	12	0	0	12	100%
Carbon disulfide	VOC	Sediment	mg/kg	12	6	0	12	100%
Carbon tetrachloride	VOC	Sediment	mg/kg	12	0	0	12	100%
Chlorobenzene	VOC	Sediment	mg/kg	12	12	0	12	100%
Chloroethane	VOC	Sediment	mg/kg	12	0	0	12	100%
Chloroform	VOC	Sediment	mg/kg	12	0	0	12	100%
Chloromethane	VOC	Sediment	mg/kg	12	0	0	12	100%

EVALUATION OF DATA COMPLETENESS
Percentage of Non-Rejected Results vs. Total Results
(Only data which underwent validation are included)

Parameter	Parameter Group	Matrix	Unit	# of Validated Results	Detections	# of Rejected Results	# of Non-rejected Results	Completeness
Chromium	Metal	Sediment	mg/kg	12	12	0	12	100%
Chromium VI	Metal	Sediment	mg/kg	12	0	12	0	0%
Chrysene	SVOC	Sediment	mg/kg	12	12	0	12	100%
cis-1,2-Dichloroethene	VOC	Sediment	mg/kg	12	0	0	12	100%
cis-1,3-Dichloropropene	VOC	Sediment	mg/kg	12	0	0	12	100%
Cobalt	Metal	Sediment	mg/kg	12	12	0	12	100%
Copper	Metal	Sediment	mg/kg	12	12	0	12	100%
Cyanide, Total	CN	Sediment	mg/kg	12	11	0	12	100%
Cyclohexane	VOC	Sediment	mg/kg	12	0	0	12	100%
Dibenz[a,h]anthracene	SVOC	Sediment	mg/kg	12	4	0	12	100%
Dibromochloromethane	VOC	Sediment	mg/kg	12	0	0	12	100%
Dichlorodifluoromethane	VOC	Sediment	mg/kg	12	0	0	12	100%
Diesel Range Organics	TPH	Sediment	mg/kg	12	12	0	12	100%
Diethylphthalate	SVOC	Sediment	mg/kg	12	0	0	12	100%
Di-n-butylphthalate	SVOC	Sediment	mg/kg	12	0	0	12	100%
Di-n-ocytlphthalate	SVOC	Sediment	mg/kg	12	0	0	12	100%
Ethylbenzene	VOC	Sediment	mg/kg	12	9	0	12	100%
Fluoranthene	SVOC	Sediment	mg/kg	12	9	0	12	100%
Fluorene	SVOC	Sediment	mg/kg	12	12	0	12	100%
Gasoline Range Organics	TPH	Sediment	mg/kg	12	6	0	12	100%
Hexachlorobenzene	SVOC	Sediment	mg/kg	12	0	0	12	100%
Hexachlorobutadiene	SVOC	Sediment	mg/kg	12	0	0	12	100%
Hexachlorocyclopentadiene	SVOC	Sediment	mg/kg	12	0	1	11	92%
Hexachloroethane	SVOC	Sediment	mg/kg	12	0	0	12	100%
Indeno[1,2,3-c,d]pyrene	SVOC	Sediment	mg/kg	12	5	0	12	100%
Iron	Metal	Sediment	mg/kg	12	12	0	12	100%
Isophorone	SVOC	Sediment	mg/kg	12	0	0	12	100%
Isopropylbenzene	VOC	Sediment	mg/kg	12	8	0	12	100%
Lead	Metal	Sediment	mg/kg	12	12	0	12	100%
Magnesium	Metal	Sediment	mg/kg	12	12	0	12	100%
Manganese	Metal	Sediment	mg/kg	12	12	0	12	100%
Mercury	Metal	Sediment	mg/kg	12	12	0	12	100%
Methyl Acetate	VOC	Sediment	mg/kg	12	1	0	12	100%
Methyl tert-butyl ether (MTBE)	VOC	Sediment	mg/kg	12	0	0	12	100%
Methylene Chloride	VOC	Sediment	mg/kg	12	0	0	12	100%
Naphthalene	SVOC	Sediment	mg/kg	12	12	0	12	100%
Nickel	Metal	Sediment	mg/kg	12	12	0	12	100%
Nitrobenzene	SVOC	Sediment	mg/kg	12	0	0	12	100%
N-Nitroso-di-n-propylamine	SVOC	Sediment	mg/kg	12	0	0	12	100%
N-Nitrosodiphenylamine	SVOC	Sediment	mg/kg	12	0	0	12	100%
Oil and Grease	TPH	Sediment	mg/kg	12	12	0	12	100%
PCBs (total)	PCB	Sediment	mg/kg	12	12	0	12	100%
Pentachlorophenol	SVOC	Sediment	mg/kg	12	0	0	12	100%
Phenanthrene	SVOC	Sediment	mg/kg	12	12	0	12	100%
Phenol	SVOC	Sediment	mg/kg	12	0	0	12	100%
Potassium	Metal	Sediment	mg/kg	12	12	0	12	100%
Pyrene	SVOC	Sediment	mg/kg	12	12	0	12	100%
Selenium	Metal	Sediment	mg/kg	12	12	0	12	100%
Silver	Metal	Sediment	mg/kg	12	12	0	12	100%
Sodium	Metal	Sediment	mg/kg	12	8	0	12	100%
Styrene	VOC	Sediment	mg/kg	12	0	0	12	100%
Tetrachloroethene	VOC	Sediment	mg/kg	12	0	0	12	100%
Thallium	Metal	Sediment	mg/kg	12	7	0	12	100%
Toluene	VOC	Sediment	mg/kg	12	2	0	12	100%
trans-1,2-Dichloroethene	VOC	Sediment	mg/kg	12	0	0	12	100%
trans-1,3-Dichloropropene	VOC	Sediment	mg/kg	12	0	0	12	100%
Trichloroethene	VOC	Sediment	mg/kg	12	0	0	12	100%
Trichlorofluoromethane	VOC	Sediment	mg/kg	12	0	0	12	100%
Vanadium	Metal	Sediment	mg/kg	12	12	0	12	100%
Vinyl chloride	VOC	Sediment	mg/kg	12	0	0	12	100%
Xylenes	VOC	Sediment	mg/kg	12	9	0	12	100%
Zinc	Metal	Sediment	mg/kg	12	12	0	12	100%

Data validation has been completed for a representative 30% of all samples