PHASE II
INVESTIGATION REPORT

AREA A: PARCEL A16
TRADEPOINT ATLANTIC
SPARROWS POINT, MARYLAND

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1.0 INTRODUCTION

ARM Group LLC (ARM), on behalf of Tradepoint Atlantic (TPA), has completed the Phase II Investigations on portions of the Tradepoint Atlantic property (formerly Sparrows Point Terminal, LLC) that has been designated as Area A: Parcel A16 referred to as the Site. Parcel A16 is comprised of 17.96 acres of the approximately 3,100-acre former plant property located as shown on **Figure 1**. Humphrey Creek Pond occupies most of the parcel (approximately 10.89 acres), with an associated 7.07 acres of land. There are no buildings, structures, paved roads, or parking areas on the parcel.

The Phase II Investigation was performed in accordance with procedures outlined in the approved Phase II Investigation Work Plan for Area A: Parcel A16 (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 these investigation phases 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 A16 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 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.

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 at Parcel A16 was comprised of approximately 40% 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). Aerial photography of Sparrows Point from 1952, **Figure 3**, shows the parcel was historically covered by Humphrey Creek. Humphrey Creek Pond occupied approximately 61% of the 17.96 acres of Parcel A16.

Between 1916 and 1952 the southeastern side of the parcel was filled when Warehouse Road was constructed. Fill was also added along with the western side for Wharf Road, the current access road to Bethlehem Boulevard (SR158), creating the impoundment that currently occupies most of the parcel. A small area of original land may have been present along the northwestern portion of the parcel, where additional fill appears to have been added for the construction of Bethlehem Boulevard after 1952. There is no evidence that iron and steel industrial processes were completed within the boundary of Parcel A16.

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 Site. A summary table of the site investigation locations, including the sample identification numbers and the analyses performed, is provided as **Appendix A**. 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. According to the Phase I Environmental Site Assessment (ESA) prepared by Weaver Boos dated May 19, 2014, fly dumping was known to occur outside of the main facility along roads and mainly in vacant and unmonitored areas across the entire Tradepoint Atlantic property. Interviews conducted as part of the Phase I ESA stated that no hazardous materials or petroleum products were known to be dumped on the Site.

Parcel A16 contains a total of approximately 17.96 acres, of which 10.89 are covered by water and were excluded, leaving 7.07 acres of land. The entire parcel is currently unpaved, and primarily occupied by the Humphrey Creek Pond and dense vegetative growth around the perimeter of the pond, including *Phragmites* reeds. Ground surface elevations at the Site range from approximately 2 to 36 feet above mean sea level (amsl). Generally, elevations slope downwards towards the surface water body of the Humphrey Creek Pond, with the highest elevations towards the west, along the access road.

As shown on **Figure 4**, there are multiple pipes associated with the pond which include:

- a 24-inch influent culvert which receives storm water from Bethlehem Boulevard,
- a 60-inch influent pipe which receives storm water from the neighboring Edgemere Community,
- a 72-inch influent pipe connected to the pond on Parcel A18 and comes from the neighboring Edgemere Community, and
- an 84-inch discharge pipe located along the southcentral shore of the pond. The 84-inch pipe is routed to the southwest and discharges to the Tin Mill Canal.

All flow from the Tin Mill Canal is discharged through National Pollutant Discharge Elimination System (NPDES) permitted Outfall 014 beyond the Humphrey Creek Wastewater Treatment Plant (HCWWTP), which discharges to Bear Creek.

Approximately 300 acres of residential storm drainage flows onto Sparrows Point from Edgemere and is treated through the HCWWTP. There is no industrial discharge to the pond on Parcel A16.

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 on **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 cores at varying depths ranging from approximately 5 to 8.5 feet below ground surface (bgs) across the Site. Soil boring observation logs are provided in **Appendix B**.

Temporary groundwater sample collection points were installed at three locations across the Site to investigate shallow groundwater conditions. One existing historical well (SG06-PPM004) was also sampled during this investigation. The locations of the groundwater sampling points are indicated on **Figure 5**. 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 the field measurements. The localized groundwater elevations are shown on **Figure 6**. Due to access restrictions, surface water stage measurements of the lake were not conducted.

3.0 SITE INVESTIGATION

A total of 17 soil samples (from seven soil boring locations), four groundwater samples, four surface water samples, and seven sediment samples were collected for analysis as part of this Phase II Investigation.

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 Plan 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 boring was placed at or next to its location using Geographic Information System software (ArcMap Version 10.6).

Sampling targets included, as applicable, 1) Recognized Environmental Conditions (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. No RECs were identified at the Site based on the Phase I ESA.

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 are 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 are also identified during the pre-investigation site visit. No sampling targets were identified, so sample locations were distributed to provide appropriate coverage of the Site. A summary table of the investigation plan, along with the applicable boring identification numbers and the analyses performed, has been provided as **Appendix A**.

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 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.

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 seven borings were required to provide coverage of the Site. A total of 17 soil samples from (seven boring location) were completed during the Phase II Investigation. The seven soil boring locations are shown on **Figure 7**.

3.2. SOIL INVESTIGATION

Continuous core soil borings were advanced at seven locations across the Site to assess the presence or absence of soil contamination, and to assess the vertical distribution of any encountered contamination (**Figure 7**).

The seven 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 seven 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. 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.

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 A16 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, Oil & Grease via USEPA Method9071, Target Analyte List (TAL) Metals via USEPA Method 3050 and 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 polychlorinated biphenyls (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

Groundwater was investigated at the Site using three temporary groundwater sample collection points (commonly referred to as piezometers) and one existing historical well (SG06-PPM004) in accordance with the procedures referenced in the QAPP Worksheet 21 – Field SOPs, SOP No. 006 – Groundwater Sampling. Monitoring well SG06-PPM004 was inspected by ARM personnel in January 2022 and prior to sampling and was found to be in good condition.

Sample locations where piezometers were installed within Parcel A16 include: A16-001-PZ, A16-003-PZ, and A16-007-PZ. **Figure 5** shows an aerial view of the piezometers, along with the historical well (SG06-PPM004), that have been sampled to characterize groundwater conditions in Parcel A16. The results from this investigative sampling are included and discussed in this Phase II Investigation Report.

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.** Monitoring well SG06-PPM004 was installed in July 2000 and was last surveyed in February of 2023.

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 Analytical Services, Inc. to be analyzed for VOCs, SVOCs, PAHs, TAL-Dissolved Metals, Oil & Grease, TPH-DRO, TPH-GRO, dissolved hexavalent chromium, total cyanide, and amenable (or available) cyanide. 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 four surface water samples were collected from the approximate locations on **Figure 8**. 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. Water depth was approximated using a boat oar and

ranged from 2 to 3 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

Seven sediment samples were collected from seven locations in Humphrey Creek Pond. Two proposed sediment locations are directly offshore from effluent locations. The remaining proposed sample locations are distributed across Humphrey Creek Pond for spatial coverage. 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 Humphrey Creek Pond 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 and 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

Table 4 provides a summary of VOCs detected above the laboratory's reporting limits (RLs) in the soil samples collected from across the Site. Only two samples were analyzed for VOCs because these were the only two locations where PID readings greater than 10 ppm were observed. There were no VOCs detected above their respective PALs.

Table 4 provides a summary of SVOCs detected above the laboratory's 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 (or field adjusted) 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. Four inorganic constituents (arsenic, hexavalent

chromium, manganese, and thallium) were detected above their respective PALs in multiple soil samples. Manganese was detected above the PAL of 26,000 mg/kg in three soil samples with a maximum detection of 65,400 mg/kg in A16-005-SB-7. Thallium was detected above the PAL of 12 mg/kg in five soil samples (two from surficial samples and three from sub-surface samples ranging from 7 to 10 feet bgs) with a maximum detection of 43.7 mg/kg also in A16-005-SB-7. Hexavalent Chromium was detected above the PAL of 6.3 mg/kg in two soil samples with a maximum detection of 10.1 mg/kg in A16-001-SB-3. Arsenic was detected above the PAL of 3 mg/kg in one soil sample with a maximum detection of 3.58 mg/kg in A16-007-SB-2. The inorganic PAL exceedances are shown on **Figure 9**.

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 9** presents the soil sample results that exceeded the PALs. PAL exceedances in soil within Parcel A16 were limited to four metals (arsenic, hexavalent chromium, manganese, and thallium). **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 significant soil contaminants in Parcel A16.

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 from Parcel A16 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. A total of two VOCs (tetrachloroethene and trichloroethene) were identified above their respective PALs (5 µg/L for both) in one groundwater sample (A16-003-PZ) at concentrations of 7.9 µg/L and 40 µg/L, respectively. The VOC PAL exceedances are shown on **Figure 10**.

Table 7 provides a summary of SVOCs identified in the groundwater samples above the laboratory's RLs. A total of three SVOCs (benz[a]anthracene, naphthalene, and pentachlorophenol) were identified above their respective PALs. The SVOC PAL exceedances are shown on **Figure 10**.

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 three groundwater locations with a maximum detection of 120 µg/L (with an associated "J" flag) in A16-007-PZ. 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 10**.

4.2.2. Groundwater Conditions: Inorganic Constituents

Table 8 provides a summary of inorganic constituents detected in groundwater above the laboratory's RLs. Four metals (hexavalent chromium, cobalt, manganese, and vanadium) were detected above their respective aqueous PALs. Except for hexavalent chromium, each metal had exceedances at two separate locations. The inorganic PAL exceedances are shown on **Figure 10**.

4.2.3. Groundwater Conditions: Results Summary

Table 7 and **Table 8** provide summaries of the parameters detected in the groundwater samples from Parcel A16, and **Figure 10** presents the locations and aqueous results that exceeded the PALs. The groundwater PAL exceedances for Parcel A16 consisted of two VOCs (tetrachloroethene and trichloroethene), three SVOCs (benz[a]anthracene, naphthalene, and pentachlorophenol), TPH-DRO, and four total and/or dissolved metals (hexavalent chromium, cobalt, manganese, and vanadium).

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. However, trichloroethene exceeded the 10% THQ level at sample location A16-003-PZ. 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 significant ongoing sources of groundwater contamination present. A non-cancer VI exceedance was observed at A16-003-PZ due to trichloroethene. Overall, there are no plans for development within the Site so there is no VI 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 inorganics 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 two VOCs (bromodichloromethane and chloroform) were identified above their respective PALs in each surface water sample. The VOC PAL exceedances are shown on **Figure 11**.

Table 10 provides a summary of SVOCs identified in the surface water samples above the laboratory's RLs. A total of three SVOCs (benz[a]anthracene, dibenz[a,h]anthracene, naphthalene) were identified above their respective PALs. The SVOC PAL exceedances are shown on **Figure 11**.

Table 10 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 of 47 µg/L in one surface water location with a detection of 840 µg/L in A16-007-SW. The DRO PAL exceedance is shown on **Figure 11**.

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 A16, and **Figure 11** presents the locations and aqueous results that exceeded the PALs. The surface water PAL exceedances for Parcel A16 consisted of two VOCs (bromodichloromethane and chloroform), three SVOCs (benz[a]anthracene, dibenz[a,h]anthracene, naphthalene), and TPH-DRO. There were no detections for any organics that have established NRWQC screening levels; there were no exceedances for dissolved metals above the NRWQC screening levels.

The detections 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. Additionally, surface water from the Site eventually feeds into the Tin Mill Canal, which discharges through the Humphrey Creek Wastewater Treatment Plan. Therefore, no additional action or remediation is proposed at this time with regard to the surface water in the Humphrey Creek Pond.

4.4. SEDIMENT CONDITIONS

The analytical results for the detected sediment parameters from Parcel A16 are summarized and compared to the solid 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. No VOCs were identified above their respective PALs in any sediment samples.

Table 12 provides a summary of SVOCs identified in sediment samples above the laboratory's RLs. Numerous BTAG exceedances were observed. No SVOCs were identified above their respective PALs in any sediment samples.

Table 12 provides a summary of PCBs identified in the sediment samples above the laboratory's RLs. Every sediment sample exceeded the BTAG screening level for total PCBs. A total of three PCB mixtures (Aroclor 1248, Aroclor 1254 and total PCBs) were identified above their respective PALs. The PCB exceedances are shown on **Figure 12**.

Table 12 provides a summary of the TPH/Oil & Grease detections in sediment above the laboratory's RLs. TPH-DRO was identified above the PAL of 6,200 mg/kg at two sediment sample locations with a maximum detection of 36,000 mg/kg (with an associated "J" flag) at A16-007-SD. Oil & Grease exceedances were observed at every sediment sample location, with the maximum detection 171,000 mg/kg (with an associated "J" flag) also at A16-007-SD. The TPH/Oil & Grease PAL exceedances are shown on **Figure 12**.

4.4.2. Sediment Conditions: Inorganic Constituents

Table 13 provides a summary of inorganic constituents detected in sediment above the laboratory's RLs. Numerous BTAG exceedances were observed. One metal (arsenic) was detected above its respective PAL. Arsenic was detected above the PAL at every sediment sample location. The inorganic PAL exceedances are shown on **Figure 12**.

4.4.3. Sediment Conditions: Results Summary

Table 12 and **Table 13** provide summaries of the parameters detected in the sediment samples from Parcel A16, and **Figure 12** presents the locations and results that exceeded the PALs. The sediment PAL exceedances for Parcel A16 consisted of three PCB mixtures (Aroclor 1248, Aroclor 1254, and total PCBs), TPH-DRO, Oil & Grease, and one metal (arsenic). Overall, the highest Oil & Grease exceedances and the PCB exceedances are associated with the 72-inch influent pipe and 60-inch influent pipe, as shown on **Figure 4**.

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 13 exceedances for SVOCs, one exceedance for PCBs, and 14 exceedances for metals. As mentioned in Section 2.1, the influent 72-inch and 60-inch storm water lines receive storm drainage flow from approximately 300 residential acres in the neighboring Edgemere community. There is no industrial discharge to the pond on Parcel A16 and there is no record/indication of any historical industrial activity on Parcel A16. 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.

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, groundwater, surface water, and sediment) 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 log books, 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 Analytical Services, Inc. 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 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. 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 that impact representativeness.

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 groundwater, sediment, and surface water compounds had an overall completeness ratio of 100%. There were 15 soil analytes with completeness ratios of 80% (2,3,4,6-tetrachlorophenol, 2,4,5-trichlorophenol, 2,4,6-trichlorophenol, 2,4-dichlorophenol, 2,4-dimethylphenol, 2,4-

dinitrophenol, 2-chlorophenol, 2-methylphenol, 2-nitrophenol, 3&4-methylphenol(m&p Cresol), 4,6-dinitro-2-methylphenol, 4-chloro-3-methylphenol, 4-nitrophenol, pentachlorophenol, and phenol). None of these parameters had PAL exceedances in any soil 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 this joint Parcel A16 Phase II Investigation was to characterize the nature and extent of contamination at the Site.

During the Phase II Investigation, a total of 17 soil samples (from seven soil boring locations), four groundwater samples, four surface water samples, and seven sediment samples were collected and analyzed.

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.

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 A16 were limited to four metals (arsenic, hexavalent chromium, manganese, and thallium) were detected above their respective PALs in multiple soil samples. Thallium was detected above the PAL of 12 mg/kg in five soil samples (the most common PAL exceedance) with a maximum detection of 43.7 mg/kg also in A16-005-SB from the 6-foot to 7-foot interval.

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 two VOCs (tetrachloroethene and trichloroethene), three SVOCs (benz[a]anthracene, naphthalene, and pentachlorophenol), TPH-DRO, and four total and/or dissolved metals (hexavalent chromium, cobalt, manganese, and vanadium). Trichloroethene exceeded its PAL of 5 µg/L at A16-003-PZ with a detection of 40 µg/L. Except for hexavalent chromium, each of the metals that exceeded their respective PALs did so at two separate locations.

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. Trichloroethene was identified as a constituent that could contribute to elevated non-cancer hazard at piezometer location A16-003-PZ. 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 two VOCs (bromodichloromethane and chloroform), three SVOCs (benz[a]anthracene, dibenz[a,h]anthracene, naphthalene), and TPH-DRO. DRO exceeded its PAL of 47 µg/L at A16-007-SW with a detection of 840 µg/L. This location corresponds with elevated DRO in the sediment.

Surface water at the Site is not used; therefore there are no potentially complete exposure pathways for human health. Additionally, surface water from the Site eventually feeds into the Tin Mill Canal, which discharges through the Humphrey Creek Wastewater Treatment Plan.

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 three PCB mixtures (Aroclor 1248, Aroclor 1254, and total PCBs), TPH-DRO, Oil & Grease, and one metal (arsenic). Oil & Grease sediment concentrations were elevated at every location, however the maximum Oil & Grease concentration was observed at A16-007-SD at 171,000 mg/kg. This location is associated with the 72-inch

influent pipe, which receives storm water from the neighboring Edgemere community. Elevated levels of Oil & Grease are not detected in the surface water.

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 proposed at this time.

There were sediment exceedances for BTAG screening values for SVOCs, PCBs, and metals. As mentioned in Section 2.1, the influent 72-inch and 60-inch storm water lines receive storm drainage flow from approximately 300 residential acres in the neighboring Edgemere community. There is no industrial discharge to the pond on Parcel A16 and there is no record/indication of any historical industrial activity on Parcel A16. Potential impacts to ecological receptors do not appear to be related to Sparrows Point activities. No additional action or remediation with regard to ecological receptors is proposed at this time.

6.5. RECOMMENDATIONS

Sufficient remedial investigation data has been collected to evaluate the nature and extent of possible constituents of concern in Parcel A16. The presence and absence of soil, sediment, and groundwater impacts within Parcel A16 have been adequately described and further investigation at the Site is not warranted to characterize overall conditions. Recommendations for the Site are as follows:

- Trichloroethene was identified as a constituent that could contribute to elevated non-cancer vapor intrusion hazard at piezometer location A16-003-PZ. This should be noted if development is considered at this location in the future.
- Elevated concentrations of Oil & Grease were detected in the sediment at Parcel A16. This is likely associated with the 72-inch influent pipe feeding the pond from the neighboring residential community. The existence of this sediment does not currently pose a risk to any Site workers and elevated levels of Oil & Grease are not detected in the surface water. No additional action or remediation is proposed at this time.

7.0 REFERENCES

ARM Group LLC (2022). *Phase II Investigation Work Plan – Area A: Parcel A16.* Revision 1. September 30, 2022.

ARM Group Inc. (2016). *Quality Assurance Project Plan – Sparrows Point Terminal Site*. Revision 3. April 5, 2016.

ARM Group LLC (2020). *Stormwater Pollution Prevention Plan*. Revision 8. April 30, 2020.

Rust Environment and Infrastructure (1998). *Description of Current Conditions: Bethlehem Steel Corporation.* Final Draft. January 1998.

USEPA (2017). Vapor Intrusion Screening Level Calculator version 3.5 (https://www.epa.gov/vaporintrusion/vapor-intrusion-screening-levels-visls).

Weaver Boos Consultants (2014). *Phase I Environmental Site Assessment: Former RG Steel Facility*. Final Draft. May 19, 2014.

FIGURES


LEGEND
Parcel Boundary
Site Boundary
Parcel Boundaries
Private Property
Parcel A9
Parcel A13
Parcel A5
Parcel A7
Parcel A14
Parcel A11
Parcel A8
Parcel A12
Parcel A2
Parcel A15
Parcel A17
Parcel A18
Parcel A16
Parcel A6
Parcel A10
Parcel A4
Parcel A3
Parcel A1
Parcel B6
Parcel B8
Parcel B14
Parcel B21
Parcel B22
Parcel B16
Parcel B24
Parcel B15
Parcel B23
Parcel B7
Parcel B25
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
Tradepoint Atlantic Property
Area A and Area B Parcel Boundaries
July 18, 2022
Figure
1
N
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
P:\EnviroAnalytics Group\150298M EAG_Sparrows Point Area A\GIS\Site-wide Figures.mxd

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

June 20, 2022

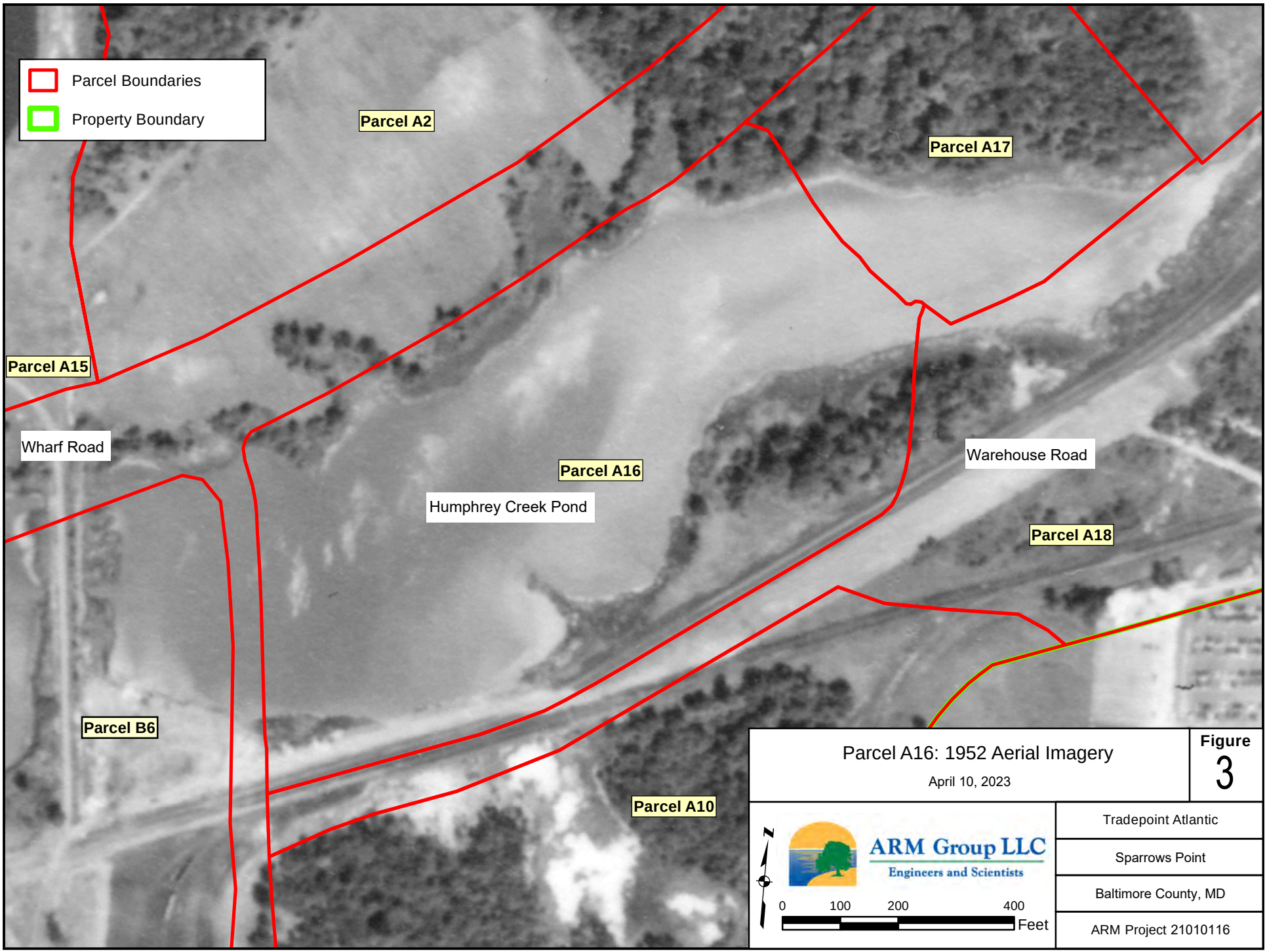
Adapted from Figure 2-20 of the Description of Current Conditions Report prepared by Rust Environmental and Infrastructure, dated January 1998

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 A16: 1952 Aerial Imagery

April 10, 2023

Figure 3

ARM Group LLC
Engineers and Scientists

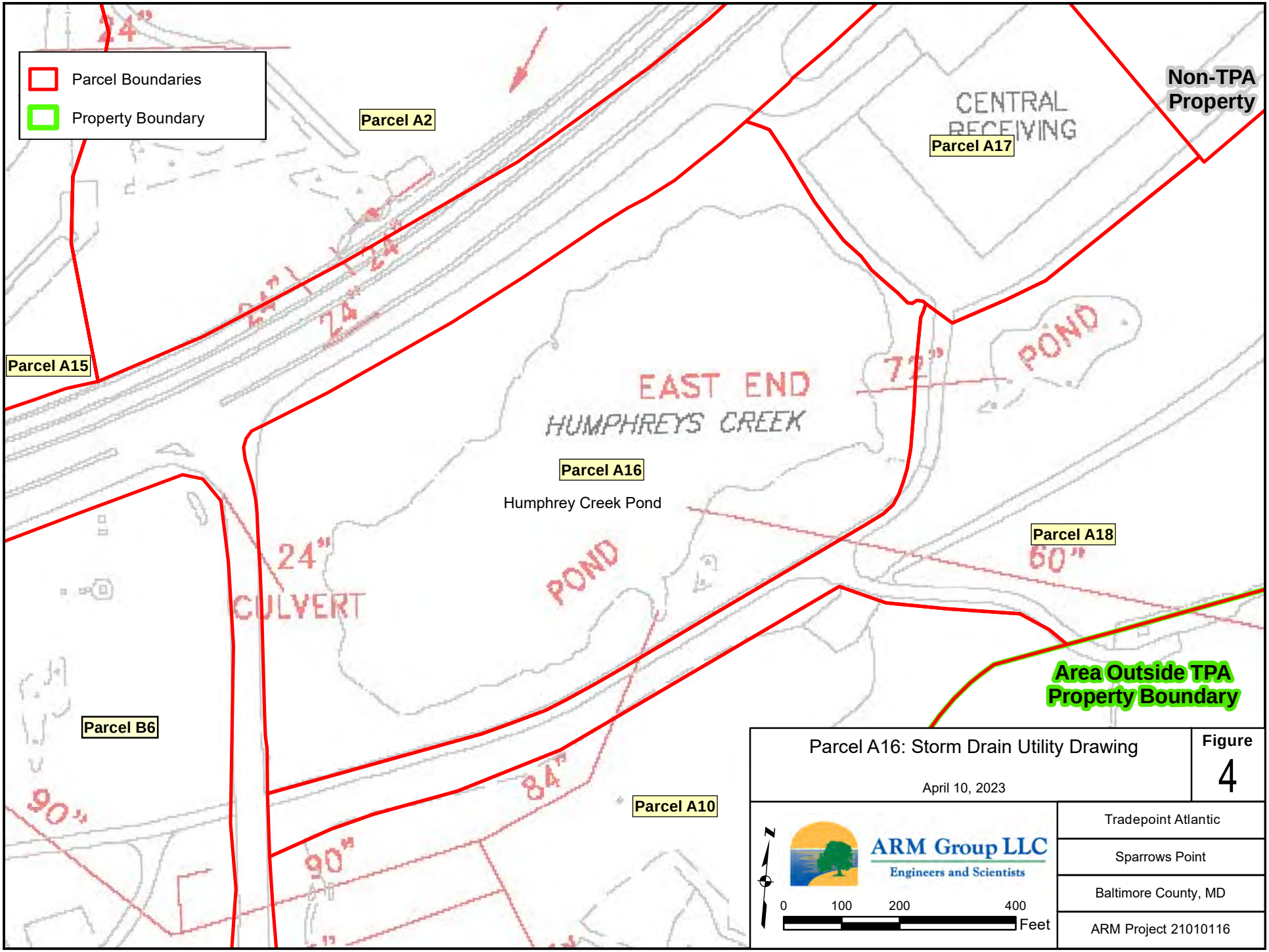
0 100 200 400 Feet

Tradepoint Atlantic

Sparrows Point

Baltimore County, MD

ARM Project 21010116



Parcel A16: Storm Drain Utility Drawing

April 10, 2023

Figure 4

ARM Group LLC
Engineers and Scientists

0 100 200 400 Feet

Tradepoint Atlantic
Sparrows Point
Baltimore County, MD
ARM Project 21010116

Parcel A16: Groundwater Sample Locations

April 24, 2023

Figure 5

ARM Group LLC
Engineers and Scientists

0 130 260 520 Feet

Tradepoint Atlantic

Sparrows Point

Baltimore County, MD

ARM Project 21010116

P:\EnviroAnalytics Group\150298M EAG_Sparrows Point Area A\GIS\Parcel A16.mxd

Parcel A16: Shallow Groundwater Elevations

May 5, 2023

Figure 6

ARM Group LLC
Engineers and Scientists

Tradepoint Atlantic

Sparrows Point

Baltimore County, MD

ARM Project 21010116

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Parcel A16: Soil Boring Locations

April 24, 2023

Figure 7

ARM Group LLC
Engineers and Scientists

0 130 260 520 Feet

Tradepoint Atlantic

Sparrows Point

Baltimore County, MD

ARM Project 21010116

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Parcel A16: Sediment and Surface Water Sample Locations

May 5, 2023

Figure 8

ARM Group LLC
Engineers and Scientists

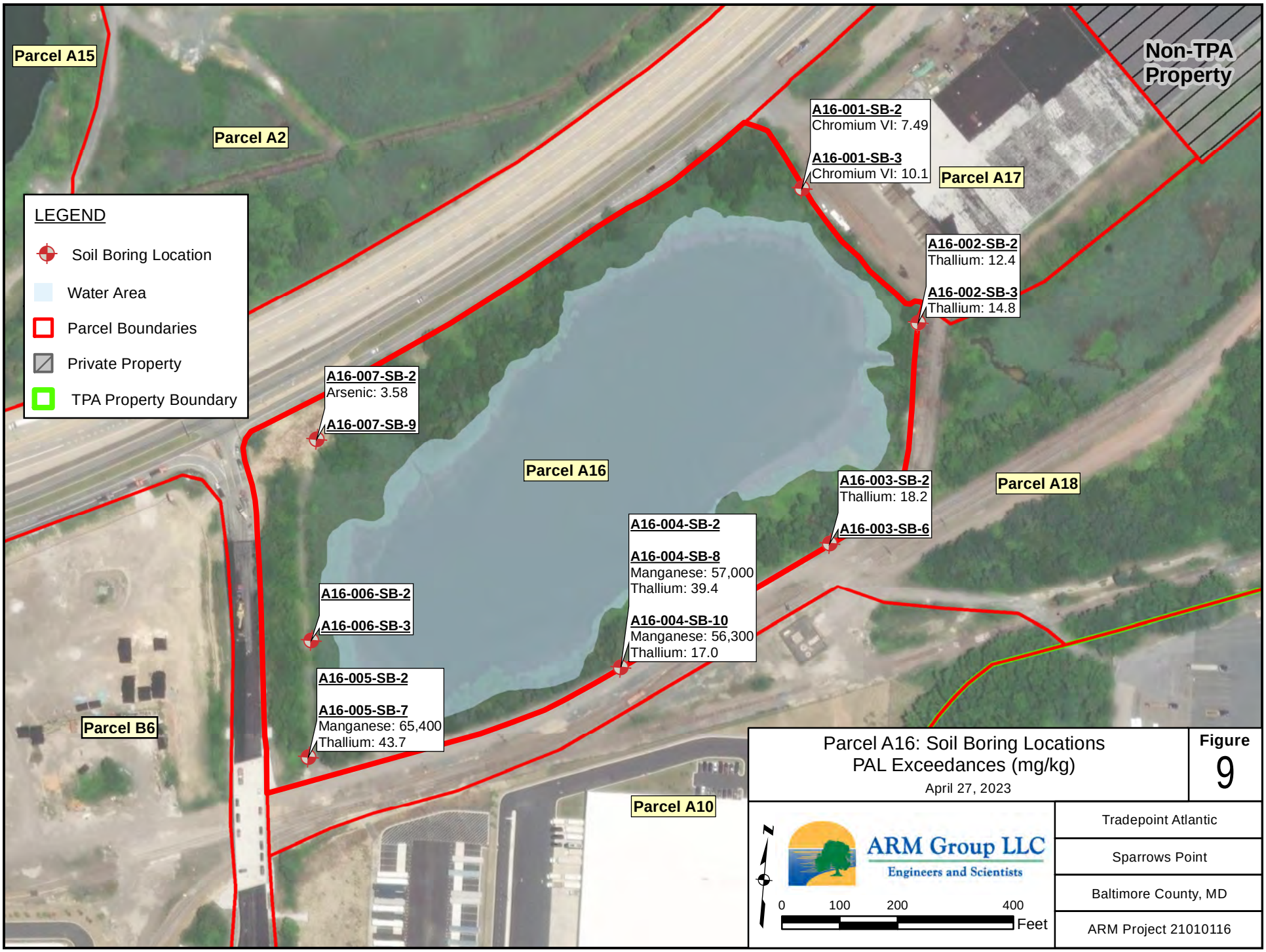
Tradepoint Atlantic

Sparrows Point

Baltimore County, MD

ARM Project 21010116

P:\EnviroAnalytics Group\150298M EAG_Sparrows Point Area A\GIS\Parcel A16.mxd



Parcel A16: Soil Boring Locations
PAL Exceedances (mg/kg)

April 27, 2023

Figure 9

ARM Group LLC
Engineers and Scientists

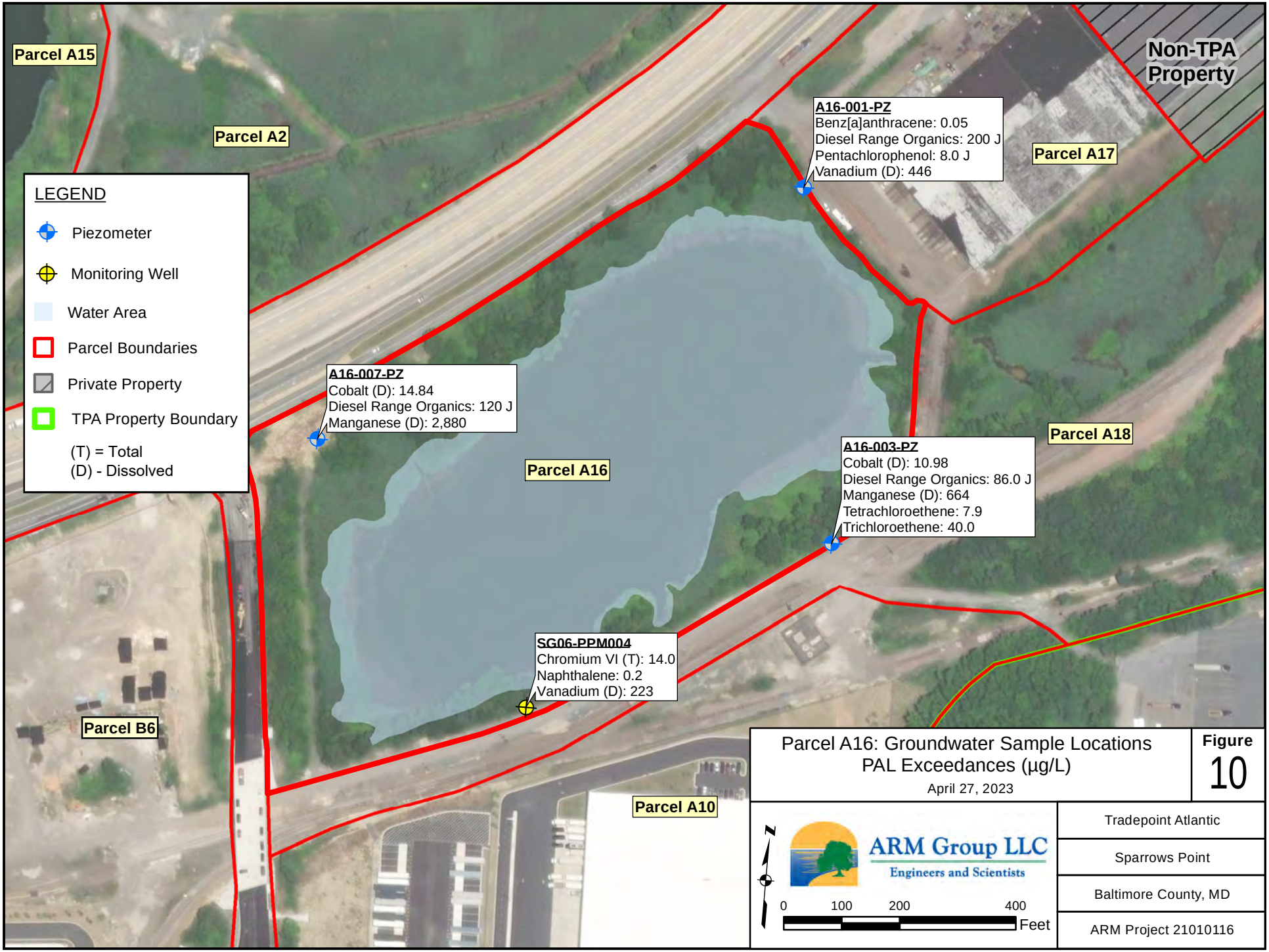
Tradepoint Atlantic

Sparrows Point

Baltimore County, MD

ARM Project 21010116

P:\EnviroAnalytics Group\150298M EAG_Sparrows Point Area A\GIS\Parcel A16 PAL Excds.mxd



Parcel A16: Groundwater Sample Locations
PAL Exceedances (µg/L)

April 27, 2023

Figure 10

ARM Group LLC
Engineers and Scientists

0 100 200 400 Feet

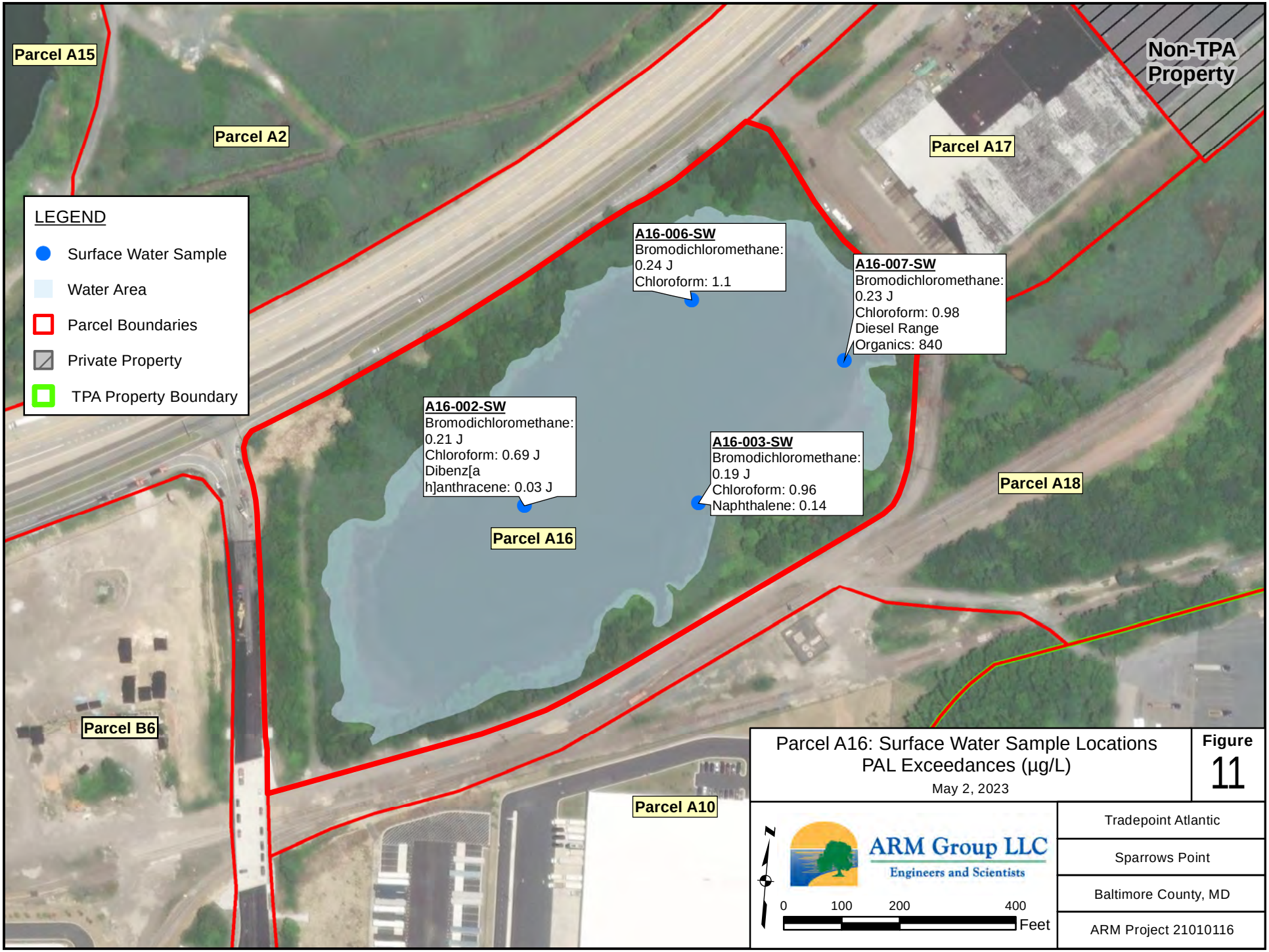
Tradepoint Atlantic

Sparrows Point

Baltimore County, MD

ARM Project 21010116

P:\EnviroAnalytics Group\150298M EAG_Sparrows Point Area A\GIS\Parcel A16 PAL Excds.mxd



Parcel A16: Surface Water Sample Locations
PAL Exceedances (µg/L)

May 2, 2023

Figure 11

ARM Group LLC
Engineers and Scientists

0 100 200 400 Feet

Tradepoint Atlantic
Sparrows Point
Baltimore County, MD
ARM Project 21010116

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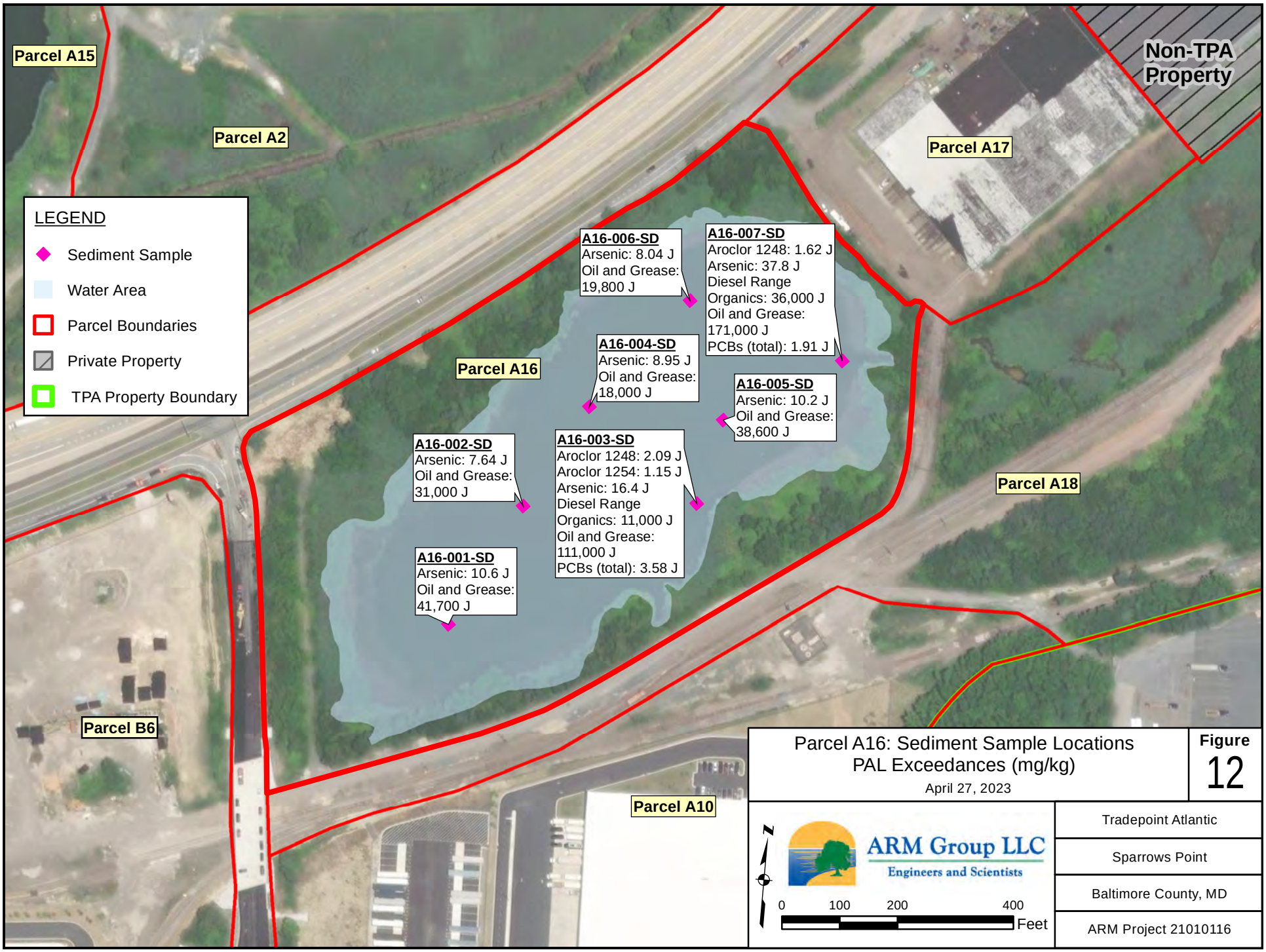

Parcel A16: Sediment Sample Locations
PAL Exceedances (mg/kg)

April 27, 2023

Figure 12

ARM Group LLC
Engineers and Scientists

0 100 200 400 Feet

Tradepoint Atlantic

Sparrows Point

Baltimore County, MD

ARM Project 21010116

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TABLES

TABLE 1 GROUNDWATER ELEVATION DATA				
Location Name	TOC Elevation (feet AMSL)	Ground Elevation (feet AMSL)	Measured DTW (ft)	Groundwater Elevation (feet AMSL)
A16-001-PZ	10.42	8.21	6.98	3.44
A16-003-PZ	15.71	14.09	13.97	1.74
A16-007-PZ	15.98	13.79	12.23	3.75
SG06-PPM004	14.08	11.46	12.75	1.33

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

Table 2 - Parcel A16
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.)	5052	6/30/1959	3/11/1982
		5052A	1/17/1966	3/11/1982
		5057	4/27/1959	3/11/1982
Plant Index	Roads, water bodies, demolished buildings/structures, electric lines, above-ground pipelines	5152	*unknown*	2/25/2018
		5152A	*unknown*	*unknown*
		5157	*unknown*	11/10/2008
Plant Sewer Lines	Same as above plus trenches, sumps, underground piping (includes pipe materials)	5552	9/16/1959	3/9/1976
		5552A	2/22/1962	12/15/1987
		5557	*unknown*	2/2/1976

Table 3 - Parcel A16
Field Shifted Boring Locations

Location ID	Sample Target	Proposed Location*		Final Location*		Relocation Distance (ft.) & Direction		Reason for Shift
		Northing	Easting	Northing	Easting			
A16-001-SB	Parcel A16 Coverage	573,097	1,464,642	573,070	1,464,718	81	SE	Inaccessible due to Topography
A16-002-SB	Parcel A16 Coverage	572,856	1,464,919	572,856	1,464,938	18	E	Adjacent Rail Line
A16-003-SB	Parcel A16 Coverage	572,519	1,464,832	572,463	1,464,819	58	SW	Subsurface Utility
A16-004-SB	Parcel A16 Coverage	572,233	1,464,465	572,218	1,464,478	20	SE	Subsurface Utility
A16-006-SB	Parcel A16 Coverage	572,226	1,463,892	572,218	1,463,941	50	SE	Subsurface Utility
A16-007-SB	Parcel A16 Coverage	572,551	1,463,914	572,565	1,463,920	16	SW	Subsurface Utility

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

Table 4 - Parcel A16
Summary of Organics Detected in Soil

Parameter	Units	PAL	A16-001-SB-2*	A16-001-SB-3*	A16-002-SB-2	A16-002-SB-3	A16-003-SB-2	A16-003-SB-6	A16-004-SB-2
Volatile Organic Compounds									
Benzene	mg/kg	5.1	*N/A*	*N/A*	*N/A*	**0.00087**	*N/A*	*N/A*	*N/A*
Ethylbenzene	mg/kg	25	*N/A*	*N/A*	*N/A*	**0.00026 J**	*N/A*	*N/A*	*N/A*
Isopropylbenzene	mg/kg	9,900	*N/A*	*N/A*	*N/A*	**0.00053 J**	*N/A*	*N/A*	*N/A*
Semi-Volatile Organic Compounds^									
1,1-Biphenyl	mg/kg	200	*0.43 U*	**0.032 J**	**0.052 J**	*0.43 U*	*4 U*	*0.41 U*	*4 U*
2-Methylnaphthalene	mg/kg	3,000	**0.014 J**	**0.16**	**0.066**	**0.03**	**0.042 J**	*0.073 U*	**0.044 J**
Acenaphthene	mg/kg	45,000	*0.038 U*	**0.012 J**	**0.008**	**0.0064 J**	*0.07 U*	*0.073 U*	**0.026 J**
Acenaphthylene	mg/kg	45,000	**0.0062 J**	**0.074**	**0.011**	**0.0035 J**	*0.07 U*	*0.073 U*	**0.018 J**
Anthracene	mg/kg	230,000	**0.0079 J**	**0.12**	**0.025**	**0.015**	**0.024 J**	**0.0058 J**	**0.034 J**
Benz[a]anthracene	mg/kg	21	**0.03 J**	**0.55**	**0.08**	**0.062**	**0.11**	**0.032 J**	**0.16**
Benzaldehyde	mg/kg	120,000	**0.074 J**	*0.25 U*	**0.052 J**	*0.25 U*	*2.3 UJ*	**0.069 J**	*2.3 UJ*
Benzo[a]pyrene	mg/kg	2.1	**0.037 J**	**0.46**	**0.092**	**0.073**	**0.13**	**0.028 J**	**0.25**
Benzo[b]fluoranthene	mg/kg	21	**0.062**	**0.52**	**0.12**	**0.095**	**0.17**	**0.043 J**	**0.29**
Benzo[g,h,i]perylene	mg/kg		**0.044**	**0.25**	**0.069**	**0.057**	**0.11**	**0.028 J**	**0.22**
Benzo[k]fluoranthene	mg/kg	210	**0.015 J**	**0.2**	**0.038**	**0.032**	**0.052 J**	*0.073 U*	**0.11**
Carbazole	mg/kg		*0.19 U*	**0.058 J**	*0.18 U*	*0.19 U*	*1.8 U*	*0.18 U*	*1.8 U*
Chrysene	mg/kg	2,100	**0.037 J**	**0.42**	**0.082**	**0.06**	**0.12**	**0.044 J**	**0.14**
Dibenz[a,h]anthracene	mg/kg	2.1	*0.038 U*	**0.072**	**0.016**	**0.012**	**0.024 J**	*0.073 U*	**0.048 J**
Fluoranthene	mg/kg	30,000	**0.047**	**0.7**	**0.14**	**0.12**	**0.13**	**0.031 J**	**0.15**
Fluorene	mg/kg	30,000	*0.038 U*	**0.01 J**	**0.0018 J**	**0.0018 J**	*0.07 U*	*0.073 U*	*0.071 U*
Indeno[1,2,3-c,d]pyrene	mg/kg	21	**0.04**	**0.33**	**0.08**	**0.065**	**0.12**	**0.025 J**	**0.25**
Naphthalene	mg/kg	8.6	**0.026 J**	**0.5**	**0.12**	**0.11**	**0.14**	**0.033 J**	**0.087**
Pentachlorophenol	mg/kg	4	**0.11 J**	*0.15 U*	*0.15 U*	*0.15 R*	*1.4 U*	*0.14 U*	*1.4 U*
Phenanthrene	mg/kg		**0.026 J**	**0.5**	**0.12**	**0.11**	**0.15**	**0.033 J**	**0.1**
Pyrene	mg/kg	23,000	**0.044**	**0.59**	**0.11**	**0.088**	**0.11**	**0.03 J**	**0.14**
PCBs									
Aroclor 1254	mg/kg	0.97	*0.0376 U*	*N/A*	**0.00596 J**	*N/A*	*0.0352 U*	*N/A*	**0.0211 J**
Aroclor 1260	mg/kg	0.99	*0.0376 U*	*N/A*	*0.0358 U*	*N/A*	*0.0352 U*	*N/A*	**0.0306 J**
Aroclor 1268	mg/kg		*0.0376 U*	*N/A*	*0.0358 U*	*N/A*	**0.00519 J**	*N/A*	**0.0115 J**
PCBs (total)	mg/kg	0.97	*0.0376 U*	*N/A*	**0.00596 J**	*N/A*	**0.00519 J**	*N/A*	**0.0632 J**
TPH/Oil & Grease									
Diesel Range Organics	mg/kg	6,200	**30 J**	**38**	**18 J**	**24 J**	**230**	**75**	**42**
Gasoline Range Organics	mg/kg	6,200	*1.2 B*	*0.88 B*	*1.2 B*	*1.1 B*	*1.3 B*	*1.4 B*	*1.8 B*
Oil & Grease	mg/kg	6,200	*209 U*	**235**	**452**	**386**	**215**	**5,410**	**3,280**

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 repesents 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/preparation or field blank.
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 4 - Parcel A16
Summary of Organics Detected in Soil

Parameter	Units	PAL	A16-004-SB-8	A16-005-SB-2	A16-005-SB-7	A16-006-SB-2	A16-006-SB-3	A16-007-SB-2*	A16-007-SB-9*
Volatile Organic Compounds									
Benzene	mg/kg	5.1	*N/A*	*N/A*	*0.00094 U*	*N/A*	*N/A*	*N/A*	*N/A*
Ethylbenzene	mg/kg	25	*N/A*	*N/A*	**0.00028 J**	*N/A*	*N/A*	*N/A*	*N/A*
Isopropylbenzene	mg/kg	9,900	*N/A*	*N/A*	**0.00073 J**	*N/A*	*N/A*	*N/A*	*N/A*
Semi-Volatile Organic Compounds^									
1,1-Biphenyl	mg/kg	200	*0.4 U*	*0.4 U*	*0.41 U*	*0.39 U*	*0.4 U*	*0.44 U*	*0.42 U*
2-Methylnaphthalene	mg/kg	3,000	*0.0071 U*	**0.0039 J**	**0.0073**	*0.0068 U*	*0.007 U*	**0.012**	*0.0074 U*
Acenaphthene	mg/kg	45,000	*0.0071 U*	*0.007 U*	*0.0073 U*	*0.0068 U*	*0.007 U*	**0.031**	*0.0074 U*
Acenaphthylene	mg/kg	45,000	*0.0071 U*	**0.0027 J**	**0.0062 J**	*0.0068 U*	*0.007 U*	**0.15**	**0.006 J**
Anthracene	mg/kg	230,000	**0.0014 J**	**0.0038 J**	**0.0052 J**	*0.0068 U*	*0.007 U*	**0.22**	**0.004 J**
Benz[a]anthracene	mg/kg	21	**0.0064 J**	**0.02**	**0.029**	**0.00079 J**	**0.001 J**	**0.75**	**0.022**
Benzaldehyde	mg/kg	120,000	*0.23 U*	*0.23 U*	*0.24 U*	*0.23 U*	*0.23 U*	*0.25 U*	*0.24 U*
Benzo[a]pyrene	mg/kg	2.1	**0.006 J**	**0.024**	**0.023**	*0.0068 UJ*	**0.00094 J**	**0.66**	**0.019**
Benzo[b]fluoranthene	mg/kg	21	**0.009**	**0.029**	**0.033**	**0.00068 J**	**0.0014 J**	**0.68**	**0.027**
Benzo[g,h,i]perylene	mg/kg		**0.0042 J**	**0.017**	**0.017**	*0.0068 U*	**0.0008 J**	**0.33**	**0.013**
Benzo[k]fluoranthene	mg/kg	210	**0.0031 J**	**0.01**	**0.011**	*0.0068 U*	*0.007 U*	**0.26**	**0.0076**
Carbazole	mg/kg		*0.18 U*	*0.18 U*	*0.18 U*	*0.17 U*	*0.17 U*	**0.028 J**	*0.18 U*
Chrysene	mg/kg	2,100	**0.0063 J**	**0.018**	**0.021**	*0.0068 U*	**0.0007 J**	**0.46**	**0.017**
Dibenz[a,h]anthracene	mg/kg	2.1	**0.0011 J**	**0.0037 J**	**0.0041 J**	*0.0068 UJ*	*0.007 UJ*	**0.1**	*0.0043 B*
Fluoranthene	mg/kg	30,000	**0.013**	**0.023**	**0.032**	**0.00058 J**	**0.00084 J**	**1.6**	**0.028**
Fluorene	mg/kg	30,000	*0.0071 U*	*0.007 U*	**0.0013 J**	*0.0068 U*	*0.007 U*	**0.069**	**0.00097 J**
Indeno[1,2,3-c,d]pyrene	mg/kg	21	**0.0053 J**	**0.019**	**0.02**	*0.0068 UJ*	**0.00094 J**	**0.48**	**0.018**
Naphthalene	mg/kg	8.6	**0.0039 J**	**0.018**	**0.015**	*0.0068 U*	*0.007 U*	**0.082**	**0.0045 J**
Pentachlorophenol	mg/kg	4	*0.14 R*	*0.14 U*	*0.14 U*	*0.14 U*	*0.14 U*	*0.15 U*	*0.15 U*
Phenanthrene	mg/kg		**0.0068 J**	**0.013**	**0.018**	*0.0068 U*	*0.007 U*	**0.68**	**0.011**
Pyrene	mg/kg	23,000	**0.011**	**0.023**	**0.024**	**0.00058 J**	**0.00094 J**	**1.2**	**0.02**
PCBs									
Aroclor 1254	mg/kg	0.97	*N/A*	*0.0335 U*	*N/A*	**0.0148 J**	*N/A*	*0.0376 U*	*N/A*
Aroclor 1260	mg/kg	0.99	*N/A*	*0.0335 U*	*N/A*	*0.0343 U*	*N/A*	*0.0376 U*	*N/A*
Aroclor 1268	mg/kg		*N/A*	*0.0335 U*	*N/A*	*0.0343 U*	*N/A*	*0.0376 U*	*N/A*
PCBs (total)	mg/kg	0.97	*N/A*	*0.0335 U*	*N/A*	**0.0148 J**	*N/A*	*0.0376 U*	*N/A*
TPH/Oil & Grease									
Diesel Range Organics	mg/kg	6,200	**3.3 J**	**3.2 J**	**9.8 J**	**2 J**	*33 U*	**7.2 J**	**3.3 J**
Gasoline Range Organics	mg/kg	6,200	*1 B*	*1.6 B*	*2.2 B*	*1.1 B*	*0.83 B*	*0.97 B*	*2.5 B*
Oil & Grease	mg/kg	6,200	*216 U*	**224**	**354**	*212 U*	**267**	**381**	**744**

Detections in bold
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^ PAH compounds were analyzed via SIM

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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 5 - Parcel A16
Summary of Inorganics Detected in Soil

Parameter	Units	PAL	A16-001-SB-2*	A16-001-SB-3*	A16-002-SB-2	A16-002-SB-3	A16-003-SB-2	A16-003-SB-6	A16-004-SB-2
Metals									
Aluminum	mg/kg	1,100,000	**6,150**	**10,100**	**7,320**	**9,920**	**7,740**	**27,700**	**7,250**
Antimony	mg/kg	470	**8.09**	**7.61**	**15**	**8.68**	**10.3**	**2.54 J**	**9.69**
Arsenic	mg/kg	3	**1.38**	**1.55**	*4.31 U*	*4.34 U*	*4.13 U*	**2.33**	**1.55**
Barium	mg/kg	220,000	**103**	**102**	**73.1**	**188**	**125**	**165**	**135**
Beryllium	mg/kg	2,300	*0.436 U*	**0.269 J**	**1.85**	**2.27**	**2**	**4.5**	**1.4**
Cadmium	mg/kg	100	**0.333 J**	**0.299 J**	**3.94**	**2.52**	**2.76**	**0.223 J**	**2.59**
Chromium	mg/kg	1,800,000	**874**	**708**	**762**	**714**	**910**	**14.3**	**352**
Chromium VI	mg/kg	6.3	**7.49**	**10.1**	**0.441 J**	**0.227 J**	**0.893**	*0.887 U*	**0.915**
Cobalt	mg/kg	350	**1.36 J**	**1.52 J**	**4.89**	**1.49 J**	**11**	**1.36 J**	**8.31**
Copper	mg/kg	47,000	**36.2**	**30.4**	**71.5**	**43.3**	**163**	**5.58**	**75.9**
Iron	mg/kg	820,000	**144,000**	**130,000**	**227,000**	**113,000**	**148,000**	**15,400**	**126,000**
Lead	mg/kg	800	**25.6**	**40.8**	**21.1**	**31.2**	**58.5**	**2.26 J**	**102**
Manganese	mg/kg	26,000	**23,600**	**20,500**	**18,000**	**19,300**	**25,200**	**1,340**	**8,620**
Mercury	mg/kg	350	*0.074 U*	*0.072 U*	*0.072 U*	*0.071 U*	*0.069 U*	*0.071 U*	**0.058 J**
Nickel	mg/kg	22,000	**11.2**	**10.1**	**38**	**15.3**	**30.8**	**2.48**	**43.3**
Selenium	mg/kg	5,800	*1.74 U*	*1.74 U*	*1.72 U*	**7.27**	**5.45**	**1.71**	*40.6 U*
Thallium	mg/kg	12	*8.72 U*	*8.7 U*	**12.4**	**14.8**	**18.2**	**0.973 J**	**6.55**
Vanadium	mg/kg	5,800	**2,480**	**2,010**	**1,290**	**2,070**	**2,800**	**59.6**	**659**
Zinc	mg/kg	350,000	**109**	**83.6**	**146**	**199**	**83.1**	**3.36 J**	**198**

Detections in bold
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J: The positive result reported for this analyte is a quantitative estimate.

Table 5 - Parcel A16
Summary of Inorganics Detected in Soil

Parameter	Units	PAL	A16-004-SB-8	A16-004-SB-10*	A16-005-SB-2	A16-005-SB-7	A16-006-SB-2	A16-006-SB-3	A16-007-SB-2*	A16-007-SB-9*
Metals										
Aluminum	mg/kg	1,100,000	**7,230**	N/A	**7,670**	**9,770**	**7,940**	**8,190**	**7,700**	**28,800**
Antimony	mg/kg	470	**10.4**	N/A	**5.11**	**11.1**	**1.89 J**	**2.05 J**	*4.5 U*	*4.4 U*
Arsenic	mg/kg	3	*20.7 U*	N/A	**2.79**	*21 U*	**0.542 J**	**0.307 J**	**3.58**	**2.37**
Barium	mg/kg	220,000	**133**	N/A	**154**	**247**	**54.3**	**54.6**	**49.6**	**256**
Beryllium	mg/kg	2,300	**1.26**	N/A	**0.864**	**1.77**	**0.37 J**	**0.369 J**	**0.475**	**3.75**
Cadmium	mg/kg	100	**2.95**	N/A	**1.64**	**2.95**	**0.61 J**	**0.712 J**	**0.276 J**	**0.135 J**
Chromium	mg/kg	1,800,000	**928**	N/A	**142**	**903**	**17.2**	**19.1**	**15.8**	**97.2**
Chromium VI	mg/kg	6.3	**2.46**	N/A	*0.855 U*	*0.885 U*	*0.847 U*	*0.854 U*	*0.924 U*	*0.915 U*
Cobalt	mg/kg	350	**3.28**	N/A	**9.96**	**3.24**	**6.93**	**7.72**	**4.81**	**1.87**
Copper	mg/kg	47,000	**47.4**	N/A	**67.9**	**42.4**	**37.4**	**90**	**13.3**	**11.5**
Iron	mg/kg	820,000	**142,000**	N/A	**54,000**	**156,000**	**22,800**	**22,800**	**12,600**	**27,900**
Lead	mg/kg	800	**45.7**	N/A	**124**	**30**	**3.31 J**	**3.12 J**	**37.8**	**11.6**
Manganese	mg/kg	26,000	**57,000**	**56,300**	**4,400**	**65,400**	**304**	**315**	**187**	**5,670**
Mercury	mg/kg	350	*0.071 U*	N/A	**0.082**	*0.07 U*	*0.067 U*	*0.068 U*	**0.139**	*0.072 U*
Nickel	mg/kg	22,000	**21.1**	N/A	**14.5**	**22.2**	**6.38**	**7.63**	**7.91**	**2.94**
Selenium	mg/kg	5,800	**20**	N/A	*1.65 U*	**23.1**	*1.59 U*	*1.67 U*	*1.8 U*	**1.78**
Thallium	mg/kg	12	**39.4**	**17**	**3.53**	**43.7**	**0.41 J**	**0.495 J**	*1.8 U*	**0.74 J**
Vanadium	mg/kg	5,800	**1,210**	N/A	**370**	**1,160**	**32.4**	**39.7**	**36.8**	**342**
Zinc	mg/kg	350,000	**195**	N/A	**280**	**133**	**100**	**147**	**65.3**	**18.2**

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 dat
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.

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	64	7	A16-007-SB-2	3.58	3	mg/kg
Chromium VI	18540-29-9	50	14	A16-001-SB-3	10.1	6.3	mg/kg
Manganese	7439-96-5	100	20	A16-005-SB-7	65,400	26,000	mg/kg
Thallium	7440-28-0	80	33	A16-005-SB-7	43.7	12	mg/kg

Table 7 - Parcel A16
Summary of Organics Detected in Groundwater

Parameter	Units	PAL	A16-001-PZ*	A16-003-PZ	A16-007-PZ	SG06-PPM004*
Volatile Organic Compounds						
1,2-Dichlorobenzene	µg/L	600	*2.5 U*	**2.8**	*2.5 U*	*2.5 U*
1,2-Dichloroethane	µg/L	5	*0.5 U*	**0.16 J**	*0.5 U*	*0.5 U*
1,2-Dichloroethene (Total)	µg/L	70	*0.5 U*	**2.6 J**	*0.5 U*	**16 J**
1,4-Dichlorobenzene	µg/L	75	*2.5 U*	**0.41 J**	*2.5 U*	*2.5 U*
Acetone	µg/L	14,000	**12**	*5 UJ*	*5 UJ*	*5 U*
Bromomethane	µg/L	7.5	**0.58 J**	*1 U*	**0.27 J**	*1 U*
Carbon disulfide	µg/L	810	**0.48 J**	*5 U*	*5 U*	*5 U*
Chlorobenzene	µg/L	100	*0.5 U*	**0.18 J**	*0.5 U*	*0.5 U*
cis-1,2-Dichloroethene	µg/L	70	*0.5 U*	**2.4**	*0.5 U*	**16**
Methyl tert-butyl ether (MTBE)	µg/L	14	*1 U*	**0.44 J**	*1 U*	*1 U*
Tetrachloroethene	µg/L	5	*0.5 U*	**7.9**	*0.5 U*	**0.64**
trans-1,2-Dichloroethene	µg/L	100	*0.75 U*	**0.22 J**	*0.75 U*	**0.34 J**
Trichloroethene	µg/L	5	*0.5 U*	**40**	*0.5 U*	**3.2**
Vinyl chloride	µg/L	2	*1 U*	**0.1 J**	*1 U*	**0.32 J**
Semi-Volatile Organic Compounds^						
2-Methylnaphthalene	µg/L	36	*0.1 U*	*0.1 U*	*0.1 U*	**0.05 J**
Acenaphthene	µg/L	530	*0.1 U*	**0.02 J**	*0.1 U*	**0.05 J**
Anthracene	µg/L	1,800	*0.03 B*	*0.1 U*	*0.1 U*	**0.04 J**
Benz[a]anthracene	µg/L	0.03	**0.05**	**0.02 J**	*0.05 U*	**0.02 J**
Benzo[a]pyrene	µg/L	0.2	**0.04 J**	*0.1 U*	*0.1 U*	*0.1 U*
Benzo[b]fluoranthene	µg/L	0.25	**0.07**	*0.05 U*	*0.05 U*	*0.05 U*
Benzo[g,h,i]perylene	µg/L		**0.03 J**	*0.1 U*	*0.1 U*	*0.1 U*
Benzo[k]fluoranthene	µg/L	2.5	**0.02 J**	*0.1 U*	*0.1 U*	*0.1 U*
Chrysene	µg/L	25	**0.04 J**	*0.1 U*	*0.1 U*	**0.01 J**
Fluoranthene	µg/L	800	**0.06 J**	*0.1 U*	*0.1 U*	**0.08 J**
Fluorene	µg/L	290	*0.1 U*	*0.1 U*	*0.1 U*	**0.04 J**
Indeno[1,2,3-c,d]pyrene	µg/L	0.25	**0.04 J**	*0.1 U*	*0.1 U*	*0.1 U*
Naphthalene	µg/L	0.12	**0.06 J**	*0.1 U*	*0.1 U*	**0.2**
Pentachlorophenol	µg/L	1	**8 J**	*10 UJ*	*10 UJ*	*10 U*
Phenanthrene	µg/L		**0.06**	*0.05 U*	*0.05 U*	**0.1**
Phenol	µg/L	5,800	**0.71 J**	*5 U*	*5 U*	*5 U*
Pyrene	µg/L	120	**0.05 J**	*0.1 U*	*0.1 U*	**0.06 J**
TPH						
Diesel Range Organics	µg/L	47	**200 J**	**86 J**	**120 J**	*500 U*
Gasoline Range Organics	µg/L	47	*22 B*	**26 J**	**13 J**	*27 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 A16
Summary of Inorganics Detected in Groundwater

Parameter	Units	PAL	A16-001-PZ*	A16-003-PZ	A16-007-PZ	SG06-PPM004*
Metals (Dissolved)						
Aluminum, Dissolved	µg/L	20,000	**266**	**298**	**28.9**	**191**
Antimony, Dissolved	µg/L	6	**0.5273 J**	*4 U*	*4 U*	*4 U*
Arsenic, Dissolved	µg/L	10	**1.424**	**1.005**	**3.321**	**0.4608 J**
Barium, Dissolved	µg/L	2,000	**10.32**	**12.74**	**22.53**	**60.15**
Chromium, Dissolved	µg/L	100	**32.27**	**0.4756 J**	**0.2521 J**	**8**
Cobalt, Dissolved	µg/L	6	*0.5 U*	**10.98**	**14.84**	**0.171 J**
Copper, Dissolved	µg/L	1,300	**3.407**	*1 U*	*1 U*	*1 U*
Iron, Dissolved	µg/L	14,000	**30.4 J**	**1,750**	**3,820**	*50 U*
Manganese, Dissolved	µg/L	430	**0.895 J**	**664.4**	**2,880**	**1.136**
Nickel, Dissolved	µg/L	390	**1.175 J**	**18.96**	**13.29**	*2 U*
Selenium, Dissolved	µg/L	50	**6.49**	**3.11 J**	*5 U*	**2.84 J**
Vanadium, Dissolved	µg/L	86	**446.9**	*5 U*	*5 U*	**223.1**
Zinc, Dissolved	µg/L	6,000	*10 U*	**17.78**	**14.69**	*10 U*
Metals (Total)						
Chromium VI	µg/L	0.035	*10 U*	*10 U*	*10 U*	**14**
Other						
Cyanide	µg/L	200	**2.77 J**	*5 U*	*5 U*	*5 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
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.

Table 9
Cumulative Vapor Intrusion Criteria Comparison

				A16-001-PZ		A16-003-PZ		A16-007-PZ		SG06-PPM004	
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
Cancer Risk											
Naphthalene	SVOC	Nervous; Respiratory	200	0.06 J	3E-09	0.1 U	0	0.1 U	0	0.2	1E-08
1,2-Dichloroethane	VOC	None Specified	98	0.5 U	0	0.16 J	2.E-08	0.5 U	0	0.5 U	0
1,4-Dichlorobenzene	VOC	Hepatic	110	2.5 U	0	0.41 J	4.E-08	2.5 U	0	2.5 U	0
Methyl tert-butyl ether (MTBE)	VOC	Hepatic; Ocular; Urinary	20,000	1 U	0	0.44 J	2.E-10	1 U	0	1 U	0
Vinyl chloride	VOC	Hepatic	25	1 U	0	0.1 J	4.E-08	1 U	0	0.32 J	1E-07
Cumulative Vapor Intrusion Cancer Risk					3E-09		9E-08		0E+00		1E-07
Non-Cancer Hazard											
Trichloroethene	VOC	Cardiovascular; Developmental; Immune	22	0.5 U	0	40	2	0.5 U	0	3.2	0.1
Cumulative Vapor Intrusion Non-Cancer Hazard					0		2		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 A16
Summary of Organics Detected in Surface Water

Parameter	Units	PAL	A16-002-SW	A16-003-SW	A16-006-SW	A16-007-SW
Volatile Organic Compounds						
Acetone	µg/L	14,000	*4.4 B*	*3.5 B*	*4.7 B*	*4.5 B*
Bromodichloromethane	µg/L	0.13	**0.21 J**	**0.19 J**	**0.24 J**	**0.23 J**
Bromoform	µg/L	3.3	**0.99 J**	*2 UJ*	*2 UJ*	*2 UJ*
Chloroform	µg/L	0.22	**0.69 J**	**0.96**	**1.1**	**0.98**
Semi-Volatile Organic Compounds^						
2-Methylnaphthalene	µg/L	36	*0.1 U*	*0.1 U*	*0.1 U*	**0.03 J**
Benz[a]anthracene	µg/L	0.03	**0.02 J**	*0.05 U*	**0.03 J**	*0.05 U*
Benzo[b]fluoranthene	µg/L	0.25	**0.03 J**	**0.02 J**	**0.03 J**	**0.01 J**
Benzo[g,h,i]perylene	µg/L		**0.03 J**	*0.1 U*	**0.02 J**	*0.1 U*
Benzo[k]fluoranthene	µg/L	2.5	**0.02 J**	*0.1 U*	**0.02 J**	*0.1 U*
Chrysene	µg/L	25	**0.02 J**	**0.01 J**	**0.02 J**	**0.01 J**
Dibenz[a,h]anthracene	µg/L	0.025	**0.03 J**	*0.05 U*	*0.05 U*	*0.05 U*
Fluoranthene	µg/L	800	**0.03 J**	**0.02 J**	**0.02 J**	**0.02 J**
Fluorene	µg/L	290	*0.1 U*	*0.1 U*	*0.1 U*	**0.02 J**
Indeno[1,2,3-c,d]pyrene	µg/L	0.25	**0.03 J**	*0.1 U*	*0.1 U*	*0.1 U*
Naphthalene	µg/L	0.12	**0.06 J**	**0.14**	**0.05 J**	**0.07 J**
Phenanthrene	µg/L		**0.03 J**	*0.05 U*	*0.05 U*	**0.03 J**
Pyrene	µg/L	120	**0.02 J**	*0.1 U*	*0.1 U*	**0.02 J**
TPH						
Diesel Range Organics	µg/L	47	*72 B*	*110 B*	*170 B*	**840**
Gasoline Range Organics	µg/L	47	*20 B*	*21 B*	*24 B*	*19 B*

Detections in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
All data 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.
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/preparation or field blank.

Table 11 - Parcel A16
Summary of Inorganic Detections in Surface Water

Parameter	Units	PAL	NRWQC Freshwater	A16-002-SW	A16-003-SW	A16-006-SW	A16-007-SW
Metal							
Aluminum, Dissolved	µg/L	20,000		**9.78 J**	**7.35 J**	**7.01 J**	**7.66 J**
Antimony, Dissolved	µg/L	6		*0.4371 B*	*0.8277 B*	*0.8772 B*	*1.149 B*
Arsenic, Dissolved	µg/L	10	150	**0.2046 J**	**0.3536 J**	**0.3112 J**	**0.429 J**
Barium, Dissolved	µg/L	2,000		**24.75**	**24.57**	**24.22**	**25.29**
Chromium, Dissolved	µg/L	100	74	*0.373 B*	*1 U*	*1 U*	*0.2972 B*
Cobalt, Dissolved	µg/L	6		**1.306**	**1.138**	**1.048**	**1.231**
Copper, Dissolved	µg/L	1,300		**0.8792 J**	**0.869 J**	**0.7746 J**	**0.5482 J**
Iron, Dissolved	µg/L	14,000	1,000	**89.1**	**78**	**79**	**89.6**
Manganese, Dissolved	µg/L	430		**196.4**	**228.5**	**215.2**	**230.2**
Nickel, Dissolved	µg/L	390	52	**3.804**	**3.3**	**3.247**	**3.594**
Thallium, Dissolved	µg/L	2		*1 U*	*1 U*	*1 U*	*0.1848 B*
Vanadium, Dissolved	µg/L	86		**4.446 J**	**4.004 J**	**3.64 J**	**4.021 J**
Zinc, Dissolved	µg/L	6,000	120	**5.67 J**	**4.701 J**	**4.888 J**	**4.134 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

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 A16
Summary of Organic Detections in Sediemnt

Parameter	Units	PAL	BTAG Freshwater	A16-001-SD	A16-002-SD	A16-003-SD	A16-004-SD	A16-005-SD	A16-006-SD	A16-007-SD
Volatile Organic Compounds										
Methyl Acetate	mg/kg	1,200,000		**1.3 J**	**1.6 J+**	**2.4 J**	**1.7 J**	**1.7 J**	**1.5 J**	**1.3 J**
Semi-Volatile Organic Compounds^										
Acenaphthene	mg/kg	45,000	0.0067	*0.12 UJ*	*0.14 UJ*	**0.068 J**	*0.13 UJ*	*0.12 UJ*	*0.13 UJ*	**0.22 J**
Acenaphthylene	mg/kg	45,000	0.0059	**0.034 J**	**0.032 J**	*0.12 UJ*	**0.035 J**	**0.044 J**	**0.035 J**	**0.044 J**
Anthracene	mg/kg	230,000	0.0572	*0.12 UJ*	**0.031 J**	*0.12 UJ*	**0.035 J**	**0.05 J**	**0.034 J**	**0.28 J**
Benz[a]anthracene	mg/kg	21	0.108	*0.11 B*	**0.14 J**	**0.27 J**	*0.12 B*	**0.22 J**	**0.14 J**	**0.54 J**
Benzo[a]pyrene	mg/kg	2.1	0.15	*0.12 UJ*	**0.15 J**	*0.12 UJ*	*0.13 UJ*	**0.24 J**	**0.16 J**	*0.089 UJ*
Benzo[b]fluoranthene	mg/kg	21	0.0272	**0.14 J**	**0.2 J**	*0.12 UJ*	**0.2 J**	**0.31 J**	**0.22 J**	*0.089 UJ*
Benzo[g,h,i]perylene	mg/kg		0.17	*0.12 UJ*	*0.14 UJ*	**0.13 J**	*0.13 UJ*	*0.12 UJ*	*0.13 UJ*	**0.1 J**
Benzo[k]fluoranthene	mg/kg	210	0.24	*0.12 UJ*	**0.064 J**	*0.12 UJ*	*0.13 UJ*	*0.12 UJ*	**0.068 J**	*0.089 UJ*
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.18	**2.9 J**	*3.5 UJ*	**5.7 J**	*3.2 UJ*	*3.1 UJ*	*3.2 UJ*	*2.2 UJ*
Chrysene	mg/kg	2,100	0.166	**0.14 J**	**0.14 J**	**0.54 J**	**0.15 J**	**0.22 J**	**0.16 J**	**1.3 J**
Dibenz[a,h]anthracene	mg/kg	2.1	0.033	**0.019 J**	*0.14 UJ*	*0.12 UJ*	*0.13 UJ*	*0.12 UJ*	*0.13 UJ*	*0.089 UJ*
Fluoranthene	mg/kg	30,000	0.423	*0.12 UJ*	**0.24 J**	**0.58 J**	*0.13 UJ*	*0.12 UJ*	**0.26 J**	**1.3 J**
Fluorene	mg/kg	30,000	0.0774	*0.12 UJ*	*0.14 UJ*	**0.1 J**	**0.015 J**	**0.017 J**	*0.13 UJ*	**0.29 J**
Indeno[1,2,3-c,d]pyrene	mg/kg	21	0.017	*0.12 UJ*	*0.14 UJ*	*0.12 UJ*	*0.13 UJ*	*0.12 UJ*	*0.13 UJ*	**0.12 J**
Naphthalene	mg/kg	8.6	0.176	*0.12 UJ*	*0.14 UJ*	*0.029 B*	*0.13 UJ*	*0.024 B*	*0.13 UJ*	*0.024 B*
Phenanthrene	mg/kg		0.204	*0.12 UJ*	*0.07 B*	*0.12 UJ*	*0.061 B*	**0.12 J**	*0.08 B*	**0.46 J**
Pyrene	mg/kg	23,000	0.195	**0.19 J**	**0.22 J**	**0.52 J**	**0.21 J**	**0.34 J**	**0.23 J**	**0.9 J**
PCBs										
Aroclor 1248	mg/kg	0.94		**0.198 J**	**0.18 J**	**2.09 J**	**0.0982 J**	**0.139 J**	**0.133 J**	**1.62 J**
Aroclor 1254	mg/kg	0.97		**0.206 J**	**0.25 J**	**1.15 J**	**0.105 J**	**0.145 J**	**0.138 J**	*0.146 UJ*
Aroclor 1260	mg/kg	0.99		**0.105 J**	**0.0941 J**	**0.335 J**	**0.0601 J**	**0.0898 J**	**0.104 J**	**0.287 J**
PCBs (total)	mg/kg	0.97	0.0598	**0.509 J**	**0.524 J**	**3.58 J**	**0.263 J**	**0.374 J**	**0.375 J**	**1.91 J**
TPH/Oil & Grease										
Diesel Range Organics	mg/kg	6,200		**3,600 J**	**1,300 J**	**11,000 J**	**1,100 J**	**1,400 J**	**970 J**	**36,000 J**
Gasoline Range Organics	mg/kg	6,200		*5.1 B*	*6.1 B*	*7.3 B*	*5.5 B*	*5.5 B*	*6.4 B*	*5.9 B*
Oil & Grease	mg/kg	6,200		**41,700 J**	**31,000 J**	**111,000 J**	**18,000 J**	**38,600 J**	**19,800 J**	**171,000 J**

Detections in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
Value in exceedance of BTAG Freshwater Sediment Screening Level
All data 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.
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.
J+: The positive result reported for this analyte is a quantitative estimate, but may be biased high.
B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank.

Table 13 - Parcel A16
Summary of Inorganic Detections in Sediemnt

Parameter	Units	PAL	BTAG Freshwater	A16-001-SD	A16-002-SD	A16-003-SD	A16-004-SD	A16-005-SD	A16-006-SD	A16-007-SD
Metal										
Aluminum	mg/kg	1,100,000		**12,800 J**	**13,600 J**	**9,730 J**	**14,000 J**	**12,100 J**	**15,900 J**	**7,780 J**
Antimony	mg/kg	470	2	**3.2 J**	*27 UJ*	**2.66 J**	**2.22 J**	**3.1 J**	**2.33 J**	*18.3 UJ*
Arsenic	mg/kg	3	9.8	**10.6 J**	**7.64 J**	**16.4 J**	**8.95 J**	**10.2 J**	**8.04 J**	**37.8 J**
Barium	mg/kg	220,000		**149 J**	**113 J**	**186 J**	**122 J**	**123 J**	**144 J**	**146 J**
Beryllium	mg/kg	2,300		**1.18 J**	**1.3 J**	**1 J**	**1.28 J**	**1.24 J**	**1.56 J**	**1.24 J**
Cadmium	mg/kg	100	0.99	**4.42 J**	**3.49 J**	**5.19 J**	**3.66 J**	**3.62 J**	**3.86 J**	**5.65 J**
Chromium	mg/kg	1,800,000	43.4	**196 J**	**129 J**	**270 J**	**148 J**	**147 J**	**149 J**	**354 J**
Chromium VI	mg/kg	6.3		*5.3 UJ*	*5.71 UJ*	*5.13 UJ*	*5.23 UJ*	*5.16 UJ*	*5.52 UJ*	**1.26 J-**
Cobalt	mg/kg	350	50	**24.5 J**	**30.2 J**	**27.3 J**	**28.4 J**	**31.8 J**	**40.3 J**	**73.6 J**
Copper	mg/kg	47,000	31.6	**216 J**	**145 J**	**256 J**	**157 J**	**156 J**	**161 J**	**489 J**
Iron	mg/kg	820,000	20,000	**72,600 J**	**64,500 J**	**87,800 J**	**70,800 J**	**69,200 J**	**74,700 J**	**152,000 J**
Lead	mg/kg	800	35.8	**193 J**	**144 J**	**203 J**	**154 J**	**162 J**	**163 J**	**224 J**
Manganese	mg/kg	26,000	460	**1,220 J**	**1,940 J**	**1,240 J**	**1,730 J**	**1,370 J**	**2,200 J**	**827 J**
Mercury	mg/kg	350	0.18	**1.5 J**	**1.84 J**	**1.4 J**	**1.86 J**	**1.97 J**	**2.16 J**	**1.21 J**
Nickel	mg/kg	22,000	22.7	**64 J**	**44.8 J**	**84 J**	**48 J**	**51.1 J**	**53.6 J**	**120 J**
Selenium	mg/kg	5,800	2	**5.74 J**	**4.34 J**	**5.24 J**	**5.13 J**	**5.78 J**	**5.84 J**	**5.31 J**
Silver	mg/kg	5,800	1	**4.67 J**	**1.76 J**	**4.84 J**	**2.11 J**	**2.52 J**	**2.03 J**	**4.05 J**
Thallium	mg/kg	12		**2.41 J**	**2.17 J**	**2.77 J**	**2.57 J**	**2.44 J**	**2.76 J**	**2.78 J**
Vanadium	mg/kg	5,800		**231 J**	**167 J**	**244 J**	**215 J**	**252 J**	**220 J**	**311 J**
Zinc	mg/kg	350,000	121	**1,260 J**	**1,120 J**	**1,200 J**	**1,220 J**	**1,180 J**	**1,320 J**	**2,950 J**

Detections in bold
Values in red indicate an exceedance of the Project Action Limit (PAL)
Value in exceedance of BTAG Freshwater Sediment Screening Level
All data validated
U: This analyte was not detected in the sample. The numeric value repesents 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.
J-: The positive result reported for this analyte is a quantitative estimate, but may be biased low.

Table 14 - Parcel A16
Rejected Analytical Results

Sample ID	Parameter	Result (mg/kg)	PAL (mg/kg)	Exceeds PAL?
A16-002-SB-3	2,3,4,6-Tetrachlorophenol	0.19	25,000	no
	2,4,5-Trichlorophenol	0.19	82,000	no
	2,4,6-Trichlorophenol	0.11	210	no
	2,4-Dichlorophenol	0.17	2,500	no
	2,4-Dimethylphenol	0.19	16,000	no
	2,4-Dinitrophenol	0.9	1,600	no
	2-Chlorophenol	0.19	5,800	no
	2-Methylphenol	0.19	41,000	no
	2-Nitrophenol	0.4		no
	3-Methylphenol/4-Methylphenol	0.27	41,000	no
	4,6-Dinitro-o-cresol	0.49		no
	4-Nitrophenol	0.26		no
	p-Chloro-m-cresol	0.19		no
	Pentachlorophenol	0.15	4	no
	Phenol	0.19	250,000	no
A16-004-SB-8	2,3,4,6-Tetrachlorophenol	0.18	25,000	no
	2,4,5-Trichlorophenol	0.18	82,000	no
	2,4,6-Trichlorophenol	0.11	210	no
	2,4-Dichlorophenol	0.16	2,500	no
	2,4-Dimethylphenol	0.18	16,000	no
	2,4-Dinitrophenol	0.85	1,600	no
	2-Chlorophenol	0.18	5,800	no
	2-Methylphenol	0.18	41,000	no
	2-Nitrophenol	0.38		no
	3-Methylphenol/4-Methylphenol	0.26	41,000	no
	4,6-Dinitro-o-cresol	0.46		no
	4-Nitrophenol	0.25		no
	p-Chloro-m-cresol	0.18		no
	Pentachlorophenol	0.14	4	no
	Phenol	0.18	250,000	no

Note: There were no rejected results for sediment sample, surface water, or groundwater sample results.

APPENDIX A

Parcel A16 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
Parcel A16 Coverage		N/A	Investigate potential impacts related to unknown historical activities.	7	A16-001 through A16-007	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:	7				

Soil Borings Sampling Density Requirements (from **Worksheet 17 - Sampling Design and Rationale**)
No Engineered Barrier (1-15 acres): 1 boring per acre with no less than 3 borings.
Engineered Barrier (N/A)
No Engineered Barrier (7.0 acres) = **7 borings required, 7 completed**
Reservoir (11.0 acres)
Building Footprints (0 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 A16 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
Parcel A16 Coverage		N/A	N/A	3	A16-001, A16-003 and A16-007	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, PAHs, Metals (dissolved), Cyanide (total/available), O&G, DRO/GRO
Existing Well SG06-PPM004		N/A	Refer to Well Inspection Form (**Appendix B**)	1	SG06-PPM004	15 feet bgs	5 ft to 15 ft bgs	VOC, SVOC, PAHs, Metals (total/dissolved), Cyanide (total/available), O&G, DRO/GRO
			Total:	4				

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 A16 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	Pond Depth	Sample Depth	Analytical Parameters: Sediment Samples
Historic Effluent Locations	N/A	Aerials, Storm Drain Utility Drawing	Investigate potential impacts in the vicinity of historic effluent locations	2	A16-003-SD and A16-007-SD	Assumed <10'	0-6" below pond bed	VOC^, SVOC, PAHs, Metals, DRO/GRO, O&G, PCBs
Parcel A16 Coverage	N/A	N/A	Investigate potential impacts in Humphrey Creek Pond sediment.	5	A16-001-SD, A16-002-SD, A16-004-SD, A16-005-SD, and A16-006-SD	Assumed <10'	0-6" below pond bed	VOC^, SVOC, PAHs, Metals, DRO/GRO, O&G, PCBs
			Total:	7				

Total area of Pond: 11.0 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 A16 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	Pond Depth	Sample Depth	Analytical Parameters: Surface Water Samples
Historic Effluent Locations	N/A	Aerials, Storm Drain Utility Drawing	Investigate potential impacts in the vicinity of historic effluent locations	2	A16-003-SW and A16-007-SW	Assumed <10'	Middle of water column	VOC, SVOC, PAHs, Metals (dissolved), Cyanide (total/available), O&G, DRO/GRO
Parcel A16 Coverage	N/A	N/A	Investigate potential impacts in Humphrey Creek Pond surface water.	2	A16-002-SW and A16-006-SW (colocated with sediment locations)	Assumed <10'	Middle of water column	VOC, SVOC, PAHs, Metals (dissolved), Cyanide (total/available), O&G, DRO/GRO
			Total:	4				

Total area of Pond: 11.0 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: A16-001-SB/PZ

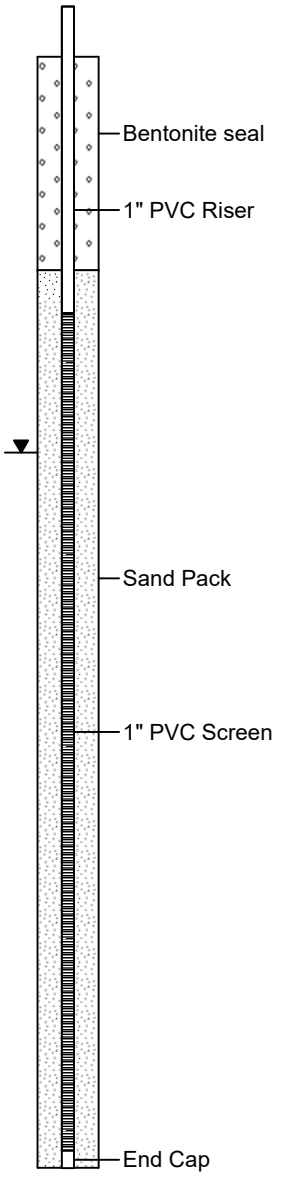
(page 1 of 1)

Client	: Tradepoint Atlantic
ARM Project No.	: 21010116
Project Description	: A16 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Don Marchese
Drilling Equipment	: Geoprobe 7822DT

Soil Boring Installation Date	: 12/20/22
Piezometer Installation Date	: 12/20/22
Casing/Riser/Screen Type	: PVC
Borehole Diameter	: 2.25"
Riser/Screen Diameter	: 1"
0-Hr DTW	: 12.40' TOC
48-Hr DTW	: 6.83' TOC

No LNAPL or DNAPL detected at 0 or 48 hours

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION
0				
1		1.3	A16-001-SB-2	(0-0.3') TOP SOIL Brown silt with some sand, organic matter (roots)
2	60	1.1 0.1	A16-001-SB-3	(0.3-2.9') FILL Light brown to black fine to coarse silty SAND and GRAVEL (slag), loose, no cohesion, no plasticity (DAMP)
3				(2.9-5') No Recovery
4				
5		0.2		(5-5.1') FILL Brown GRAVEL and fine to coarse grained silty SAND, loose, no cohesion, no plasticity (WET)
6		0.3		(5.1-10') Gray to light brown SILT Trace very fine to fine grained sand, soft to very stiff, low cohesion, no plasticity (WET)
7	95	0.9		
8		1.0		
9		0.5		
10		1.1		(10-12.1') Very light brown SILT Trace very fine to fine grained sand, soft to very stiff, low cohesion, no plasticity (WET)
11	85	0.5		
12		0.3		(12.1-13') Very light brown silty fine grained SAND Moderately dense, low cohesion, no plasticity (WET)
13				End of Boring
14				



REMARKS

Groundwater at 5' bgs.

Total Borehole Depth: 13' bgs. Reached planned depth of piezometer.
TOC: Top of PVC Casing
bgs: Below ground surface

Riser Stickup: 2.2'
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: A16-002-SB

(page 1 of 1)

Client	: Tradepoint Atlantic
ARM Project No.	: 21010116
Project Description	: A16 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Kevin
Drilling Equipment	: Geoprobe 7822DT

Date	: 11/7/22
Weather:	: Sunny, 60's-70's
Total Depth (ft):	: 10' bgs
Depth to Water (0hr.):	: 6' bgs

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	REMARKS
0					
1	85	0.3	A16-002-SB-2	(0-5') FILL Gray SAND and GRAVEL (slag), fine grained to coarse, with intermittent silty layers, moderately dense, no plasticity, no cohesion, lower portion of core shows increased weathering (DAMP)	
2		1.3			
3		110.1	A16-002-SB-3		
4		0.6			
5	85	0.4		(5-9.2') FILL Gray fine SAND to very coarse GRAVEL (slag), with silty layers, moderately dense, no plasticity, no cohesion (WET)	
6		0.0			
7		0.1			
8		0.0			
9				(9.2-10') No Recovery	
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: A16-003-SB/PZ

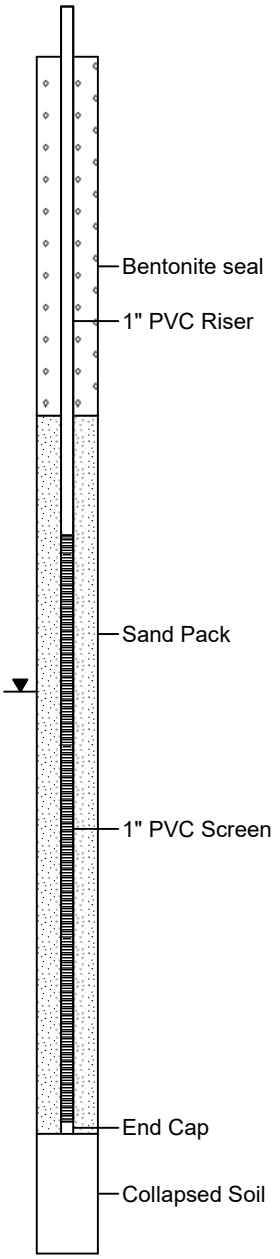
(page 1 of 1)

Client	: Tradepoint Atlantic
ARM Project No.	: 21010116
Project Description	: A16 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Kevin
Drilling Equipment	: Geoprobe 7822DT

Soil Boring Installation Date	: 11/7/22
Piezometer Installation Date	: 11/7/22
Casing/Riser/Screen Type	: PVC
Borehole Diameter	: 2.25"
Riser/Screen Diameter	: 1"
0-Hr DTW	: 12.26' TOC
48-Hr DTW	: 12.21' TOC

No LNAPL or DNAPL detected at 0 or 48 hours

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	REMARKS
0				(0-0.1') TOP SOIL	
1	80	3.4	A16-003-SB-2	(0.1-1.2') FILL Red and black silty SAND (slag), with trace amounts of gravel, loose, no plasticity, no cohesion (DAMP)	
2		3.8			
3		7.7		(1.2-5') FILL Gray fine SAND to very coarse GRAVEL (slag), loose, no plasticity, no cohesion (DAMP)	
4		0.1			
5	65	0.7	A16-003-SB-6	(5-10') FILL Gray SAND and GRAVEL (slag), mixed with black or light brown clay, and trace organic fibrous material at the bottom of the section, fine sand to very coarse gravel, no plasticity, low cohesion (DAMP)	
6					
7		0.3			
8					
9		0.4	A16-003-SB-10		
10	55	0.0		(10-11') Brown and gray CLAY Stiff, plastic, cohesive (DAMP)	
11		0.0		(11-12.7') Brown silty CLAY to SILT Trace fine to very fine sand and silt, dense to moderately dense, low plasticity, no cohesion (WET)	Wet at 11.5' bgs.
12		0.0			
13				(12.7-15') No Recovery	
14					
15	90			(15-20') Brown very fine to fine grained silty SAND Moderately dense, no plasticity, no cohesion (WET)	
16					
17					
18					
19					
20					



Total Borehole Depth: 20' bgs. Maximum final depth per work plan.
TOC: Top of PVC Casing
bgs: Below ground surface

Riser Stickup: 1.6'
Riser: 0 - 8' bgs
Screen: 8 - 18' bgs [Slot Size: 0.010"]
Sand Pack: 6 - 18' bgs [Grain Size: WG #2]
Bentonite Seal: 0 - 6' bgs [Grain Size: 3/8" chips/granular (30-50 mesh)]

ARM Group LLC
Engineers and Scientists

Boring ID: A16-004-SB

(page 1 of 1)

Client	: Tradepoint Atlantic
ARM Project No.	: 21010116
Project Description	: A16 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Kevin
Drilling Equipment	: Geoprobe 7822DT

Date	: 11/7/22
Weather:	: Sunny, 60's-70's
Total Depth (ft):	: 20' bgs
Depth to Water (0hr.):	: 11.5' bgs

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	REMARKS
0–5	75	0.0, 1.3, 1.0, 0.3	A16-004-SB-2	(0-3.8') FILL Black fine to coarse GRAVEL (slag), with layers of dark red and grey sand, loose, no plastcity, no cohesion (DAMP)	
3.8–5				(3.8-5') No Recovery	
5–10	100	0.2, 0.8, 6.9, 5.2, 2.2	A16-004-SB-8, A16-004-SB-10	(5-5.6') FILL Black SAND and GRAVEL (slag) and brown SILT, fine to coarse grained, moderately dense, no plastcity, no cohesion (DAMP) (5.6-10') FILL Black fine SAND to coarse GRAVEL (slag), intermittent layers of red and grey sediment, moderately dense, no plastcity, no cohesion (DAMP)	
10–15	20	0.9		(10-11.1') FILL Black SAND and GRAVEL (slag) and brown SILT, loose, no plasticity, no cohesion (DAMP) (11.1-15') No Recovery	Low recovery due to coarse gravel blocking/ impacting end of narrower casing.
15–18	75			(15-17.3') Light gray CLAY Trace fine grained sand, stiff, plastic, cohesive (WET) (17.3-18.7') Light gray and light brown fine grained SAND Moderately dense, trace gravel, no plasticity, no cohesion (WET)	
18.7–20				(18.7-20') No Recovery	

Total Borehole Depth: 20' bgs. Maximum final depth per work plan.
bgs: Below ground surface

ARM Group LLC
Engineers and Scientists

Boring ID: A16-005-SB

(page 1 of 1)

Client	: Tradepoint Atlantic
ARM Project No.	: 21010116
Project Description	: A16 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Kevin
Drilling Equipment	: Geoprobe 7822DT

Date	: 11/7/22
Weather:	: Sunny, 60's-70's
Total Depth (ft):	: 10' bgs
Depth to Water (0hr.):	: 8.5' bgs

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	REMARKS
0				(0-0.3') TOP SOIL	
1		1.9		(0.3-2.6') FILL Dark brown SILT, some gravel (slag), fine sand to gravel, organic matter (roots) throughout, stiff, no plasticity, low cohesion (DAMP)	
2		1.5	A16-005-SB-2		
3	90	5.3		(2.6-5') FILL Gray SAND and GRAVEL (slag), and light brown to brown very fine grained silty sand, loose to very dense, no plasticity, low cohesion (DAMP)	
4		2.5			
5		0.4			
6		4.8		(5-6.8') FILL Gray fine SAND to very coarse GRAVEL (slag), some brown silt, moderately dense, no plasticity, no cohesion (DAMP)	
7		16.3	A16-005-SB-7		
8	65	0.7		(6.8-8.2') FILL Drak brown to black fine SAND to very coarse GRAVEL (slag), trace brown silt, moderately dense, no plasticity, no cohesion (DAMP/WET)	Wet at 8.5' bgs.
9				(8.2-10') No Recovery	
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: A16-006-SB

(page 1 of 1)

Client	: Tradepoint Atlantic
ARM Project No.	: 21010116
Project Description	: A16 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Kevin
Drilling Equipment	: Geoprobe 7822DT

Date	: 11/7/22
Weather:	: Sunny, 60's-70's
Total Depth (ft):	: 10' bgs
Depth to Water (0hr.):	: 5' bgs

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	REMARKS
0					
1	80	3.4	A16-006-SB-2	(0-4') FILL Gray SILT to very coarse SAND (slag), trace fine to coarse gravel (slag), moderately dense, no plastcity, no cohesion (WET)	
2		6.7			
3		4.2	A16-006-SB-3		
4		0.3			
5				(4-5') No Recovery	
6	65			(5-5.5') FILL Brown silty fine grained SAND and GRAVEL, moderately dense, no plastcity, no cohesion (WET) (5.5-8.7') FILL Gray fine SAND to very coarse GRAVEL (slag), trace light brown silt, loose, no plasticity, no cohesion (WET)	Wet at 5' bgs.
7					
8					
9				(8.7-10') No Recovery	
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: A16-007-SB/PZ

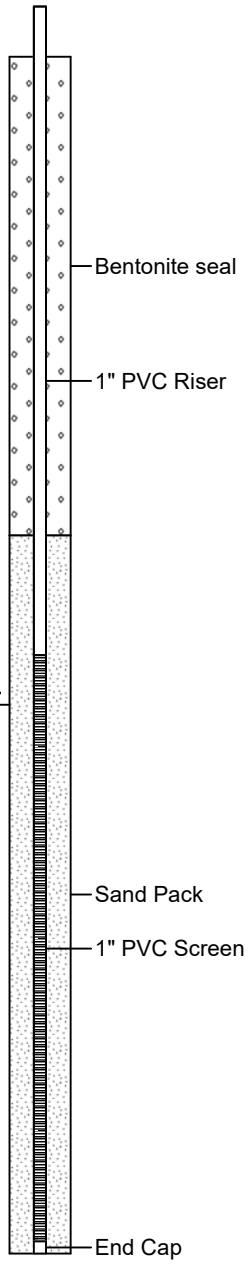
(page 1 of 1)

Client	: Tradepoint Atlantic
ARM Project No.	: 21010116
Project Description	: A16 Phase II
Site Location	: Sparrows Point, MD
ARM Representative	: L. Parker
Drilling Company	: Green Services, Inc.
Driller	: Kevin
Drilling Equipment	: Geoprobe 7822DT

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	: 13.07' TOC
48-Hr DTW	: 13.03' TOC

No LNAPL or DNAPL detected at 0 or 48 hours

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION
0		0.0		
1		0.0	A16-007-SB-2	(0-7.8') FILL Light brown mottled SILT, with trace gray slag, very stiff, no plasticity, low cohesion (DAMP)
2	100	0.0		
3		0.0		
4		0.0		
5		0.0		
6		0.0		
7		0.1		
8	100	0.3		
9		0.4	A16-007-SB-9	(7.8-9.4') FILL Gray fine SAND to very coarse GRAVEL (slag), with trace brown silt, moderately dense, no cohesion, no plasticity (DAMP)
10		0.1	A16-007-SB-10	(9.4-10') Light gray to light mottled brown CLAY Trace slag gravel, stiff, plastic, cohesive (DAMP)
11		0.4		(10-11') Light brown to black SILT Trace very fine to fine grained SAND, very stiff, no plasticity, low cohesion (DAMP)
12		0.7		
13	90	0.3		(11-14.2') Light brown CLAY Alternating layers of soft to very stiff, plastic, cohesive (DAMP)
14		0.5		
15		0.0		(14.2-15') Light brown silty fine grained SAND Trace clay and gravel, dense, no plasticity, no cohesion (DAMP)
16		0.0		(15-18.8') Light brown silty fine grained SAND Trace gray clay and gravel, moderately dense, no plasticity, no cohesion (WET)
17		0.0		
18	75	0.0		
19		0.0		(18.8-20') No Recovery
20				



REMARKS

Water observed at 12' bgs according to drillers.

Total Borehole Depth: 20' bgs. Maximum final depth per work plan.
TOC: Top of PVC Casing
bgs: Below ground surface

Riser Stickup: 2.2'
Riser: 0 - 10' bgs
Screen: 10 - 20' bgs [Slot Size: 0.010"]
Sand Pack: 8 - 20' bgs [Grain Size: WG #2]
Bentonite Seal: 0 - 8' bgs [Grain Size: 3/8" chips/granular (30-50 mesh)]

APPENDIX C

Parcel A16 - PID Calibration Log

PROJECT NAME: Area A, Parcel A16 Phase II				**SAMPLER NAME:** J. Barna			
PROJECT NUMBER: 2101016				**DATE: Novemeber 2022**		**PAGE** 1 of 1	
DATE/TIME	SAMPLER INITIALS	PID SERIAL #	FRESH AIR CAL	STANDARD	STANDARD CONCENTRATION	METER READING	COMMENTS
11/7/2022	JMB	21951	0.0	Isobutylene	100 ppm	101.4	-
11/8/2022	JMB	21951	0.0	Isobutylene	100 ppm	100.1	-

APPENDIX D

Low Flow Sampling Purge Log

ARM Group Enterprises LLC
Engineers and Scientists

Well Number:	A16-003-P2	Project Name:	A16 Phase II GW
Well Diameter (in):	1	Project Number:	210101116
Depth to Product (ft):	None	Date:	1/6/22
Depth to Water (ft):	13.97	One Well Volume (gal):	0.24
Product Thickness (ft):	—	Flow Rate (mL/min)	300
Depth to Bottom (ft):	19.89	Length of time Purged (min)	30

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
1055			15.09	5.11	0.467	1.88	127	OK	Cloudy/Tan
1100		13.17	15.14	5.14	0.463	2.75	129	OK	
1105		13.23	14.88	5.15	0.457	2.28	129	OK	
1110		13.24	15.02	5.12	0.455	2.47	130	OK	less Cloudy
1115		13.24	15.00	5.13	0.453	2.72	130	OK	
1120		13.24	15.09	5.11	0.452	2.83	132	OK	

SAMPLE RECORD AND WELL DETAILS

Sample ID	Time Collected
A16-003-P2	1140

Sampling Parameters

Parameter	Collected?	Parameter	Collected?
TCL-VOCs		Dissolved Zn and Cd	
TPH-GRO		BTEX and naphthalene	
TPH-DRO		VOC, SVOC, TAL Metals and mercury, Sulfate, Nitrate, Ammonia, COD, Alkalinity, Chloride, Turbidity, TDS, Specific Conductance	
O&G			
Total Cyanide			
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:

Low Flow Sampling Purge Log

ARM Group Enterprises LLC
Engineers and Scientists

Well Number:	AL6-007-PZ	Project Name:	AL6 Phase II - GI
Well Diameter (in):	1	Project Number:	210101L6
Depth to Product (ft):	—	Date:	11/16/23
Depth to Water (ft):	12.23	One Well Volume (gal):	0.38
Product Thickness (ft):	—	Flow Rate (mL/min)	300
Depth to Bottom (ft):	21.54	Length of time Purged (min)	30

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
1235		↓	13.28	6.53	1.786	2.71	-23	OK	Cloudy
1240		13.59	13.39	6.55	1.698	2.25	-20	OK	
1245		14.50	13.40	6.45	1.636	3.29	0	OK	
1250		15.25	13.37	6.40	1.595	3.94	16	OK	Clear
1255		15.24	13.42	6.37	1.577	4.57	19	48.9	
1300		15.24	13.27	6.25	1.565	5.00	21.2	27.2	
1305		15.24	13.06	6.32	1.532	6.02	27	12.7	
1310		15.24	13.10	6.30	1.517	6.05	29	10.3	#7 turbidity...
1315		↓	13.71	6.29	1.509	6.24	32	9.3	
1320		↓	13.33	6.28	1.508	6.51	31	9.0	✓

SAMPLE RECORD AND WELL DETAILS

Sample ID	Time Collected
AL6-007-PZ	1330

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	X		
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: [signature]

Comments:

Low Flow Sampling Purge Log

ARM Group Enterprises LLC
Engineers and Scientists

Well Number:	SG06-PPM004	Project Name:	AIG- Phase II
Well Diameter (in):	2	Project Number:	210116
Depth to Product (ft):	—	Date:	12/29/22
Depth to Water (ft):	12.95	One Well Volume (gal):	0.11
Product Thickness (ft):	—	Flow Rate (mL/min)	248
Depth to Bottom (ft):	16.94	Length of time Purged (min)	30

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	
1037		12.77	14.10	10.95	0.832	1.31	157	3.80		
1042		12.77	14.69	10.96	0.840	0.94	116	2.84		
1047		12.77	14.72	10.97	0.853	0.86	130	3.49		
1052			14.91	10.99	0.861	0.75	98	3.61	7	
1057			14.57	11.03	0.859	0.65	95	2.62	7	✓
1102			14.54	11.03	0.858	0.61	94	2.50	7	

SAMPLE RECORD AND WELL DETAILS

Sample ID	Time Collected
SG06PPM004	1110

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	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	✓
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: [signature]

Comments:

Low Flow Sampling Purge Log

ARM Group Enterprises LLC
Engineers and Scientists

Well Number: AIG-001-PZ	Project Name: AIG- Phase II GW
Well Diameter (in): 1	Project Number: 21010116
Depth to Product (ft): None	Date: 1/19/23
Depth to Water (ft): 6.98	One Well Volume (gal): 0.33
Product Thickness (ft): —	Flow Rate (mL/min) 200
Depth to Bottom (ft): 15.02	Length of time Purged (min) 15

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
1050	0.4	8.55	13.21	9.29	0.778	8.97	137	OK	
1055	0.66	10.69	13.40	9.55	0.784	7.49	124	OK	FAILED to 100
1100	0.88	11.99	13.41	8.68	0.849	5.34	125	OK	
1105	—						DRY		

SAMPLE RECORD AND WELL DETAILS

Sample ID	Time Collected
AIG-001-PZ	

Sampling Parameters			
Parameter	Collected?	Parameter	Collected?
TCL-VOCs		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	X		
TAL Metals and Mercury **(total)**	X		
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	
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: RAN DRY @ 1105

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 1/6/23
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		1.425	
Specific Conductance Standard #2	-		-	
pH (7)	7.00		7.09	
pH (4)	4.00		4.24	
pH(10)	10.00		10.21	
ORP Zobel Solution	240.0		239.4	
Dissolved Oxygen 100% water saturated air mg/L	8.38¥		8.55¥	
Dissolved Oxygen Zero Dissolved Oxygen Solution mg/L	0.0¥		0.61¥	
Barometric Pressure inches Hg	30.02			
Turbidity #1 (0 NTU)	0.00		-0.05¥	
Turbidity #2 (1 NTU)	1.00		0.21¥	
Turbidity #3 (10 NTU)	10.00		11.98¥	

¥ 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.

APPENDIX E

QA/QC Tracking Log

Trip Blank:	Date:	Sample IDs:	
TB wt 1 TB wt 2	11/7/2022	1) A16-004-SB-2 2) A16-004-SB-8 3) A16-004-SB-10 4) A16-003-SB-2 5) A16-003-SB-6 6) A16-003-SB-10	QA/QC for A16 soil samples
		7) A16-002-SB-2 8) A16-002-SB-3	Duplicate: A16-005-SB-2 Date: 11/7/2022
		9) A16-005-SB-2 10) A16-005-SB-7	MS/MSD: A16-007-SB-2 Date: 112/8/2022
		11) A16-006-SB-2 12) A16-006-SB-3	Field Blank: Date: 11/8/2022
TB wt	11/8/2022	13) A16-007-SB-2 14) A16-007-SB-4	Eq. Blank: Date: 11/8/2022
		15) A16-007-SB-10	
	12/20/2022	16) A16-001-SB-2 17) A16-001-SB-3	
		18) 19) 20)	

Trip Blank:	Date:	Sample IDs:	
TB wt 1 TB wt 2 TB wt 3 TB wt 4	1/16/2023	1) A16-007-SW 2) A16-006-SW 3) A16-002-SW 4) A16-003-SW 5) 6)	QA/QC for A16 SW samples
		7) 8)	Duplicate: A16-003-SW Date: 1/16/2023
		9) 10)	MS/MSD: A16-002-SW Date: 1/16/2023
		11) 12)	Field Blank 1/16/2023 Date:
		13) 14)	Eq. Blank: 1/16/2023 Date:
		15) 16) 17) 18) 19) 20)	

Trip Blank:	Date:	Sample IDs:	
TB wt 1	12/29/2022	1) SG06-PPM004	QA/QC for A16 GW samples
TB wt 1	1/6/2023	2) A16-007-PZ	
TB wt 1	1/19/2023	3) A16-003-PZ	
TB wt 1	1/25/2023	4) A16-001-PZ*	
		6)	
		7)	Duplicate: A16-003-PZ
		8)	Date: 1/6/2023
		9)	MS/MSD: A16-007-PZ
		10)	Date: 1/6/2026
		11)	Field Blank 12/29/2023
		12)	Date:
		13)	Eq. Blank: 1/19/2023
		14)	Date:
		15) 16) 17) 18) 19) 20)	

Trip Blank:	Date:	Sample IDs:	
TB wt 1 TB wt 2 TB wt 3	1/16/2023	1) A16-007-SD 2) A16-006-SD 3) A16-005-SD 4) A16-004-SD 5) A16-002-SD 6) A16-003-SD	QA/QC for A16 sediment samples
		7) A16-001-SD	Duplicate: A16-003-SD
		8)	Date: 1/16/2023
		9)	MS/MSD: A16-002-SD
		10)	Date: 1/16/2023
		11)	Field Blank 1/16/2023
		12)	Date:
		13)	Eq. Blank: 1/16/2023
		14)	Date:
		15) 16) 17) 18) 19) 20)	

*A16-001-PZ sample split between 1/19/23 and 1/25/23
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.

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
1,1,1-Trichloroethane	VOC	Soil	mg/kg	2	0	0	2	100%
1,1,2,2-Tetrachloroethane	VOC	Soil	mg/kg	2	0	0	2	100%
1,1,2-Trichloro-1,2,2-Trifluoroethane	VOC	Soil	mg/kg	2	0	0	2	100%
1,1,2-Trichloroethane	VOC	Soil	mg/kg	2	0	0	2	100%
1,1-Biphenyl	SVOC	Soil	mg/kg	10	1	0	10	100%
1,1-Dichloroethane	VOC	Soil	mg/kg	2	0	0	2	100%
1,1-Dichloroethene	VOC	Soil	mg/kg	2	0	0	2	100%
1,2,3-Trichlorobenzene	VOC	Soil	mg/kg	2	0	0	2	100%
1,2,4,5-Tetrachlorobenzene	SVOC	Soil	mg/kg	10	0	0	10	100%
1,2,4-Trichlorobenzene	VOC	Soil	mg/kg	2	0	0	2	100%
1,2-Dibromo-3-chloropropane	VOC	Soil	mg/kg	2	0	0	2	100%
1,2-Dibromoethane	VOC	Soil	mg/kg	2	0	0	2	100%
1,2-Dichlorobenzene	VOC	Soil	mg/kg	2	0	0	2	100%
1,2-Dichloroethane	VOC	Soil	mg/kg	2	0	0	2	100%
1,2-Dichloroethene (Total)	VOC	Soil	mg/kg	2	0	0	2	100%
1,2-Dichloropropane	VOC	Soil	mg/kg	2	0	0	2	100%
1,3-Dichlorobenzene	VOC	Soil	mg/kg	2	0	0	2	100%
1,3-Dichloropropene	VOC	Soil	mg/kg	2	0	0	2	100%
1,4-Dichlorobenzene	VOC	Soil	mg/kg	2	0	0	2	100%
1,4-Dioxane	VOC/SVOC	Soil	mg/kg	12	0	0	12	100%
2,3,4,6-Tetrachlorophenol	SVOC	Soil	mg/kg	10	0	2	8	80%
2,4,5-Trichlorophenol	SVOC	Soil	mg/kg	10	0	2	8	80%
2,4,6-Trichlorophenol	SVOC	Soil	mg/kg	10	0	2	8	80%
2,4-Dichlorophenol	SVOC	Soil	mg/kg	10	0	2	8	80%
2,4-Dimethylphenol	SVOC	Soil	mg/kg	10	0	2	8	80%
2,4-Dinitrophenol	SVOC	Soil	mg/kg	10	0	2	8	80%
2,4-Dinitrotoluene	SVOC	Soil	mg/kg	10	0	0	10	100%
2,6-Dinitrotoluene	SVOC	Soil	mg/kg	10	0	0	10	100%
2-Butanone (MEK)	VOC	Soil	mg/kg	2	0	0	2	100%
2-Chloronaphthalene	SVOC	Soil	mg/kg	10	0	0	10	100%
2-Chlorophenol	SVOC	Soil	mg/kg	10	0	2	8	80%
2-Hexanone	VOC	Soil	mg/kg	2	0	0	2	100%
2-Methylnaphthalene	SVOC	Soil	mg/kg	10	6	0	10	100%
2-Methylphenol	SVOC	Soil	mg/kg	10	0	2	8	80%
2-Nitroaniline	SVOC	Soil	mg/kg	10	0	0	10	100%
2-Nitrophenol	SVOC	Soil	mg/kg	10	0	2	8	80%
3&4-Methylphenol(m&p Cresol)	SVOC	Soil	mg/kg	10	0	2	8	80%
3,3'-Dichlorobenzidine	SVOC	Soil	mg/kg	10	0	0	10	100%
4,6-Dinitro-2-methylphenol	SVOC	Soil	mg/kg	10	0	2	8	80%
4-Bromophenyl phenyl ether	SVOC	Soil	mg/kg	10	0	0	10	100%
4-Chloro-3-methylphenol	SVOC	Soil	mg/kg	10	0	2	8	80%
4-Chloroaniline	SVOC	Soil	mg/kg	10	0	0	10	100%
4-Chlorophenyl phenyl ether	SVOC	Soil	mg/kg	10	0	0	10	100%
4-Methyl-2-pentanone (MIBK)	VOC	Soil	mg/kg	2	0	0	2	100%
4-Nitroaniline	SVOC	Soil	mg/kg	10	0	0	10	100%
4-Nitrophenol	SVOC	Soil	mg/kg	10	0	2	8	80%
Acenaphthene	SVOC	Soil	mg/kg	10	3	0	10	100%
Acenaphthylene	SVOC	Soil	mg/kg	10	5	0	10	100%
Acetone	VOC	Soil	mg/kg	2	0	0	2	100%
Acetophenone	SVOC	Soil	mg/kg	10	0	0	10	100%
Aluminum	Metal	Soil	mg/kg	10	10	0	10	100%
Anthracene	SVOC	Soil	mg/kg	10	8	0	10	100%
Antimony	Metal	Soil	mg/kg	10	10	0	10	100%
Aroclor 1016	PCB	Soil	mg/kg	5	0	0	5	100%
Aroclor 1221	PCB	Soil	mg/kg	5	0	0	5	100%
Aroclor 1232	PCB	Soil	mg/kg	5	0	0	5	100%
Aroclor 1242	PCB	Soil	mg/kg	5	0	0	5	100%
Aroclor 1248	PCB	Soil	mg/kg	5	0	0	5	100%
Aroclor 1254	PCB	Soil	mg/kg	5	3	0	5	100%
Aroclor 1260	PCB	Soil	mg/kg	5	1	0	5	100%
Aroclor 1262	PCB	Soil	mg/kg	5	0	0	5	100%
Aroclor 1268	PCB	Soil	mg/kg	5	2	0	5	100%
Arsenic	Metal	Soil	mg/kg	10	5	0	10	100%
Barium	Metal	Soil	mg/kg	10	10	0	10	100%
Benz[a]anthracene	SVOC	Soil	mg/kg	10	10	0	10	100%
Benzaldehyde	SVOC	Soil	mg/kg	10	2	0	10	100%
Benzene	VOC	Soil	mg/kg	2	1	0	2	100%
Benzo[a]pyrene	SVOC	Soil	mg/kg	10	9	0	10	100%
Benzo[b]fluoranthene	SVOC	Soil	mg/kg	10	10	0	10	100%
Benzo[g,h,i]perylene	SVOC	Soil	mg/kg	10	9	0	10	100%
Benzo[k]fluoranthene	SVOC	Soil	mg/kg	10	7	0	10	100%
Beryllium	Metal	Soil	mg/kg	10	10	0	10	100%
bis(2-chloroethoxy)methane	SVOC	Soil	mg/kg	10	0	0	10	100%
bis(2-Chloroisopropyl)ether	SVOC	Soil	mg/kg	10	0	0	10	100%
bis(2-Ethylhexyl)phthalate	SVOC	Soil	mg/kg	10	0	0	10	100%
Bromodichloromethane	VOC	Soil	mg/kg	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
Bromoform	VOC	Soil	mg/kg	2	0	0	2	100%
Bromomethane	VOC	Soil	mg/kg	2	0	0	2	100%
Butylbenzylphthalate	SVOC	Soil	mg/kg	10	0	0	10	100%
Cadmium	Metal	Soil	mg/kg	10	10	0	10	100%
Calcium	Metal	Soil	mg/kg	10	10	0	10	100%
Caprolactam	SVOC	Soil	mg/kg	10	0	0	10	100%
Carbazole	SVOC	Soil	mg/kg	10	0	0	10	100%
Carbon disulfide	VOC	Soil	mg/kg	2	0	0	2	100%
Carbon tetrachloride	VOC	Soil	mg/kg	2	0	0	2	100%
Chlorobenzene	VOC	Soil	mg/kg	2	0	0	2	100%
Chloroethane	VOC	Soil	mg/kg	2	0	0	2	100%
Chloroform	VOC	Soil	mg/kg	2	0	0	2	100%
Chloromethane	VOC	Soil	mg/kg	2	0	0	2	100%
Chromium	Metal	Soil	mg/kg	10	10	0	10	100%
Chromium VI	Metal	Soil	mg/kg	10	5	0	10	100%
Chrysene	SVOC	Soil	mg/kg	10	9	0	10	100%
cis-1,2-Dichloroethene	VOC	Soil	mg/kg	2	0	0	2	100%
cis-1,3-Dichloropropene	VOC	Soil	mg/kg	2	0	0	2	100%
Cobalt	Metal	Soil	mg/kg	10	10	0	10	100%
Copper	Metal	Soil	mg/kg	10	10	0	10	100%
Cyanide	CN	Soil	mg/kg	10	6	0	10	100%
Cyclohexane	VOC	Soil	mg/kg	2	0	0	2	100%
Dibenz[a,h]anthracene	SVOC	Soil	mg/kg	10	7	0	10	100%
Dibromochloromethane	VOC	Soil	mg/kg	2	0	0	2	100%
Dichlorodifluoromethane	VOC	Soil	mg/kg	2	0	0	2	100%
Diesel Range Organics	TPH	Soil	mg/kg	10	9	0	10	100%
Diethylphthalate	SVOC	Soil	mg/kg	10	0	0	10	100%
Dimethylphthalate	SVOC	Soil	mg/kg	10	0	0	10	100%
Di-n-butylphthalate	SVOC	Soil	mg/kg	10	0	0	10	100%
Di-n-ocytlphthalate	SVOC	Soil	mg/kg	10	0	0	10	100%
Ethylbenzene	VOC	Soil	mg/kg	2	2	0	2	100%
Fluoranthene	SVOC	Soil	mg/kg	10	10	0	10	100%
Fluorene	SVOC	Soil	mg/kg	10	3	0	10	100%
Gasoline Range Organics	TPH	Soil	mg/kg	10	0	0	10	100%
Hexachlorobenzene	SVOC	Soil	mg/kg	10	0	0	10	100%
Hexachlorobutadiene	SVOC	Soil	mg/kg	10	0	0	10	100%
Hexachlorocyclopentadiene	SVOC	Soil	mg/kg	10	0	0	10	100%
Hexachloroethane	SVOC	Soil	mg/kg	10	0	0	10	100%
Indeno[1,2,3-c,d]pyrene	SVOC	Soil	mg/kg	10	9	0	10	100%
Iron	Metal	Soil	mg/kg	10	10	0	10	100%
Isophorone	SVOC	Soil	mg/kg	10	0	0	10	100%
Isopropylbenzene	VOC	Soil	mg/kg	2	2	0	2	100%
Lead	Metal	Soil	mg/kg	10	10	0	10	100%
Magnesium	Metal	Soil	mg/kg	10	10	0	10	100%
Manganese	Metal	Soil	mg/kg	10	10	0	10	100%
Mercury	Metal	Soil	mg/kg	10	2	0	10	100%
Methyl Acetate	VOC	Soil	mg/kg	2	0	0	2	100%
Methyl tert-butyl ether (MTBE)	VOC	Soil	mg/kg	2	0	0	2	100%
Methylene Chloride	VOC	Soil	mg/kg	2	0	0	2	100%
Naphthalene	SVOC	Soil	mg/kg	10	8	0	10	100%
Nickel	Metal	Soil	mg/kg	10	10	0	10	100%
Nitrobenzene	SVOC	Soil	mg/kg	10	0	0	10	100%
N-Nitrosodiphenylamine	SVOC	Soil	mg/kg	10	0	0	10	100%
Oil and Grease	TPH	Soil	mg/kg	10	8	0	10	100%
PCBs (total)	PCB	Soil	mg/kg	5	4	0	5	100%
Pentachlorophenol	SVOC	Soil	mg/kg	10	0	2	8	80%
Phenanthrene	SVOC	Soil	mg/kg	10	8	0	10	100%
Phenol	SVOC	Soil	mg/kg	10	0	2	8	80%
Potassium	Metal	Soil	mg/kg	10	10	0	10	100%
Pyrene	SVOC	Soil	mg/kg	10	10	0	10	100%
Selenium	Metal	Soil	mg/kg	10	5	0	10	100%
Silver	Metal	Soil	mg/kg	10	0	0	10	100%
Sodium	Metal	Soil	mg/kg	10	10	0	10	100%
Styrene	VOC	Soil	mg/kg	2	0	0	2	100%
Tetrachloroethene	VOC	Soil	mg/kg	2	0	0	2	100%
Thallium	Metal	Soil	mg/kg	10	10	0	10	100%
Toluene	VOC	Soil	mg/kg	2	0	0	2	100%
trans-1,2-Dichloroethene	VOC	Soil	mg/kg	2	0	0	2	100%
trans-1,3-Dichloropropene	VOC	Soil	mg/kg	2	0	0	2	100%
Trichloroethene	VOC	Soil	mg/kg	2	0	0	2	100%
Trichlorofluoromethane	VOC	Soil	mg/kg	2	0	0	2	100%
Vanadium	Metal	Soil	mg/kg	10	10	0	10	100%
Vinyl chloride	VOC	Soil	mg/kg	2	0	0	2	100%
Xylenes	VOC	Soil	mg/kg	2	0	0	2	100%
Zinc	Metal	Soil	mg/kg	10	10	0	10	100%
1,1,1-Trichloroethane	VOC	Sediment	mg/kg	7	0	0	7	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
1,1,2,2-Tetrachloroethane	VOC	Sediment	mg/kg	7	0	0	7	100%
1,1,2-Trichloro-1,2,2-Trifluoroethane	VOC	Sediment	mg/kg	7	0	0	7	100%
1,1,2-Trichloroethane	VOC	Sediment	mg/kg	7	0	0	7	100%
1,1-Biphenyl	SVOC	Sediment	mg/kg	7	0	0	7	100%
1,1-Dichloroethane	VOC	Sediment	mg/kg	7	0	0	7	100%
1,1-Dichloroethene	VOC	Sediment	mg/kg	7	0	0	7	100%
1,2,3-Trichlorobenzene	VOC	Sediment	mg/kg	7	0	0	7	100%
1,2,4,5-Tetrachlorobenzene	SVOC	Sediment	mg/kg	7	0	0	7	100%
1,2,4-Trichlorobenzene	VOC	Sediment	mg/kg	7	0	0	7	100%
1,2-Dibromo-3-chloropropane	VOC	Sediment	mg/kg	7	0	0	7	100%
1,2-Dibromoethane	VOC	Sediment	mg/kg	7	0	0	7	100%
1,2-Dichlorobenzene	VOC	Sediment	mg/kg	7	0	0	7	100%
1,2-Dichloroethane	VOC	Sediment	mg/kg	7	0	0	7	100%
1,2-Dichloroethene (Total)	VOC	Sediment	mg/kg	7	0	0	7	100%
1,2-Dichloropropane	VOC	Sediment	mg/kg	7	0	0	7	100%
1,3-Dichlorobenzene	VOC	Sediment	mg/kg	7	0	0	7	100%
1,3-Dichloropropene	VOC	Sediment	mg/kg	7	0	0	7	100%
1,4-Dichlorobenzene	VOC	Sediment	mg/kg	7	0	0	7	100%
1,4-Dioxane	VOC/SVOC	Sediment	mg/kg	7	0	0	7	100%
2,3,4,6-Tetrachlorophenol	SVOC	Sediment	mg/kg	7	0	0	7	100%
2,4,5-Trichlorophenol	SVOC	Sediment	mg/kg	7	0	0	7	100%
2,4,6-Trichlorophenol	SVOC	Sediment	mg/kg	7	0	0	7	100%
2,4-Dichlorophenol	SVOC	Sediment	mg/kg	7	0	0	7	100%
2,4-Dimethylphenol	SVOC	Sediment	mg/kg	7	0	0	7	100%
2,4-Dinitrophenol	SVOC	Sediment	mg/kg	7	0	0	7	100%
2,4-Dinitrotoluene	SVOC	Sediment	mg/kg	7	0	0	7	100%
2,6-Dinitrotoluene	SVOC	Sediment	mg/kg	7	0	0	7	100%
2-Butanone (MEK)	VOC	Sediment	mg/kg	7	0	0	7	100%
2-Chloronaphthalene	SVOC	Sediment	mg/kg	7	0	0	7	100%
2-Chlorophenol	SVOC	Sediment	mg/kg	7	0	0	7	100%
2-Hexanone	VOC	Sediment	mg/kg	7	0	0	7	100%
2-Methylnaphthalene	SVOC	Sediment	mg/kg	7	0	0	7	100%
2-Methylphenol	SVOC	Sediment	mg/kg	7	0	0	7	100%
2-Nitroaniline	SVOC	Sediment	mg/kg	7	0	0	7	100%
3&4-Methylphenol(m&p Cresol)	SVOC	Sediment	mg/kg	7	0	0	7	100%
3,3'-Dichlorobenzidine	SVOC	Sediment	mg/kg	7	0	0	7	100%
4-Chloroaniline	SVOC	Sediment	mg/kg	7	0	0	7	100%
4-Methyl-2-pentanone (MIBK)	VOC	Sediment	mg/kg	7	0	0	7	100%
4-Nitroaniline	SVOC	Sediment	mg/kg	7	0	0	7	100%
Acenaphthene	SVOC	Sediment	mg/kg	7	2	0	7	100%
Acenaphthylene	SVOC	Sediment	mg/kg	7	6	0	7	100%
Acetone	VOC	Sediment	mg/kg	7	0	0	7	100%
Acetophenone	SVOC	Sediment	mg/kg	7	0	0	7	100%
Aluminum	Metal	Sediment	mg/kg	7	7	0	7	100%
Anthracene	SVOC	Sediment	mg/kg	7	5	0	7	100%
Antimony	Metal	Sediment	mg/kg	7	5	0	7	100%
Aroclor 1016	PCB	Sediment	mg/kg	7	0	0	7	100%
Aroclor 1221	PCB	Sediment	mg/kg	7	0	0	7	100%
Aroclor 1232	PCB	Sediment	mg/kg	7	0	0	7	100%
Aroclor 1242	PCB	Sediment	mg/kg	7	0	0	7	100%
Aroclor 1248	PCB	Sediment	mg/kg	7	7	0	7	100%
Aroclor 1254	PCB	Sediment	mg/kg	7	6	0	7	100%
Aroclor 1260	PCB	Sediment	mg/kg	7	7	0	7	100%
Aroclor 1262	PCB	Sediment	mg/kg	7	0	0	7	100%
Aroclor 1268	PCB	Sediment	mg/kg	7	0	0	7	100%
Arsenic	Metal	Sediment	mg/kg	7	7	0	7	100%
Barium	Metal	Sediment	mg/kg	7	7	0	7	100%
Benz[a]anthracene	SVOC	Sediment	mg/kg	7	5	0	7	100%
Benzaldehyde	SVOC	Sediment	mg/kg	7	0	0	7	100%
Benzene	VOC	Sediment	mg/kg	7	0	0	7	100%
Benzo[a]pyrene	SVOC	Sediment	mg/kg	7	3	0	7	100%
Benzo[b]fluoranthene	SVOC	Sediment	mg/kg	7	5	0	7	100%
Benzo[g,h,i]perylene	SVOC	Sediment	mg/kg	7	2	0	7	100%
Benzo[k]fluoranthene	SVOC	Sediment	mg/kg	7	2	0	7	100%
Beryllium	Metal	Sediment	mg/kg	7	7	0	7	100%
bis(2-chloroethoxy)methane	SVOC	Sediment	mg/kg	7	0	0	7	100%
bis(2-Chloroethyl)ether	SVOC	Sediment	mg/kg	7	0	0	7	100%
bis(2-Chloroisopropyl)ether	SVOC	Sediment	mg/kg	7	0	0	7	100%
bis(2-Ethylhexyl)phthalate	SVOC	Sediment	mg/kg	7	2	0	7	100%
Bromodichloromethane	VOC	Sediment	mg/kg	7	0	0	7	100%
Bromoform	VOC	Sediment	mg/kg	7	0	0	7	100%
Bromomethane	VOC	Sediment	mg/kg	7	0	0	7	100%
Cadmium	Metal	Sediment	mg/kg	7	7	0	7	100%
Calcium	Metal	Sediment	mg/kg	7	7	0	7	100%
Caprolactam	SVOC	Sediment	mg/kg	7	0	0	7	100%
Carbazole	SVOC	Sediment	mg/kg	7	0	0	7	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
Carbon disulfide	VOC	Sediment	mg/kg	7	0	0	7	100%
Carbon tetrachloride	VOC	Sediment	mg/kg	7	0	0	7	100%
Chlorobenzene	VOC	Sediment	mg/kg	7	0	0	7	100%
Chloroethane	VOC	Sediment	mg/kg	7	0	0	7	100%
Chloroform	VOC	Sediment	mg/kg	7	0	0	7	100%
Chloromethane	VOC	Sediment	mg/kg	7	0	0	7	100%
Chromium	Metal	Sediment	mg/kg	7	7	0	7	100%
Chromium VI	Metal	Sediment	mg/kg	7	1	0	7	100%
Chrysene	SVOC	Sediment	mg/kg	7	7	0	7	100%
cis-1,2-Dichloroethene	VOC	Sediment	mg/kg	7	0	0	7	100%
cis-1,3-Dichloropropene	VOC	Sediment	mg/kg	7	0	0	7	100%
Cobalt	Metal	Sediment	mg/kg	7	7	0	7	100%
Copper	Metal	Sediment	mg/kg	7	7	0	7	100%
Cyanide	CN	Sediment	mg/kg	7	0	0	7	100%
Cyclohexane	VOC	Sediment	mg/kg	7	0	0	7	100%
Dibenz[a,h]anthracene	SVOC	Sediment	mg/kg	7	1	0	7	100%
Dibromochloromethane	VOC	Sediment	mg/kg	7	0	0	7	100%
Dichlorodifluoromethane	VOC	Sediment	mg/kg	7	0	0	7	100%
Diesel Range Organics	TPH	Sediment	mg/kg	7	7	0	7	100%
Diethylphthalate	SVOC	Sediment	mg/kg	7	0	0	7	100%
Di-n-butylphthalate	SVOC	Sediment	mg/kg	7	0	0	7	100%
Di-n-ocytlphthalate	SVOC	Sediment	mg/kg	7	0	0	7	100%
Ethylbenzene	VOC	Sediment	mg/kg	7	0	0	7	100%
Fluoranthene	SVOC	Sediment	mg/kg	7	4	0	7	100%
Fluorene	SVOC	Sediment	mg/kg	7	4	0	7	100%
Gasoline Range Organics	TPH	Sediment	mg/kg	7	0	0	7	100%
Hexachlorobenzene	SVOC	Sediment	mg/kg	7	0	0	7	100%
Hexachlorobutadiene	SVOC	Sediment	mg/kg	7	0	0	7	100%
Hexachlorocyclopentadiene	SVOC	Sediment	mg/kg	7	0	0	7	100%
Hexachloroethane	SVOC	Sediment	mg/kg	7	0	0	7	100%
Indeno[1,2,3-c,d]pyrene	SVOC	Sediment	mg/kg	7	1	0	7	100%
Iron	Metal	Sediment	mg/kg	7	7	0	7	100%
Isophorone	SVOC	Sediment	mg/kg	7	0	0	7	100%
Isopropylbenzene	VOC	Sediment	mg/kg	7	0	0	7	100%
Lead	Metal	Sediment	mg/kg	7	7	0	7	100%
Magnesium	Metal	Sediment	mg/kg	7	7	0	7	100%
Manganese	Metal	Sediment	mg/kg	7	7	0	7	100%
Mercury	Metal	Sediment	mg/kg	7	7	0	7	100%
Methyl Acetate	VOC	Sediment	mg/kg	7	7	0	7	100%
Methyl tert-butyl ether (MTBE)	VOC	Sediment	mg/kg	7	0	0	7	100%
Methylene Chloride	VOC	Sediment	mg/kg	7	0	0	7	100%
Naphthalene	SVOC	Sediment	mg/kg	7	0	0	7	100%
Nickel	Metal	Sediment	mg/kg	7	7	0	7	100%
Nitrobenzene	SVOC	Sediment	mg/kg	7	0	0	7	100%
N-Nitroso-di-n-propylamine	SVOC	Sediment	mg/kg	7	0	0	7	100%
N-Nitrosodiphenylamine	SVOC	Sediment	mg/kg	7	0	0	7	100%
Oil and Grease	TPH	Sediment	mg/kg	7	7	0	7	100%
PCBs (total)	PCB	Sediment	mg/kg	7	7	0	7	100%
Pentachlorophenol	SVOC	Sediment	mg/kg	7	0	0	7	100%
Phenanthrene	SVOC	Sediment	mg/kg	7	2	0	7	100%
Phenol	SVOC	Sediment	mg/kg	7	0	0	7	100%
Potassium	Metal	Sediment	mg/kg	7	7	0	7	100%
Pyrene	SVOC	Sediment	mg/kg	7	7	0	7	100%
Selenium	Metal	Sediment	mg/kg	7	7	0	7	100%
Silver	Metal	Sediment	mg/kg	7	7	0	7	100%
Sodium	Metal	Sediment	mg/kg	7	7	0	7	100%
Styrene	VOC	Sediment	mg/kg	7	0	0	7	100%
Tetrachloroethene	VOC	Sediment	mg/kg	7	0	0	7	100%
Thallium	Metal	Sediment	mg/kg	7	7	0	7	100%
Toluene	VOC	Sediment	mg/kg	7	0	0	7	100%
trans-1,2-Dichloroethene	VOC	Sediment	mg/kg	7	0	0	7	100%
trans-1,3-Dichloropropene	VOC	Sediment	mg/kg	7	0	0	7	100%
Trichloroethene	VOC	Sediment	mg/kg	7	0	0	7	100%
Trichlorofluoromethane	VOC	Sediment	mg/kg	7	0	0	7	100%
Vanadium	Metal	Sediment	mg/kg	7	7	0	7	100%
Vinyl chloride	VOC	Sediment	mg/kg	7	0	0	7	100%
Xylenes	VOC	Sediment	mg/kg	7	0	0	7	100%
Zinc	Metal	Sediment	mg/kg	7	7	0	7	100%
1,1,1-Trichloroethane	VOC	Groundwater	ug/l	2	0	0	2	100%
1,1,2,2-Tetrachloroethane	VOC	Groundwater	ug/l	2	0	0	2	100%
1,1,2-Trichloro-1,2,2-Trifluoroethane	VOC	Groundwater	ug/l	2	0	0	2	100%
1,1,2-Trichloroethane	VOC	Groundwater	ug/l	2	0	0	2	100%
1,1-Biphenyl	SVOC	Groundwater	ug/l	2	0	0	2	100%
1,1-Dichloroethane	VOC	Groundwater	ug/l	2	0	0	2	100%
1,1-Dichloroethene	VOC	Groundwater	ug/l	2	0	0	2	100%
1,2,3-Trichlorobenzene	VOC	Groundwater	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
1,2,4,5-Tetrachlorobenzene	SVOC	Groundwater	ug/l	2	0	0	2	100%
1,2,4-Trichlorobenzene	VOC	Groundwater	ug/l	2	0	0	2	100%
1,2-Dibromo-3-chloropropane	VOC	Groundwater	ug/l	2	0	0	2	100%
1,2-Dibromoethane	VOC	Groundwater	ug/l	2	0	0	2	100%
1,2-Dichlorobenzene	VOC	Groundwater	ug/l	2	1	0	2	100%
1,2-Dichloroethane	VOC	Groundwater	ug/l	2	1	0	2	100%
1,2-Dichloroethene (Total)	VOC	Groundwater	ug/l	2	1	0	2	100%
1,2-Dichloropropane	VOC	Groundwater	ug/l	2	0	0	2	100%
1,3-Dichlorobenzene	VOC	Groundwater	ug/l	2	0	0	2	100%
1,3-Dichloropropene	VOC	Groundwater	ug/l	2	0	0	2	100%
1,4-Dichlorobenzene	VOC	Groundwater	ug/l	2	1	0	2	100%
1,4-Dioxane	VOC/SVOC	Groundwater	ug/l	2	0	0	2	100%
2,3,4,6-Tetrachlorophenol	SVOC	Groundwater	ug/l	2	0	0	2	100%
2,4,5-Trichlorophenol	SVOC	Groundwater	ug/l	2	0	0	2	100%
2,4,6-Trichlorophenol	SVOC	Groundwater	ug/l	2	0	0	2	100%
2,4-Dichlorophenol	SVOC	Groundwater	ug/l	2	0	0	2	100%
2,4-Dimethylphenol	SVOC	Groundwater	ug/l	2	0	0	2	100%
2,4-Dinitrophenol	SVOC	Groundwater	ug/l	2	0	0	2	100%
2,4-Dinitrotoluene	SVOC	Groundwater	ug/l	2	0	0	2	100%
2,6-Dinitrotoluene	SVOC	Groundwater	ug/l	2	0	0	2	100%
2-Butanone (MEK)	VOC	Groundwater	ug/l	2	0	0	2	100%
2-Chloronaphthalene	SVOC	Groundwater	ug/l	2	0	0	2	100%
2-Chlorophenol	SVOC	Groundwater	ug/l	2	0	0	2	100%
2-Hexanone	VOC	Groundwater	ug/l	2	0	0	2	100%
2-Methylnaphthalene	SVOC	Groundwater	ug/l	2	0	0	2	100%
2-Methylphenol	SVOC	Groundwater	ug/l	2	0	0	2	100%
2-Nitroaniline	SVOC	Groundwater	ug/l	2	0	0	2	100%
3&4-Methylphenol(m&p Cresol)	SVOC	Groundwater	ug/l	2	0	0	2	100%
3,3'-Dichlorobenzidine	SVOC	Groundwater	ug/l	2	0	0	2	100%
4-Chloroaniline	SVOC	Groundwater	ug/l	2	0	0	2	100%
4-Methyl-2-pentanone (MIBK)	VOC	Groundwater	ug/l	2	0	0	2	100%
4-Nitroaniline	SVOC	Groundwater	ug/l	2	0	0	2	100%
Acenaphthene	SVOC	Groundwater	ug/l	2	1	0	2	100%
Acenaphthylene	SVOC	Groundwater	ug/l	2	0	0	2	100%
Acetone	VOC	Groundwater	ug/l	2	0	0	2	100%
Acetophenone	SVOC	Groundwater	ug/l	2	0	0	2	100%
Aluminum	Metal	Groundwater	ug/l	2	2	0	2	100%
Anthracene	SVOC	Groundwater	ug/l	2	0	0	2	100%
Antimony	Metal	Groundwater	ug/l	2	0	0	2	100%
Arsenic	Metal	Groundwater	ug/l	2	2	0	2	100%
Available Cyanide	CN	Groundwater	ug/l	2	0	0	2	100%
Barium	Metal	Groundwater	ug/l	2	2	0	2	100%
Benz[a]anthracene	SVOC	Groundwater	ug/l	2	1	0	2	100%
Benzaldehyde	SVOC	Groundwater	ug/l	2	0	0	2	100%
Benzene	VOC	Groundwater	ug/l	2	0	0	2	100%
Benzo[a]pyrene	SVOC	Groundwater	ug/l	2	0	0	2	100%
Benzo[b]fluoranthene	SVOC	Groundwater	ug/l	2	0	0	2	100%
Benzo[g,h,i]perylene	SVOC	Groundwater	ug/l	2	0	0	2	100%
Benzo[k]fluoranthene	SVOC	Groundwater	ug/l	2	0	0	2	100%
Beryllium	Metal	Groundwater	ug/l	2	0	0	2	100%
bis(2-chloroethoxy)methane	SVOC	Groundwater	ug/l	2	0	0	2	100%
bis(2-Chloroethyl)ether	SVOC	Groundwater	ug/l	2	0	0	2	100%
bis(2-Chloroisopropyl)ether	SVOC	Groundwater	ug/l	2	0	0	2	100%
bis(2-Ethylhexyl)phthalate	SVOC	Groundwater	ug/l	2	0	0	2	100%
Bromodichloromethane	VOC	Groundwater	ug/l	2	0	0	2	100%
Bromoform	VOC	Groundwater	ug/l	2	0	0	2	100%
Bromomethane	VOC	Groundwater	ug/l	2	1	0	2	100%
Cadmium	Metal	Groundwater	ug/l	2	0	0	2	100%
Calcium	Metal	Groundwater	ug/l	2	2	0	2	100%
Caprolactam	SVOC	Groundwater	ug/l	2	0	0	2	100%
Carbazole	SVOC	Groundwater	ug/l	2	0	0	2	100%
Carbon disulfide	VOC	Groundwater	ug/l	2	0	0	2	100%
Carbon tetrachloride	VOC	Groundwater	ug/l	2	0	0	2	100%
Chlorobenzene	VOC	Groundwater	ug/l	2	1	0	2	100%
Chloroethane	VOC	Groundwater	ug/l	2	0	0	2	100%
Chloroform	VOC	Groundwater	ug/l	2	0	0	2	100%
Chloromethane	VOC	Groundwater	ug/l	2	0	0	2	100%
Chromium	Metal	Groundwater	ug/l	2	2	0	2	100%
Chromium VI	Metal	Groundwater	ug/l	2	0	0	2	100%
Chrysene	SVOC	Groundwater	ug/l	2	0	0	2	100%
cis-1,2-Dichloroethene	VOC	Groundwater	ug/l	2	1	0	2	100%
cis-1,3-Dichloropropene	VOC	Groundwater	ug/l	2	0	0	2	100%
Cobalt	Metal	Groundwater	ug/l	2	2	0	2	100%
Copper	Metal	Groundwater	ug/l	2	0	0	2	100%
Cyanide	CN	Groundwater	ug/l	2	0	0	2	100%
Cyclohexane	VOC	Groundwater	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
Dibenz[a,h]anthracene	SVOC	Groundwater	ug/l	2	0	0	2	100%
Dibromochloromethane	VOC	Groundwater	ug/l	2	0	0	2	100%
Dichlorodifluoromethane	VOC	Groundwater	ug/l	2	0	0	2	100%
Diesel Range Organics	TPH	Groundwater	ug/l	2	2	0	2	100%
Diethylphthalate	SVOC	Groundwater	ug/l	2	0	0	2	100%
Di-n-butylphthalate	SVOC	Groundwater	ug/l	2	0	0	2	100%
Di-n-ocytlphthalate	SVOC	Groundwater	ug/l	2	0	0	2	100%
Ethylbenzene	VOC	Groundwater	ug/l	2	0	0	2	100%
Fluoranthene	SVOC	Groundwater	ug/l	2	0	0	2	100%
Fluorene	SVOC	Groundwater	ug/l	2	0	0	2	100%
Gasoline Range Organics	TPH	Groundwater	ug/l	2	2	0	2	100%
Hexachlorobenzene	SVOC	Groundwater	ug/l	2	0	0	2	100%
Hexachlorobutadiene	SVOC	Groundwater	ug/l	2	0	0	2	100%
Hexachlorocyclopentadiene	SVOC	Groundwater	ug/l	2	0	0	2	100%
Hexachloroethane	SVOC	Groundwater	ug/l	2	0	0	2	100%
Indeno[1,2,3-c,d]pyrene	SVOC	Groundwater	ug/l	2	0	0	2	100%
Iron	Metal	Groundwater	ug/l	2	2	0	2	100%
Isophorone	SVOC	Groundwater	ug/l	2	0	0	2	100%
Isopropylbenzene	VOC	Groundwater	ug/l	2	0	0	2	100%
Lead	Metal	Groundwater	ug/l	2	0	0	2	100%
Magnesium	Metal	Groundwater	ug/l	2	2	0	2	100%
Manganese	Metal	Groundwater	ug/l	2	2	0	2	100%
Mercury	Metal	Groundwater	ug/l	2	0	0	2	100%
Methyl Acetate	VOC	Groundwater	ug/l	2	0	0	2	100%
Methyl tert-butyl ether (MTBE)	VOC	Groundwater	ug/l	2	1	0	2	100%
Methylene Chloride	VOC	Groundwater	ug/l	2	0	0	2	100%
Naphthalene	SVOC	Groundwater	ug/l	2	0	0	2	100%
Nickel	Metal	Groundwater	ug/l	2	2	0	2	100%
Nitrobenzene	SVOC	Groundwater	ug/l	2	0	0	2	100%
N-Nitroso-di-n-propylamine	SVOC	Groundwater	ug/l	2	0	0	2	100%
N-Nitrosodiphenylamine	SVOC	Groundwater	ug/l	2	0	0	2	100%
Oil and Grease	TPH	Groundwater	ug/l	2	0	0	2	100%
Pentachlorophenol	SVOC	Groundwater	ug/l	4	0	0	4	100%
Phenanthrene	SVOC	Groundwater	ug/l	2	0	0	2	100%
Phenol	SVOC	Groundwater	ug/l	2	0	0	2	100%
Potassium	Metal	Groundwater	ug/l	2	2	0	2	100%
Pyrene	SVOC	Groundwater	ug/l	2	0	0	2	100%
Selenium	Metal	Groundwater	ug/l	2	1	0	2	100%
Silver	Metal	Groundwater	ug/l	2	0	0	2	100%
Sodium	Metal	Groundwater	ug/l	2	2	0	2	100%
Styrene	VOC	Groundwater	ug/l	2	0	0	2	100%
Tetrachloroethene	VOC	Groundwater	ug/l	2	1	0	2	100%
Thallium	Metal	Groundwater	ug/l	2	0	0	2	100%
Toluene	VOC	Groundwater	ug/l	2	0	0	2	100%
trans-1,2-Dichloroethene	VOC	Groundwater	ug/l	2	1	0	2	100%
trans-1,3-Dichloropropene	VOC	Groundwater	ug/l	2	0	0	2	100%
Trichloroethene	VOC	Groundwater	ug/l	2	1	0	2	100%
Trichlorofluoromethane	VOC	Groundwater	ug/l	2	0	0	2	100%
Vanadium	Metal	Groundwater	ug/l	2	0	0	2	100%
Vinyl chloride	VOC	Groundwater	ug/l	2	1	0	2	100%
Xylenes	VOC	Groundwater	ug/l	2	0	0	2	100%
Zinc	Metal	Groundwater	ug/l	2	2	0	2	100%
1,1,1-Trichloroethane	VOC	Surface Water	ug/l	4	0	0	4	100%
1,1,2,2-Tetrachloroethane	VOC	Surface Water	ug/l	4	0	0	4	100%
1,1,2-Trichloro-1,2,2-Trifluoroethane	VOC	Surface Water	ug/l	4	0	0	4	100%
1,1,2-Trichloroethane	VOC	Surface Water	ug/l	4	0	0	4	100%
1,1-Biphenyl	SVOC	Surface Water	ug/l	4	0	0	4	100%
1,1-Dichloroethane	VOC	Surface Water	ug/l	4	0	0	4	100%
1,1-Dichloroethene	VOC	Surface Water	ug/l	4	0	0	4	100%
1,2,3-Trichlorobenzene	VOC	Surface Water	ug/l	4	0	0	4	100%
1,2,4,5-Tetrachlorobenzene	SVOC	Surface Water	ug/l	4	0	0	4	100%
1,2,4-Trichlorobenzene	VOC	Surface Water	ug/l	4	0	0	4	100%
1,2-Dibromo-3-chloropropane	VOC	Surface Water	ug/l	4	0	0	4	100%
1,2-Dibromoethane	VOC	Surface Water	ug/l	4	0	0	4	100%
1,2-Dichlorobenzene	VOC	Surface Water	ug/l	4	0	0	4	100%
1,2-Dichloroethane	VOC	Surface Water	ug/l	4	0	0	4	100%
1,2-Dichloroethene (Total)	VOC	Surface Water	ug/l	4	0	0	4	100%
1,2-Dichloropropane	VOC	Surface Water	ug/l	4	0	0	4	100%
1,3-Dichlorobenzene	VOC	Surface Water	ug/l	4	0	0	4	100%
1,3-Dichloropropene	VOC	Surface Water	ug/l	4	0	0	4	100%
1,4-Dichlorobenzene	VOC	Surface Water	ug/l	4	0	0	4	100%
1,4-Dioxane	VOC/SVOC	Surface Water	ug/l	4	0	0	4	100%
2,3,4,6-Tetrachlorophenol	SVOC	Surface Water	ug/l	4	0	0	4	100%
2,4,5-Trichlorophenol	SVOC	Surface Water	ug/l	4	0	0	4	100%
2,4,6-Trichlorophenol	SVOC	Surface Water	ug/l	4	0	0	4	100%
2,4-Dichlorophenol	SVOC	Surface Water	ug/l	4	0	0	4	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
2,4-Dimethylphenol	SVOC	Surface Water	ug/l	4	0	0	4	100%
2,4-Dinitrophenol	SVOC	Surface Water	ug/l	4	0	0	4	100%
2,4-Dinitrotoluene	SVOC	Surface Water	ug/l	4	0	0	4	100%
2,6-Dinitrotoluene	SVOC	Surface Water	ug/l	4	0	0	4	100%
2-Butanone (MEK)	VOC	Surface Water	ug/l	4	0	0	4	100%
2-Chloronaphthalene	SVOC	Surface Water	ug/l	4	0	0	4	100%
2-Chlorophenol	SVOC	Surface Water	ug/l	4	0	0	4	100%
2-Hexanone	VOC	Surface Water	ug/l	4	0	0	4	100%
2-Methylnaphthalene	SVOC	Surface Water	ug/l	4	1	0	4	100%
2-Methylphenol	SVOC	Surface Water	ug/l	4	0	0	4	100%
2-Nitroaniline	SVOC	Surface Water	ug/l	4	0	0	4	100%
3&4-Methylphenol(m&p Cresol)	SVOC	Surface Water	ug/l	4	0	0	4	100%
3,3'-Dichlorobenzidine	SVOC	Surface Water	ug/l	4	0	0	4	100%
4-Chloroaniline	SVOC	Surface Water	ug/l	4	0	0	4	100%
4-Methyl-2-pentanone (MIBK)	VOC	Surface Water	ug/l	4	0	0	4	100%
4-Nitroaniline	SVOC	Surface Water	ug/l	4	0	0	4	100%
Acenaphthene	SVOC	Surface Water	ug/l	4	0	0	4	100%
Acenaphthylene	SVOC	Surface Water	ug/l	4	0	0	4	100%
Acetone	VOC	Surface Water	ug/l	4	0	0	4	100%
Acetophenone	SVOC	Surface Water	ug/l	4	0	0	4	100%
Aluminum	Metal	Surface Water	ug/l	4	4	0	4	100%
Anthracene	SVOC	Surface Water	ug/l	4	0	0	4	100%
Antimony	Metal	Surface Water	ug/l	4	0	0	4	100%
Arsenic	Metal	Surface Water	ug/l	4	4	0	4	100%
Available Cyanide	CN	Surface Water	ug/l	4	0	0	4	100%
Barium	Metal	Surface Water	ug/l	4	4	0	4	100%
Benz[a]anthracene	SVOC	Surface Water	ug/l	4	2	0	4	100%
Benzaldehyde	SVOC	Surface Water	ug/l	4	0	0	4	100%
Benzene	VOC	Surface Water	ug/l	4	0	0	4	100%
Benzo[a]pyrene	SVOC	Surface Water	ug/l	4	0	0	4	100%
Benzo[b]fluoranthene	SVOC	Surface Water	ug/l	4	4	0	4	100%
Benzo[g,h,i]perylene	SVOC	Surface Water	ug/l	4	2	0	4	100%
Benzo[k]fluoranthene	SVOC	Surface Water	ug/l	4	2	0	4	100%
Beryllium	Metal	Surface Water	ug/l	4	0	0	4	100%
bis(2-chloroethoxy)methane	SVOC	Surface Water	ug/l	4	0	0	4	100%
bis(2-Chloroethyl)ether	SVOC	Surface Water	ug/l	4	0	0	4	100%
bis(2-Chloroisopropyl)ether	SVOC	Surface Water	ug/l	4	0	0	4	100%
bis(2-Ethylhexyl)phthalate	SVOC	Surface Water	ug/l	4	0	0	4	100%
Bromodichloromethane	VOC	Surface Water	ug/l	4	4	0	4	100%
Bromoform	VOC	Surface Water	ug/l	4	1	0	4	100%
Bromomethane	VOC	Surface Water	ug/l	4	0	0	4	100%
Cadmium	Metal	Surface Water	ug/l	4	0	0	4	100%
Calcium	Metal	Surface Water	ug/l	4	4	0	4	100%
Caprolactam	SVOC	Surface Water	ug/l	4	0	0	4	100%
Carbazole	SVOC	Surface Water	ug/l	4	0	0	4	100%
Carbon disulfide	VOC	Surface Water	ug/l	4	0	0	4	100%
Carbon tetrachloride	VOC	Surface Water	ug/l	4	0	0	4	100%
Chlorobenzene	VOC	Surface Water	ug/l	4	0	0	4	100%
Chloroethane	VOC	Surface Water	ug/l	4	0	0	4	100%
Chloroform	VOC	Surface Water	ug/l	4	4	0	4	100%
Chloromethane	VOC	Surface Water	ug/l	4	0	0	4	100%
Chromium	Metal	Surface Water	ug/l	4	0	0	4	100%
Chromium VI	Metal	Surface Water	ug/l	4	0	0	4	100%
Chrysene	SVOC	Surface Water	ug/l	4	4	0	4	100%
cis-1,2-Dichloroethene	VOC	Surface Water	ug/l	4	0	0	4	100%
cis-1,3-Dichloropropene	VOC	Surface Water	ug/l	4	0	0	4	100%
Cobalt	Metal	Surface Water	ug/l	4	4	0	4	100%
Copper	Metal	Surface Water	ug/l	4	4	0	4	100%
Cyanide	CN	Surface Water	ug/l	4	0	0	4	100%
Cyclohexane	VOC	Surface Water	ug/l	4	0	0	4	100%
Dibenz[a,h]anthracene	SVOC	Surface Water	ug/l	4	1	0	4	100%
Dibromochloromethane	VOC	Surface Water	ug/l	4	0	0	4	100%
Dichlorodifluoromethane	VOC	Surface Water	ug/l	4	0	0	4	100%
Diesel Range Organics	TPH	Surface Water	ug/l	4	1	0	4	100%
Diethylphthalate	SVOC	Surface Water	ug/l	4	0	0	4	100%
Di-n-butylphthalate	SVOC	Surface Water	ug/l	4	0	0	4	100%
Di-n-ocytlphthalate	SVOC	Surface Water	ug/l	4	0	0	4	100%
Ethylbenzene	VOC	Surface Water	ug/l	4	0	0	4	100%
Fluoranthene	SVOC	Surface Water	ug/l	4	4	0	4	100%
Fluorene	SVOC	Surface Water	ug/l	4	1	0	4	100%
Gasoline Range Organics	TPH	Surface Water	ug/l	4	0	0	4	100%
Hexachlorobenzene	SVOC	Surface Water	ug/l	4	0	0	4	100%
Hexachlorobutadiene	SVOC	Surface Water	ug/l	4	0	0	4	100%
Hexachlorocyclopentadiene	SVOC	Surface Water	ug/l	4	0	0	4	100%
Hexachloroethane	SVOC	Surface Water	ug/l	4	0	0	4	100%
Indeno[1,2,3-c,d]pyrene	SVOC	Surface Water	ug/l	4	1	0	4	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
Iron	Metal	Surface Water	ug/l	4	4	0	4	100%
Isophorone	SVOC	Surface Water	ug/l	4	0	0	4	100%
Isopropylbenzene	VOC	Surface Water	ug/l	4	0	0	4	100%
Lead	Metal	Surface Water	ug/l	4	0	0	4	100%
Magnesium	Metal	Surface Water	ug/l	4	4	0	4	100%
Manganese	Metal	Surface Water	ug/l	4	4	0	4	100%
Mercury	Metal	Surface Water	ug/l	4	0	0	4	100%
Methyl Acetate	VOC	Surface Water	ug/l	4	0	0	4	100%
Methyl tert-butyl ether (MTBE)	VOC	Surface Water	ug/l	4	0	0	4	100%
Methylene Chloride	VOC	Surface Water	ug/l	4	0	0	4	100%
Naphthalene	SVOC	Surface Water	ug/l	4	4	0	4	100%
Nickel	Metal	Surface Water	ug/l	4	4	0	4	100%
Nitrobenzene	SVOC	Surface Water	ug/l	4	0	0	4	100%
N-Nitroso-di-n-propylamine	SVOC	Surface Water	ug/l	4	0	0	4	100%
N-Nitrosodiphenylamine	SVOC	Surface Water	ug/l	4	0	0	4	100%
Oil and Grease	TPH	Surface Water	ug/l	4	0	0	4	100%
Pentachlorophenol	SVOC	Surface Water	ug/l	8	0	0	8	100%
Phenanthrene	SVOC	Surface Water	ug/l	4	2	0	4	100%
Phenol	SVOC	Surface Water	ug/l	4	0	0	4	100%
Potassium	Metal	Surface Water	ug/l	4	4	0	4	100%
Pyrene	SVOC	Surface Water	ug/l	4	2	0	4	100%
Selenium	Metal	Surface Water	ug/l	4	0	0	4	100%
Silver	Metal	Surface Water	ug/l	4	0	0	4	100%
Sodium	Metal	Surface Water	ug/l	4	4	0	4	100%
Styrene	VOC	Surface Water	ug/l	4	0	0	4	100%
Tetrachloroethene	VOC	Surface Water	ug/l	4	0	0	4	100%
Thallium	Metal	Surface Water	ug/l	4	0	0	4	100%
Toluene	VOC	Surface Water	ug/l	4	0	0	4	100%
trans-1,2-Dichloroethene	VOC	Surface Water	ug/l	4	0	0	4	100%
trans-1,3-Dichloropropene	VOC	Surface Water	ug/l	4	0	0	4	100%
Trichloroethene	VOC	Surface Water	ug/l	4	0	0	4	100%
Trichlorofluoromethane	VOC	Surface Water	ug/l	4	0	0	4	100%
Vanadium	Metal	Surface Water	ug/l	4	4	0	4	100%
Vinyl chloride	VOC	Surface Water	ug/l	4	0	0	4	100%
Xylenes	VOC	Surface Water	ug/l	4	0	0	4	100%
Zinc	Metal	Surface Water	ug/l	4	4	0	4	100%

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