

PHASE II INVESTIGATION REPORT

AREA A: PARCEL A7
TRADEPOINT ATLANTIC
SPARROWS POINT, MARYLAND

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Respectfully Submitted,

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Groundwater Laboratory Certificates of Analysis	Electronic Attachment
Groundwater Data Validation Report	Electronic Attachment
Sediment Laboratory Certificate of Analysis	Electronic Attachment
Sediment Data Validation Report	Electronic Attachment
Surface Water Laboratory Certificates of Analysis	Electronic Attachment
Surface Water Data Validation Report	Electronic Attachment

1.0 INTRODUCTION

ARM Group Inc. (ARM), on behalf of EnviroAnalytics Group (EAG), has completed a Phase II Investigation of a portion of the Tradepoint Atlantic property (formerly Sparrows Point Terminal, LLC) that has been designated as Area A: Parcel A7 (the Site). Parcel A7 is comprised of 22.2 acres of the approximately 3,100-acre former steel making facility (**Figure 1**). The Site is bounded to the south by a former contractor area and spare parts storage yard (within Parcel A11), to the north by the Greys Rail Yard (Parcel A13), to the east by the former Air Products Facility and a small paved driving lot operated by Harley Davidson (within Parcel A8), and to the west by a wooded and vegetated area (within Parcel A5).

The Phase II Investigation was performed in accordance with procedures outlined in the approved Phase II Investigation Work Plan – Area A: Parcel A7. This Work Plan (dated July 12, 2017) was approved by the Maryland Department of the Environment (MDE) and the United States Environmental Protection Agency (USEPA) on July 18, 2017 in compliance with requirements pursuant to the following:

- Administrative Consent Order (ACO) 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 A7 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 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 the USEPA's Resource Conservation and Recovery Act (RCRA) Corrective Action authorities.

An application to enter the full Tradepoint Atlantic property (3,100 acres) into the Maryland Department of the Environment Voluntary Cleanup Program (MDE-VCP) 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 property include 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.

Parcel A7 is occupied by dense vegetative growth. There are also several slag berms and topographic depressions (pits) that may have been used as disposal locations for wastes, in particular open hearth slurry from wastewater treatment. Parcel A7 is part of the County Lands 1B (CL1B) Parcel, which is one of five areas (1A, 1B, 2, 3A, and 3B) referred to as “County Lands” in the Description of Current Conditions (DCC) Report prepared by Rust Environment and Infrastructure dated January 1998. The DCC Report indicates that the CL1B Parcel is primarily covered by vegetated slag fill, and was previously intended for waste disposal. The DCC Report states that only the southeastern end of the CL1B Parcel was ever used for disposal, suggesting that Parcel A7 may have been used for this purpose.

The Phase I Environmental Site Assessment (ESA) prepared by Weaver Boos Consultants dated May 19, 2014, states generically that fly dumping was known to occur outside of the main steel making facility along roads and mainly in vacant and unmonitored areas. According to interviews conducted as part of the Phase I ESA, no hazardous materials or petroleum products were known to be dumped on the property, but the fly dumping may have included general refuse, household equipment, and boats. Dumping of household refuse was noted during previous site visits conducted by MDE, ARM, and EAG personnel prior to initiation of the Parcel A7 Phase II Investigation.

There are two small ponds within the Site boundary that accumulate and retain surface water. There is no evidence that iron and steel industrial processes were completed within the boundary of Parcel A7.

1.2. OBJECTIVES

The objective of this Phase II Investigation was to fully characterize the nature and extent of contamination at the 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 ESA prepared by Weaver Boos dated May 19, 2014, the property is zoned Manufacturing Heavy-Industrial Major (MH-IM). Surrounding property zoning classifications (beyond Tradepoint Atlantic) include the following: Manufacturing Light (ML); Resource Conservation (RC); Density Residential (DR); Business Roadside (BR); Business Major (BM); Business Local (BL); and Residential Office (RO). Light industrial and commercial properties are located northeast of the property and northwest of the property across Bear Creek. Residential areas of Edgemere and Fort Howard are located northeast of the property across Jones Creek and to the southeast across Old Road Bay, respectively. Residential and commercial areas of Dundalk are located northwest of the property across Bear Creek.

According to topographic maps provided by EAG, the Site has several slag berms, material piles (mounds), and pits throughout the central portion of the parcel. Elevations at the Site range from 2 to 35 feet above mean sea level (amsl) across the entire parcel area. The highest mound within Parcel A7 appears to be located towards the northwestern portion of the Site with peak elevations ranging from approximately 30 to 35 feet amsl. Several pits of varying size and steepness are located throughout Parcel A7. Overland flow appears to collect in the pits as well as the two surface water ponds located near the southern boundary of the Site. According to Figure B-2 of the Stormwater Pollution Prevention Plan (SWPPP) Revision 5 dated June 1, 2017, runoff waters from Parcel A7 appear to be directed along roadside drainage ditches adjacent to Peninsula Expressway toward the National Pollutant Discharge Elimination System (NPDES) permitted Outfall 069. This outfall ultimately discharges to Bear Creek across the western boundary of the Tradepoint Atlantic property.

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

Groundcover at the Site is comprised of 100% natural soils based on the approximate shoreline of the Sparrows Point Peninsula in 1916, as 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 included natural soils, which included fine-grained sediments (clays and silts) and coarse-grained sediments (sands). Non-native slag fill materials were encountered throughout the Site at depths of up to 12 feet below the ground surface (bgs). Shallow groundwater was observed in soil cores from 7.5 to 17.2 feet bgs across the Site, however, groundwater was not encountered at every location. Soil boring observation logs are provided in **Appendix B**. Please note that unless otherwise indicated, all Unified Soil Classification System (USCS) group symbols provided on the attached boring logs are from visual observations, and not from laboratory testing.

Three existing groundwater wells in the shallow hydrogeologic zone (MW93-001, MW93-002, and W-14) were selected to investigate shallow groundwater conditions at the Site. During vegetation clearing activities, permanent groundwater well MW93-002 was damaged by heavy equipment and was unable to be sampled. A temporary groundwater sample collection point was installed as a replacement sample point at this location (using the same ID). The locations of the groundwater sampling points are indicated on **Figure 3**. Four surface water samples were also collected from the two stormwater ponds in the southeast portion of the parcel (two from each pond). The locations of the surface water samples are also provided on **Figure 3**.

Both of the useable permanent wells (MW93-001 and W-14) were surveyed by a Maryland-licensed surveyor. However, the surveyor failed to locate the replacement temporary sample point (MW93-002) in the field although it remains intact. Supporting documentation from the survey is included in **Appendix C**. Since the replacement groundwater point MW93-002 could not be surveyed, additional groundwater points completed under separate Phase II Investigations were gauged to provide supplemental information to generate a groundwater elevation contour map. A synoptic round of groundwater level measurements was collected on March 30, 2018 from the Parcel A7 groundwater points and the other surrounding groundwater points which were selected to be representative of the localized groundwater flow conditions. Surveyed top of casing (TOC) and ground surface elevations for all applicable locations can be found in **Table 1**, along with the depth to water (DTW) measurements from this date. Note that several of the locations were surveyed under separate Phase II Investigations, and supporting documentation from these additional site surveys is also provided in **Appendix C**.

A groundwater potentiometric surface map was constructed for the shallow hydrogeologic zone based on the field measurements obtained in the vicinity of Parcel A7. The localized potentiometric surface map for shallow groundwater has been included on **Figure 4**. The elevation contours indicate that groundwater flows radially from a mounded location near the eastern end of the parcel (in the vicinity of MW93-001). A predominantly western flow direction is apparent below the majority of the Site; Bear Creek is located across the property to the west.

3.0 SITE INVESTIGATION

A total of 54 soil samples (from 18 boring locations and 10 test pit locations), three groundwater samples, four sediment samples, and four surface water samples were collected for analysis between September 26 and October 31, 2017 as part of the Parcel A7 Phase II Investigation. This Phase II Investigation utilized methods and protocols that followed the procedures included in the Quality Assurance Project Plan (QAPP) dated April 5, 2016 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, investigation-derived waste (IDW) management methods, and reporting requirements are described in detail in the approved Parcel A7 Work Plan dated July 12, 2017, and the QAPP.

All site characterization activities were conducted under the property-wide Health and Safety Plan (HASP) provided as Appendix E of the approved Work 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 Systems (GIS) software (ArcMap Version 10.3.1).

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 (SWMUs) and Areas of Concern (AOCs) identified from the DCC Report prepared by Rust Environment and Infrastructure. There were no RECs, SWMUs, or AOCs identified at the Site based on the DCC Report.

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 on to the ground. There were no drip legs identified inside the boundary of Parcel A7. A summary of the specific drawings covering the Site is presented in **Table 2**. Sampling target locations were identified if the historical

drawings depicted industrial activities or a specific feature at a location that may have been a source of environmental contamination that potentially impacted the Site.

Based on the review of plant drawings and Phase I ESA documents (or based on direct agency guidance), additional non-REC sampling targets were identified at the Site that included the following: Pits, Pond Sediments, and Slag/Soil Berm Test Pits – Spoil Piles. A summary of the areas that were investigated, along with the applicable boring identification numbers and the analyses performed, has been provided as **Appendix A**. Additional sample locations were distributed to fill in large spatial gaps between proposed borings to provide complete coverage of the Site. During the completion of fieldwork, it was necessary to shift some borings from the approved locations given in the Work Plan, primarily due to access restrictions and/or refusal. **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. Parcel A7 contains a total of 22.2 acres without engineered barriers. In accordance with the relevant sampling density requirements, a minimum of 15 soil borings were required to cover the area without engineered barriers. A total of 18 soil borings and 10 test pits were completed during the Phase II Investigation to collect analytical soil samples.

3.2. SOIL INVESTIGATION

Continuous core soil borings were advanced at 18 locations across the Site to assess the presence or absence of soil contamination, and to assess the vertical distribution of any encountered contamination (**Figure 5**). The 18 continuous core soil borings were advanced to depths between 2 and 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 18 completed 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 D**. Unless otherwise indicated, all USCS group symbols provided on the attached boring logs are from visual observations.

One shallow sample was collected from the 0 to 1 foot depth interval, and a deeper sample was collected from the 4 to 5 foot depth interval from each continuous core soil boring. 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 set of samples was also collected from the 9 to 10 foot depth interval if groundwater had not been encountered. The 10-foot bgs samples may have been held by the laboratory prior to analysis in accordance with the requirements given in the Parcel A7 Work Plan. These project-specific requirements for the analysis of 10-foot bgs samples are further described below. It should be noted that soil samples were not collected from a depth that was below the water table.

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. Down-hole soil sampling equipment was decontaminated after soil sampling had been concluded at a 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 Pace Analytical Services, Inc. (PACE) for analysis. As stated above, the 10-foot bgs samples may have been held prior to analysis in accordance with the Parcel A7 Work Plan. Excluding these deep samples, the remaining soil samples were analyzed for Target Compound List (TCL) semi-volatile organic compounds (SVOCs) via USEPA Methods 8270D and 8270D SIM, Oil & Grease via USEPA Method 9071, total petroleum hydrocarbon (TPH) diesel range organics (DRO) and gasoline range organics (GRO) via USEPA Method 8015, Target Analyte List (TAL) Metals via USEPA Methods 6010C and 7471C, hexavalent chromium via USEPA Method 7196A, and cyanide via USEPA Method 9012. 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. Additionally, the shallow soil samples collected across the Site from the 0 to 1 foot bgs interval were analyzed for polychlorinated biphenyls (PCBs) via USEPA Method 8082. Sample containers, preservatives, and holding times for the sample analyses are listed in the QAPP Worksheet 19 & 30 – Sample Containers, Preservation, and Holding Times.

If the PID reading from the 9 to 10 foot bgs interval was less than 10 ppm (true for all 10-foot bgs samples in Parcel A7), all parameters were held by the laboratory pending the analysis of the 0 to 1 and 4 to 5 foot bgs (or field adjusted interval) samples. If any 9 to 10 foot bgs interval had exhibited a sustained PID reading of 10 ppm, this sample would be released to be analyzed for VOCs, SVOCs, TPH-DRO, TPH-GRO, and Oil & Grease. However, the samples for metals and cyanide would still be held by the laboratory pending the analysis of the 0 to 1 and 4 to 5 foot bgs interval samples. If the preliminary laboratory results from the 4 to 5 foot bgs interval indicated exceedances of the Project Action Limits (PALs) for any constituents, the held sample from the 9 to 10 foot bgs interval was then released to be analyzed for those constituents that exhibited PAL exceedances in the overlying sample.

3.3. TEST PIT INVESTIGATION

Composite soil samples were collected from 10 test pits completed at the locations shown on **Figure 5**. The objective of the test pit investigation was to determine if the materials within several berms and mounds located on the parcel were indicative of potential contamination. Some of the berms targeted by this investigation surrounded small pits or larger topographic depressions at the Site, which may have been historically used as waste disposal locations (see Section 1.1). Aerial images with topographic hillshade effects (generated in GIS) were used to guide the soil berm and mound test pit locations proposed in the Parcel A7 Work Plan. The test pits were completed in

accordance with **Field SOP Number 015**. A backhoe was used to clear the area and create a pothole at the specified location of each test pit. The types of materials present in each test pit were documented, and the materials excavated from representative locations were screened using visual/olfactory methods and a hand-held PID.

No visible petroleum impacts (or other evidence of potential contamination) were observed in the field during the test pit investigation. No PID readings exceeding 10 ppm were recorded during the test pitting activities. Each test pit appeared to consist of fine to coarse grained soil (silty clay to sandy silt) and/or slag gravel. The agency-approved Work Plan specified that soil samples would only be required if indications of potential contamination were observed; however the sampling procedure was modified in the field, and samples were collected from each test pit location as an additional conservatism. After sampling was complete, the test pit was backfilled with the same material that was in place prior to excavation. A photograph log documenting the completed test pitting activities is provided in **Appendix E**. The photograph log also provides one picture of each excavation area prior to (or immediately following the start of) test pitting activities.

A soil sample was collected from the excavated material generated at each location as a 10-point composite. Each composite sample collected during this investigation was submitted to PACE to be analyzed for TCL-SVOCs via USEPA Methods 8270D and 8270D SIM, Oil & Grease via USEPA Method 9071, TPH-DRO/GRO via USEPA Method 8015, TAL-Metals via USEPA Methods 6010C and 7471C, hexavalent chromium via USEPA Method 7196A, and cyanide via USEPA Method 9012. If any PID readings had exceeded 10 ppm, an additional sample would have been collected to be analyzed for VOCs; however, there were no PID detections greater than 10 ppm recorded at the test pit locations in Parcel A7.

3.4. GROUNDWATER INVESTIGATION

Three historical shallow groundwater monitoring wells (MW93-001, MW93-002, and W-14) were included in the parcel-specific sampling plan to characterize groundwater and to support the definition of the groundwater potentiometric surface. The locations where shallow groundwater samples were collected are provided on **Figure 3**. During field investigation activities, the historical monitoring well MW93-002 was damaged but a replacement temporary groundwater sample collection point (piezometer) was installed at this location in accordance with the procedures and methods referenced in **Field SOP Number 028**. The soil boring log and the piezometer construction log for MW93-002 are included in **Appendix F**.

At the replacement location for MW93-002, the Geoprobe® DT22 Dual Tube sampling system was advanced to a depth approximately 7 feet below where groundwater was identified in the associated soil core, the 1.25-inch inner rod string was removed, and the temporary, 1-inch PVC groundwater sample collection point was installed through the outer casing. Following the installation of the 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 the temporary groundwater 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 polyethylene 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 G**. Calibration of the multiparameter meter was performed before the start of each day of the sampling event, and a calibration post-check was completed at the end of the day. Appropriate documentation of the multiparameter meter calibration has also been included in **Appendix G**.

Groundwater samples collected in Parcel A7 were submitted to PACE, and analyzed for TCL-VOCs via USEPA Method 8260, TCL-SVOCs via USEPA Methods 8270D and 8270D SIM, Oil & Grease via USEPA Method 1664A, TPH-DRO/GRO via USEPA Method 8015, TAL-Dissolved Metals via USEPA Methods 6010C and 7470A, dissolved hexavalent chromium via USEPA Method 7196A, total cyanide via USEPA Method 9012A, and available cyanide via USEPA Method OIA1677. In addition, the permanent groundwater wells MW93-001 and W-14 were also analyzed for TAL-Total Metals via USEPA Methods 6010C and 7470A and total hexavalent chromium via USEPA Method 7196A. 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

Sediment samples were collected from the four locations shown on **Figure 5** in order to characterize the sediments in two stormwater ponds located in Parcel A7. Two samples were collected from each pond. Each sample was collected from the top 12 inches of sediment using a dipper which was constructed of a stainless steel rod and a polyethylene cup. A new dedicated polyethylene cup was used for each sample, according to the procedures and methods referenced in **Field SOP Number 016** provided in Appendix A of the QAPP. Sediment samples were collected in accordance with **Field SOP Number 003** provided in Appendix A of the QAPP.

The sediment samples were submitted to PACE and analyzed for TCL-VOCs, TCL-SVOCs, Oil & Grease, TPH-DRO/GRO, PCBs, TAL-Metals, hexavalent chromium, and cyanide via the same methods listed above (Soil Investigation). Sample containers, preservatives, and holding times for

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

3.6. SURFACE WATER

A total of four surface water samples were collected at the locations shown on **Figure 3** in order to characterize water quality in two stormwater ponds located in Parcel A7. These samples were approximately co-located with the sediment samples discussed in the preceding section. Two samples were collected from each pond by skimming and collecting the water at the surface in a 1L amber glass jar and then transferring the sample into applicable sample jars with preservatives (where applicable) at each sample location. Surface samples were collected as grab samples near the edge of each pond in accordance with **Field SOP Number 004** provided in Appendix A of the QAPP.

The surface water samples were submitted to PACE and analyzed for TCL-VOCs, TCL-SVOCs, Oil & Grease, TPH-DRO/GRO, TAL-Total Metals, dissolved hexavalent chromium, total cyanide, and available cyanide via the same methods listed above (Groundwater Investigation). Sample containers, preservatives, and holding times for the sample analyses are listed in the QAPP Worksheet 19 & 30 – Sample Containers, Preservation, and Holding Times.

3.7. MANAGEMENT OF INVESTIGATION-DERIVED WASTE (IDW)

In accordance with **Field SOP Number 005** provided in Appendix A of the QAPP, potentially impacted materials, or IDW, generated during this Phase II Investigation was containerized in 55-gallon (DOT-UN1A2) drums. The types of IDW that were generated during this Phase II Investigation included the following:

- soil cuttings generated from soil borings or the installation of temporary groundwater points;
- purged groundwater;
- decontamination fluids; and
- used personal protective equipment

Following the completion of field activities, a composite sample was gathered with aliquots from each of the Parcel A7 Phase II IDW soil drums for waste characterization. Following this analysis, the waste soil was characterized as non-hazardous. A list of all results from the soil waste characterization procedure can be found in **Table 4**. The test pits were backfilled with the material that was in place prior to excavation, and no material was placed in drums. IDW drums containing aqueous materials (including aqueous waste generated during the Parcel A7 Phase II Investigation) were characterized by preparing a composite sample from randomly selected drums. The composite sample included aliquots from several individual drums that were chosen as a subset of

the aqueous drums being staged on-site at the date of collection. Following this analysis, the aqueous waste was characterized as non-hazardous. A list of all results from the aqueous waste characterization procedure can be found in **Table 5**.

The parcel specific IDW drum log from the Phase II investigation is included as **Appendix H**. All IDW procedures were carried out in accordance with methods referenced in the QAPP Worksheet 21 – Field SOPs and Appendix A of the QAPP.

4.0 ANALYTICAL RESULTS

4.1. SOIL AND TEST PIT 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 exceedances. PALs are generally based on the USEPA’s Regional Screening Levels (RSLs) for the Composite Worker exposure to soil. The Composite Worker is defined by the USEPA as a long-term receptor exposed during the work day 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 parameters are summarized and compared to the PALs in **Table 6** (Organics) and **Table 7** (Inorganics). These tables include the data obtained from the soil borings as well as the test pit composite samples. 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 individual results in the attached summary tables.

4.1.1. Soil and Test Pit Conditions: Organic Compounds

As provided on **Table 6**, several VOCs were identified above the laboratory’s method detection limits (MDLs) in the soil samples collected from across the Site. Only soil samples which exhibited PID readings greater than 10 ppm were analyzed for VOCs. There were no VOCs detected above their respective PALs.

Table 6 provides a summary of SVOCs detected above the laboratory’s MDLs in the soil samples collected from across the Site. The PALs for relevant polynuclear aromatic hydrocarbons (PAHs) have been adjusted upward based on revised toxicity data published in the USEPA RSL Composite Worker Soil Table. Therefore, any exceedances for PAHs would be based on the adjusted PALs rather than those presented in the QAPP. There were no SVOCs detected above their respective PALs.

Shallow soil samples collected across the Site from the 0 to 1 foot bgs interval were analyzed for PCBs. The test pit composite samples were not analyzed for PCBs. **Table 6** provides a summary of the PCBs detected above the laboratory’s MDLs. There were no PCBs detected above their respective PALs.

Table 6 provides a summary of the TPH/Oil & Grease detections above the laboratory’s MDLs in the soil samples collected from across the Site. There were no PAL exceedances of DRO or GRO in any of the soil samples. One soil sample, A7-001-SB-8, had an Oil & Grease PAL exceedance with a detection of 14,400 mg/kg; however, this Oil & Grease concentration does not appear to be associated with TPH-DRO/GRO contamination since DRO was detected at 929 mg/kg (below the

PAL of 6,200 mg/kg) and GRO was not detected in the sample. This intermediate soil sample was shifted to the 7 to 8 foot bgs interval due to observations of a light petroleum odor and staining in the associated soil core at this depth. An underlying soil sample collected in the 9 to 10 foot bgs interval did not have any observations of contamination or significant detections of TPH/Oil & Grease, with an Oil & Grease concentration of 393 mg/kg. In addition, groundwater was not observed to be encountered within this soil core. Based on the field observations and analytical results, the potential mobility of petroleum contaminants is expected to be low and a temporary NAPL screening piezometer is not recommended at this location. The Oil & Grease PAL exceedance at location A7-001-SB is shown on **Figure S-1**; this boring is also highlighted due to the physical evidence of possible petroleum contamination observed in the soil core.

4.1.2. Soil and Test Pit Conditions: Inorganic Constituents

Table 7 provides a summary of inorganic constituents detected above the laboratory's MDLs in the soil samples collected from across the Site. Four inorganic compounds (arsenic, lead, manganese, and thallium) were detected above their respective PALs. Arsenic was by far the most common inorganic exceedance, and was detected above the PAL in 42 soil samples (34 soil boring samples and eight test pit soil samples) analyzed for this compound with a maximum detection of 86.3 mg/kg in soil sample A7-005-SB-1. In comparison, PAL exceedances were noted in seven soil samples for lead (with a maximum detection of 6,780 mg/kg at A7-008-TP). Manganese and thallium exhibited one PAL exceedance each, with detections of 58,300 mg/kg at A7-010-SB-1 and 83.6 mg/kg at A7-008-TP, respectively. A summary of the inorganic PAL exceedance locations and results has been provided on **Figure S-2**.

4.1.3. Soil and Test Pit Conditions: Results Summary

Table 6 and **Table 7** provide a summary of the detected organic compounds and inorganics in the soil samples submitted for laboratory analysis (both from soil borings and test pit composite samples). **Figure S-1** and **Figure S-2** present a summary of the soil sample results that exceeded the PALs. **Table 8** provides a summary of results for all PAL exceedances in soil, including maximum values and detection frequencies. **Table 9** indicates which soil impacts (PAL exceedances) are associated with the specific targets listed in the Parcel A7 Work Plan. Borings providing general site coverage are not included on this particular table. PAL exceedances in soil within Parcel A7 consisted of four inorganics (arsenic, lead, manganese, and thallium) and Oil & Grease. VOCs, SVOCs, PCBs, and TPH-DRO/GRO were not detected above their respective PALs and are not considered to be significant soil contaminants in Parcel A7.

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. Concentrations for lead and PCBs did not exceed

the specified thresholds in any soil samples collected at the Site. Although there were no PAL exceedances of TPH-DRO/GRO, one soil sample (A7-001-SB-8) had a detected concentration of Oil & Grease above the PAL, with a result of 14,400 mg/kg. A light petroleum odor and staining were also noted in the soil core at this location from 7 to 8 feet bgs. However, the underlying soil sample collected in the 9 to 10 foot bgs interval did not have any observations of contamination or significant detections of TPH/Oil & Grease, with an Oil & Grease concentration of 393 mg/kg. Groundwater was not observed to be encountered within this soil core. Based on the field observations and analytical results from the underlying sample interval, and the absence of groundwater in the soil core, the potential mobility of petroleum contaminants is expected to be low at this location.

4.2. GROUNDWATER CONDITIONS

The analytical results for the detected parameters in groundwater are summarized and compared to the PALs in **Table 10** (Organics) and **Table 11** (Inorganics). The laboratory Certificates of Analysis (including Chains of Custody) and the associated DVR have been included as electronic attachments. The DVR contains a glossary of qualifiers for the final flags assigned to individual results in the attached summary tables.

4.2.1. Groundwater Conditions: Organic Compounds

As provided on **Table 10**, several VOCs were identified above the laboratory's MDLs in the groundwater samples collected from across the Site. There were no VOCs detected above their respective PALs.

Table 10 provides a summary of SVOCs identified in the groundwater samples above the laboratory's MDLs. Similar to the evaluation of soil data, the PALs for relevant PAHs have been adjusted upward based on revised toxicity data published in the USEPA RSL Resident Tapwater Table. There were no SVOCs detected above their respective PALs.

Table 10 provides a summary of the TPH/Oil & Grease detections in groundwater at the Site. There were no PAL exceedances of Oil & Grease or GRO in any of the groundwater sampling points. DRO was detected above its PAL in one sample (MW93-002) with a detection of 108 µg/L (flagged with the "J" qualifier indicating that it is an estimated value). 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 DRO PAL exceedance at location MW93-002 is shown on **Figure GW-1**.

4.2.2. Groundwater Conditions: Inorganic Constituents

Table 11 provides a summary of inorganic constituents detected above the MDLs in the groundwater samples collected from across the Site. A total of five total/dissolved metals (beryllium, hexavalent chromium, cobalt, iron, and manganese) were detected above their

respective aqueous PALs. The maximum detections of each inorganic constituent in groundwater were 6.2 ug/L at W-14, 10.8 µg/L at MW93-001, 106 ug/L at W-14, 17,700 ug/L at MW93-002, and 1,040 ug/L at W-14, respectively. The inorganic PAL exceedance locations and results have been provided on **Figure GW-2**. For simplicity, **Figure GW-2** does not include duplicate exceedances of total and dissolved metals at relevant sample locations. If both total and dissolved concentrations exceeded the PAL for a specific compound, the value for total metals is displayed on the figure for each sample.

4.2.3. Groundwater Conditions: Results Summary

Groundwater data were screened to determine whether individual sample results may exceed the USEPA Vapor Intrusion (VI) Screening Levels (Target Cancer Risk (TCR) of 1E-5 and Target Hazard Quotient (THQ) of 1 as determined by the Vapor Intrusion Screening Level (VISL) Calculator version 3.5 (<https://www.epa.gov/vaporintrusion/vapor-intrusion-screening-levels-visls>)). The PALs specified in the QAPP are based upon drinking water use, which is not a potential exposure pathway for groundwater at the Site.

None of the aqueous results exceeded the individual VI TCR or THQ criteria as specified by the 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 versus non-cancer risk. All compounds with detections 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. Methyl tert-butyl ether (MTBE) was the only parameter included in the cumulative evaluation of cancer risk because it was the only detected compound (0.5 ug/L at MW93-002) with a corresponding carcinogenic VI screening level at the specified TCR of 1E-5. There were no compounds that were identified above the 10% THQ level to be included in the cumulative VI evaluation for non-cancer hazard. The results of the cumulative VI comparisons are provided in **Table 12**.

The presence and absence of groundwater impacts within the Site boundaries have been adequately described. There were no concerns related to potential VI risks at the Site. 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.

4.3. SEDIMENT CONDITIONS

The sediment samples were screened against the PALs established in the QAPP (for soil) to determine potential direct exposure risks. The sediment analytical results were additionally compared to the Biological Technical Assistance Group (BTAG) Freshwater Sediment Screening Benchmark values. The analytical results for the detected parameters are summarized and compared to the PALs and the BTAG Freshwater Sediment Screening Benchmark values in **Table**

13 (Organics) and **Table 14** (Inorganics). The laboratory Certificate of Analysis (including the Chain of Custody) and the associated DVR have been included as electronic attachments. The DVR contains a glossary of qualifiers for the final flags assigned to individual results in the attached summary tables.

Arsenic and Oil & Grease were the only compounds to exceed the specified PALs (3 mg/kg and 6,200 mg/kg, respectively). Arsenic was detected above the PAL in three of the four samples; whereas, Oil & Grease was detected above the PAL in two of the sediment samples. The maximum detections of arsenic and Oil & Grease in sediment were 8.2 mg/kg in A7-016-SD and 30,000 mg/kg in A7-017-SD, respectively. A summary figure showing the PAL exceedances in the pond sediments (all classes of compounds) has been provided on **Figure SD-1**.

Several organic and inorganic constituents were detected in the sediment samples above their respective BTAG Freshwater Sediment Screening Benchmark values. These included one VOC (carbon disulfide), six SVOCs (2-methylnaphthalene, acenaphthene, acenaphthylene, benzo[b]fluoranthene, bis(2-ethylhexyl)phthalate, and naphthalene), and 11 inorganics (cadmium, chromium, copper, iron, lead, manganese, nickel, selenium, silver, zinc, and cyanide). Most of the listed compounds (all except carbon disulfide, acenaphthene, and bis(2-ethylhexyl)phthalate) were detected above their respective BTAG Benchmark values in more than one sediment sample. It is anticipated that Parcel A7 will be developed for industrial use in the coming years, possibly removing the ponds. While the BTAG Freshwater Sediment Screening Benchmark values are useful for generally characterizing the sediments, the risks associated with these values may not be applicable for future development.

The detections of constituents in the pond sediments are not a significant concern at this time. Since the sediments are below the water surface, there is no direct exposure pathway for a worker to encounter the pond sediments. Furthermore, since arsenic and Oil & Grease were the only compounds to exceed their PALs in the sediments, the potential risks to workers who could in the future be exposed to pond sediments are not expected to be significant. The detections of arsenic in the pond sediments were relatively low, and the elevated Oil & Grease concentrations do not appear to be associated with TPH-DRO/GRO contamination since DRO was detected at low concentrations and GRO was not detected. The Oil & Grease impacts in the pond sediments may be associated with the nearby roadways bordering Parcel A7. There is no indirect exposure risk via the consumption of organisms 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. However, the sediments may require additional characterization and management for proper disposal of Oil & Grease contaminated sediments during redevelopment.

4.4. 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 15** (Organics) and **Table 16** (Inorganics). The laboratory Certificates of Analysis (including Chains of Custody) and the associated DVR have been included as electronic attachments. The DVR contains a glossary of qualifiers for the final flags assigned to individual results in the attached summary tables.

PAL exceedances in the surface water samples consisted of one SVOC (naphthalene), DRO, Oil & Grease, and 11 inorganics (arsenic, cadmium, chromium, hexavalent chromium, iron, lead, manganese, selenium, thallium, vanadium, and zinc). Naphthalene was detected above its PAL in one surface water sample (A7-016-SW) with a detection of 0.5 µg/L compared to the PAL of 0.17 µg/L. DRO was detected above its PAL (47 µg/L) in all four surface water samples with a maximum detection of 358 µg/L (flagged with the “J” qualifier indicating that it is an estimated value) at A7-016-SW. This was also the only surface water sample to exceed the Oil & Grease PAL with a detection of 2,310 µg/L (“J” qualified). The inorganic PAL exceedances were widespread in samples A7-016-SW, A7-017-SW, and A7-019-SW; however, there were no exceedances in sample A7-018-SW. A summary figure showing the aqueous PAL exceedances in the surface water samples (all classes of compounds) has been provided on **Figure SW-1**.

Several inorganic constituents were detected in the surface water samples above their respective Aquatic Life Chronic Criteria for Freshwater. None of the organic compounds detected in the surface water samples had an associated Aquatic Life Chronic Criteria for comparison. The inorganic exceedances included aluminum, cadmium, copper, iron, lead, selenium, zinc, and total cyanide. Each of the listed inorganic constituents was detected above its respective Aquatic Life Chronic Criteria in more than one surface water sample. The exceedances of total cyanide are not valid, because the Aquatic Life Chronic Criteria are expressed as free cyanide; comparable data for available cyanide in the surface water samples indicated that these concentrations are below the Aquatic Life Chronic Criteria of 5.2 µg/L. It is anticipated that Parcel A7 will be developed for industrial use in the coming years, possibly removing the ponds. While the Aquatic Life Chronic Criteria are useful for generally characterizing the surface water in the ponds, the risks associated with these values may not be applicable for future development.

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. Therefore, no additional action or remediation is proposed at this time with regard to the surface water in the two stormwater ponds.

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, sediment, and surface water) 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 most current USEPA RSLs) or based on other direct guidance from the agencies, to identify the presence of exceedances in each environmental medium.

Quality control (QC) samples were collected during field studies to evaluate field/laboratory variability. A summary of QA/QC samples associated with this investigation has been included as **Appendix I**. Please note that the sediment and surface water samples were pooled with a set of soil samples when computing the appropriate number of QA/QC samples for the project. The following QC samples were submitted for analysis 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 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 Chain of Custody forms 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 D** (PID calibration log) and **Appendix G** (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 Chain of Custody forms 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 50% of the environmental sample analyses performed by PACE 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 PACE-Greensburg (PA) 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 each DVR 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 17** (soil; both from borings and test pit composite samples) **Table 18** (groundwater) and **Table 19** (sediment). None of the surface water results were rejected during validation. 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, 004, 006, 008, 009, 010, 011, 015, 017, and 024**. Review of the field notes and laboratory sample receipt records indicated that sample collection at the Site was representative, with no significant deviations from the SOPs.

Comparability describes the degree of confidence in comparing two sets of data. Comparability is maintained across multiple datasets by the use of consistent sampling and analytical methods across multiple project phases. Comparability of sample results was ensured through the use of approved standard sampling and analysis methods outlined in the QAPP. QA/QC protocols help to maintain the comparability of datasets, and in this case were assessed via blind duplicates, blank samples, and spiked samples, where applicable. No significant deviations from the QAPP were noted in the dataset.

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 J**. This evaluation of completeness includes only the representative 50% of sample results which were randomly selected for validation.

All compounds in surface water had an overall completeness ratio of 100%, indicating that none of these results were rejected. All groundwater compounds had an overall completeness ratio of

100%, excluding total cyanide. Both of the total cyanide results which underwent the validation procedure were rejected. However, the rejection of the data for total cyanide does not represent a significant data gap because available cyanide was also sampled in groundwater and had a completeness ratio of 100% (i.e., no rejected results).

The only soil compounds with overall completeness ratios below 90% were 1,4-dioxane (0%) and pentachlorophenol (54%). These two compounds were also rejected in the sediment results, with the full set of validated results rejected in each case (0% completeness). The rejection of the results for these two compounds has not been uncommon for solid matrix data obtained from the Tradepoint Atlantic property. Since 1,4-dioxane is often associated with chlorinated VOCs, any potentially significant concentrations of 1,4-dioxane in the soil and sediments would be expected to be accompanied by a significant presence of chlorinated VOCs, which has not been the case in this parcel. In addition, there was one rejected result for 3,3'-dichlorobenzidine in sediments, resulting in a completeness ratio of 75%. The rejection of this single result in sediment does not represent a significant data gap. Groundwater and surface water data is available (100% completeness for 1,4-dioxane, pentachlorophenol, and 3,3'-dichlorobenzidine) to evaluate the significance of these compounds in Parcel A7.

Overall, the soil, groundwater, sediment, and surface water data can be used as intended, and no significant data gaps were identified. While a limited set of analytes did not meet the completeness goal of 90% for all Site media, these compounds do not appear to be significant contaminants at the Site.

6.0 FINDINGS AND RECOMMENDATIONS

The objective of this Phase II Investigation was to fully characterize the nature and extent of contamination at the Site. During the Phase II Investigation, a total of 54 soil samples (from 18 boring locations and 10 test pit locations), three groundwater samples, four sediments samples, and four surface water samples were collected and analyzed to define the nature and extent of contamination in Parcel A7. The sampling and analysis plan for the parcel was developed to target specific features which represented a potential release of hazardous substances and/or petroleum products to the environment. Soil and sediment samples were analyzed for TCL-VOCs, TCL-SVOCs, TPH-DRO/GRO, Oil & Grease, TAL-Metals, hexavalent chromium, and cyanide. Shallow soil samples (0 to 1 foot bgs) and sediment samples were additionally analyzed for PCBs. The test pit composite samples were analyzed for TCL-SVOCs, TPH-DRO/GRO, Oil & Grease, TAL-Metals, hexavalent chromium, and cyanide. Groundwater and surface water samples were analyzed for TCL-VOCs, TCL-SVOCs, TPH-DRO/GRO, Oil & Grease, TAL-Metals (total and/or dissolved), hexavalent chromium (total and/or dissolved), total cyanide, and available cyanide.

6.1. SOIL (BORINGS AND TEST PITS)

The concentrations of constituents in the soil (including the data obtained from the soil borings as well as the test pit composite samples) have been characterized by the Phase II Investigation to provide estimates of exposure point concentrations to support risk assessment.

Lead and PCB concentrations are well below the levels that would warrant evaluation of a removal remedy. There were no locations where detections of lead exceeded 10,000 mg/kg, the designated threshold at which delineation would be required. There were no concentrations of total PCBs identified above the mandatory delineation criterion of 50 mg/kg, indicating that further action is not needed.

There were no soil PAL exceedances identified for VOCs, SVOCs, TPH-DRO/GRO, or PCBs, indicating that these compounds are not significant contaminants in soil at the Site. Exceedances of the PALs in soil within Parcel A7 consisted of four inorganics (arsenic, lead, manganese, and thallium) and Oil & Grease. Arsenic exceeded its PAL in the largest proportion of the samples analyzed for this compound site-wide (42 soil exceedances), with a maximum detection of 86.3 mg/kg in sample A7-005-SB-1. In comparison, lead exceeded its PAL in seven soil samples; whereas, manganese, thallium, and Oil & Grease exceeded their PALs at individual isolated locations with one exceedance each. Petroleum impacts, including a discussion of the soil core observations and the Oil & Grease PAL exceedance (14,400 mg/kg) in sample A7-001-SB-8, are further discussed in Section 6.5.

6.2. GROUNDWATER

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

There were no aqueous PAL exceedances identified in groundwater for VOCs, SVOCs, GRO, or Oil & Grease, indicating that these compounds are not significant contaminants in groundwater at the Site. Exceedances of the PALs in groundwater below Parcel A7 consisted of five total/dissolved metals (beryllium, hexavalent chromium, cobalt, iron, and manganese) and DRO. Beryllium, cobalt, iron, and manganese were all detected at concentrations that exceeded their respective PALs in W-14, and additional exceedances of cobalt, iron, and manganese were observed in MW93-002 (beryllium did not exceed its PAL at this location). The only other inorganic PAL exceedance in groundwater was dissolved hexavalent chromium, which was detected at a concentration of 10.8 µg/L in MW93-001. This was the only groundwater exceedance in MW93-001. DRO was detected above its PAL (47 µg/L) in one location (MW93-002) with a detection of 108 µg/L flagged with the “J” qualifier. Each groundwater point 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.

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 for a Composite Worker. In the event that future construction/excavation leads to a potential Construction Worker exposure 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. None of the individual sample results exceeded the VI TCR or THQ criteria. When the aqueous results were summed by sample location, none of the cumulative VI cancer risks were greater than or equal to 1E-5, and none of the cumulative VI non-cancer HI values exceeded 1. There are no concerns related to potential VI risks at the Site.

6.3. SEDIMENT

The sediment samples were screened against the PALs established in the QAPP (for soil) to determine potential direct exposure risks. The sediment analytical results were additionally compared to the BTAG Freshwater Sediment Screening Benchmark values.

It is anticipated that Parcel A7 will be developed for industrial use in the coming years, possibly removing the ponds. While the BTAG Freshwater Sediment Screening Benchmark values are useful for generally characterizing the sediments, the risks associated with these values may not be applicable for future development. Several constituents were detected in the sediment samples above their respective BTAG Freshwater Sediment Screening Benchmark values, including one VOC (carbon disulfide), six SVOCs (2-methylnaphthalene, acenaphthene, acenaphthylene,

benzo[b]fluoranthene, bis(2-ethylhexyl)phthalate, and naphthalene), and 11 inorganics (cadmium, chromium, copper, iron, lead, manganese, nickel, selenium, silver, zinc, and cyanide).

PAL exceedances in the sediment samples were limited to arsenic and Oil & Grease. Arsenic was detected above the PAL in three of the four samples (maximum detection of 8.2 mg/kg in A7-016-SD); whereas, Oil & Grease was detected above the PAL in two of the sediment samples (maximum detection of 30,000 mg/kg in A7-017-SD).

The detections of constituents in the pond sediments above the PALs are not a significant concern at this time. Since the sediments are below the water surface, there is no direct exposure pathway for a worker to encounter the pond sediments. Furthermore, the potential risks to workers who could in the future be exposed to pond sediments are not expected to be significant because the detections of arsenic in the pond sediments were relatively low. The elevated Oil & Grease concentrations do not appear to be associated with TPH-DRO/GRO contamination, and may be associated with the nearby roadways bordering Parcel A7. There is no indirect exposure risk via the consumption of organisms 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. However, the sediments may require additional characterization and management for proper disposal of Oil & Grease contaminated sediments during redevelopment.

6.4. SURFACE WATER

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 NRWQC Aquatic Life Chronic Criteria for Freshwater.

It is anticipated that Parcel A7 will be developed for industrial use in the coming years, possibly removing the ponds. While the Aquatic Life Chronic Criteria are useful for generally characterizing the surface water in the ponds, the risks associated with these values may not be applicable for future development. Several inorganic constituents were detected in the surface water samples above their respective Aquatic Life Chronic Criteria for Freshwater, including aluminum, cadmium, copper, iron, lead, selenium, zinc, and total cyanide. The exceedances of total cyanide are not valid, because comparable data for available cyanide in the surface water samples indicated that these concentrations are below the applicable criteria.

PAL exceedances in the surface water samples consisted of one SVOC (naphthalene), Oil & Grease, DRO, and 11 inorganics (arsenic, cadmium, chromium, hexavalent chromium, iron, lead, manganese, selenium, thallium, vanadium, and zinc). Naphthalene was detected above its PAL in one surface water sample (A7-016-SW) with a detection of 0.5 µg/L. Oil & Grease was detected above its PAL in the same sample with a detection of 2,310 µg/L (“J” qualified). DRO was detected above its PAL in all four surface water samples with a maximum detection of 358 µg/L.

(“J” qualified) in A7-016-SW. Several inorganic PAL exceedances were identified in A7-016-SW, A7-017-SW, and A7-019-SW; there were no exceedances in sample A7-018-SW.

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

6.5. NON-AQUEOUS PHASE LIQUID

Prior to the initiation of the Parcel A7 Work Plan, each of the historical groundwater monitoring wells (MW93-001, MW93-002, and W-14) was inspected and gauged using an oil-water interface probe to evaluate the potential presence of NAPL. In addition, the two intact historical wells (MW93-001 and W-14) and the replacement temporary groundwater sample collection point (MW93-002) were re-gauged to check for NAPL prior to sample collection. None of the groundwater locations exhibited evidence of NAPL during any of the gauging events.

Elevated concentrations of Oil & Grease above the soil PAL (6,200 mg/kg) were detected in the stormwater pond sediments. These concentrations could be indicative of potential NAPL contamination. However, no physical evidence of NAPL contamination was observed during the collection of the sediment samples. Although no additional action or remediation is proposed at this time with regard to the pond sediments, additional characterization may be required during redevelopment to ensure proper management and disposal of excavated sediments which may be impacted by elevated Oil & Grease.

There were no elevated detections of DRO or GRO in soil above the PAL (6,200 mg/kg); however, there was one soil sample with an elevated Oil & Grease detection (14,400 mg/kg in sample A7-001-SB-8). This Oil & Grease concentration does not appear to be associated with TPH-DRO/GRO contamination since DRO was detected at 929 mg/kg in this sample (below the PAL of 6,200 mg/kg) and GRO was not detected. The intermediate soil sample collected from this boring was shifted to the 7 to 8 foot bgs interval due to observations of a light petroleum odor and staining in the associated soil core at this depth. An underlying soil sample collected in the 9 to 10 foot bgs interval did not have any observations of contamination or significant detections of TPH/Oil & Grease. In addition, groundwater was not observed to be encountered within this soil core. Based on the field observations and analytical results from the underlying sample interval, and the absence of groundwater in the soil core, the potential mobility of petroleum contaminants is expected to be low and a temporary NAPL screening piezometer is not recommended at this location.

Although a NAPL screening piezometer is not proposed, the proximity of soil boring A7-001-SB to proposed utilities should be evaluated in any future development planning for Parcel A7 due to the possibility of petroleum impacts at this location. Appropriate protocols should be documented in a Response and Development Work Plan (as necessary) to prevent the mobilization of any product if future utilities are proposed in the vicinity of these impacts.

6.6. RECOMMENDATIONS

Sufficient remedial investigation data has been collected to present this evaluation of the nature and extent of possible constituents of concern in Parcel A7. The presence and absence of soil, groundwater, sediment, and surface water impacts within Parcel A7 have been adequately described and further site-wide investigation is not warranted to characterize overall conditions. Recommendations for the parcel are as follows:

- The soil boring with evidence of petroleum contamination and an elevated concentration of Oil & Grease (A7-001-SB) should be considered for proximity to proposed utilities in any future development plans. If future utilities are proposed in the vicinity of this boring, appropriate protocols for the mitigation of potential product (i.e., NAPL) mobility should be specified in a Response and Development Work Plan.
- At multiple locations in the two stormwater ponds, sediment and surface water sample results exceeded the PALs and other environmental criteria (BTAG and NRWQC). While the environmental criteria are useful for generally characterizing current conditions in the ponds, the risks associated with these values may not be applicable for future development since the ponds may be removed. Based on the lack of exposure pathways for a worker to encounter sediments and surface water in the ponds, no additional action or remediation is proposed at this time. However, future development work may require that some conditions be addressed, in particular elevated concentrations of Oil & Grease in the sediments. Additional characterization may be required during redevelopment to ensure proper management of excavated sediments. If necessary, any response actions will be coordinated in the future with the MDE.

7.0 REFERENCES

ARM Group, Inc. (2017). *Phase II Investigation Work Plan: Parcel A7*. Revision 1. July 12, 2017.

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

ARM Group, Inc. (2017). *Stormwater Pollution Prevention Plan (SWPPP)*. Revision 5. June 1, 2017.

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

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

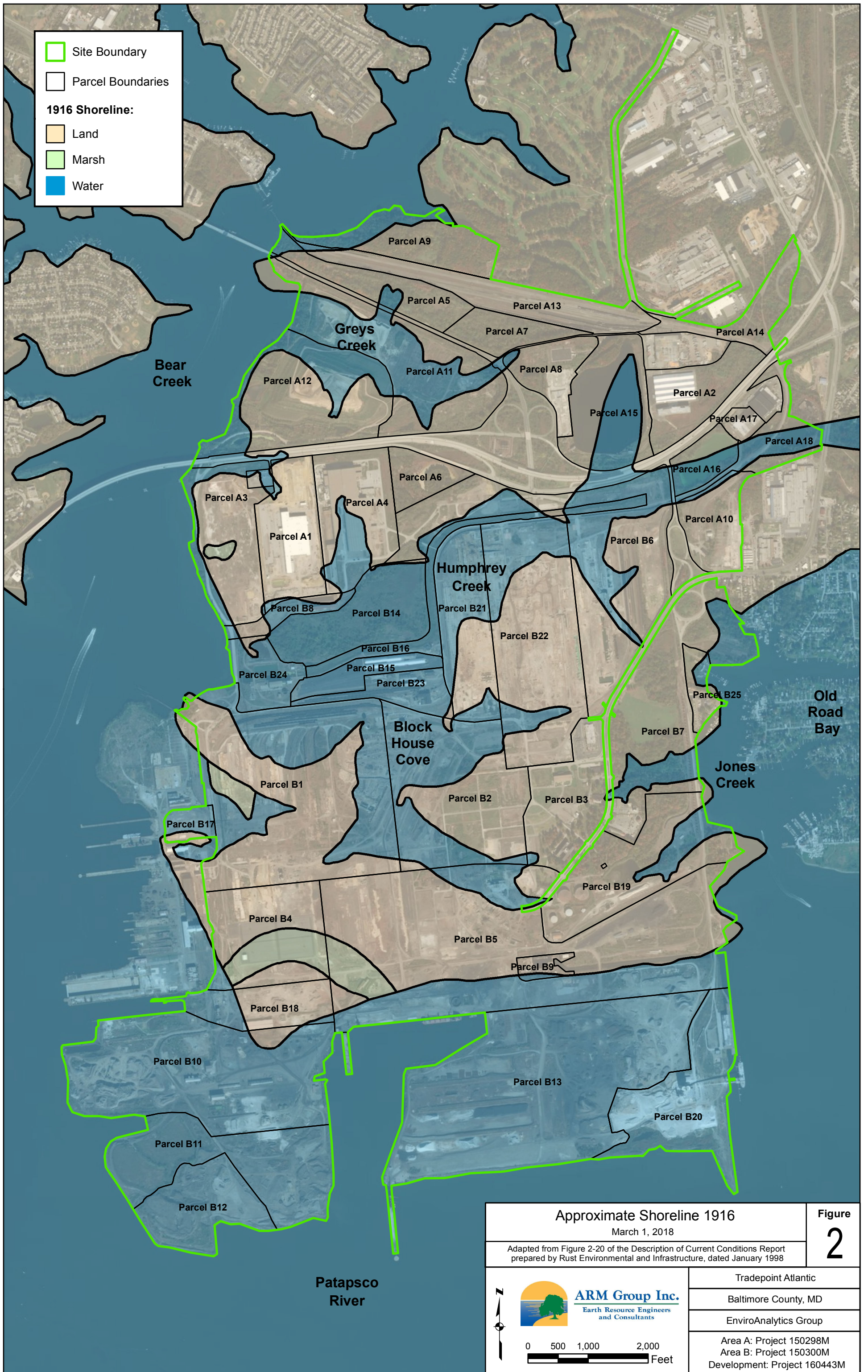
Weaver Boos Consultants (2014). *Phase I Environmental Site Assessment: Former RG Steel Facility*. Final Draft. May 19, 2014.

FIGURES



Site Boundary
 Parcel Boundaries
 Private Property

Tradepoint Atlantic Area A and Area B Parcels March 1, 2018		Figure 1
 ARM Group Inc. Earth Resource Engineers and Consultants	Tradepoint Atlantic Baltimore County, MD EnviroAnalytics Group	
	Area A: Project 150298M Area B: Project 150300M Development: Project 160443M	





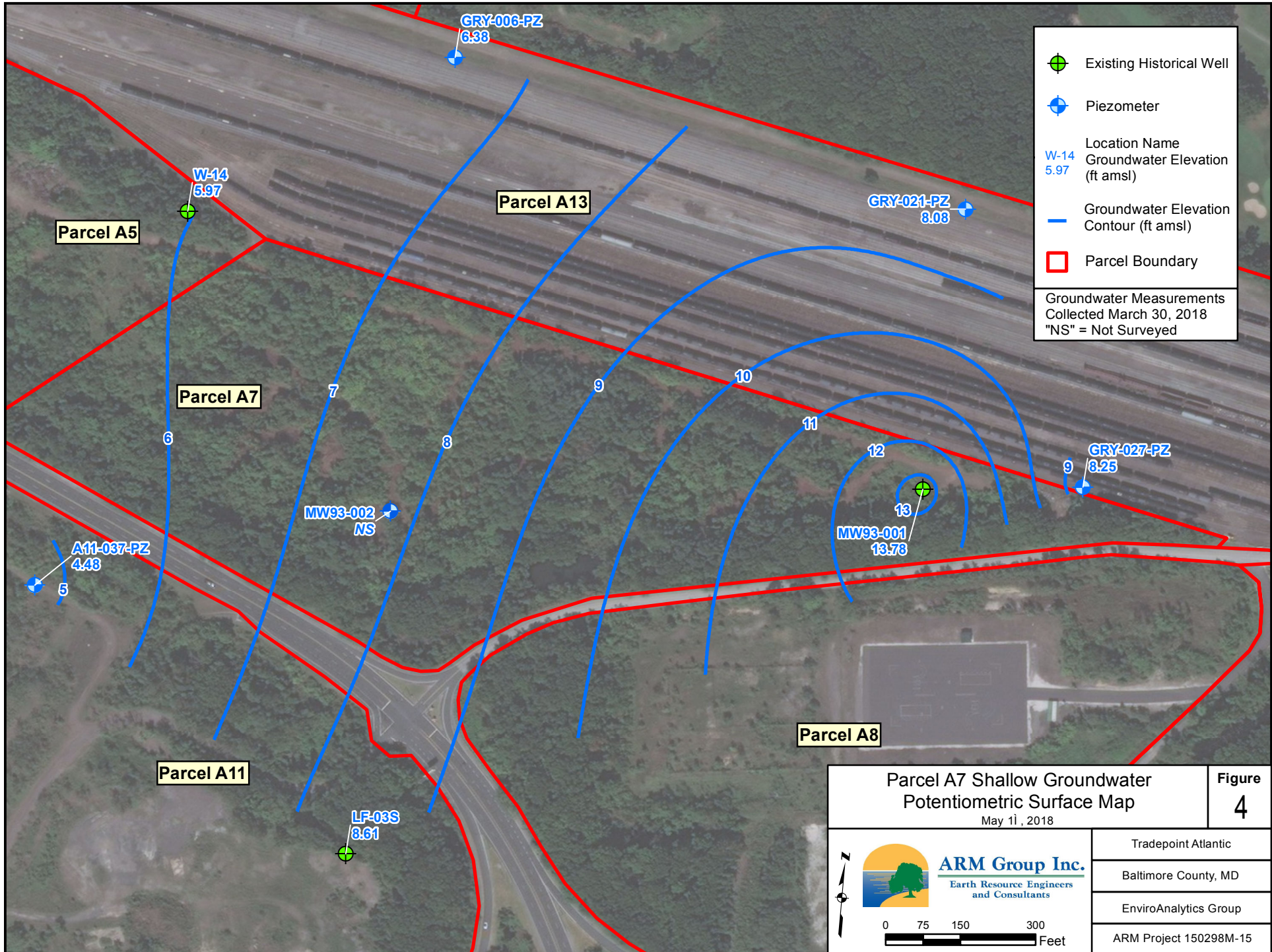
Parcel A7 Groundwater and Surface Water
 Final Field Sample Locations
 May 17, 2018

Figure
3

ARM Group Inc.
 Earth Resource Engineers
 and Consultants

0 75 150 300
 Feet

Tradepoint Atlantic
Baltimore County, MD
EnviroAnalytics Group
ARM Project 150298M-15



	Existing Historical Well
	Piezometer
W-14 5.97	Location Name Groundwater Elevation (ft amsl)
	Groundwater Elevation Contour (ft amsl)
	Parcel Boundary
Groundwater Measurements Collected March 30, 2018 "NS" = Not Surveyed	

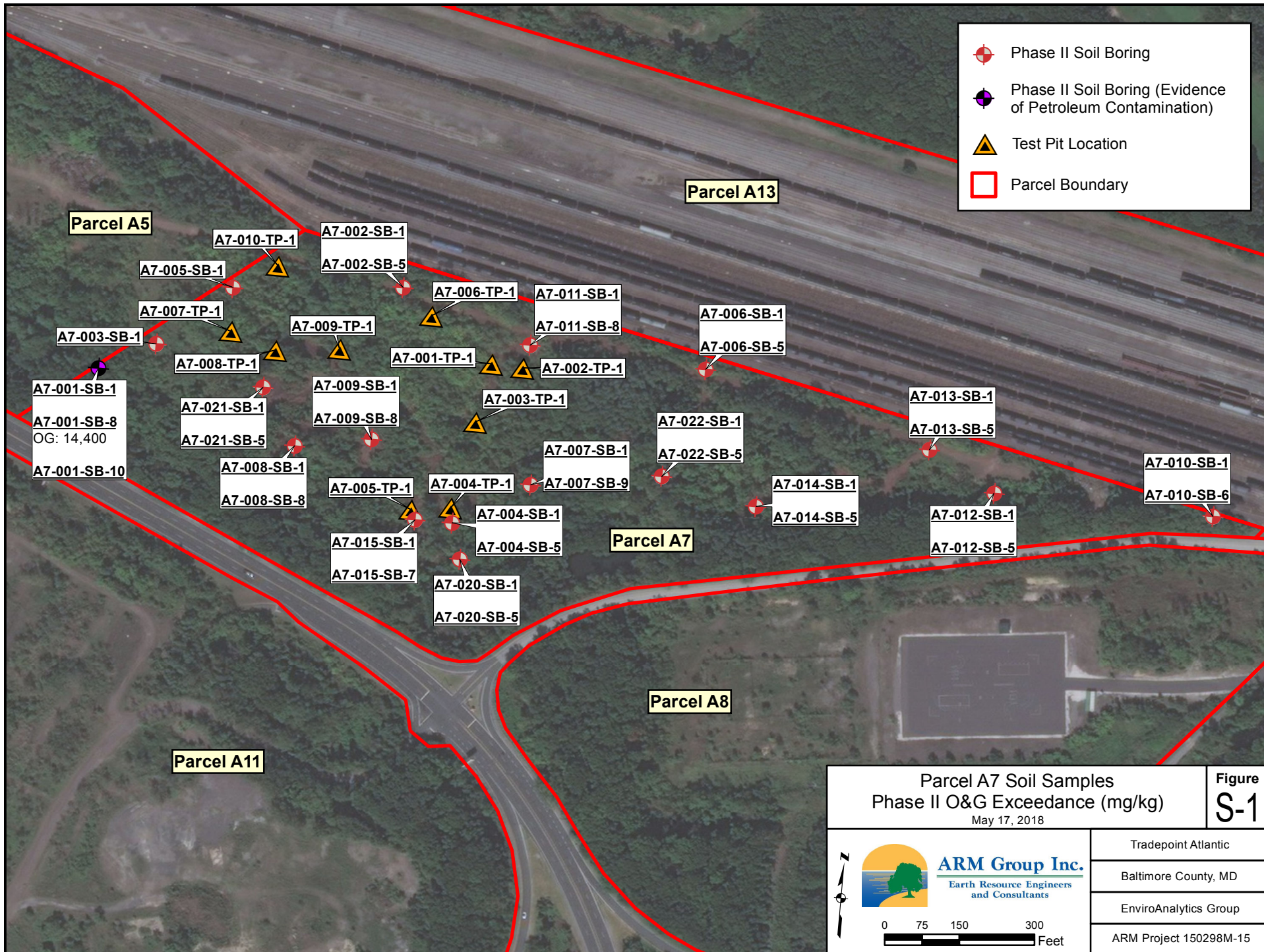
Parcel A7 Shallow Groundwater Potentiometric Surface Map
May 11, 2018





Figure 4



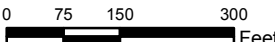
ARM Group Inc.
 Earth Resource Engineers and Consultants

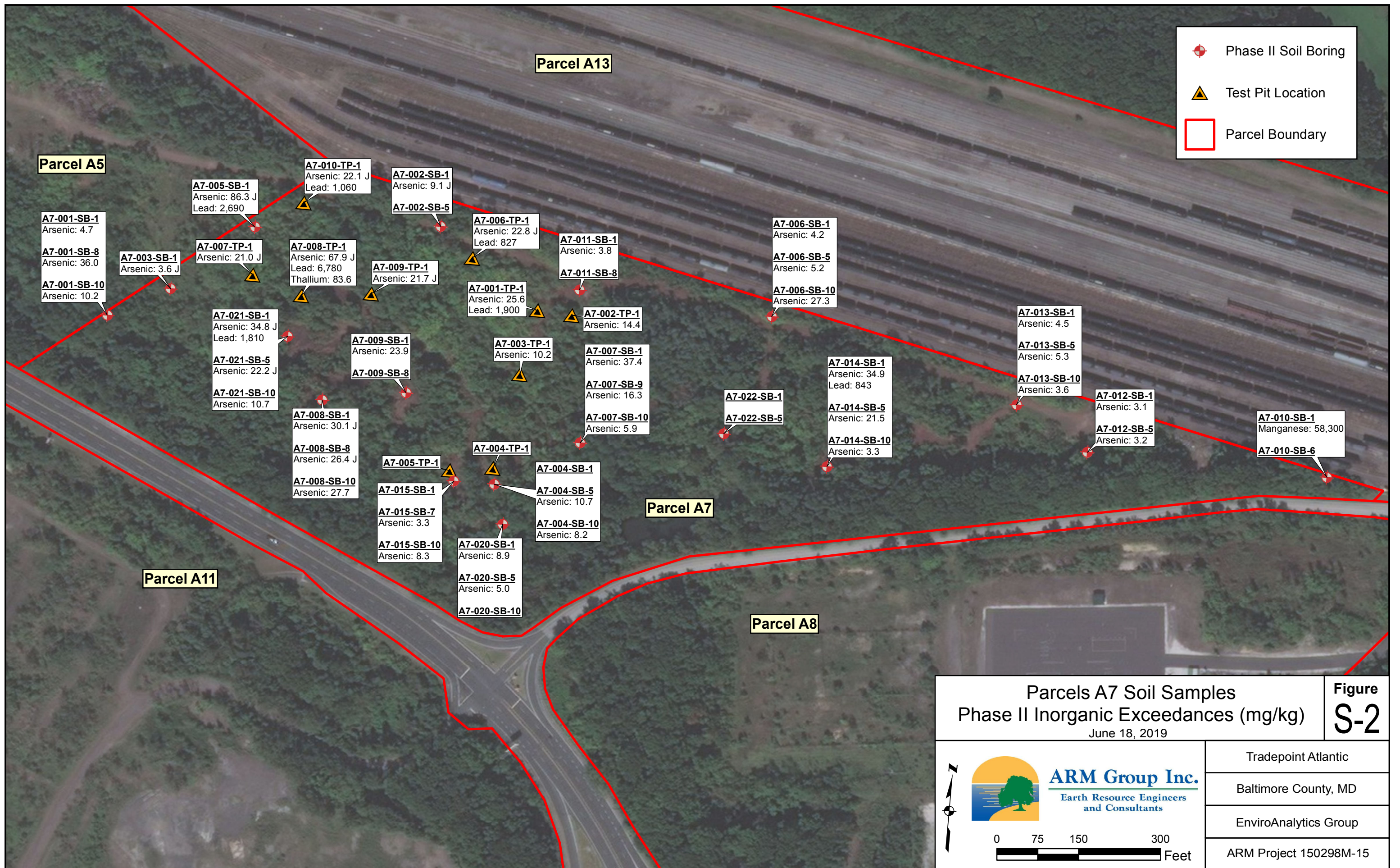
0 75 150 300 Feet




Tradepoint Atlantic
Baltimore County, MD
EnviroAnalytics Group
ARM Project 150298M-15


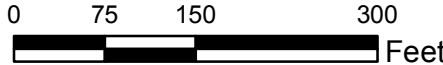


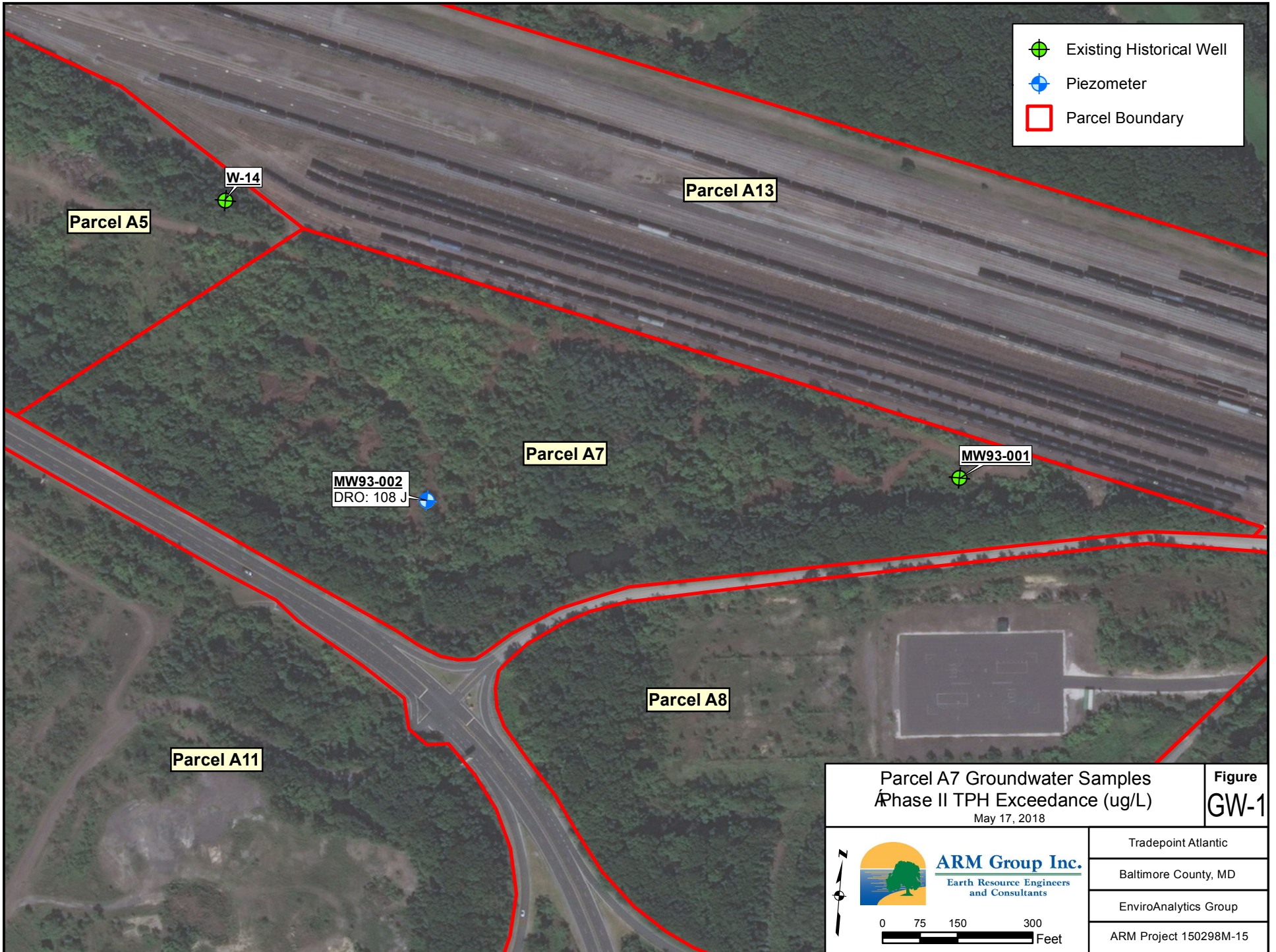
-  Phase II Soil Boring
-  Phase II Soil Boring (Evidence of Petroleum Contamination)
-  Test Pit Location
-  Parcel Boundary




Parcel A7 Soil Samples Phase II O&G Exceedance (mg/kg) May 17, 2018		Figure S-1
 ARM Group Inc. Earth Resource Engineers and Consultants		Tradepoint Atlantic Baltimore County, MD EnviroAnalytics Group ARM Project 150298M-15
 		



 Phase II Soil Boring
 Test Pit Location
 Parcel Boundary

Parcels A7 Soil Samples Phase II Inorganic Exceedances (mg/kg) June 18, 2019		Figure S-2
 ARM Group Inc. Earth Resource Engineers and Consultants		
		Tradepoint Atlantic Baltimore County, MD EnviroAnalytics Group ARM Project 150298M-15



-  Existing Historical Well
-  Piezometer
-  Parcel Boundary

Parcel A5

W-14

Parcel A13

Parcel A7

MW93-002
DRO: 108 J


MW93-001

Parcel A8

Parcel A11

Parcel A7 Groundwater Samples
Phase II TPH Exceedance (ug/L)
May 17, 2018

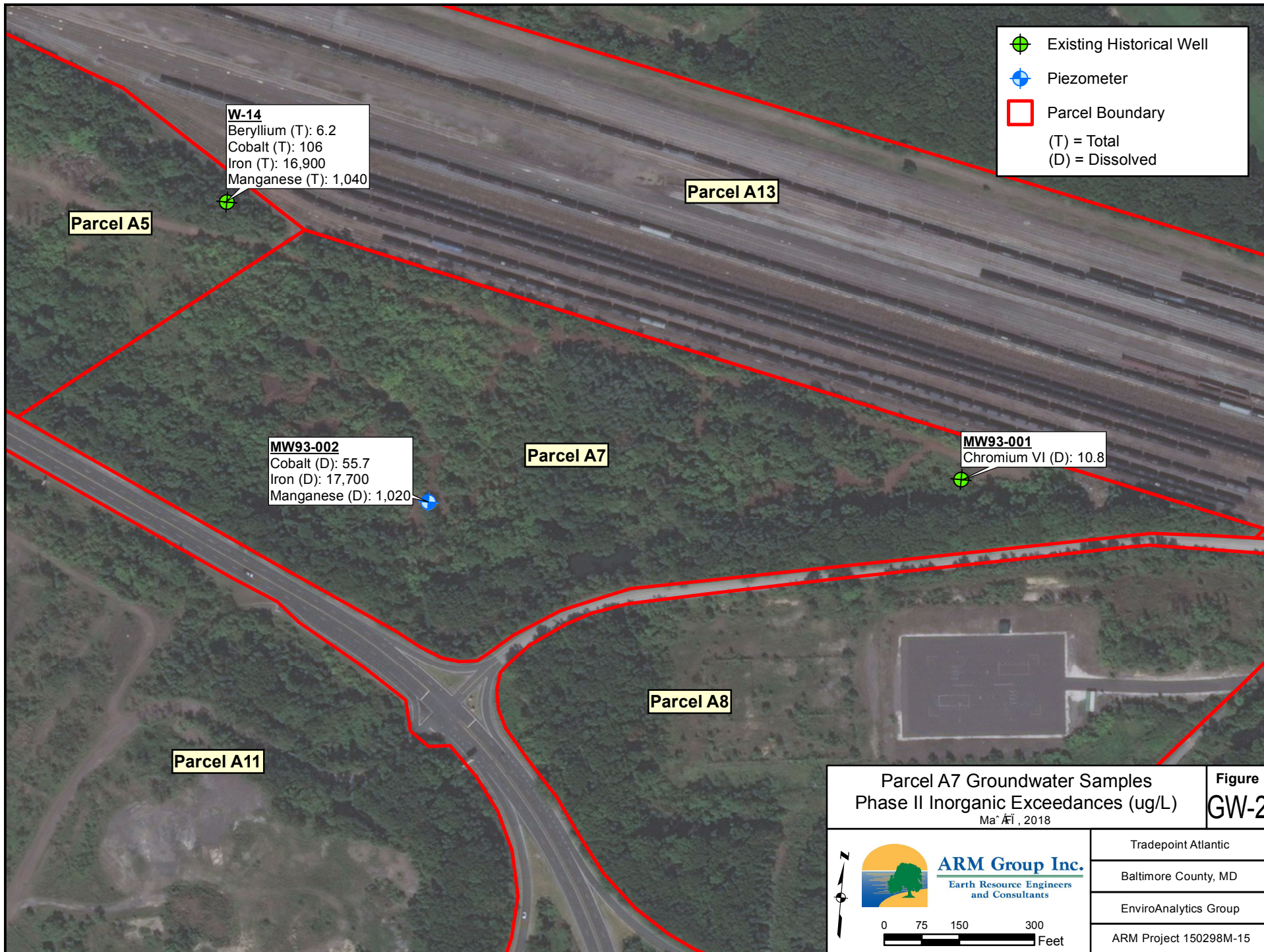
Figure
GW-1

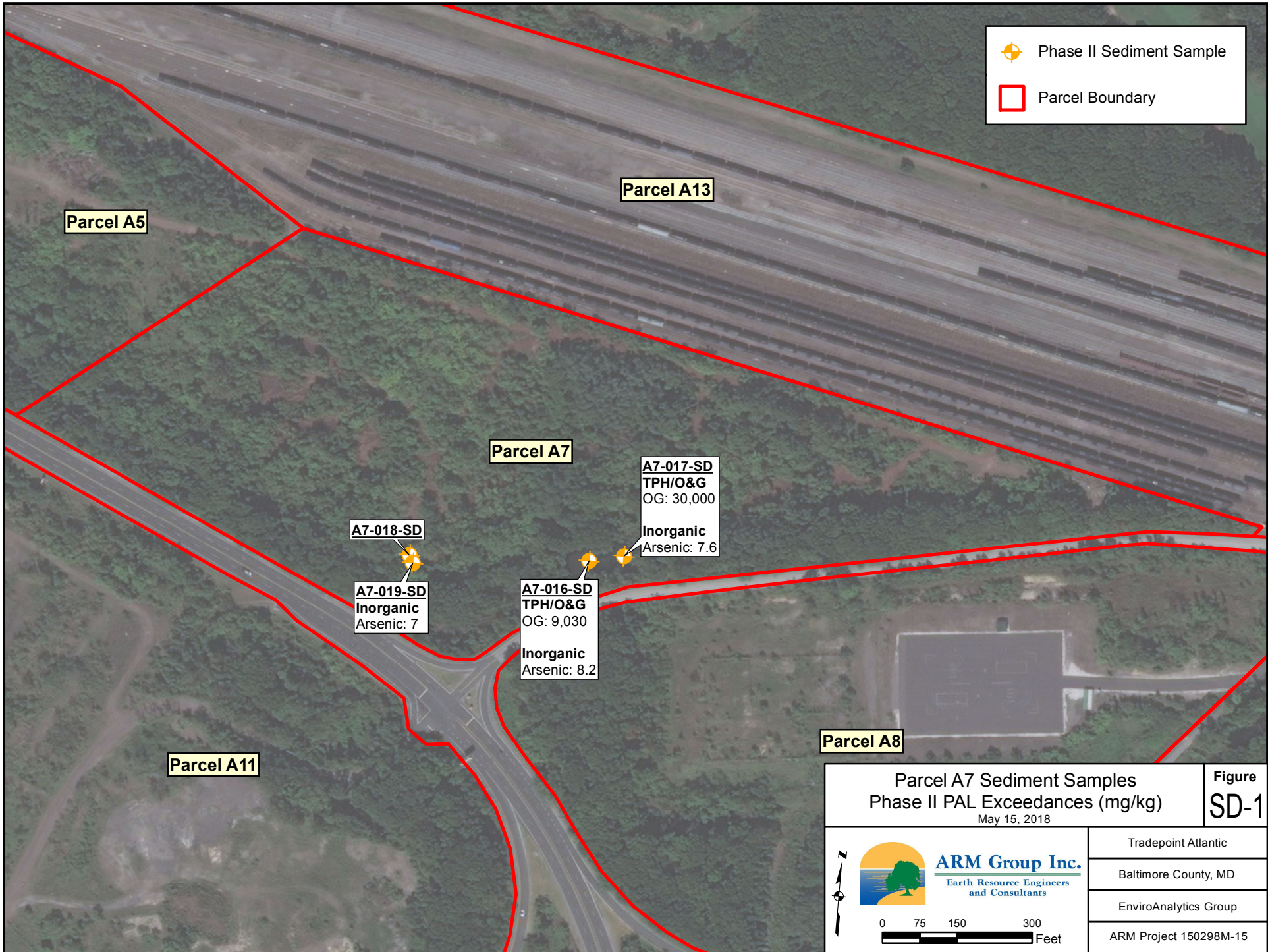




ARM Group Inc.
Earth Resource Engineers
and Consultants

0 75 150 300
Feet

Tradepoint Atlantic
Baltimore County, MD
EnviroAnalytics Group
ARM Project 150298M-15





 Phase II Sediment Sample
 Parcel Boundary

Parcel A5

Parcel A13

Parcel A7

A7-018-SD

A7-019-SD
Inorganic
Arsenic: 7

A7-016-SD
TPH/O&G
OG: 9,030

Inorganic
Arsenic: 8.2

A7-017-SD
TPH/O&G
OG: 30,000


Inorganic
Arsenic: 7.6

Parcel A11

Parcel A8

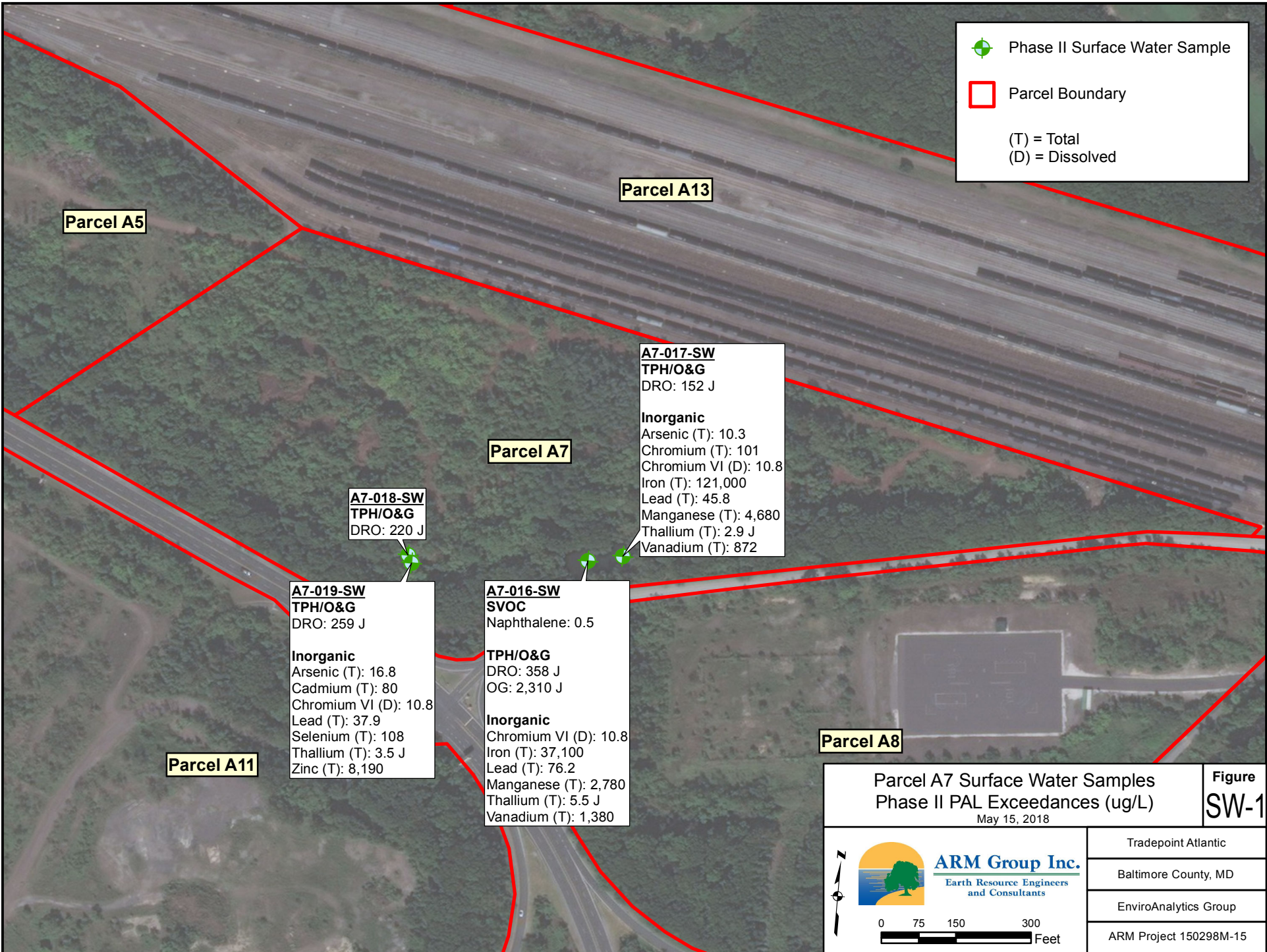
Parcel A7 Sediment Samples
Phase II PAL Exceedances (mg/kg)
May 15, 2018

Figure
SD-1


ARM Group Inc.
 Earth Resource Engineers
 and Consultants

0 75 150 300
 Feet

Tradepoint Atlantic
Baltimore County, MD
EnviroAnalytics Group
ARM Project 150298M-15



Parcel A7 Surface Water Samples Phase II PAL Exceedances (ug/L) May 15, 2018		Figure SW-1
Tradepoint Atlantic Baltimore County, MD		
EnviroAnalytics Group ARM Project 150298M-15		

0 75 150 300 Feet

TABLES

**Table 1 - Parcel A7
Groundwater Elevation Data**

<u>Location Name</u>	<u>TOC Elevation (feet AMSL)</u>	<u>Ground Elevation (feet AMSL)</u>	<u>Measured DTW (feet)</u>	<u>Groundwater Elevation (feet AMSL)</u>
GRY-006-PZ	15.95	15.20	9.57	6.38
GRY-021-PZ	19.73	16.08	11.65	8.08
GRY-027-PZ	18.60	16.13	10.35	8.25
A11-037-PZ	16.50	12.91	12.02	4.48
MW93-001	19.42	17.41	5.64	13.78
MW93-002	<i>NS</i>	<i>NS</i>	<i>NS</i>	<i>NS</i>
W-14	22.44	19.75	16.47	5.97
LF-03S	14.99	12.40	6.38	8.61

DTW = Depth to water
 TOC = Top of casing
 AMSL = Above mean sea level
 NS = Not Surveyed

**Table 2 - Parcel A7
Historical Site Drawing Details**

<u>Set Name</u>	<u>Typical Features Shown</u>	<u>Drawing Number</u>	<u>Original Date Drawn</u>	<u>Latest Revision Date</u>
Plant Arrangement	Roads, water bodies, building/structure footprints, electric lines, above-ground pipelines (e.g.: steam, nitrogen, etc.)	5060	2/8/1962	3/11/1982
		5061	2/8/1962	3/11/1982
		5064	2/8/1964	3/11/1982
		5065	2/8/1962	3/11/1982
Plant Index	Roads, water bodies, demolished buildings/structures, electric lines, above-ground pipelines	5160	<i>Unknown</i>	3/6/2008
		5161	<i>Unknown</i>	3/6/2008
		5164	<i>Unknown</i>	3/6/2008
		5165	<i>Unknown</i>	3/6/2008
Plant Sewer Lines	Same as above plus trenches, sumps, underground piping (includes pipe materials)	5560	2/5/1976	2/5/1976
		5561	2/5/1976	2/5/1976
		5564	2/5/1976	2/5/1976
		5565	2/10/1976	2/10/1976
Drip Legs	Coke Oven Gas Drip Legs Locations	5888	<i>Unknown</i>	Sept. 1988

**Table 3 - Parcel A7
Field Shifted Boring Locations**

<u>Location ID</u>	<u>Sample Target</u>	<u>Proposed Location*</u>		<u>Final Location*</u>		<u>Relocation Distance & Direction</u>	
		<u>Northing</u>	<u>Easting</u>	<u>Northing</u>	<u>Easting</u>		
A7-001-SB	Parcel Coverage	574,795	1,460,170	574,788	1,460,171	7	S
A7-010-SB	Parcel Coverage	574,674	1,462,433	574,686	1,462,421	17	NW
A7-013-SB	Parcel Coverage	574,799	1,461,820	574,769	1,461,843	38	SE

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

**Table 4 - Parcel A7
Characterization Results for Solid IDW**

<u>Sample ID</u>	<u>Parameter</u>	<u>Result</u> (mg/L)	<u>TCLP Limit</u> (mg/L)	<u>TCLP</u> <u>Exceedance</u>	<u>Laboratory</u> <u>Flag</u>	<u>Laboratory</u> <u>LOQ</u> (mg/L)
A7 Waste Disposal (10/23/17)	1,1-Dichloroethene	0.05	0.7	no	U	0.05
	1,2-Dichloroethane	0.05	0.5	no	U	0.05
	1,4-Dichlorobenzene	0.5	7.5	no	U	0.5
	2,4,5-Trichlorophenol	5	400	no	U	5
	2,4,6-Trichlorophenol	0.1	2	no	U	0.1
	2,4-Dinitrotoluene	0.1	0.13	no	U	0.1
	2-Butanone (MEK)	0.1	200	no	U	0.1
	2-Methylphenol	2	200	no	U	2
	3&4-Methylphenol(m&p Cresol)	2	200	no	U	2
	Arsenic	0.025	5	no	U	0.025
	Barium	0.26	100	no		0.05
	Benzene	0.05	0.5	no	U	0.05
	Cadmium	0.015	1	no	U	0.015
	Carbon tetrachloride	0.05	0.5	no	U	0.05
	Chlorobenzene	0.05	100	no	U	0.05
	Chloroform	0.05	6	no	U	0.05
	Chromium	0.025	5	no	U	0.025
	Hexachlorobenzene	0.1	0.13	no	U	0.1
	Hexachloroethane	0.2	3	no	U	0.2
	Lead	0.12	5	no	U	0.12
	Mercury	0.001	0.2	no	U	0.001
	Nitrobenzene	0.1	2	no	U	0.1
	Pentachlorophenol	5	100	no	U	5
	Selenium	0.04	1	no	U	0.04
	Silver	0.03	5	no	U	0.03
	Tetrachloroethene	0.05	0.7	no	U	0.05
	Trichloroethene	0.05	0.5	no	U	0.05
	Vinyl chloride	0.05	0.2	no	U	0.05

U: The analyte was not detected in the sample. The numeric value represents the sample LOQ.

TCLP: Toxicity Characteristic Leaching Procedure

LOQ: Limit of Quantitation - analyzed by Pace Analytical

**Table 5 - Parcel A7
Characterization Results for Liquid IDW**

<u>Sample ID</u>	<u>Parameter</u>	<u>Result</u> <u>(mg/L)</u>	<u>TCLP</u> <u>Limit</u> <u>(mg/L)</u>	<u>TCLP</u> <u>Exceedance</u>	<u>Laboratory</u> <u>Flag</u>	<u>Laboratory</u> <u>LLQ</u> <u>(mg/L)</u>
Waste Disposal (12/4/2017)	1,1,1-Trichloroethane	0.005		no	U	0.005
	1,1,2,2-Tetrachloroethane	0.005		no	U	0.005
	1,1,2-Trichloroethane	0.005		no	U	0.005
	1,1,2-Trichlorotrifluoroethane	0.005		no	U	0.005
	1,1-Dichloroethane	0.005		no	U	0.005
	1,1-Dichloroethene	0.005	0.7	no	U	0.005
	1,2,4-Trichlorobenzene	0.005		no	U	0.005
	1,2-Dibromo-3-chloropropane	0.005		no	U	0.005
	1,2-Dibromoethane	0.005		no	U	0.005
	1,2-Dichlorobenzene	0.005		no	U	0.005
	1,2-Dichloroethane	0.005	0.5	no	U	0.005
	1,2-Dichloropropane	0.005		no	U	0.005
	1,3-Dichlorobenzene	0.005		no	U	0.005
	1,4-Dichlorobenzene	0.005	7.5	no	U	0.005
	2-Butanone (MEK)	0.025	200	no	U	0.025
	2-Hexanone (MBK)	0.025		no	U	0.025
	4-Methyl-2-pentanone (MIBK)	0.025		no	U	0.025
	Acetone	0.025		no	U	0.025
	Antimony	0.005		no	U	0.005
	Aroclor 1016	0.0005		no	U	0.0005
	Aroclor 1221	0.0005		no	U	0.0005
	Aroclor 1232	0.0005		no	U	0.0005
	Aroclor 1242	0.0005		no	U	0.0005
	Aroclor 1248	0.0005		no	U	0.0005
	Aroclor 1254	0.0005		no	U	0.0005
	Aroclor 1260	0.0005		no	U	0.0005
	Arsenic	0.005	5	no	U	0.005
	Benzene	0.007	0.5	no		0.001
	Beryllium	0.004		no	U	0.004
	Bromodichloromethane	0.005		no	U	0.005
	Bromoform	0.005		no	U	0.005
	Bromomethane	0.005		no	U	0.005
	Cadmium	0.005	1	no	U	0.005
	Carbon disulfide	0.005		no	U	0.005
	Carbon tetrachloride	0.005	0.5	no	U	0.005
	Chlorobenzene	0.005	100	no	U	0.005
	Chloroethane	0.005		no	U	0.005
	Chloroform	0.005	6	no	U	0.005
	Chloromethane	0.005		no	U	0.005
	Chromium	0.005	5	no	U	0.005
	cis-1,2-Dichloroethene	0.005		no	U	0.005
	cis-1,3-Dichloropropene	0.005		no	U	0.005
Copper	0.005		no	U	0.005	

**Table 5 - Parcel A7
Characterization Results for Liquid IDW**

<u>Sample ID</u>	<u>Parameter</u>	<u>Result</u> (mg/L)	<u>TCLP</u> <u>Limit</u> (mg/L)	<u>TCLP</u> <u>Exceedance</u>	<u>Laboratory</u> <u>Flag</u>	<u>Laboratory</u> <u>LLQ</u> (mg/L)
Waste Disposal (12/4/2017)	Cyclohexane	0.005		no	U	0.005
	Dibromochloromethane	0.005		no	U	0.005
	Dichlorodifluoromethane	0.005		no	U	0.005
	Diisopropyl ether (DIPE)	0.025		no	U	0.025
	Ethyl t-butyl ether (ETBE)	0.025		no	U	0.025
	Ethylbenzene	0.001		no	U	0.001
	Isopropylbenzene	0.005		no	U	0.005
	Lead	0.0072	5	no		0.005
	m&p-Xylene	0.005		no	U	0.005
	Mercury	0.001	0.2	no	U	0.001
	Methyl acetate	0.005		no	U	0.005
	Methyl t-butyl ether (MTBE)	0.005		no	U	0.005
	Methylcyclohexane	0.005		no	U	0.005
	Methylene chloride	0.01		no	U	0.01
	Naphthalene	0.01		no	U	0.01
	Nickel	0.024		no		0.005
	o-Xylene	0.005		no	U	0.005
	Selenium	0.013	1	no		0.005
	Silver	0.005	5	no	U	0.005
	Styrene	0.005		no	U	0.005
	tert-Amyl alcohol (TAA)	0.025		no	U	0.025
	tert-Amyl ethyl ether (TAEE)	0.025		no	U	0.025
	tert-Amyl methyl ether (TAME)	0.025		no	U	0.025
	tert-Butanol (TBA)	0.025		no	U	0.025
	Tetrachloroethene	0.005	0.7	no	U	0.005
	Thallium	0.002		no	U	0.002
	Toluene	0.001		no	U	0.001
	trans-1,2-Dichloroethene	0.005		no	U	0.005
	trans-1,3-Dichloropropene	0.005		no	U	0.005
	Trichloroethene	0.005	0.5	no	U	0.005
	Trichlorofluoromethane	0.005		no	U	0.005
	Vinyl chloride	0.001	0.2	no	U	0.001
Zinc	0.32		no		0.005	

U: The analyte was not detected in the sample. The numeric value represents the sample LLQ.

TCLP: Toxicity Characteristic Leaching Procedure

LLQ: Lowest Level Quantitation - analyzed by Caliber Analytical Services

**Table 6 - Parcel A7
Summary of Organics Detected in Soil**

Parameter	Units	PAL	A7-001-SB-1*	A7-001-SB-8*	A7-001-SB-10	A7-002-SB-1	A7-002-SB-5	A7-003-SB-1	A7-004-SB-1*	A7-004-SB-5*	A7-005-SB-1	A7-006-SB-1	A7-006-SB-5
Volatile Organic Compounds													
Acetone	mg/kg	670,000	N/A	N/A	N/A	N/A	0.039 B	N/A	N/A	N/A	N/A	N/A	N/A
Carbon disulfide	mg/kg	3,500	N/A	N/A	N/A	N/A	0.0045 J	N/A	N/A	N/A	N/A	N/A	N/A
Semi-Volatile Organic Compounds^													
1,1-Biphenyl	mg/kg	200	1.4 U	0.048 J	N/A	0.39	0.072 U	0.071 U	0.072 U	0.082 U	0.072 U	0.071 U	0.082 U
2,4-Dimethylphenol	mg/kg	16,000	1.4 U	0.073 U	N/A	0.023 J	0.072 U	0.071 U	0.072 U	0.082 U	0.072 U	0.071 U	0.082 U
2-Methylnaphthalene	mg/kg	3,000	0.027 J	0.074 U	N/A	0.11	0.005 J	0.0086 J	0.00084 J	0.0082 U	0.0024 J	0.017	0.0047 J
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	2.8 U	0.15 U	N/A	0.032 J	0.14 U	0.14 U	0.14 U	0.16 U	0.14 U	0.14 U	0.13 J
3,3'-Dichlorobenzidine	mg/kg	5.1	1.4 U	0.73 U	N/A	0.72 U	0.072 U	0.071 U	0.072 U	0.082 U	0.072 U	0.071 U	0.082 U
4-Chloroaniline	mg/kg	11	1.4 U	0.07 J	N/A	0.072 U	0.072 U	0.071 U	0.072 U	0.082 U	0.072 U	0.071 U	0.082 U
Acenaphthene	mg/kg	45,000	0.0057 J	0.061 J	N/A	0.072 U	0.0071 U	0.0064 J	0.0072 U	0.0082 U	0.0072 U	0.0042 J	0.0018 J
Acenaphthylene	mg/kg	45,000	0.031 J	0.049 J	N/A	0.016 J	0.0071 U	0.016 J	0.0072 U	0.0082 U	0.00059 J	0.0045 J	0.0034 J
Anthracene	mg/kg	230,000	0.031 J	0.21	N/A	0.047 J	0.0018 J	0.027 J	0.00081 J	0.00094 J	0.0014 J	0.0087	0.0038 J
Benz[a]anthracene	mg/kg	21	0.13	0.29	N/A	0.078	0.0058 J	0.11	0.0056 J	0.0082 U	0.0087	0.14	0.02
Benzaldehyde	mg/kg	120,000	1.4 U	0.046 J	N/A	0.017 J	0.072 U	0.071 U	0.072 U	0.082 U	0.027 J	0.071 U	0.028 J
Benzo[a]pyrene	mg/kg	2.1	0.15	0.12	N/A	0.083	0.0091	0.15	0.0037 J	0.0082 U	0.0074	0.26	0.021
Benzo[b]fluoranthene	mg/kg	21	0.29	0.45	N/A	0.18	0.015	0.3	0.015	0.0082 U	0.028	0.36	0.042
Benzo[g,h,i]perylene	mg/kg		0.11	0.064 J	N/A	0.069 J	0.007 J	0.16	0.0054 J	0.0082 U	0.0097	0.16	0.012
Benzo[k]fluoranthene	mg/kg	210	0.26	0.4	N/A	0.17	0.014	0.27	0.014	0.0082 U	0.025	0.11	0.037
bis(2-Ethylhexyl)phthalate	mg/kg	160	1.4 U	0.073 U	N/A	0.72 U	0.072 U	0.071 U	0.072 U	0.082 U	0.072 U	0.071 U	0.082 U
Carbazole	mg/kg		1.4 U	0.073 U	N/A	0.072 U	0.072 U	0.071 U	0.072 U	0.082 U	0.072 U	0.071 U	0.082 U
Chrysene	mg/kg	2,100	0.14	0.34	N/A	0.12	0.0071 J	0.12	0.0062 J	0.0082 U	0.012	0.16	0.021
Dibenz[a,h]anthracene	mg/kg	2.1	0.03 J	0.019 J	N/A	0.021 J	0.002 J	0.035 J	0.0072 U	0.0082 U	0.0025 J	0.047	0.0036 J
Fluoranthene	mg/kg	30,000	0.23	0.69	N/A	0.1	0.0062 J	0.2	0.0053 J	0.0011 J	0.012	0.14	0.042
Fluorene	mg/kg	30,000	0.0071 J	0.13	N/A	0.015 J	0.0071 U	0.07 U	0.0072 U	0.0082 U	0.0072 U	0.0013 J	0.0014 J
Indeno[1,2,3-c,d]pyrene	mg/kg	21	0.088	0.061 J	N/A	0.056 J	0.0057 J	0.12	0.0037 J	0.0082 U	0.0074	0.15	0.012
Naphthalene	mg/kg	17	0.042 J	0.074 U	N/A	0.17 J	0.004 J	0.07 UJ	0.0072 U	0.0082 U	0.0035 J	0.026	0.0063 J
N-Nitrosodiphenylamine	mg/kg	470	1.4 U	0.082	N/A	0.072 U	0.072 U	0.071 U	0.072 U	0.082 U	0.072 U	0.071 U	0.082 U
Phenanthrene	mg/kg		0.13	0.098	N/A	0.25	0.011	0.087	0.0036 J	0.0012 J	0.007 J	0.052	0.02
Phenol	mg/kg	250,000	1.4 U	0.073 U	N/A	0.039 J	0.072 U	0.071 U	0.072 U	0.082 U	0.072 U	0.071 U	0.082 U
Pyrene	mg/kg	23,000	0.18	0.63	N/A	0.1	0.0056 J	0.16	0.0049 J	0.00099 J	0.0091	0.14	0.033
PCBs													
Aroclor 1260	mg/kg	0.99	0.018 U	N/A	N/A	0.18 J	N/A	0.018 U	0.018 U	N/A	0.018 U	0.06 J	N/A
Aroclor 1262	mg/kg		0.018 U	N/A	N/A	0.018 U	N/A	0.073	0.018 U	N/A	0.018 U	0.018 U	N/A
PCBs (total)	mg/kg	0.97	0.16 U	N/A	N/A	0.18	N/A	0.073 J	0.16 U	N/A	0.16 U	0.06 J	N/A
TPH/Oil & Grease													
Diesel Range Organics	mg/kg	6,200	64.4	929	6.6 B	195 J	8.7 J	64.4 J	12	4.4 B	10.9 J	65.8 J	32.9 J
Oil & Grease	mg/kg	6,200	1,200	14,400	393	1,060	530	909	387	411	395	288	310

Detections in bold

Values in red indicate an exceedance of the Project Action Limit (PAL)

N/A indicates that the parameter was not analyzed for this sample

*indicates non-validated data

^PAH compounds were analyzed via SIM

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.

UJ: This analyte was not detected in the sample. The actual quantitation/detection limit may be higher than reported.

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

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

B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank.

**Table 6 - Parcel A7
Summary of Organics Detected in Soil**

Parameter	Units	PAL	A7-007-SB-1*	A7-007-SB-9*	A7-008-SB-1	A7-008-SB-8	A7-009-SB-1*	A7-009-SB-8*	A7-010-SB-1	A7-010-SB-6	A7-011-SB-1*	A7-011-SB-8*	A7-012-SB-1
Volatile Organic Compounds													
Acetone	mg/kg	670,000	N/A	N/A	0.009 U	0.0092 B	N/A	0.0082 J	N/A	N/A	N/A	0.018	N/A
Carbon disulfide	mg/kg	3,500	N/A	N/A	0.0045 UJ	0.0046 U	N/A	0.0047 U	N/A	N/A	N/A	0.0052 U	N/A
Semi-Volatile Organic Compounds^													
1,1-Biphenyl	mg/kg	200	0.076 U	0.082 U	0.081 U	0.085 U	0.084 U	0.078 U	0.069 U	0.079 U	0.071 U	0.08 U	0.076 U
2,4-Dimethylphenol	mg/kg	16,000	0.076 U	0.082 U	0.081 U	0.085 U	0.084 U	0.078 U	0.069 U	0.079 U	0.071 U	0.08 U	0.076 U
2-Methylnaphthalene	mg/kg	3,000	0.002 J	0.0082 U	0.0061 J	0.0086 U	0.026	0.0079 U	0.028 J	0.00076 J	0.034 J	0.00076 J	0.032
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	0.15 U	0.16 U	0.16 U	0.17 U	0.17 U	0.16 U	0.14 U	0.16 U	0.14 U	0.16 U	0.15 U
3,3'-Dichlorobenzidine	mg/kg	5.1	0.076 U	0.082 U	0.081 U	0.085 U	0.084 U	0.078 U	0.069 U	0.079 U	0.071 U	0.08 U	0.076 U
4-Chloroaniline	mg/kg	11	0.076 U	0.082 U	0.081 U	0.085 U	0.084 U	0.078 U	0.069 U	0.079 U	0.071 U	0.08 U	0.076 U
Acenaphthene	mg/kg	45,000	0.0076 U	0.0082 U	0.0081 U	0.0086 U	0.002 J	0.0079 U	0.07 U	0.0079 U	0.028 J	0.00074 J	0.012
Acenaphthylene	mg/kg	45,000	0.0076 U	0.0082 U	0.0016 J	0.0086 U	0.0068 J	0.0079 U	0.015 J	0.0079 U	0.11	0.0079 U	0.025
Anthracene	mg/kg	230,000	0.00097 J	0.0082 U	0.0034 J	0.00077 J	0.037	0.0079 U	0.011 J	0.0079 U	0.16	0.0079 U	0.077
Benz[a]anthracene	mg/kg	21	0.0082	0.0082 U	0.025	0.039	0.1	0.0079 U	0.06 J	0.0079 U	0.49	0.0079 U	0.51
Benzaldehyde	mg/kg	120,000	0.076 U	0.082 U	0.04 J	0.085 U	0.05 J	0.078 U	0.069 U	0.079 U	0.024 J	0.08 U	0.035 J
Benzo[a]pyrene	mg/kg	2.1	0.0061 J	0.0082 U	0.039	0.01	0.065	0.0079 U	0.061 J	0.0079 U	0.56	0.0079 U	0.52
Benzo[b]fluoranthene	mg/kg	21	0.022	0.0082 U	0.087	0.097	0.27	0.0079 U	0.096	0.0079 U	1	0.0079 U	0.97
Benzo[g,h,i]perylene	mg/kg		0.024	0.0082 U	0.039	0.012	0.11	0.0079 U	0.046 J	0.0079 U	0.45	0.0079 U	0.32
Benzo[k]fluoranthene	mg/kg	210	0.0077	0.0082 U	0.078	0.087	0.064	0.0079 U	0.032 J	0.0079 U	0.33	0.0079 U	0.88
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.076 U	0.082 U	0.021 B	0.085 U	0.084 U	0.078 U	0.069 U	0.079 U	0.071 U	0.08 U	0.015 J
Carbazole	mg/kg		0.076 U	0.082 U	0.081 U	0.085 U	0.084 U	0.078 U	0.069 U	0.079 U	0.026 J	0.08 U	0.038 J
Chrysene	mg/kg	2,100	0.0095	0.0082 U	0.033	0.085	0.16	0.0079 U	0.062 J	0.0079 U	0.56	0.0079 U	0.45
Dibenz[a,h]anthracene	mg/kg	2.1	0.0039 J	0.0082 U	0.0087	0.0039 J	0.027	0.0079 U	0.07 U	0.0079 U	0.14	0.0079 U	0.096
Fluoranthene	mg/kg	30,000	0.0051 J	0.0082 U	0.028	0.0093	0.17	0.0079 U	0.083	0.00075 J	0.8	0.0008 J	0.87
Fluorene	mg/kg	30,000	0.0076 U	0.0082 U	0.00084 J	0.0086 U	0.0058 J	0.0079 U	0.07 U	0.0079 U	0.023 J	0.00068 J	0.009
Indeno[1,2,3-c,d]pyrene	mg/kg	21	0.014	0.0082 U	0.03	0.0095	0.077	0.0079 U	0.041 J	0.0079 U	0.42	0.0079 U	0.31
Naphthalene	mg/kg	17	0.0076 U	0.0082 U	0.0077 J	0.0086 UJ	0.056	0.0079 U	0.033 J	0.0079 U	0.07 J	0.0047 J	0.031
N-Nitrosodiphenylamine	mg/kg	470	0.076 U	0.082 U	0.081 U	0.085 U	0.084 U	0.078 U	0.069 U	0.079 U	0.071 U	0.08 U	0.076 U
Phenanthrene	mg/kg		0.0036 J	0.0082 U	0.016	0.0023 J	0.16	0.0079 U	0.043 J	0.00069 J	0.41	0.0024 J	0.22
Phenol	mg/kg	250,000	0.076 U	0.082 U	0.081 U	0.085 U	0.084 U	0.078 U	0.069 U	0.079 U	0.071 U	0.08 U	0.076 U
Pyrene	mg/kg	23,000	0.0039 J	0.0082 U	0.025	0.011	0.14	0.0079 U	0.07 J	0.0079 U	0.69	0.0079 U	0.8
PCBs													
Aroclor 1260	mg/kg	0.99	0.019 U	N/A	0.02 U	N/A	0.021 U	N/A	0.017 U	N/A	0.043	N/A	0.062 J
Aroclor 1262	mg/kg		0.019 U	N/A	0.02 U	N/A	0.021 U	N/A	0.017 U	N/A	0.018 U	N/A	0.019 U
PCBs (total)	mg/kg	0.97	0.17 U	N/A	0.18 U	N/A	0.19 U	N/A	0.15 U	N/A	0.16 U	N/A	0.062 J
TPH/Oil & Grease													
Diesel Range Organics	mg/kg	6,200	16.8	2.8 B	25.1 J	126 J	48.3	5.8 B	28.4 J	3.3 B	29.8	8.5	57.5 J
Oil & Grease	mg/kg	6,200	451	835	567	2,140	516	762	489	267	569	569	592

Detections in bold

Values in red indicate an exceedance of the Project Action Limit (PAL)

N/A indicates that the parameter was not analyzed for this sample

*indicates non-validated data

^PAH compounds were analyzed via SIM

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.

UJ: This analyte was not detected in the sample. The actual quantitation/detection limit may be higher than reported.

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

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

B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank.

**Table 6 - Parcel A7
Summary of Organics Detected in Soil**

Parameter	Units	PAL	A7-012-SB-5	A7-013-SB-1	A7-013-SB-5	A7-014-SB-1	A7-014-SB-5	A7-015-SB-1*	A7-015-SB-7*	A7-020-SB-1*	A7-020-SB-5*	A7-021-SB-1	A7-021-SB-5
Volatile Organic Compounds													
Acetone	mg/kg	670,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbon disulfide	mg/kg	3,500	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Semi-Volatile Organic Compounds^													
1,1-Biphenyl	mg/kg	200	0.076 U	0.076 U	0.077 U	0.079 UJ	0.078 U	0.077 U	0.082 U	0.083 U	0.078 U	0.088 UJ	0.082 U
2,4-Dimethylphenol	mg/kg	16,000	0.076 U	0.076 U	0.077 U	0.079 UJ	0.078 U	0.077 U	0.082 U	0.083 U	0.078 U	0.088 UJ	0.082 U
2-Methylnaphthalene	mg/kg	3,000	0.0078 U	0.0032 J	0.0029 J	0.00074 J	0.0062 J	0.0078 U	0.0082 U	0.0083 U	0.0079 U	0.015	0.011
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	0.15 U	0.15 U	0.035 J	0.16 UJ	0.16 U	0.15 U	0.16 U	0.17 U	0.16 U	0.18 UJ	0.16 U
3,3'-Dichlorobenzidine	mg/kg	5.1	0.076 U	0.076 U	0.077 U	0.079 UJ	0.078 U	0.077 U	0.082 U	0.021 J	0.078 U	0.088 UJ	0.082 U
4-Chloroaniline	mg/kg	11	0.076 U	0.076 U	0.077 U	0.079 UJ	0.078 U	0.077 U	0.082 U	0.083 U	0.078 U	0.028 J	0.082 U
Acenaphthene	mg/kg	45,000	0.0078 U	0.00073 J	0.00075 J	0.008 U	0.0047 J	0.0078 U	0.0082 U	0.0083 U	0.0079 U	0.001 J	0.00087 J
Acenaphthylene	mg/kg	45,000	0.0078 U	0.0036 J	0.0069 J	0.008 U	0.18	0.0078 U	0.0082 U	0.0083 U	0.0079 U	0.0056 J	0.0013 J
Anthracene	mg/kg	230,000	0.0078 U	0.0021 J	0.0038 J	0.0006 J	0.13	0.0078 U	0.0082 U	0.0083 U	0.0079 U	0.031	0.024
Benz[a]anthracene	mg/kg	21	0.0014 J	0.015	0.027	0.0044 J	0.9	0.0078 U	0.0082 U	0.0083 U	0.0079 U	0.08	0.065
Benzaldehyde	mg/kg	120,000	0.076 U	0.076 U	0.023 J	0.079 UJ	0.078 U	0.077 U	0.082 U	0.083 U	0.078 U	0.035 J	0.018 J
Benzo[a]pyrene	mg/kg	2.1	0.0078 U	0.021	0.027	0.0026 J	1	0.0078 U	0.0082 U	0.0083 U	0.0079 U	0.057	0.037
Benzo[b]fluoranthene	mg/kg	21	0.0078 U	0.038	0.058	0.015	1.2	0.0078 U	0.0082 U	0.0025 J	0.0079 U	0.25	0.15
Benzo[g,h,i]perylene	mg/kg		0.0078 U	0.014	0.015	0.0043 J	0.43	0.0078 U	0.0082 U	0.0083 U	0.0079 U	0.23	0.062
Benzo[k]fluoranthene	mg/kg	210	0.0078 U	0.034	0.052	0.014	0.4	0.0078 U	0.0082 U	0.0023 J	0.0079 U	0.23	0.14
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.076 U	0.076 U	0.077 U	0.079 UJ	0.078 U	0.077 U	0.082 U	0.083 U	0.078 U	0.088 UJ	0.082 U
Carbazole	mg/kg		0.076 U	0.076 U	0.077 U	0.079 UJ	0.078 U	0.077 U	0.082 U	0.083 U	0.078 U	0.088 UJ	0.082 U
Chrysene	mg/kg	2,100	0.0078 U	0.015	0.025	0.0042 J	0.84	0.0078 U	0.0082 U	0.0083 U	0.0079 U	0.13	0.093
Dibenz[a,h]anthracene	mg/kg	2.1	0.0078 U	0.004 J	0.005 J	0.008 U	0.14	0.0078 U	0.0082 U	0.0083 U	0.0079 U	0.034	0.012
Fluoranthene	mg/kg	30,000	0.00078 J	0.022	0.043	0.0027 J	1.5	0.00061 J	0.0082 U	0.00071 J	0.0079 U	0.18	0.11
Fluorene	mg/kg	30,000	0.0078 U	0.0075 U	0.0014 J	0.008 U	0.019	0.0078 U	0.0082 U	0.0083 U	0.0079 U	0.0043 J	0.0027 J
Indeno[1,2,3-c,d]pyrene	mg/kg	21	0.0078 U	0.012	0.016	0.0028 J	0.48	0.0078 U	0.0082 U	0.0083 U	0.0079 U	0.13	0.038
Naphthalene	mg/kg	17	0.0078 U	0.0035 J	0.0071 J	0.008 U	0.025	0.0078 U	0.0082 U	0.0083 U	0.0079 U	0.022 J	0.013 J
N-Nitrosodiphenylamine	mg/kg	470	0.076 U	0.076 U	0.077 U	0.079 UJ	0.078 U	0.077 U	0.082 U	0.083 U	0.078 U	0.088 UJ	0.082 U
Phenanthrene	mg/kg		0.0078 U	0.0081	0.016	0.0017 J	0.19	0.0078 U	0.0082 U	0.0083 U	0.0079 U	0.15	0.072
Phenol	mg/kg	250,000	0.076 U	0.076 U	0.077 U	0.079 UJ	0.078 U	0.077 U	0.082 U	0.083 U	0.078 U	0.088 UJ	0.082 U
Pyrene	mg/kg	23,000	0.00068 J	0.018	0.035	0.0024 J	1.9	0.0078 U	0.0082 U	0.0083 U	0.0079 U	0.15	0.12
PCBs													
Aroclor 1260	mg/kg	0.99	N/A	0.019 U	N/A	0.02 U	N/A	0.019 U	N/A	0.021 U	N/A	0.15 J	N/A
Aroclor 1262	mg/kg		N/A	0.019 U	N/A	0.02 U	N/A	0.019 U	N/A	0.021 U	N/A	0.022 U	N/A
PCBs (total)	mg/kg	0.97	N/A	0.17 U	N/A	0.18 U	N/A	0.18 U	N/A	0.19 U	N/A	0.15 J	N/A
TPH/Oil & Grease													
Diesel Range Organics	mg/kg	6,200	2.9 B	19.8 J	26.3 J	42.8 J	64 J	6.3 B	6.3 B	5.8 B	2.8 B	86.8 J	29 J
Oil & Grease	mg/kg	6,200	228	247	300	193	196	354	916	1,050	457	603	455

Detections in bold

Values in red indicate an exceedance of the Project Action Limit (PAL)

N/A indicates that the parameter was not analyzed for this sample

*indicates non-validated data

^PAH compounds were analyzed via SIM

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.

UJ: This analyte was not detected in the sample. The actual quantitation/detection limit may be higher than reported.

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

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

B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank.

**Table 6 - Parcel A7
Summary of Organics Detected in Soil**

Parameter	Units	PAL	A7-022-SB-1*	A7-022-SB-5*	A7-001-TP*	A7-002-TP*	A7-003-TP*	A7-004-TP*	A7-005-TP	A7-006-TP	A7-007-TP	A7-008-TP	A7-009-TP	A7-010-TP
Volatile Organic Compounds														
Acetone	mg/kg	670,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbon disulfide	mg/kg	3,500	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Semi-Volatile Organic Compounds^														
1,1-Biphenyl	mg/kg	200	0.07 U	0.071 U	0.082 U	0.072 U	0.079 U	0.074 U	0.072 U	0.077 U	0.079 U	0.94 U	0.08 U	0.082 U
2,4-Dimethylphenol	mg/kg	16,000	0.07 U	0.071 U	0.082 U	0.072 U	0.079 U	0.074 U	0.072 U	0.077 U	0.079 U	0.94 U	0.08 U	0.082 U
2-Methylnaphthalene	mg/kg	3,000	0.0017 J	0.00072 J	0.003 J	0.012	0.0019 J	0.0062 J	0.0018 J	0.0019 J	0.0063 J	0.03 J	0.0015 J	0.0083 U
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	0.14 U	0.14 U	0.16 U	0.14 U	0.16 U	0.15 U	0.14 U	0.15 U	0.16 U	1.9 U	0.16 U	0.16 U
3,3'-Dichlorobenzidine	mg/kg	5.1	0.07 U	0.071 U	0.082 U	0.072 U	0.079 U	0.074 U	0.072 U	0.077 U	0.079 U	0.94 U	0.08 U	0.082 U
4-Chloroaniline	mg/kg	11	0.07 U	0.071 U	0.082 U	0.072 U	0.079 U	0.074 U	0.072 U	0.077 U	0.079 U	0.56 J	0.08 U	0.082 U
Acenaphthene	mg/kg	45,000	0.0071 U	0.0072 U	0.0082 U	0.0034 J	0.0078 U	0.0075 U	0.0072 U	0.0079 U	0.013	0.093 U	0.0081 U	0.0083 U
Acenaphthylene	mg/kg	45,000	0.0071 U	0.0072 U	0.0082 U	0.11	0.0043 J	0.0075 U	0.0072 U	0.0007 J	0.0059 J	0.016 J	0.0062 J	0.0012 J
Anthracene	mg/kg	230,000	0.0006 J	0.0072 U	0.0022 J	0.057	0.0028 J	0.0075 U	0.0072 U	0.0024 J	0.045	0.036 J	0.0038 J	0.0083 U
Benz[a]anthracene	mg/kg	21	0.005 J	0.0072 U	0.015	0.16	0.015	0.0021 J	0.0029 J	0.015	0.12	0.13	0.023	0.0044 J
Benzaldehyde	mg/kg	120,000	0.07 U	0.071 U	0.082 U	0.017 J	0.079 U	0.074 U	0.027 J	0.077 U	0.079 U	0.94 U	0.08 U	0.082 U
Benzo[a]pyrene	mg/kg	2.1	0.0059 J	0.0072 U	0.012	0.22	0.019	0.0013 J	0.0026 J	0.018	0.098	0.24	0.02	0.0052 J
Benzo[b]fluoranthene	mg/kg	21	0.0086	0.0072 U	0.057	0.32	0.032	0.0026 J	0.0056 J	0.066	0.19	0.98	0.054	0.0087
Benzo[g,h,i]perylene	mg/kg		0.0047 J	0.0072 U	0.064	0.26	0.016	0.0013 J	0.0022 J	0.047	0.073	2.5	0.032	0.0061 J
Benzo[k]fluoranthene	mg/kg	210	0.0034 J	0.0072 U	0.055	0.3	0.031	0.0025 J	0.0054 J	0.063	0.19	0.94	0.052	0.0084
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.07 U	0.071 U	0.082 U	0.072 U	0.079 U	0.074 U	0.072 U	0.077 U	0.079 U	1.4	0.08 U	0.082 U
Carbazole	mg/kg		0.07 U	0.071 U	0.082 U	0.072 U	0.079 U	0.074 U	0.072 U	0.077 U	0.079 U	0.94 U	0.08 U	0.082 U
Chrysene	mg/kg	2,100	0.0049 J	0.0072 U	0.02	0.17	0.016	0.0016 J	0.0022 J	0.022	0.12	0.32	0.025	0.0032 J
Dibenz[a,h]anthracene	mg/kg	2.1	0.0071 U	0.0072 U	0.011	0.051	0.004 J	0.0075 U	0.0072 U	0.0082	0.023	0.3	0.0078 J	0.0083 U
Fluoranthene	mg/kg	30,000	0.0066 J	0.00076 J	0.012	0.36	0.021	0.0013 J	0.0035 J	0.012	0.25	0.22	0.028	0.003 J
Fluorene	mg/kg	30,000	0.0071 U	0.0072 U	0.0082 U	0.029	0.0078 U	0.0075 U	0.0072 U	0.0079 U	0.017	0.0075 J	0.0081 U	0.0083 U
Indeno[1,2,3-c,d]pyrene	mg/kg	21	0.004 J	0.0072 U	0.033	0.18	0.013	0.0075 U	0.0017 J	0.027	0.06	1.3	0.024	0.0044 J
Naphthalene	mg/kg	17	0.0071 U	0.0072 U	0.0082 U	0.028	0.0078 U	0.0075 U	0.0032 J	0.0079 U	0.014	0.056 J	0.0059 J	0.0083 U
N-Nitrosodiphenylamine	mg/kg	470	0.07 U	0.071 U	0.082 U	0.072 U	0.079 U	0.074 U	0.072 U	0.077 U	0.079 U	0.94 U	0.08 U	0.082 U
Phenanthrene	mg/kg		0.0032 J	0.0008 J	0.0063 J	0.23	0.0092	0.0051 J	0.0025 J	0.0079	0.19	0.21	0.0095	0.00089 J
Phenol	mg/kg	250,000	0.07 U	0.071 U	0.082 U	0.021 J	0.079 U	0.074 U	0.072 U	0.077 U	0.079 U	0.94 U	0.08 U	0.082 U
Pyrene	mg/kg	23,000	0.0054 J	0.00062 J	0.0095	0.29	0.019	0.0011 J	0.0032 J	0.0096	0.19	0.15	0.021	0.0032 J
PCBs														
Aroclor 1260	mg/kg	0.99	0.018 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aroclor 1262	mg/kg		0.018 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PCBs (total)	mg/kg	0.97	0.16 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TPH/Oil & Grease														
Diesel Range Organics	mg/kg	6,200	13	3.4 B	100	88.9	33	4.8 J	9.4	51	38.6	1,430	47.2	47.9
Oil & Grease	mg/kg	6,200	625	508	336	663	109 J	95.8 J	267 J-	138 J-	121 UJ	1,820 J-	93 J-	108 J-

Detections in bold

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*indicates non-validated data

^PAH compounds were analyzed via SIM

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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.

B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank.

**Table 7 - Parcel A7
Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	A7-001-SB-1*	A7-001-SB-8*	A7-001-SB-10	A7-002-SB-1	A7-002-SB-5	A7-003-SB-1	A7-004-SB-1*
Metals									
Aluminum	mg/kg	1,100,000	13,100	714	N/A	28,500 J	48,400 J	41,100 J	6,980
Antimony	mg/kg	470	2.6 U	8.1	N/A	2.6 U	2.6 U	2.5 U	2.5 U
Arsenic	mg/kg	3	4.7	36	10.2	9.1 J	2.1 J	3.6 J	2.1 U
Barium	mg/kg	220,000	157	20.7	N/A	241	313	340	27.5
Beryllium	mg/kg	2,300	0.87	0.86 U	N/A	3.3	6	5.3	0.2 J
Cadmium	mg/kg	980	0.58 J	1.7	N/A	2.8	0.5 J	8	1.2 U
Chromium	mg/kg	120,000	43.5	144	N/A	241	14.7	44.6	12.8
Chromium VI	mg/kg	6.3	0.55 B	1 B	N/A	0.55 B	0.55 B	0.57 B	0.77 B
Cobalt	mg/kg	350	6.2	26.8	N/A	9.6	1.3 J	3 J	1.8 J
Copper	mg/kg	47,000	43.4	283	N/A	86.9 J	4.9 J	59 J	7.5
Iron	mg/kg	820,000	61,100	477,000	N/A	114,000 J	16,800 J	35,900 J	17,900
Lead	mg/kg	800	82.1	103	N/A	121	17.3	28.6	21.1
Manganese	mg/kg	26,000	939	2,100	N/A	5,190	1,570	2,860	307
Mercury	mg/kg	350	0.035 J	0.1 J	N/A	0.4	0.11 U	0.024 J	0.0086 J
Nickel	mg/kg	22,000	24.9	144	N/A	31.3 J	2.4 J	14 J	5.7 J
Selenium	mg/kg	5,800	3.4 U	2.5 J	N/A	1.5 J	3.8	3.4 U	3.3 U
Silver	mg/kg	5,800	2.6 J	2.6 U	N/A	22	21.8	17	2.5 U
Thallium	mg/kg	12	8.6 U	8.6 U	N/A	8.7 UJ	8.6 UJ	8.4 UJ	8.2 U
Vanadium	mg/kg	5,800	57.9	13.2	N/A	323	22.4	61.6	13.8
Zinc	mg/kg	350,000	119	152	N/A	1,100	214	114	324
Other									
Cyanide	mg/kg	150	0.5 J	0.17 J	N/A	0.86 J	0.0082 J	1.2	1 U

Detections in bold

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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.

B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank.

**Table 7 - Parcel A7
Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	A7-004-SB-5*	A7-004-SB-10	A7-005-SB-1	A7-006-SB-1	A7-006-SB-5	A7-006-SB-10*
Metals								
Aluminum	mg/kg	1,100,000	13,600	N/A	576 J	27,300	11,600	N/A
Antimony	mg/kg	470	2.8 U	N/A	10.1 J	2.5 UJ	3 UJ	N/A
Arsenic	mg/kg	3	10.7	8.2	86.3 J	4.2	5.2	27.3
Barium	mg/kg	220,000	41.9	N/A	19.6	234 J	86.8 J	N/A
Beryllium	mg/kg	2,300	0.71 J	N/A	0.84 U	3.8	0.72 B	N/A
Cadmium	mg/kg	980	1.4 U	N/A	18	0.96 J	0.7 J	N/A
Chromium	mg/kg	120,000	22.4	N/A	388	335	19.6	N/A
Chromium VI	mg/kg	6.3	1.1 B	N/A	0.35 B	0.5 B	0.68 B	N/A
Cobalt	mg/kg	350	4.4 J	N/A	17.4	5.1	12.7	N/A
Copper	mg/kg	47,000	12.6	N/A	384 J	30.4 J	23.9 J	N/A
Iron	mg/kg	820,000	20,100	N/A	382,000 J	153,000 J	14,600 J	N/A
Lead	mg/kg	800	11.1	N/A	2,690	18.8	56.2	N/A
Manganese	mg/kg	26,000	80.2	N/A	3,530	10,900	1,000	N/A
Mercury	mg/kg	350	0.12 U	N/A	0.085 J	0.13 U	0.085 J	N/A
Nickel	mg/kg	22,000	11.9	N/A	123 J	23	17.2	N/A
Selenium	mg/kg	5,800	3.8 U	N/A	4.1	3.3 UJ	4 UJ	N/A
Silver	mg/kg	5,800	0.42 J	N/A	4.2	30.5 J	2.1 J	N/A
Thallium	mg/kg	12	9.4 U	N/A	8.4 UJ	8.3 U	10 U	N/A
Vanadium	mg/kg	5,800	31.6	N/A	47.8	788	29.6	N/A
Zinc	mg/kg	350,000	66.4	N/A	10,600	124 J	159 J	N/A
Other								
Cyanide	mg/kg	150	1.2 U	N/A	0.32 J	1.3 J-	1.1 UJ	N/A

Detections in bold

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N/A indicates that the parameter was not analyzed for this sample

*indicates non-validated data

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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.

B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank.

**Table 7 - Parcel A7
Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	A7-007-SB-1*	A7-007-SB-9*	A7-007-SB-10	A7-008-SB-1	A7-008-SB-8	A7-008-SB-10	A7-009-SB-1*
Metals									
Aluminum	mg/kg	1,100,000	268	14,600	N/A	760 J	163 J	N/A	1,730
Antimony	mg/kg	470	6	3 U	N/A	3.7 J	9.6 J	N/A	5.1
Arsenic	mg/kg	3	37.4	16.3	5.9	30.1 J	26.4 J	27.7	23.9
Barium	mg/kg	220,000	5.7 J	33.4	N/A	20.9	18.3	N/A	38.3
Beryllium	mg/kg	2,300	0.92 U	1.4	N/A	0.24 B	0.25 B	N/A	0.35 J
Cadmium	mg/kg	980	4.9	0.51 J	N/A	6	8.7	N/A	7.8
Chromium	mg/kg	120,000	218	42	N/A	307	145	N/A	207
Chromium VI	mg/kg	6.3	0.56 B	1.5	N/A	0.56 B	0.81 B	N/A	0.7 B
Cobalt	mg/kg	350	12.8	5.6	N/A	14.9	17	N/A	9.5
Copper	mg/kg	47,000	137	20.6	N/A	188 J	174 J	N/A	164
Iron	mg/kg	820,000	309,000	41,800	N/A	400,000 J	452,000 J	N/A	359,000
Lead	mg/kg	800	293	17.2	N/A	378	661	N/A	641
Manganese	mg/kg	26,000	2,620	81.1	N/A	5,340	8,190	N/A	5,780
Mercury	mg/kg	350	0.12	0.12 U	N/A	0.065 J	0.054 J	N/A	0.13
Nickel	mg/kg	22,000	111	13.2	N/A	68.5 J	66 J	N/A	65.1
Selenium	mg/kg	5,800	3.7 U	4 U	N/A	2.6 J	4.4	N/A	2.1 J
Silver	mg/kg	5,800	2.8 U	3 U	N/A	2.9 U	1.4 J	N/A	1.2 J
Thallium	mg/kg	12	9.2 U	10 U	N/A	9.5 UJ	10.1 UJ	N/A	10.3 U
Vanadium	mg/kg	5,800	34.8	66.4	N/A	69.9	63.7	N/A	68.8
Zinc	mg/kg	350,000	8,550	50	N/A	12,600	9,230	N/A	7,180
Other									
Cyanide	mg/kg	150	1.7	1.3 U	N/A	2.5	0.0058 J	N/A	7.4

Detections in bold

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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.

B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank.

**Table 7 - Parcel A7
Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	A7-009-SB-8*	A7-010-SB-1	A7-010-SB-6	A7-011-SB-1*	A7-011-SB-8*	A7-012-SB-1	A7-012-SB-5
Metals									
Aluminum	mg/kg	1,100,000	15,400	9,360	10,600	24,400	17,400	30,800	14,900 B
Antimony	mg/kg	470	2.8 U	2.5 UJ	2.8 UJ	2.5 U	2.8 U	2.7 UJ	2.6 UJ
Arsenic	mg/kg	3	2.5	1.8 J	2 J	3.8	2.9	3.1	3.2
Barium	mg/kg	220,000	98.2	149 J	65.7 J	193	61.6	281 J	58.6 J
Beryllium	mg/kg	2,300	0.76 J	0.84 U	0.84 J	3	0.5 J	4.5	0.65 J
Cadmium	mg/kg	980	1.4 U	1.5	1.4 U	1 J	1.4 U	1.7	1.3 U
Chromium	mg/kg	120,000	29.8	906	13.4	126	22.4	134	23.1
Chromium VI	mg/kg	6.3	1.1 B	0.57 B	0.71 B	0.28 B	2	0.47 B	1.3
Cobalt	mg/kg	350	5.9	6.1	1.1 J	4.8	4.4 J	4.1 J	5.2
Copper	mg/kg	47,000	17.2	58.1 J	3.7 J	38.4	10.3	28.1 J	10 J
Iron	mg/kg	820,000	23,700	149,000 J	5,380	56,000	17,200	43,200 J	17,600
Lead	mg/kg	800	37	53.3	5.8	68.7	7.5	70.7	7.7
Manganese	mg/kg	26,000	137	58,300	622	3,970	64	4,210	87.1
Mercury	mg/kg	350	0.12 U	0.014 J	0.012 J	0.047 J	0.11 J	0.025 J	0.11 U
Nickel	mg/kg	22,000	14.7	25.5	3 J	20.1	10.6	26.6	12.2
Selenium	mg/kg	5,800	3.7 U	3.4 UJ	3.7 U	3.3 U	3.8 U	3.6 UJ	3.5 U
Silver	mg/kg	5,800	0.58 J	83.5 J	2.1 J	9.7	3.2	17 J	5.2
Thallium	mg/kg	12	9.3 U	8.4 U	9.3 U	8.2 U	9.4 U	8.9 U	8.8 U
Vanadium	mg/kg	5,800	29.6	3,920	30.9 J	233	34.1	236	31.4 J
Zinc	mg/kg	350,000	288	209 J	15.4 J	331	40.5	343 J	31.8 J
Other									
Cyanide	mg/kg	150	0.19 J	0.34 J-	0.13 J-	1.4	1.1 U	5.4 J-	0.99 UJ

Detections in bold

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

B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank.

**Table 7 - Parcel A7
Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	A7-013-SB-1	A7-013-SB-5	A7-013-SB-10*	A7-014-SB-1	A7-014-SB-5	A7-014-SB-10*
Metals								
Aluminum	mg/kg	1,100,000	14,800 B	13,500 B	N/A	231	4,010	N/A
Antimony	mg/kg	470	2.7 UJ	2.7 UJ	N/A	11.1 J	7.3 J	N/A
Arsenic	mg/kg	3	4.5	5.3	3.6	34.9	21.5	3.3
Barium	mg/kg	220,000	67.5 J	59.5 J	N/A	15.2 J	36.4 J	N/A
Beryllium	mg/kg	2,300	0.71 J	0.64 J	N/A	0.93 U	0.14 B	N/A
Cadmium	mg/kg	980	0.44 J	1.3 U	N/A	11.4	11	N/A
Chromium	mg/kg	120,000	24.5	21.3	N/A	166	125	N/A
Chromium VI	mg/kg	6.3	0.52 B	0.64 B	N/A	0.37 B	0.54 B	N/A
Cobalt	mg/kg	350	6.6	8.3	N/A	10.1	15	N/A
Copper	mg/kg	47,000	14 J	13.7 J	N/A	205 J	137 J	N/A
Iron	mg/kg	820,000	16,500	14,700	N/A	494,000 J	379,000 J	N/A
Lead	mg/kg	800	26.6	25.2	N/A	843	523	N/A
Manganese	mg/kg	26,000	262	211	N/A	9,050	5,670	N/A
Mercury	mg/kg	350	0.046 J	0.039 J	N/A	0.053 J	0.072 J	N/A
Nickel	mg/kg	22,000	11.7	11.9	N/A	79.9	52.2	N/A
Selenium	mg/kg	5,800	2.2 J	3.5 U	N/A	3.7 UJ	3.6 UJ	N/A
Silver	mg/kg	5,800	3.1	2.2 J	N/A	3.3 J	2.7 J	N/A
Thallium	mg/kg	12	9.1 U	8.9 U	N/A	9.3 U	9 U	N/A
Vanadium	mg/kg	5,800	40.4 J	33.6 J	N/A	90.9	100	N/A
Zinc	mg/kg	350,000	91.3 J	74.4 J	N/A	8,400 J	11,300 J	N/A
Other								
Cyanide	mg/kg	150	1.2 UJ	1.1 UJ	N/A	1.7 J-	0.38 J-	N/A

Detections in bold

Values in red indicate an exceedance of the Project Action Limit (PAL)

N/A indicates that the parameter was not analyzed for this sample

*indicates non-validated data

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.

UJ: This analyte was not detected in the sample. The actual quantitation/detection limit may be higher than reported.

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

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

B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank.

**Table 7 - Parcel A7
Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	A7-015-SB-1*	A7-015-SB-7*	A7-015-SB-10	A7-020-SB-1*	A7-020-SB-5*	A7-020-SB-10	A7-021-SB-1
Metals									
Aluminum	mg/kg	1,100,000	14,300	17,300	N/A	21,600	19,100	N/A	9,940 J
Antimony	mg/kg	470	2.6 U	3 U	N/A	2.9 U	2.9 U	N/A	5.6 J
Arsenic	mg/kg	3	2 J	3.3	8.3	8.9	5	2.1 J	34.8 J
Barium	mg/kg	220,000	44.7	48.8	N/A	130	52.7	N/A	87.7
Beryllium	mg/kg	2,300	0.43 J	0.61 J	N/A	2	0.93 J	N/A	1.7
Cadmium	mg/kg	980	1.3 U	1.5 U	N/A	1.8	1.4 U	N/A	15.7
Chromium	mg/kg	120,000	18.1	25.3	N/A	41.5	33.5	N/A	173
Chromium VI	mg/kg	6.3	1.1 B	0.81 B	N/A	0.56 B	0.94 B	N/A	0.85 B
Cobalt	mg/kg	350	3.3 J	4.5 J	N/A	7.2	5.1	N/A	7.5
Copper	mg/kg	47,000	10.1	11.2	N/A	39.5	10.5	N/A	133 J
Iron	mg/kg	820,000	9,000	19,800	N/A	113,000	25,200	N/A	200,000 J
Lead	mg/kg	800	9.5	10.9	N/A	407	7.6	N/A	1,810
Manganese	mg/kg	26,000	45.6	77.8	N/A	1,910	55.9	N/A	3,440
Mercury	mg/kg	350	0.032 J	0.01 J	N/A	0.013 J	0.12 U	N/A	5.1
Nickel	mg/kg	22,000	8.9	11.9	N/A	18.6	11.3	N/A	31.7 J
Selenium	mg/kg	5,800	3.5 U	4 U	N/A	3.8 U	3.8 U	N/A	9.6
Silver	mg/kg	5,800	0.77 J	0.72 J	N/A	4.9	2.7 J	N/A	13.9
Thallium	mg/kg	12	8.7 U	9.9 U	N/A	9.6 U	9.6 U	N/A	10.8 J
Vanadium	mg/kg	5,800	19.1	25.6	N/A	37.3	36	N/A	78.1
Zinc	mg/kg	350,000	48.2	42.6	N/A	1,390	44.4	N/A	11,600
Other									
Cyanide	mg/kg	150	1.1 U	1.2 U	N/A	0.4 J	0.16 J	N/A	10.6

Detections in bold

Values in red indicate an exceedance of the Project Action Limit (PAL)

N/A indicates that the parameter was not analyzed for this sample

*indicates non-validated data

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.

UJ: This analyte was not detected in the sample. The actual quantitation/detection limit may be higher than reported.

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

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

B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank.

**Table 7 - Parcel A7
Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	A7-021-SB-5	A7-021-SB-10	A7-022-SB-1*	A7-022-SB-5*	A7-001-TP*	A7-002-TP*	A7-003-TP*
Metals									
Aluminum	mg/kg	1,100,000	1,650 J	N/A	41,200	42,300	407	6,960	17,000
Antimony	mg/kg	470	6.1 J	N/A	2.4 U	2.5 U	5.2	2.5 U	2.8 U
Arsenic	mg/kg	3	22.2 J	10.7	2 U	2.1 U	25.6	14.4	10.2
Barium	mg/kg	220,000	28.7	N/A	330	338	16.8	58.4	132
Beryllium	mg/kg	2,300	0.32 B	N/A	6.7	6.9	0.95 U	0.86	2.3
Cadmium	mg/kg	980	7.4	N/A	0.41 J	1.3 U	7.8	3.1	3.3
Chromium	mg/kg	120,000	255	N/A	29	98.4	157	141	90.4
Chromium VI	mg/kg	6.3	0.62 B	N/A	0.54 B	0.49 B	0.74 B	0.79 B	0.63 B
Cobalt	mg/kg	350	9.8	N/A	0.86 J	0.72 J	20.7	16.1	11.6
Copper	mg/kg	47,000	164 J	N/A	2 J	1.4 J	184	156	91.5
Iron	mg/kg	820,000	385,000 J	N/A	6,710	12,600	524,000	313,000	257,000
Lead	mg/kg	800	623	N/A	3.3	2.1 U	1,900	322	409
Manganese	mg/kg	26,000	6,110	N/A	2,500	3,640	8,960	4,230	4,060
Mercury	mg/kg	350	0.2	N/A	0.004 J	0.1 U	0.05 J	0.058 J	0.031 J
Nickel	mg/kg	22,000	53 J	N/A	1.4 J	8.4 U	56.5	56	30.3
Selenium	mg/kg	5,800	3.5 J	N/A	3.3	3.9	3.8 U	3.4 U	5
Silver	mg/kg	5,800	3.2	N/A	21.8	18.9	3	0.71 J	1 J
Thallium	mg/kg	12	9.3 UJ	N/A	8.2 U	8.4 U	9.5 U	8.4 U	9.3 U
Vanadium	mg/kg	5,800	72.8	N/A	48.5	185	107	54	70
Zinc	mg/kg	350,000	15,700	N/A	62.6	11.4	12,600	4,250	4,380
Other									
Cyanide	mg/kg	150	2.6	N/A	1.4	1.1	1.5	0.81 B	1.2

Detections in bold

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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.

B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank.

**Table 7 - Parcel A7
Summary of Inorganics Detected in Soil**

Parameter	Units	PAL	A7-004-TP*	A7-005-TP	A7-006-TP	A7-007-TP	A7-008-TP	A7-009-TP	A7-010-TP
Metals									
Aluminum	mg/kg	1,100,000	50,000	38,500 J	984 J	2,840 J	12,800 J	887 J	1,120 J
Antimony	mg/kg	470	2.6 U	2.5 U	1.7 J	2.8 U	3.3 U	2.7 J	3.5
Arsenic	mg/kg	3	2.1 U	1.9 J	22.8 J	21 J	67.9 J	21.7 J	22.1 J
Barium	mg/kg	220,000	476	262	19.3	33.1	161	22.1	20.3
Beryllium	mg/kg	2,300	6.4	6.1	0.92 U	0.38 B	1.1 B	0.97 U	0.14 B
Cadmium	mg/kg	980	1.3 U	0.41 J	7.5	9.3	58.8	13.8	10.7
Chromium	mg/kg	120,000	9.3	14.9	172	174	498	169	174
Chromium VI	mg/kg	6.3	0.57 B	0.59 B	0.54 B	1.2 UJ	0.52 B	0.56 B	0.56 B
Cobalt	mg/kg	350	4.3 U	4.2 U	19	17.9	13.6	20.3	20.9
Copper	mg/kg	47,000	2.7 J	2.2 J	161	170	794	196	188
Iron	mg/kg	820,000	4,850	2,860 J	431,000 J	406,000 J	189,000 J	474,000 J	491,000 J
Lead	mg/kg	800	2 J	1.9 J	827	770	6,780	756	1,060
Manganese	mg/kg	26,000	2,230	2,130	6,370	6,050	1,750	6,490	7,730
Mercury	mg/kg	350	0.11 U	0.1 U	0.067 J	0.036 J	23.5	0.089 J	0.071 J
Nickel	mg/kg	22,000	8.6 U	8.4 U	55.4	75.2	123	61.1	58.1
Selenium	mg/kg	5,800	1.6 J	1.9 J	3.7 U	3.8 U	132	3.9 U	3.8 U
Silver	mg/kg	5,800	2.6 U	2.5 U	2.5 J	3.4	45.1	4.2	4.6
Thallium	mg/kg	12	8.6 U	8.4 U	9.2 U	9.4 U	83.6	9.7 U	9.6 U
Vanadium	mg/kg	5,800	21.1	7.5	102	80.1	62.6	116	101
Zinc	mg/kg	350,000	12.5	31.5	10,100	13,600	5,090	14,600	13,400
Other									
Cyanide	mg/kg	150	2.3	0.4 J-	1.3 J-	0.48 J-	0.31 J-	1.5 J-	1.8 J-

Detections in bold

Values in red indicate an exceedance of the Project Action Limit (PAL)

N/A indicates that the parameter was not analyzed for this sample

*indicates non-validated data

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit.

UJ: This analyte was not detected in the sample. The actual quantitation/detection limit may be higher than reported.

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

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

B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank.

**Table 8 - Parcel A7
Summary of Soil PAL Exceedances**

<u>Parameter</u>	<u>CAS#</u>	<u>Frequency of Detections (%)</u>	<u>Sample ID of Max Result</u>	<u>Max Result</u>	<u>PAL Solid</u>	<u>Unit</u>
Arsenic	7440-38-2	93	A7-005-SB-1	86.3	3	mg/kg
Lead	7439-92-1	98	A7-008-TP	6,780	800	mg/kg
Manganese	7439-96-5	100	A7-010-SB-1	58,300	26,000	mg/kg
Oil & Grease	O&G	98	A7-001-SB-8	14,400	6,200	mg/kg
Thallium	7440-28-0	4.6	A7-008-TP	83.6	12	mg/kg

**Table 9 - Parcel A7
Soil PAL Exceedances for Specific Targets**

<u>Target Feature</u>	<u>Boring ID</u>	<u>Sample Depth</u>	<u>Parameter</u>	<u>PAL (mg/kg)</u>	<u>Result (mg/kg)</u>	<u>Final Flag</u>
Parcel A7 Pits (Dec. 15 Site Visit)	A7-004-SB	5	Arsenic	3	10.7	
		10	Arsenic	3	8.2	
	A7-007-SB	1	Arsenic	3	37.4	
		9	Arsenic	3	16.3	
		10	Arsenic	3	5.9	
	A7-008-SB	1	Arsenic	3	30.1	J
		8	Arsenic	3	26.4	J
		10	Arsenic	3	27.7	
	A7-009-SB	1	Arsenic	3	23.9	
	A7-014-SB	1	Arsenic	3	34.9	
		1	Lead	800	843	
		5	Arsenic	3	21.5	
		10	Arsenic	3	3.3	
	A7-015-SB	7	Arsenic	3	3.3	
		10	Arsenic	3	8.3	
	A7-020-SB	1	Arsenic	3	8.9	
		5	Arsenic	3	5	
	A7-021-SB	1	Arsenic	3	34.8	J
		1	Lead	800	1,810	
		5	Arsenic	3	22.2	J
10		Arsenic	3	10.7		
Slag/Soil Berm Test Pits - Spoil Piles	A7-001-TP	TP	Arsenic	3	25.6	
		TP	Lead	800	1,900	
	A7-002-TP	TP	Arsenic	3	14.4	
	A7-003-TP	TP	Arsenic	3	10.2	
	A7-006-TP	TP	Arsenic	3	22.8	J
		TP	Lead	800	827	
	A7-007-TP	TP	Arsenic	3	21	J
	A7-008-TP	TP	Arsenic	3	67.9	J
		TP	Lead	800	6,780	
		TP	Thallium	12	83.6	
A7-009-TP	TP	Arsenic	3	21.7	J	
A7-010-TP	TP	Arsenic	3	22.1	J	
	TP	Lead	800	1,060		

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

TP: Denotes test pit composite soil samples.

**Table 10 - Parcel A7
Summary of Organics Detected in Groundwater**

Parameter	Units	PAL	MW93-001	MW93-002	W-14*
Volatile Organic Compounds					
Acetone	µg/L	14,000	10 UJ	6.8 B	20.8
Chloromethane	µg/L	190	1 U	1 U	0.73 J
Methyl tert-butyl ether (MTBE)	µg/L	14	1 U	0.5 J	1 U
Semi-Volatile Organic Compounds^					
bis(2-Ethylhexyl)phthalate	µg/L	6	0.98 U	0.16 B	0.19 J
Caprolactam	µg/L	9,900	0.25 B	0.16 B	0.15 J
Diethylphthalate	µg/L	15,000	0.52 J	0.99 U	0.99 U
Di-n-butylphthalate	µg/L	900	0.98 U	0.54 B	0.28 J
TPH/Oil & Grease					
Diesel Range Organics	µg/L	47	50.3 B	108 J	88.2 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 represents the sample quantitation/detection limit.

UJ: This analyte was not detected in the sample. The actual quantitation/detection limit may be higher than reported.

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

B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank.

**Table 11 - Parcel A7
Summary of Inorganics Detected in Groundwater**

Parameter	Units	PAL	MW93-001	MW93-002	W-14*
Total Metals					
Aluminum	µg/L	20,000	1,020	N/A	2,840
Arsenic	µg/L	10	5 U	N/A	5.2
Barium	µg/L	2,000	29.1	N/A	14.9
Beryllium	µg/L	4	1 U	N/A	6.2
Cadmium	µg/L	5	3 U	N/A	1.2 J
Chromium	µg/L	100	2.3 J	N/A	1.8 J
Cobalt	µg/L	6	5 U	N/A	106
Iron	µg/L	14,000	634	N/A	16,900
Manganese	µg/L	430	32.4	N/A	1,040
Nickel	µg/L	390	1.2 J	N/A	146
Vanadium	µg/L	86	6.8	N/A	3.9 J
Zinc	µg/L	6,000	4.5 J	N/A	226
Dissolved Metals					
Aluminum, Dissolved	µg/L	20,000	14.1 J	50 U	2,620
Arsenic, Dissolved	µg/L	10	5 U	4.3 J	5 U
Barium, Dissolved	µg/L	2,000	27.8	28.5	14.3
Beryllium, Dissolved	µg/L	4	1 U	0.4 J	5.9
Cadmium, Dissolved	µg/L	5	3 U	3 U	1 J
Chromium VI, Dissolved	µg/L	0.035	10.8	8.5 B	8.5 B
Chromium, Dissolved	µg/L	100	5 U	5 U	1.7 J
Cobalt, Dissolved	µg/L	6	5 U	55.7	100
Iron, Dissolved	µg/L	14,000	10.4 J	17,700	16,100
Manganese, Dissolved	µg/L	430	28.4	1,020	984
Nickel, Dissolved	µg/L	390	10 U	71.2	137
Vanadium, Dissolved	µg/L	86	2.9 J	0.5 J	3.7 J
Zinc, Dissolved	µg/L	6,000	10 U	49.5	213
Other					
Available Cyanide	µg/L	200	1.4 J	2 U	0.74 J

Detection in bold

Values in red indicate an exceedance of the Project Action Limit (PAL)

N/A indicates that the parameter was not analyzed for this sample

*indicates non-validated data

U: This analyte was not detected in the sample. The numeric value represents the sample quantitation/detection limit

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 analyte in the sample.

**Table 12 - Parcel A7
Cumulative Vapor Intrusion Criteria Comparison**

				MW93-001		MW93-002		W-14	
Parameter	Type	Organ Systems	VI Screening Criteria	Conc. (ug/L)	Risk/Hazard	Conc. (ug/L)	Risk/Hazard	Conc. (ug/L)	Risk/Hazard
Cancer Risk									
Methyl tert-butyl ether (MTBE)	VOC		20,000	1 U	0	0.5 J	2.5E-10	1 U	0
Cumulative Vapor Intrusion Cancer Risk				0E+00		3E-10		0E+00	
Non-Cancer Hazard									
Cumulative Vapor Intrusion Non-Cancer Hazard				0		0		0	

Highlighted values indicate exceedances of the cumulative vapor intrusion criteria:

TCR > 1E-05

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 13 - Parcel A7
Summary of Organics Detected in Sediment

Parameter	Units	PAL	BTAG Freshwater Sediment Benchmarks	A7-016-SD	A7-017-SD	A7-018-SD	A7-019-SD
Volatile Organic Compounds							
2-Butanone (MEK)	mg/kg	190,000		0.077 U	0.48	0.02 U	0.053
Acetone	mg/kg	670,000		0.077 U	1.8	0.02 U	0.33
Carbon disulfide	mg/kg	3,500	0.000851	0.039 UJ	0.11 J	0.01 UJ	0.02 UJ
Semi-Volatile Organic Compounds[^]							
2-Methylnaphthalene	mg/kg	3,000	0.0202	0.076	0.081	0.0038 J	0.013 J
Acenaphthene	mg/kg	45,000	0.0067	0.03 J	0.055 U	0.0011 J	0.0047 J
Acenaphthylene	mg/kg	45,000	0.0059	0.065	0.22	0.0025 J	0.022 U
Anthracene	mg/kg	230,000	0.0572	0.015 J	0.025 J	0.0035 J	0.0086 J
Benz[a]anthracene	mg/kg	21	0.108	0.027 J	0.024 J	0.014	0.025
Benzaldehyde	mg/kg	120,000		0.37	0.54 U	0.12 U	0.13 J
Benzo[a]pyrene	mg/kg	2.1	0.15	0.025 J	0.021 J	0.017	0.031
Benzo[b]fluoranthene	mg/kg	21	0.0272	0.062	0.24	0.037	0.06
Benzo[g,h,i]perylene	mg/kg		0.17	0.019 J	0.043 J	0.012 U	0.019 J
Benzo[k]fluoranthene	mg/kg	210	0.24	0.028 J	0.044 J	0.034	0.032
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.18	0.36 U	0.73	0.12 U	0.22 U
Chrysene	mg/kg	2,100	0.166	0.032 J	0.027 J	0.015	0.025
Dibenz[a,h]anthracene	mg/kg	2.1	0.033	0.036 U	0.055 U	0.0031 J	0.0075 J
Di-n-ocylphthalate	mg/kg	8,200		0.36 U	0.88	0.12 U	0.22 U
Fluoranthene	mg/kg	30,000	0.423	0.077	0.072	0.021	0.043
Fluorene	mg/kg	30,000	0.0774	0.038	0.063	0.012 U	0.0044 J
Indeno[1,2,3-c,d]pyrene	mg/kg	21	0.017	0.015 J	0.011 J	0.0095 J	0.016 J
Naphthalene	mg/kg	17	0.176	0.26	0.21	0.0062 J	0.025
Phenanthrene	mg/kg		0.204	0.1	0.065	0.0097 J	0.031
Pyrene	mg/kg	23,000	0.195	0.063	0.064	0.018	0.034
TPH/Oil & Grease							
Diesel Range Organics	mg/kg	6,200		58.7 J	316 J	11.8 J	64.1 J
Oil & Grease	mg/kg	6,200		9,030	30,000	1,840	3,290

Detections in bold

[^]PAH compounds were analyzed via SIM

Highlighted values indicate an exceedance of the Project Action Limit (PAL)

Values in red indicate an exceedance of the EPA Region III Biological Technical Assistance Group (BTAG) Freshwater Sediment Screening Benchmarks (dated 8/2006)

U: This analyte was not detected in the sample. The numeric value represents the sample

UJ: This analyte was not detected in the sample. The actual quantitation/detection limie may be higher than

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

**Table 14 - Parcel A7
Summary of Inorganics Detected in Sediment**

Parameter	Units	PAL	BTAG Freshwater Sediment Benchmarks	A7-016-SD	A7-017-SD	A7-018-SD	A7-019-SD
Metals							
Aluminum	mg/kg	1,100,000		5,860	6,730	13,800	12,700
Arsenic	mg/kg	3	9.8	8.2	7.6	1.5	7
Barium	mg/kg	220,000		112	59.5 J	75.4	56
Cadmium	mg/kg	980	0.99	2.3 J	9.6 U	9.9	25
Chromium	mg/kg	120,000	43.4	216	89.7	32.9	46
Cobalt	mg/kg	350	50	7 J	15.7 J	4.2 J	5.9 J
Copper	mg/kg	47,000	31.6	46.4	19.3 J	69.3	162
Iron	mg/kg	820,000	20,000	50,200	81,700	13,500	29,300
Lead	mg/kg	800	35.8	121 J	39.8 J	62.9 J	111 J
Manganese	mg/kg	26,000	460	3,260	2,130	85.9	203
Mercury	mg/kg	350	0.18	0.097 J	0.033 J	0.092 J	0.1 J
Nickel	mg/kg	22,000	22.7	23.4 J	27.6 J	14.4	22.7 J
Selenium	mg/kg	5,800	2	16.2 J	64.4	5.8	33.6
Silver	mg/kg	5,800	1	7.6 J	19.2 U	3.4 J	3.9 J
Vanadium	mg/kg	5,800		2,080	877	39.4	51
Zinc	mg/kg	350,000	121	931	335	1,730	4,980
Other							
Cyanide	mg/kg	150	0.1	4.4 J	1.1 J	0.46 J	1.2 J

Detections in bold

Highlighted values indicate an exceedance of the Project Action Limit (PAL)

Values in red indicate an exceedance of the EPA Region III Biological Technical Assistance Group (BTAG) Freshwater Sediment Screening Benchmarks (dated 8/2006)

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 15 - Parcel A7
Summary of Organics Detected in Surface Water**

Parameter	Units	PAL	Aquatic Life Chronic Criteria (Freshwater)	A7-016-SW	A7-017-SW	A7-018-SW	A7-019-SW
Volatile Organic Compounds							
Acetone	µg/L	14,000		5.5 J	3.4 J	6.7 J	8.5 J
Benzene	µg/L	5		2.1	1 U	1 U	1 U
Semi-Volatile Organic Compounds[^]							
1,4-Dioxane	µg/L	0.46		0.054 J	0.13 J	0.11 U	0.11 U
2-Methylnaphthalene	µg/L	36		0.079 J	0.14 U	0.11 U	0.11 U
3&4-Methylphenol(m&p Cresol)	µg/L	930		2.6 U	2.7 U	2.2 U	0.4 J
Acenaphthene	µg/L	530		0.053 J	0.14 U	0.11 U	0.11 U
Caprolactam	µg/L	9,900		0.25 J	3.4 U	0.23 J	0.21 J
Fluorene	µg/L	290		0.042 J	0.14 U	0.11 U	0.11 U
Naphthalene	µg/L	0.17		0.5	0.14 U	0.11 U	0.11 U
Phenol	µg/L	5,800		0.16 J	1.4 U	1.1 U	0.7 J
TPH/Oil & Grease							
Diesel Range Organics	µg/L	47		358 J	152 J	220 J	259 J
Oil & Grease	µg/L	47		2,310 J	4,770 U	4,770 U	4,770 U

Detections in bold ^PAH compounds were analyzed via SIM

Highlighted values indicate an exceedance of the Project Action Limit (PAL)

Values in red indicate an exceedance of the National Recommended Water Quality Criteria (NRWQC) Aquatic Life Chronic Criteria for Freshwater (dated 7/2017)

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 16 - Parcel A7
Summary of Inorganics Detected in Surface Water**

Parameter	Units	PAL	Aquatic Life Chronic Criteria (Freshwater)	A7-016-SW	A7-017-SW	A7-018-SW	A7-019-SW
Total Metals							
Aluminum	µg/L	20,000	87	10,000 J	7,530 J	85.8 J	6,380 J
Arsenic	µg/L	10	150	3 J	10.3	5 U	16.8
Barium	µg/L	2,000		150	194	37.9	108
Beryllium	µg/L	4		1.8	1.4	1 U	0.84 B
Cadmium	µg/L	5	0.25	1.7 J	2.1 J	3.5	80
Chromium	µg/L	100		74.6	101	1.4 J	27.4
Cobalt	µg/L	6		3.9 J	5.2	5 U	3.7 J
Copper	µg/L	1,300	9	35.6	33.1	6.6	173
Iron	µg/L	14,000	1,000	37,100	121,000	175	11,100
Lead	µg/L	15	2.5	76.2	45.8	5 U	37.9
Manganese	µg/L	430		2,780	4,680	128	339
Mercury	µg/L	2	0.77	0.07 J	0.06 J	0.2 U	0.08 J
Nickel	µg/L	390	52	12.8	21.5	10 U	12
Selenium	µg/L	50	5	12.3	28.6	8 U	108
Silver	µg/L	94		6 U	6 U	6 U	1.9 J
Thallium	µg/L	2		5.5 J	2.9 J	10 U	3.5 J
Vanadium	µg/L	86		1,380	872	2.7 J	43.8
Zinc	µg/L	6,000	120	435	516	176	8,190
Dissolved Metals							
Chromium VI, Dissolved	µg/L	0.035	11	10.8	10.8	9.6 B	10.8
Other							
Available Cyanide	µg/L	200	5.2	3.5*	3.7*	3.8*	3.6*
Total Cyanide	µg/L	200	5.2	10 U	10 U	15	12

Detections in bold

*indicates non-validated data

Highlighted values indicate an exceedance of the Project Action Limit (PAL)

Values in red indicate an exceedance of the National Recommended Water Quality Criteria (NRWQC) Aquatic Life Chronic Criteria for Freshwater (dated 7/2017)

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.

B: This analyte was not detected substantially above the level of the associated method blank/preparation or field blank.



Parcel A7 - Table 17

Rejected Results for Soil

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
Sample: A7-002-SB-5					
1,4-Dioxane	0.1	mg/kg	24	no	R
Sample: A7-006-SB-1					
Pentachlorophenol	0.18	mg/kg	4	no	R
Sample: A7-006-SB-5					
Pentachlorophenol	0.2	mg/kg	4	no	R
Sample: A7-008-SB-1					
1,4-Dioxane	0.09	mg/kg	24	no	R
Sample: A7-008-SB-8					
1,4-Dioxane	0.091	mg/kg	24	no	R
Sample: A7-010-SB-1					
Pentachlorophenol	0.17	mg/kg	4	no	R
Sample: A7-010-SB-6					
Pentachlorophenol	0.2	mg/kg	4	no	R
Sample: A7-010-TP					
2,4-Dinitrophenol	0.21	mg/kg	1,600	no	R
Pentachlorophenol	0.21	mg/kg	4	no	R
Sample: A7-012-SB-1					
Pentachlorophenol	0.19	mg/kg	4	no	R
Sample: A7-012-SB-5					
Pentachlorophenol	0.19	mg/kg	4	no	R

Rejected Results for Soil

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
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Sample: *A7-013-SB-1*

Pentachlorophenol	0.19	mg/kg	4	no	R
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Sample: *A7-013-SB-5*

Pentachlorophenol	0.19	mg/kg	4	no	R
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Sample: *A7-014-SB-1*

Pentachlorophenol	0.2	mg/kg	4	no	R
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Sample: *A7-014-SB-5*

Pentachlorophenol	0.2	mg/kg	4	no	R
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Parcel A7 - Table 18

Rejected Results for Groundwater

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
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Sample: *MW93-001*

Cyanide	0.01	µg/L	200	no	R
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Sample: *MW93-002*

Cyanide	0.01	µg/L	200	no	R
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Parcel A7 - Table 19

Rejected Results for Sediment

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
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Sample: *A7-016-SD-1*

1,4-Dioxane	0.77	mg/kg	24	no	R
Pentachlorophenol	0.91	mg/kg	4	no	R

Sample: *A7-017-SD-1*

1,4-Dioxane	1.7	mg/kg	24	no	R
Pentachlorophenol	1.4	mg/kg	4	no	R

Sample: *A7-018-SD-1*

1,4-Dioxane	0.2	mg/kg	24	no	R
Pentachlorophenol	0.3	mg/kg	4	no	R

Sample: *A7-019-SD-1*

1,4-Dioxane	0.4	mg/kg	24	no	R
3,3'-Dichlorobenzidine	0.22	mg/kg	5.1	no	R
Pentachlorophenol	0.54	mg/kg	4	no	R

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APPENDIX A

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Parcel A7 Sampling Plan Summary
Table 1: Soil/Sediment/Test Pit Samples
Former Sparrows Point Steel Mill
Sparrows Point, Maryland

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 A7 Site Coverage			Investigate potential impacts related to any historical activities which may have occurred on the site (potential leaks or releases).	9	A7-001; A7-002; A7-003; A7-005; A7-006; A7-010 through A7-013	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	^VOC, SVOC, Metals, DRO/GRO, Oil & Grease, PCBs (0-1')
Parcel A7 Pits (Dec. 2015 Site Visit)		Topographic Lines	Investigate potential impacts related to any historical activities within pits observed during the December 2015 site walk (potential leaks or releases).	9	A7-004, A7-007, A7-008, A7-009, A7-014, A7-015, A7-020, A7-021, and A7-022	Total depth of 20 feet or groundwater.	0-1', 4-5', 9-10' bgs. 4-5' interval may be adjusted in the field based on observations or field screening.	^VOC, SVOC, Metals, DRO/GRO, Oil & Grease, PCBs (0-1')
Large Pond Sediment Samples			Investigate potential impacts related to the large pond (potential leaks or releases).	2	A7-016 and A7- 017	Total depth of 12 inches	Top 12 inches of sediment at each location.	VOC, SVOC, Metals, DRO/GRO, Oil & Grease, PCBs
Small Pond Sediment Samples			Investigate potential impacts related to the small pond (potential leaks or releases).	2	A7-018 and A7- 019	Total depth of 12 inches	Top 12 inches of sediment at each location.	VOC, SVOC, Metals, DRO/GRO, Oil & Grease, PCBs
Slag/Soil Berm Test Pits - Spoil Piles		Topographic Lines	MDE Request. Presence of slag/soil berms surround pits and larger topographic depressions. Investigate to determine whether the materials in the berms are indicative of potential contamination.	10	A7-001-TP through A7-010-TP	Varies depending on orientation and size of berm. Determined by environmental professional providing oversight.	10-point composite sample from spoils.	^VOC, SVOC, Metals, DRO/GRO, Oil & Grease
Total:				32				

Soil Borings Sampling Density Requirements (from **Worksheet 17 - Sampling Design and Rationale**)

Engineered Barrier (N/A): No Areas in Parcel A7

No Engineered Barrier (16 to 40 acres): 1 boring per 1.5 acres with no less than 15

Engineered Barrier - Buildings/Paving (0 acres) = N/A

No Engineered Barrier (22.2 acres) = 15 Borings Required, 18 Completed

(+4 Sediment Samples and 10 Test Pit Samples)

VOCs - Volatile Organic Compounds (Target Compound List)

^VOCs are only collected if the PID reading exceeds 10 ppm

SVOCs - Semivolatile Organic Compounds (Target Compound List)

Metals - (Target Analyte List plus Hexavalent Chromium and Cyanide)

PCBs - Polychlorinated Biphenyls

PCBs were not analyzed in the test pit composite samples.

DRO/GRO - Diesel Range Organics/Gasoline Range Organics

bgs - Below Ground Surface

Parcel A7 Sampling Plan Summary
Table 2: Aqueous Samples
Former Sparrows Point Steel Mill
Sparrows Point, Maryland

Source Area/ Description	REC & Finding/ SWMU/ AOC	Figure or Drawing of Reference	Condition of Existing Well	Number of Locations	Sample Locations	Well Depth	Screen Interval	Analytical Parameters: Groundwater Samples*
Existing Well			Good Condition to Sample	1	MW93-001	17.0 feet from top of casing	Unknown	VOC, SVOC, Metals, Cyanide (total/available), DRO/GRO, Oil & Grease
Existing Well (replaced by piezometer)			Good Condition to Sample (Well was damaged during clearing activities and replaced by piezometer)	1	MW93-002	20.05 feet from top of casing (piezometer = 29.9 feet from top of casing)	Unknown (piezometer = 17.6 to 27.6 feet bgs)	VOC, SVOC, Metals, Cyanide (total/available), DRO/GRO, Oil & Grease
Existing Well			Good Condition to Sample	1	W-14	30.8 feet from top of casing	Unknown	VOC, SVOC, Metals, Cyanide (total/available), DRO/GRO, Oil & Grease
Large Pond (Surface Water)			N/A	2	A7-016 and A7-017	N/A	N/A	VOC, SVOC, Metals, Cyanide (total/available), DRO/GRO, Oil & Grease
Small Pond (Surface Water)			N/A	2	A7-018 and A7-019	N/A	N/A	VOC, SVOC, Metals, Cyanide (total/available), DRO/GRO, Oil & Grease
Total:				7				

*Field measurements include pH, DO, ORP, conductivity, temperature.
Metals = dissolved and/or total metals.
Metals analysis will include dissolved hexavalent chromium.
bgs - Below Ground Surface

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APPENDIX B

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Client : EnviroAnalytics Group
 ARM Project No. : 150300M-15-3
 Project Description : Sparrows Point - Parcel A7
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Allied Drilling Co.
 Driller : Mike Garvine
 Drilling Equipment : Geoprobe 7822DT

Date : 9/29/17
 Weather : Sunny, 70s
 Northing (US ft) : 574787.72
 Easting (US ft) : 1460171.43

Boring ID: A7-001-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	A7-001-SB-1	(0-2') SANDY SILT, hard, light brown, dry, no plasticity, no cohesion	ML	Light organic matter
40		-		(2-4') SAND with trace coarse CONCRETE GRAVEL, medium dense, yellow then brown, dry, no plasticity, no cohesion	SW	
5		0.0		(4-6.5') Non-native SAND with SLAG GRAVEL, medium dense, dark brown with reddish yellow, dry, no plasticity, no cohesion	SW	Fine metallic grains 6.5-8' bgs
80		0.2		(6.5-8') SILTY SAND, very fine to fine, medium dense, black, moist, no plasticity, no cohesion	SM	
		-	A7-001-SB-8	(8-8.4') SILT, firm, yellowish brown with trace black, low plasticity, cohesive	ML	
10		4.3		(8.4-9.1') SAND with some SILT, dense, yellowish brown, very moist, no plasticity, no cohesion	SW	Light petroleum odor and staining at 8' bgs
		0.0	A7-001-SB-10	(8.4-9.1') SAND with some SILT, dense, yellowish brown, very moist, no plasticity, no cohesion	CL	
		0.0		(9.1-10.1') CLAY, very firm, light grayish brown and reddish yellow mottling, dry, low plasticity, cohesive	CL	No water encountered
		0.0		(10.1-11') SANDY CLAY, soft, very light brown, very moist, low plasticity, cohesive	CL	
94		0.0		(11-20') CLAY, hard then soft at 17.5' bgs, very light brown and reddish yellow mottling, dry to moist, low plasticity then medium plasticity at 17.5' bgs, cohesive	CL	
15		0.0			CL	
100		0.0				
20		0.0		End of boring		

Total Borehole Depth: 20' bgs.
 Boring terminated at 20' bgs due to maximum allowable depth.



Client : EnviroAnalytics Group
 ARM Project No. : 150300M-15-3
 Project Description : Sparrows Point - Parcel A7
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogel, E.I.T.
 Drilling Company : Allied Drilling Co.
 Driller : Mike Garvine
 Drilling Equipment : Geoprobe 7822DT

Date : 9/28/17
 Weather : Sunny, 80s

Northing (US ft) : 575002.00
 Easting (US ft) : 1460765.00

Boring ID: A7-002-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	A7-002-SB-1	(0-4') SLAG, SAND and GRAVEL-sized, fine to coarse, medium dense, gray and brown, dry, no plasticity, no cohesion	SW/GW	
		-				
50		3.6				
		4.2				
5		35.7	A7-002-SB-5	(4-8.5') CLAYEY SILT with some SAND and fine GRAVEL, soft, brownish red, very moist, low plasticity, cohesive	ML	Trace large metal fragment at depth
		0.0				
100		0.0				
		0.0				
		12.0				
		0.0				
		0.6		(8.5-10') SILTY GRAVEL, medium dense, brownish red and gray, wet, no plasticity, no cohesion	GM	Wet at 8.5' bgs
10	End of boring					
15						

Total Borehole Depth: 10' bgs.
 Boring terminated at 10' bgs due to water.



ARM Group Inc.
Earth Resource Engineers
and Consultants

Client : EnviroAnalytics Group
 ARM Project No. : 150300M-15-3
 Project Description : Sparrows Point - Parcel A7
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Allied Drilling Co.
 Driller : Mike Garvine
 Drilling Equipment : Geoprobe 7822DT

Date : 9/28/17
 Weather : Sunny, 80s

Northing (US ft) : 574845.91
 Easting (US ft) : 1460282.73

Boring ID: A7-003-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0	75	0.0	A7-003-SB-1	(0-2') SLAG GRAVEL with SAND and SILT, medium dense, gray and brown, dry, no plasticity, no cohesion	GP-GM	No water encountered
5		0.8		End of boring		

Total Borehole Depth: 2' bgs.
 Boring terminated at 2' bgs due to refusal.



Client : EnviroAnalytics Group
 ARM Project No. : 150300M-15-3
 Project Description : Sparrows Point - Parcel A7
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Allied Drilling Co.
 Driller : Mike Garvine
 Drilling Equipment : Geoprobe 7822DT

Date : 9/27/17
 Weather : Sunny, 80s

Northing (US ft) : 574540.72
 Easting (US ft) : 1460903.92

Boring ID: A7-004-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	A7-004-SB-1	(0-1') SILTY CLAY, very firm, brownish red, dry, low plasticity, cohesive	CL	
	76	1.6		(1-2.2') SAND with CLAY, dense, brownish yellow, moist, no plasticity, no cohesion	SW-SC	
		2.2		(2.2-12.3') CLAY, very firm to soft, light brownish gray and reddish yellow, dry to very moist, low plasticity, cohesive		
		0.8				
5		0.1	A7-004-SB-5			
		3.6				
	100	0.6			CL	
		1.9				
		0.2				
10		0.1	A7-004-SB-10			
		-				
	100	-		(12.3-15') SAND, fine to medium, very pale brown to 13' bgs then reddish yellow, wet, no plasticity, no cohesion	SW	Wet at 12.3' bgs
		-				
15		-		End of boring		
		-				
20		-				

Total Borehole Depth: 15' bgs.
 Boring terminated at 15' bgs encountering groundwater.



ARM Group Inc.
Earth Resource Engineers
and Consultants

Client : EnviroAnalytics Group
 ARM Project No. : 150300M-15-3
 Project Description : Sparrows Point - Parcel A7
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Allied Drilling Co.
 Driller : Mike Garvine
 Drilling Equipment : Geoprobe 7822DT

Date : 9/28/17
 Weather : Sunny, 80s

Northing (US ft) : 574971.76
 Easting (US ft) : 1460426.43

Boring ID: A7-005-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		0.0	A7-005-SB-1	(0-2') SANDY SILT, very firm, brownish red, dry, no plasticity to low plasticity, no cohesion to cohesive	ML	No water encountered
75		0.0				
End of boring						
5						

Total Borehole Depth: 2' bgs.
 Boring terminated at 2' bgs due to refusal.



Client : EnviroAnalytics Group
 ARM Project No. : 150300M-15-3
 Project Description : Sparrows Point - Parcel A7
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Allied Drilling Co.
 Driller : Mike Garvine
 Drilling Equipment : Geoprobe 7822DT

Date : 9/26/17
 Weather : Cloudy, 80s
 Northing (US ft) : 574891.00
 Easting (US ft) : 1461383.00

Boring ID: A7-006-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	A7-006-SB-1	(0-3') SLAG GRAVEL, medium dense to dense, reddish brown to gray, dry, no plasticity, no cohesion	GW	No water encountered
0.8	74	6.1		(3-6.5') CLAY with SILT and SAND, firm, brownish gray, moist, low plasticity, cohesive	CL	
5.5		0.7	A7-006-SB-5			
5		0.6		(6.5-7.1') CLAY, very firm to hard, light grayish brown and brown with reddish yellow, moist, low plasticity, cohesive	CL	
	100	2.8			SW	
		2.1		(7.1-7.7') SAND with CLAY, fine to medium, medium dense to dense, light brownish gray, very moist, no plasticity, no cohesion	CL	
		2.1				
10		0.1	A7-006-SB-10	(7.7-16') CLAY, very firm to hard, light brownish gray with reddish yellow mottling, moist to dry, low plasticity, cohesive	CL	
	60	-				
		-				
		-				
15		-		(16-20') CLAY, soft, very pale brown, very moist, cohesive, low plasticity,	CL	
	100	-				
		-				
		-				
20				End of boring		
25						

Total Borehole Depth: 20' bgs.
 Boring terminated at 20' bgs due to maximum allowable depth.



Client : EnviroAnalytics Group
 ARM Project No. : 150300M-15-3
 Project Description : Sparrows Point - Parcel A7
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Allied Drilling Co.
 Driller : Mike Garvine
 Drilling Equipment : Geoprobe 7822DT

Date : 9/27/17
 Weather : Sunny, 80s
 Northing (US ft) : 574630.37
 Easting (US ft) : 1461054.10

Boring ID: A7-007-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	A7-007-SB-1	(0-3') CLAY, blocky, very firm to hard, brownish red, dry, low plasticity, cohesive	CL	Wet at 11.5' bgs
80		0.1		(3-10.5') CLAY, very firm to hard, very pale brown with reddish yellow mottling, dry to moist, low plasticity, cohesive	CL	
		0.1				
		0.3				
		0.3				
5		0.3		(10.5-16') SAND, fine to medium, medium dense, very pale brown to yellow, wet, no plasticity, no cohesion	SW	
		0.1				
100		0.6				
		8.0	A7-007-SB-9			
		3.4	A7-007-SB-10	(16-20') CLAY grading to SANDY CLAY, very firm grading to soft, very pale brown with trace reddish yellow, moist grading to wet, low plasticity, cohesive	CL	
		-				
70		-				
		-				
15		-		End of boring		
		-				
74		-				
		-				
20		-				
25		-				

Total Borehole Depth: 20' bgs.
 Boring terminated at 20' bgs due to encountering groundwater.



Client : EnviroAnalytics Group
 ARM Project No. : 150300M-15-3
 Project Description : Sparrows Point - Parcel A7
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Allied Drilling Co.
 Driller : Mike Garvine
 Drilling Equipment : Geoprobe 7822DT

Date : 9/28/17
 Weather : Sunny, 80s

Northing (US ft) : 574666.92
 Easting (US ft) : 1460576.68

Boring ID: A7-008-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	A7-008-SB-1	(0-10') SILTY CLAY, firm grading to very firm, brownish red, dry then moist at 7' bgs, low plasticity, cohesive	CL	Light organic matter
58	46.5					
	3.6					
5	39.3					
	-	9.5	A7-008-SB-8			
82	69.7					
	2.5					
	5.3		A7-008-SB-10			
10	0.0			(10-16.5') CLAY grading to CLAY with SAND, firm grading to soft, very pale brown, moist to very moist, low plasticity, cohesive	CL	
	0.0					
100	0.0					
	0.0					
	0.0					
15	-			(16.5-20') CLAYEY SAND grading to SAND, fine to medium, medium dense, very pale brown, wet, no plasticity, no cohesion	SW	Wet at 16.5' bgs
	-					
80	-					
	-					
20				End of boring		
25						

Total Borehole Depth: 20' bgs.
 Boring terminated at 20' bgs due to encountering groundwater.



Client : EnviroAnalytics Group
 ARM Project No. : 150300M-15-3
 Project Description : Sparrows Point - Parcel A7
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Allied Drilling Co.
 Driller : Mike Garvine
 Drilling Equipment : Geoprobe 7822DT

Date : 9/27/17
 Weather : Sunny, 80s
 Northing (US ft) : 574693.21
 Easting (US ft) : 1460728.65

Boring ID: A7-009-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	A7-009-SB-1	(0-1.5') CLAYEY SILT, soft, brownish red, moist, no plasticity, no cohesion	ML	
70	0.1	-		(1.5-7.2') SILTY CLAY, firm to very firm, moist then very moist 4.5-7.2' bgs, brownish red, low plasticity, cohesive	CL	
5	0.2					
84	1.7		A7-009-SB-8	(7.2-14.5') CLAY, very firm then soft at 12.5' bgs, yellow and very pale brown mottling, dry then very moist at 12.5' bgs, low plasticity, cohesive	CL	
10	12.3					
60	1.6					
15	0.6			(14.5-15') SAND, medium dense, yellowish brown, wet, no plasticity, no cohesion	SW	Wet at 14.5' bgs
	-			End of boring		
20	-					

Total Borehole Depth: 15' bgs.
 Boring terminated at 15' bgs due to encountering groundwater.



Client : EnviroAnalytics Group
 ARM Project No. : 150300M-15-3
 Project Description : Sparrows Point - Parcel A7
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Allied Drilling Co.
 Driller : Mike Garvine
 Drilling Equipment : Geoprobe 7822DT

Date : 9/26/17
 Weather : Cloudy, 70s
 Northing (US ft) : 574686.43
 Easting (US ft) : 1462420.71

Boring ID: A7-010-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	A7-010-SB-1	(0-1.5') SAND with SILT and ORGANIC MATTER, loose, brown, dry, no plasticity, no cohesion	SW-SM	
	60	0.0		(1.5-3.5') SLAG, SAND and GRAVEL-sized, very fine to coarse, medium dense, brown with gray, dry, no plasticity, no cohesion	SW/GW	
		0.3		(3.5-5.5') SLAG GRAVEL, fine to coarse, dense, gray and brownish gray, wet, no plasticity, no cohesion	GW	
5		0.0	A7-010-SB-6	(5.5-5.7') CLAYEY SAND, medium dense, brownish gray, wet, no plasticity, no cohesion	SC	
	100	0.0		(5.7-17.2') CLAY, very firm, light brownish gray with reddish yellow mottling, moist, low plasticity, cohesive	CL	
		0.0				
		0.0				
10		-				
	60	-				
		-				
		-				
15		-				
		-				
	76	-		(17.2-20') SAND, fine to coarse, medium dense, reddish yellow, wet, no plasticity, no cohesion	SW	Wet at 17.2' bgs
		-				
20				End of boring		
25						

Total Borehole Depth: 20' bgs.
 Boring terminated at 20' bgs due to encountering groundwater.



Client : EnviroAnalytics Group
 ARM Project No. : 150300M-15-3
 Project Description : Sparrows Point - Parcel A7
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Allied Drilling Co.
 Driller : Mike Garvine
 Drilling Equipment : Geoprobe 7822DT

Date : 9/27/17
 Weather : Sunny, 80s

Northing (US ft) : 574908.50
 Easting (US ft) : 1461028.39

Boring ID: A7-011-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	A7-011-SB-1	(0-0.6') CLAYEY SLAG GRAVEL, loose, gray and red, dry, no plasticity, no cohesion	GC	No water encountered
	84	9.9		(0.6-2.6') SLAG, SAND and GRAVEL-sized with trace CLAY, medium dense, gray, dry, no plasticity, no cohesion	SW/GW	
		9.1		(2.6-6.7') CLAYEY SILT with trace GRAVEL, very firm, brown with trace gray and yellow, dry, low plasticity, cohesive	ML	
		7.4				
		9.2				
5		6.6		(6.7-20') CLAY, hard to very firm then soft at 16.8-20' bgs, grayish brown with reddish yellow 6.7-10' bgs then light brownish gray with reddish yellow mottling 10-20' bgs, dry then very moist at 16.8' bgs, low plasticity, cohesive	CL	
	100	7.9	A7-011-SB-8			
		15.0				
		11.9				
10		1.8				
	60	-				
		-				
		1.2				
		1.2				
		0.7				
15		-				
	84	0.8				
		0.6				
		0.7				
		0.7				
20				End of boring		
25						

Total Borehole Depth: 20' bgs.
 Boring terminated at 20' bgs due to encountering groundwater.



Client : EnviroAnalytics Group
 ARM Project No. : 150300M-15-3
 Project Description : Sparrows Point - Parcel A7
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Allied Drilling Co.
 Driller : Mike Garvine
 Drilling Equipment : Geoprobe 7822DT

Date : 9/26/17
 Weather : Cloudy, 70s
 Northing (US ft) : 574694.00
 Easting (US ft) : 1461980.00

Boring ID: A7-012-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	A7-012-SB-1	(0-0.6') SILT with some SLAG GRAVEL, soft, reddish brown, moist, no plasticity, no cohesion	ML	Light organic matter
		2.7		(0.6-2.8') SLAG GRAVEL with SILT, medium dense, gray with reddish brown, dry, no plasticity, no cohesion	GW-GM	
	80	35.4		(2.8-6.5') CLAY, firm to hard, light brown and reddish yellow mottling, moist to dry, low plasticity, cohesive	CL	Wet at 7.5' bgs
		0.0				
5		0.6	A7-012-SB-5			
		0.0				
		0.0		(6.5-7.5') CLAY, soft, grayish brown, very moist, low plasticity, cohesive	CL	
	100	0.0		(7.5-8.7') CLAYEY SAND, medium dense, light brown and light brownish gray, wet, no plasticity, no cohesion	SC	
		0.0		(8.7-10') CLAY, firm to hard, light brown and reddish yellow mottling, moist to dry, low plasticity, cohesive	CL	
10				End of boring		
15						

Total Borehole Depth: 10' bgs.
 Boring terminated at 10' bgs due to encountering groundwater.



Client : EnviroAnalytics Group
 ARM Project No. : 150300M-15-3
 Project Description : Sparrows Point - Parcel A7
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Allied Drilling Co.
 Driller : Mike Garvine
 Drilling Equipment : Geoprobe 7822DT

Date : 9/26/17
 Weather : Sunny, 80s
 Northing (US ft) : 574769.14
 Easting (US ft) : 1461843.30

Boring ID: A7-013-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		0.9	A7-013-SB-1	(0-0.5') SANDY CLAY with trace SLAG GRAVEL, hard, brown, dry, low plasticity, cohesive	CL	Wet at 11' bgs
	94	1.0		(0.5-9') CLAY, hard, brownish gray, dry, low plasticity, cohesive	CL	
		4.1				
		0.3				
5		4.9	A7-013-SB-5			
		0.6				
	100	0.7				
		0.8				
		1.9				
10		0.3	A7-013-SB-10	(9-10.5') CLAY grading to SANDY CLAY, firm grading to soft, very light gray, moist to very moist, low plasticity, cohesive	CL	
		-		(10.5-14') CLAYEY SAND, medium dense, very light gray, wet, no plasticity, no cohesion	SC	
	80	0.0			CL	
		0.0				
15		0.0		(14-15') CLAY, firm to soft, very light gray, very moist, low plasticity, cohesive	CL	
End of boring						

Total Borehole Depth: 15' bgs.
 Boring terminated at 15' bgs due to encountering groundwater.



ARM Group Inc.
Earth Resource Engineers
and Consultants

Client : EnviroAnalytics Group
 ARM Project No. : 150300M-15-3
 Project Description : Sparrows Point - Parcel A7
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Allied Drilling Co.
 Driller : Mike Garvine
 Drilling Equipment : Geoprobe 7822DT

Date : 9/26/17
 Weather : Cloudy, 70s

Northing (US ft) : 574626.30
 Easting (US ft) : 1461507.40

Boring ID: A7-014-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	A7-014-SB-1	(0-11') CLAY with SILT, hard to very firm, red, moist, low plasticity, cohesive	CL	Light to heavy organic matter
	78	0.0				
		0.0				
		0.0				
		0.0				
5		1.0	A7-014-SB-5			
		0.3				
		0.6				
	90	1.5				
		0.4				
10		0.8	A7-014-SB-10	(11-15') SANDY CLAY, soft, light brownish gray, very moist, low plasticity, cohesive	CL	Wet at 16' bgs
		-				
	50	0.0				
		0.0				
15		0.0		(15-20') SAND, fine to coarse, medium dense, light brownish gray, wet, no plasticity, no cohesion	SW	
		-				
	80	-				
		-				
20		-		End of boring		
25						

Total Borehole Depth: 20' bgs.
 Boring terminated at 20' bgs due to encountering groundwater.



ARM Group Inc.
Earth Resource Engineers
and Consultants

Client : EnviroAnalytics Group
 ARM Project No. : 150300M-15-3
 Project Description : Sparrows Point - Parcel A7
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogel, E.I.T.
 Drilling Company : Allied Drilling Co.
 Driller : Mike Garvine
 Drilling Equipment : Geoprobe 7822DT

Date : 9/27/17
 Weather : Sunny, 80s

Northing (US ft) : 574540.41
 Easting (US ft) : 1460829.42

Boring ID: A7-015-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	A7-015-SB-1	(0-12') CLAY with trace SLAG GRAVEL, firm then soft at 8' bgs, light brown, moist then very moist at 8' bgs, low plasticity, cohesive	CL	Moderate organic matter
	26	-				
		0.0				
5		0.0				
		2.8				
		6.1	A7-015-SB-7			
	100	1.5				
		0.5				
		0.0	A7-015-SB-10			
10		-				
		-		(12-15') SAND, medium dense to dense, reddish yellow to yellowish red, wet, no plasticity, no cohesion	SW	Wet at 13' bgs
	100	-				
		-				
15		-		End of boring		
20						

Total Borehole Depth: 20' bgs.
 Boring terminated at 20' bgs due to encountering groundwater.



Client : EnviroAnalytics Group
 ARM Project No. : 150300M-15-3
 Project Description : Sparrows Point - Parcel A7
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Allied Drilling Co.
 Driller : Mike Garvine
 Drilling Equipment : Geoprobe 7822DT

Date : 9/27/17
 Weather : Sunny, 80s
 Northing (US ft) : 574469.74
 Easting (US ft) : 1460925.50

Boring ID: A7-020-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	A7-020-SB-1	(0-1.2') SILTY CLAY, soft, brownish red, very moist, low plasticity, cohesive	CL	Light organic matter
	78	0.3		(1.2-12.5') CLAY, very firm to hard, very light brown with reddish yellow, dry then wet at 8.5' bgs, low plasticity, cohesive	CL	
		16.2				
		0.6				
		1.2	A7-020-SB-5			
5		0.5		(12.5-15') SAND, fine to medium, medium dense, very pale brown grading to reddish yellow, wet, no plasticity, no cohesion	SW	
	100	0.6				
		1.0				
		1.4				
10		0.9	A7-020-SB-10			
	60	-				Wet at 12.5' bgs
		-				
		-				
15		-				
End of boring						
20						

Total Borehole Depth: 20' bgs.
 Boring terminated at 20' bgs due to encountering groundwater.



Client : EnviroAnalytics Group
 ARM Project No. : 150300M-15-3
 Project Description : Sparrows Point - Parcel A7
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Allied Drilling Co.
 Driller : Mike Garvine
 Drilling Equipment : Geoprobe 7822DT

Date : 9/28/17
 Weather : Sunny, 80s
 Northing (US ft) : 574777.78
 Easting (US ft) : 1460503.34

Boring ID: A7-021-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	A7-021-SB-1	(0-5') CLAYEY SILT, firm, brownish red, moist, low plasticity, cohesive	ML	Trace metallic slag/metal at 1' bgs
	72	1.9				
		3.8				
		6.6				
5		0.9	A7-021-SB-5	(5-5.8) SILTY SAND, medium dense, brownish red, very moist, no plasticity, no cohesion	SM	
	100	0.5		(5.8-7') CLAYEY SILT, firm, brownish red, moist, low plasticity, cohesive	ML	
		0.5		(7-17') CLAY, hard to soft, very light brown with reddish yellow mottling, dry to very moist, low plasticity, cohesive		
		2.7				
10		0.4	A7-021-SB-10			
	100	0.0			CL	
		0.2				
		0.0				
		0.0				
		0.4				
15		-				
	80	-		(17-20') SAND, fine to medium, very pale brown grading to yellowish red, wet, no plasticity, no cohesion	SW	Wet at 17' bgs
		-				
		-				
20				End of boring		
25						

Total Borehole Depth: 20' bgs.
 Boring terminated at 20' bgs due to encountering groundwater.



Client : EnviroAnalytics Group
 ARM Project No. : 150300M-15-3
 Project Description : Sparrows Point - Parcel A7
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Allied Drilling Co.
 Driller : Mike Garvine
 Drilling Equipment : Geoprobe 7822DT

Date : 9/27/17
 Weather : Sunny, 80s

Northing (US ft) : 574670.04
 Easting (US ft) : 1461314.12

Boring ID: A7-022-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	A7-022-SB-1	(0-9.1') SLAG GRAVEL, with CLAY at depth, fine to coarse, medium dense to dense, dry, no plasticity, no cohesion	GW	
	68	0.6				
		0.8				
		0.6				
5		0.8	A7-022-SB-5			
		-		(9.1-10') CLAY, very firm, brownish gray, dry, low plasticity, cohesive (10-20') NO RECOVERY	CL	Trace roots 9-10' bgs Elevation appears to be higher than surrounding elevation (berm?) No water encountered
	74	3.4				
		19.0				
		3.1				
		5.2				
10	0	-				
		-				
		-				
15	0	-				
		-				
		-				
20				End of boring		
25						

Total Borehole Depth: 20' bgs.
 Boring terminated at 20' bgs due to maximum allowable depth.

APPENDIX C

APPENDIX D

APPENDIX E

Test Pit Photograph Log
Area A: Parcel A7
Sparrows Point, Maryland



Photo 1: View of test pit at A7-001-TP before excavation.
No visible contamination is evident.



Photo 2: View of the soil observed during test pit activities at A7-001-TP.
Soils appear to consist of silty clay. No visible contamination is evident.

Test Pit Photograph Log
Area A: Parcel A7
Sparrows Point, Maryland



Photo 3: View of test pit at A7-001-TP after excavation.
No visible contamination is evident and PID reading equals 3.9.



Photo 4: View of test pit at A7-002-TP before excavation.
No visible contamination is evident.

Test Pit Photograph Log
Area A: Parcel A7
Sparrows Point, Maryland



Photo 5: View of the soil observed during test pit activities at A7-002-TP.
Soils appear to consist of silty clay with gravel. No visible contamination is evident.



Photo 6: View of test pit at A7-002-TP after excavation.
No visible contamination is evident and PID reading equals 4.1.

Test Pit Photograph Log
Area A: Parcel A7
Sparrows Point, Maryland



Photo 7: View of test pit at A7-003-TP before excavation.
No visible contamination is evident.



Photo 8: View of the soil observed during test pit activities at A7-003-TP.
Soils appear to consist of silty clay with gravel. No visible contamination is evident.

Test Pit Photograph Log
Area A: Parcel A7
Sparrows Point, Maryland



Photo 9: View of test pit at A7-003-TP after excavation.
No visible contamination is evident and PID reading equals 2.8.



Photo 10: View of test pit at A7-004-TP before excavation.
No visible contamination is evident.

Test Pit Photograph Log
Area A: Parcel A7
Sparrows Point, Maryland



Photo 11: View of the soil observed during test pit activities at A7-004-TP. Soils appear to consist of gravel. No visible contamination is evident.



Photo 12: View of test pit at A7-004-TP after excavation. No visible contamination is evident and PID reading equals 2.3.

Test Pit Photograph Log
Area A: Parcel A7
Sparrows Point, Maryland



Photo 13: View of test pit at A7-005-TP before excavation.
No visible contamination is evident.



Photo 14: View of test pit at A7-005-TP after excavation. Soils appear to consist of gravel.
No visible contamination is evident and PID reading equals 4.6.

Test Pit Photograph Log
Area A: Parcel A7
Sparrows Point, Maryland



Photo 15: View of test pit at A7-006-TP before excavation.
No visible contamination is evident.



Photo 16: View of the soil observed during test pit activities at A7-006-TP.
Soils appear to consist of sandy silt. No visible contamination is evident.

Test Pit Photograph Log
Area A: Parcel A7
Sparrows Point, Maryland



Photo 17: View of test pit at A7-006-TP after excavation.
No visible contamination is evident and PID reading equals 7.0.



Photo 18: View of test pit at A7-007-TP before excavation.
No visible contamination is evident.

Test Pit Photograph Log
Area A: Parcel A7
Sparrows Point, Maryland



Photo 19: View of test pit at A7-007-TP after excavation.
No visible contamination is evident and PID reading equals 7.1.



Photo 20: View of test pit at A7-008-TP before excavation.
No visible contamination is evident.

Test Pit Photograph Log
Area A: Parcel A7
Sparrows Point, Maryland



Photo 21: View of test pit at A7-008-TP after excavation. Soils appear to consist of silty clay. No visible contamination is evident and PID reading equals 6.7.



Photo 22: View of test pit at A7-009-TP before excavation. No visible contamination is evident.

Test Pit Photograph Log
Area A: Parcel A7
Sparrows Point, Maryland



Photo 23: View of the soil observed during test pit activities at A7-009-TP. Soils appear to consist of sandy silty. No visible contamination is evident.



Photo 24: View of test pit at A7-009-TP after excavation. No visible contamination is evident and PID reading equals 3.6.

Test Pit Photograph Log
Area A: Parcel A7
Sparrows Point, Maryland



Photo 25: View of test pit at A7-010-TP before excavation.
No visible contamination is evident.



Photo 26: View of the soil observed during test pit activities at A7-010-TP.
Soils appear to consist of sandy silt. No visible contamination is evident.

Test Pit Photograph Log
Area A: Parcel A7
Sparrows Point, Maryland



Photo 27: View of test pit at A7-010-TP after excavation.
No visible contamination is evident and PID reading equals 5.4.

APPENDIX F



Client : EnviroAnalytics Group
 ARM Project No. : 150300M-15-3
 Project Description : Sparrows Point - Parcel A7
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Allied Drilling Co.
 Driller : Mike Garvine
 Drilling Equipment : Geoprobe 7822DT

Date : 9/28/17
 Weather : Sunny, 70s
 Northing (US ft) : 574579.00
 Easting (US ft) : 1460855.00

Boring ID: MW093-002

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample No/Interval	DESCRIPTION	USCS	REMARKS
0		-	No Samples Collected	(0-2') SLAG GRAVEL with SAND, loose, gray and grayish brown, dry, no plasticity, no cohesion	GW/SW	Wet at 19.9' bgs
60	6.5	-		(2-7.5') CLAY with SILT, firm, grayish brown, dry, low plasticity, cohesive	CL	
5	4.0	2.9		(7.5-12') CLAY, very firm, reddish yellow and light grayish brown, dry, low plasticity, cohesive		
70	5.1	-		(12-12.5') SANDY CLAY, firm, light brown, moist, low plasticity, cohesive	CL	
10	0.3	0.3		(12.5-16.2') CLAY, very firm, reddish yellow and light grayish brown, dry, low plasticity, cohesive	CL	
90	0.2	0.2		(16.2-19.9') CLAY with trace SAND, soft, very light brown with reddish yellow mottling, very moist to wet, low plasticity, cohesive	CL	
15	0.2	0.2		(19.9-25') SAND, fine to medium, medium dense, brownish gray 19.9-21.5' bgs, reddish yellow 21.5-24' bgs, very pale brown 24-24.7' bgs, brownish gray 24.7-25' bgs, wet, no plasticity, no cohesion	SW	
100	0.2	0.2		(25-27') NO RECOVERY; could not advance dual tube and collect soil, advanced with rods	-	
20	-	-		End of boring		
25	-	-				
30	-	-				

Total Borehole Depth: 27' bgs.
 Boring terminated at 27' bgs due to water and piezometer installation.

Piezometer installed to replace permanent well at MW093-002.



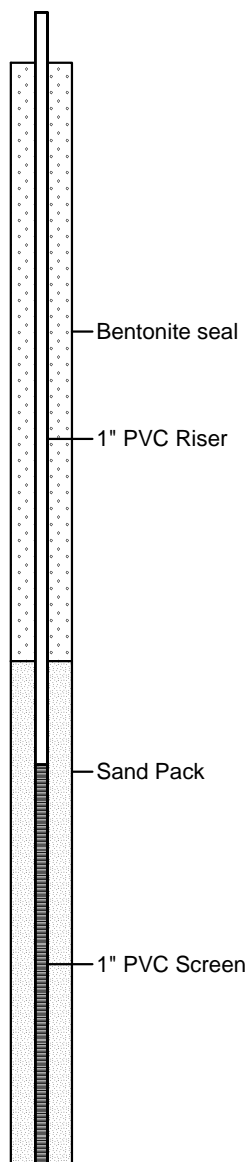
LOG OF TEMPORARY GROUNDWATER SAMPLE COLLECTION POINT: MW093-002

Client: EnviroAnalytics Group
Site: Sparrows Point - Area A Parcel A7
Sparrows Point, MD
ARM Project No.: 150298M-15-3
Page 1 of 1

Date Installed : 9/28/17
Casing/Riser Type : PVC
Borehole Diameter : 2.25"
Drilling Method : 7822DT Geoprobe
Driller : Mike Garvine

Drilling Company : Allied Drilling Co.
TOC Elevation : ---
0-Hr DTW : 14.3' TOC
48-Hr DTW : 14.6' TOC
ARM Representative : L. Perrin

Depth in Feet	Surf. Elev.	DESCRIPTION		REMARKS
0		Riser Type: PVC Riser Diameter: 1" Riser Stickup: 2.4' Riser Amount: 17.6'		Northing (US ft): 574579.00 Easting (US ft): 1460855.00 No LNAPL or DNAPL detected at 48 hours
1				
2				
3		Screen Type: PVC Screen Diameter: 1" Screen Amount: 10' Slot Size: 0.010"		
4				
5				
6		Sand Pack: Top: 15' bgs Bottom: 27.6' bgs Grain Size: WG #2		
7				
8		Bentonite Seal: Top: 0 (surface) Bottom: 15' bgs Grain Size: 3/8" chips		
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28		End of Boring		



Total Depth: 27.6' bgs

TOC: Top of PVC casing
DTW: Depth to water

CRRGP FİZİ "

Low Flow Sampling Permanent Wells



ARM Group Inc.

Earth Resource Engineers and Consultants

Project Name: A7 Phase II

Project Number: 150298M-15

Well Number: MW93-001

Date: 10/12/15

Well Diameter (in): 4

One Well Volume (gal):

Depth to Product (ft): none

QED Controller Settings:

Depth to Water (ft): 6.00

Flow Rate (mL/min) 200

Product Thickness (ft): none

Length of time Purged (min)

Depth to Bottom (ft): 17.02

Condition of Pad/Cover: none / good

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
0923	0	6.00	18.12	6.61	0.405	0.00	-185		odor & clear
0928	0.15	6.00	17.93	7.27	0.380	0.00	-246		
0933	0.3	6.00	17.87	7.78	0.373	0.00	-260		
0938	0.45	6.00	17.82	8.44	0.373	0.00	-260		
0943	0.6	6.00	17.70	8.56	0.370	0.00	-265		
0948	0.75	6.00	17.79	8.56	0.370	0.00	-265		
0953	0.9	6.00	17.77	8.56	0.369	0.00	-266		

MONITORING SAMPLE RECORD

Sample ID	Time Collected	Parameter/Order	Container	Perservative	Collected?
MW93-001	0958	TCL-VOCs	3 - 40 mL VOA	HCl	Y-9
		TPH-GRO	3 - 40 mL VOA	HCl	Y-9
		TPH-DRO	2 - 1 L Amber	none	Y-10
		TCL-SVOCs	2 - 1 L Amber	none	
		Oil & Grease	2 - 1 L Amber	HCl	Y-3
		TAL-Metals & Mercury (total)	1 - 250 mL Plastic	HNO3	Y-3
		Hexavalent Chromium (total)	1 - 250 mL Plastic	none	Y-3
		Total Cyanide	1 - 250 mL Plastic	NaOH	Y-3 sets
		TAL-Metals & Mercury (Dissolved) Field Filtered	1 - 250 mL Plastic	HNO3	Y-3
		Hexavalent Chromium (Dissolved) Field Filtered	1 - 250 mL Plastic	none	Y-3
		PCB	2 - 1 L Amber	None	N
		Matrix Spike Duplicate			

Sampled By: LMC

Comments:

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)

Low Flow Sampling Temporary Piezometers



ARM Group Inc.
Earth Resource Engineers and Consultants

Project Name: <u>A7 Phase II</u>	Project Number: <u>150298M-15</u>
Piezometer Number: <u>MW93-002</u>	Date: <u>10/12/17</u>
Piezometer Diameter (in): <u>1</u>	One Well Volume (gal):
Depth to Product (ft): <u>none</u>	QED Controller Settings:
Depth to Water (ft): <u>14.52</u>	Flow Rate (mL/min)
Product Thickness (ft): <u>none</u>	Length of time Purged (min)
Depth to Bottom (ft): <u>29.93</u>	

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
1237	0	14.52	17.52	5.66	0.475	0.00	-35		turbid
1242	0.2	14.52	17.43	5.64	0.443	0.00	-30		clear
1247	0.4	14.52	17.32	5.54	0.420	0.00	-29		
1252	0.6	14.52	17.22	5.50	0.413	0.00	-30		clear
1257	0.8	14.52	17.13	5.54	0.403	0.00	-32		

MONITORING SAMPLE RECORD

Sample ID	Time Collected*	Parameter/Order	Container	Perservative	Collected?
MW93-002	1302	TCL-VOCs	3 - 40 mL VOA	HCl	✓
		TPH-GRO	3 - 40 mL VOA	HCl	
		TPH-DRO	2 - 1 L Amber	none	
		TCL-SVOCs	2 - 1 L Amber	none	
		Oil & Grease	2 - 1 L Amber	HCl	
		Total Cyanide	1 - 250 mL Plastic	NaOH	
		TAL-Metals & Mercury (Dissolved) Field Filtered	1 - 250 mL Plastic	HNO3	
		Hexavalent Chromium (Dissolved) Field Filtered	1 - 250 mL Plastic	None	

Matrix Spike

Duplicate

Sampled By: lmk

Comments:

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)

Low Flow Sampling
~~Temporary Piezometers~~
 Permanent well



ARM Group Inc.
 Earth Resource Engineers and Consultants

Project Name: <u>A7 Phase II</u>	Project Number:
Piezometer Number: <u>W-14</u>	Date: <u>10/19/17</u>
Piezometer Diameter (in): <u>1/2</u>	One Well Volume (gal):
Depth to Product (ft): <u>none</u>	QED Controller Settings:
Depth to Water (ft): <u>18.11</u>	Flow Rate (mL/min) <u>175</u>
Product Thickness (ft): <u>none</u>	Length of time Purged (min)
Depth to Bottom (ft): <u>20.82</u>	

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
0920	0		15.34	4.08	0.780	3.37	217	24.0	V. clear
0925	0.15		15.16	4.29	0.765	1.20	162	17.4	
0930	0.3		15.05	4.44	0.757	0.37	134	13.2	
0935	0.45		14.96	4.46	0.749	0.00	121	10.1	
0940	0.6		14.89	4.45	0.745	0.00	115	8.82	
0945	0.75		14.85	4.43	0.743	0.00	110	7.24	

MONITORING SAMPLE RECORD

Sample ID	Time Collected	Parameter/Order	Container	Perservative	Collected?
W-14	0950	TCL-VOCs	3 - 40 mL VOA	HCl	Y
		TPH-GRO	3 - 40 mL VOA	HCl	
		TPH-DRO	2 - 1 L Amber	none	
		TCL-SVOCs	2 - 1 L Amber	none	
		Oil & Grease	2 - 1 L Amber	HCl	
		Total Cyanide	1 - 250 mL Plastic	NaOH	
		TAL-Metals & Mercury (Dissolved) *Field Filtered	1 - 250 mL Plastic	HNO3	
Hexavalent Chromium (Dissolved) *Field Filtered	1 - 250 mL Plastic	None			
Matrix Spike					
Duplicate					

Sampled By: umc Comments: d/n have skinny probe in service for 5min interval readings

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)

TABLE 1
MULTIPARAMETER CALIBRATION LOG

Project Name Area A Parcel A7 Phase II Date 10/12/17
 Weather Cloudy, Rainy, 70s
 Calibrated by L. Glumac Instrument Horiba
 Serial Number 2BOMSAX4

Parameters	Morning Calibration	Morning Temperature	End of Day Calibration Check	End of Day Temperature
Specific Conductance Standard 4.49 mS/cm	4.48	65 F	4.70	61 F
Specific Conductance Standard #2	-		-	
pH (7)	-		-	
pH (4)	4.01		4.05	
pH(10)	-		-	
ORP Zobel Solution	-		-	
Dissolved Oxygen 100% water saturated air mg/L	9.01		8.53 [¥]	
Dissolved Oxygen Zero Dissolved Oxygen Solution mg/L	-		-	
Barometric Pressure inch Hg	30.17		30.30	
Turbidity #1 (0 NTU)	¥		¥	
Turbidity #2 (1 NTU)	-		-	
Turbidity #3 (10 NTU)	-		-	

¥DO is outside of the calibration acceptance criteria. Values displayed on field purge logs may be inaccurate. Turbidity was inoperable and was not recorded on the purge logs.

TABLE 1
MULTIPARAMETER CALIBRATION LOG

Project Name Area A Parcel A7 Phase II Date 10/19/17
 Weather Sunny, 50s
 Calibrated by L. Glumac Instrument Horiba & Lamotte
 Serial Number 2BOMSAX4 & 3028-0913

Parameters	Morning Calibration	Morning Temperature	End of Day Calibration Check	End of Day Temperature
Specific Conductance Standard 4.49 mS/cm	4.51	49 F	4.48	75 F
Specific Conductance Standard #2	-		-	
pH (7)	-		-	
pH (4)	3.99		4.04	
pH(10)	-		-	
ORP Zobel Solution	-		-	
Dissolved Oxygen 100% water saturated air mg/L	8.53 [‡]		9.62 [‡]	
Dissolved Oxygen Zero Dissolved Oxygen Solution mg/L	-		-	
Barometric Pressure inch Hg	30.27		30.22	
Turbidity #1 (0 NTU)	0.00		0.08	
Turbidity #2 (1 NTU)	1.00		1.07 [‡]	
Turbidity #3 (10 NTU)	10.00		9.92	

[‡] DO is outside of the calibration acceptance criteria. Turbidity standard #1 is outside of the calibration acceptance criteria. Values displayed on field purge logs may be inaccurate.

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APPENDIX H

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Parcel A7 - IDW Drum Log

Drum Identification Number	Designation	Activity/Phase	Contents	Open Date
949-Liners-9/26/17-A7	Non-haz.	Parcel A7 Phase II Investigation	Liners	9/26/2017
950-PPE-9/26/17-A7	Non-haz.	Parcel A7 Phase II Investigation	PPE	9/26/2017
951-Soil-9/26/17-A7	Non-haz.	Parcel A7 Phase II Investigation	Soil	9/26/2017
964-Purge Water-10/9/17-B14/A7/A5	Non-haz.	Parcels B14/A7/A5 Phase II Investigations	Water	10/9/2017
965-Purge Water-10/9/17-B14/A7/A5	Non-haz.	Parcels B14/A7/A5 Phase II Investigations	Water	10/9/2017
966-PPE-10/9/17-B14/A7/A5	Non-haz.	Parcels B14/A7/A5 Phase II Investigations	PPE	10/9/2017
968-Purge Water-10/11/17-B14/A7/A5	Non-haz.	Parcels B14/A7/A5 Phase II Investigations	Water	10/11/2017

APPENDIX I

QA/QC Tracking Log

<u>Trip</u> Blank:	<u>Date:</u>	<u>Sample IDs:</u>	<u>Trip</u> Blank:	<u>Date:</u>	<u>Sample IDs:</u>	
	9/26/2017	1) A7-010-SB-1		9/28/2017	1) A7-021-SB-10	
		2) A7-010-SB-6			2) A7-002-SB-1	
		3) A7-010-SB-10			TB	3) A7-002-SB-5
		4) A7-012-SB-1				4) A7-005-SB-1
		5) A7-012-SB-5				5) A7-003-SB-1
		6) A7-014-SB-1			6) A7-001-SB-1	
		7) A7-014-SB-5	<u>Duplicate:</u> A7-006-SB-5		7) A7-001-SB-8	<u>Duplicate:</u> A7-003-SB-1
		8) A7-014-SB-10	Date: 9/26/2017		8) A7-001-SB-10	Date: 9/28/2017
		9) A7-013-SB-1	<u>MS/MSD:</u> A7-007-SB-9	TB	9) A7-019-SD-1	<u>MS/MSD:</u> A7-001-SB-8
		10) A7-013-SB-5	Date: 9/27/2017	TB	10) A7-018-SD-1	Date: 9/29/2017
		11) A7-013-SB-10	<u>Field Blank:</u>	TB	11) A7-019-SW	<u>Field Blank:</u>
		12) A7-006-SB-1	Date: 9/27/2017	TB	12) A7-018-SW	Date: 9/29/2017
		13) A7-006-SB-5	<u>Eq. Blank:</u>	TB	13) A7-016-SD-1	<u>Eq. Blank:</u>
		14) A7-006-SB-10	Date: 9/27/2017	TB	14) A7-017-SD-1	Date: 9/29/2017
	9/27/2017	15) A7-022-SB-1		15) A7-016-SW		
		16) A7-022-SB-5		16) A7-017-SW		
		17) A7-022-SB-10		17)		
		18) A7-007-SB-1		18)		
		19) A7-007-SB-9		19)		
		20) A7-007-SB-10		20)		

	9/27/2017	1) A7-011-SB-1		TB	10/12/2017	1) MW93-001		
TB		2) A7-011-SB-8		TB		2) MW93-002		
		3) A7-011-SB-10			TB	10/19/2017	3) W-14	
		4) A7-004-SB-1				4)		
		5) A7-004-SB-5				5)		
		6) A7-004-SB-10				6)		
		7) A7-015-SB-1	<u>Duplicate:</u> A7-011-SB-8			7)	<u>Duplicate:</u> MW93-002	
		8) A7-015-SB-7	Date: 9/27/2017			8)	Date: 10/12/2017	
		9) A7-015-SB-10	<u>MS/MSD:</u> A7-020-SB-5			9)	<u>MS/MSD:</u> MW93-001	
		10) A7-020-SB-1	Date: 9/27/2017			10)	Date: 10/12/2017	
		11) A7-020-SB-5	<u>Field Blank:</u>			11)	<u>Field Blank:</u>	
		12) A7-020-SB-10	Date: 9/28/2017			12)	Date: 10/12/2017	
		13) A7-009-SB-1	<u>Eq. Blank:</u>			13)	<u>Eq. Blank:</u>	
TB		14) A7-009-SB-8	Date: 9/28/2017			14)	Date:	
		15) A7-009-SB-10				15)		
TB	9/28/2017	16) A7-008-SB-1			16)			
TB		17) A7-008-SB-8			17)			
		18) A7-008-SB-10			18)			
		19) A7-021-SB-1			19)			
		20) A7-021-SB-5			20)			

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

QA/QC Tracking Log

<u>Trip</u>	<u>Date:</u>	<u>Sample IDs:</u>	
Blank:	10/31/2017	1) A7-001-TP	
		2) A7-002-TP	
		3) A7-003-TP	
		4) A7-004-TP	
		5) A7-005-TP	
		6) A7-006-TP	
		7) A7-007-TP	<u>Duplicate:</u> A7-009-TP
		8) A7-008-TP	Date: 10/31/2017
		9) A7-009-TP	<u>MS/MSD:</u> A7-010-TP
		10) A7-010-TP	Date: 10/31/2017
		11)	<u>Field Blank:</u>
		12)	Date: 10/31/2017
		13)	<u>Eq. Blank:</u>
		14)	Date: 10/31/2017
		15)	
		16)	
		17)	
		18)	
		19)	
		20)	

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

APPENDIX J

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

Parameter	Parameter Group	Matrix	Unit	Number of Validated Result	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
Cyanide	CN	Soil	mg/kg	24	20	0	24	100.00%
Aluminum	Metal	Soil	mg/kg	24	21	0	24	100.00%
Antimony	Metal	Soil	mg/kg	24	10	0	24	100.00%
Arsenic	Metal	Soil	mg/kg	31	31	0	31	100.00%
Barium	Metal	Soil	mg/kg	24	24	0	24	100.00%
Beryllium	Metal	Soil	mg/kg	24	11	0	24	100.00%
Cadmium	Metal	Soil	mg/kg	24	21	0	24	100.00%
Chromium	Metal	Soil	mg/kg	24	24	0	24	100.00%
Chromium VI	Metal	Soil	mg/kg	24	1	0	24	100.00%
Cobalt	Metal	Soil	mg/kg	24	23	0	24	100.00%
Copper	Metal	Soil	mg/kg	24	24	0	24	100.00%
Iron	Metal	Soil	mg/kg	24	24	0	24	100.00%
Lead	Metal	Soil	mg/kg	24	24	0	24	100.00%
Manganese	Metal	Soil	mg/kg	24	24	0	24	100.00%
Mercury	Metal	Soil	mg/kg	24	20	0	24	100.00%
Nickel	Metal	Soil	mg/kg	24	23	0	24	100.00%
Selenium	Metal	Soil	mg/kg	24	10	0	24	100.00%
Silver	Metal	Soil	mg/kg	24	22	0	24	100.00%
Thallium	Metal	Soil	mg/kg	24	2	0	24	100.00%
Vanadium	Metal	Soil	mg/kg	24	24	0	24	100.00%
Zinc	Metal	Soil	mg/kg	24	24	0	24	100.00%
Aroclor 1016	PCB	Soil	mg/kg	10	0	0	10	100.00%
Aroclor 1221	PCB	Soil	mg/kg	10	0	0	10	100.00%
Aroclor 1232	PCB	Soil	mg/kg	10	0	0	10	100.00%
Aroclor 1242	PCB	Soil	mg/kg	10	0	0	10	100.00%
Aroclor 1248	PCB	Soil	mg/kg	10	0	0	10	100.00%
Aroclor 1254	PCB	Soil	mg/kg	10	0	0	10	100.00%
Aroclor 1260	PCB	Soil	mg/kg	10	4	0	10	100.00%
Aroclor 1262	PCB	Soil	mg/kg	10	1	0	10	100.00%
Aroclor 1268	PCB	Soil	mg/kg	10	0	0	10	100.00%
PCBs (total)	PCB	Soil	mg/kg	10	5	0	10	100.00%
1,1-Biphenyl	SVOC	Soil	mg/kg	24	1	0	24	100.00%
1,2,4,5-Tetrachlorobenzene	SVOC	Soil	mg/kg	24	0	0	24	100.00%
2,3,4,6-Tetrachlorophenol	SVOC	Soil	mg/kg	24	0	0	24	100.00%
2,4,5-Trichlorophenol	SVOC	Soil	mg/kg	24	0	0	24	100.00%
2,4,6-Trichlorophenol	SVOC	Soil	mg/kg	24	0	0	24	100.00%
2,4-Dichlorophenol	SVOC	Soil	mg/kg	24	0	0	24	100.00%
2,4-Dimethylphenol	SVOC	Soil	mg/kg	24	1	0	24	100.00%
2,4-Dinitrophenol	SVOC	Soil	mg/kg	24	0	1	23	95.83%
2,4-Dinitrotoluene	SVOC	Soil	mg/kg	24	0	0	24	100.00%
2,6-Dinitrotoluene	SVOC	Soil	mg/kg	24	0	0	24	100.00%
2-Chloronaphthalene	SVOC	Soil	mg/kg	24	0	0	24	100.00%
2-Chlorophenol	SVOC	Soil	mg/kg	24	0	0	24	100.00%
2-Methylnaphthalene	SVOC	Soil	mg/kg	24	21	0	24	100.00%
2-Methylphenol	SVOC	Soil	mg/kg	24	0	0	24	100.00%
2-Nitroaniline	SVOC	Soil	mg/kg	24	0	0	24	100.00%
3&4-Methylphenol(m&p Cresol)	SVOC	Soil	mg/kg	24	3	0	24	100.00%
3,3'-Dichlorobenzidine	SVOC	Soil	mg/kg	24	0	0	24	100.00%
4-Chloroaniline	SVOC	Soil	mg/kg	24	2	0	24	100.00%
4-Nitroaniline	SVOC	Soil	mg/kg	24	0	0	24	100.00%
Acenaphthene	SVOC	Soil	mg/kg	24	10	0	24	100.00%
Acenaphthylene	SVOC	Soil	mg/kg	24	18	0	24	100.00%
Acetophenone	SVOC	Soil	mg/kg	24	0	0	24	100.00%
Anthracene	SVOC	Soil	mg/kg	24	20	0	24	100.00%
Benz[a]anthracene	SVOC	Soil	mg/kg	24	23	0	24	100.00%
Benzaldehyde	SVOC	Soil	mg/kg	24	9	0	24	100.00%

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

Parameter	Parameter Group	Matrix	Unit	Number of Validated Result	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
Benzo[a]pyrene	SVOC	Soil	mg/kg	24	22	0	24	100.00%
Benzo[b]fluoranthene	SVOC	Soil	mg/kg	24	22	0	24	100.00%
Benzo[g,h,i]perylene	SVOC	Soil	mg/kg	24	22	0	24	100.00%
Benzo[k]fluoranthene	SVOC	Soil	mg/kg	24	22	0	24	100.00%
bis(2-chloroethoxy)methane	SVOC	Soil	mg/kg	24	0	0	24	100.00%
bis(2-Chloroethyl)ether	SVOC	Soil	mg/kg	24	0	0	24	100.00%
bis(2-Chloroisopropyl)ether	SVOC	Soil	mg/kg	24	0	0	24	100.00%
bis(2-Ethylhexyl)phthalate	SVOC	Soil	mg/kg	24	2	0	24	100.00%
Caprolactam	SVOC	Soil	mg/kg	24	0	0	24	100.00%
Carbazole	SVOC	Soil	mg/kg	24	1	0	24	100.00%
Chrysene	SVOC	Soil	mg/kg	24	22	0	24	100.00%
Dibenz[a,h]anthracene	SVOC	Soil	mg/kg	24	18	0	24	100.00%
Diethylphthalate	SVOC	Soil	mg/kg	24	0	0	24	100.00%
Di-n-butylphthalate	SVOC	Soil	mg/kg	24	0	0	24	100.00%
Di-n-ocetylphthalate	SVOC	Soil	mg/kg	24	0	0	24	100.00%
Fluoranthene	SVOC	Soil	mg/kg	24	24	0	24	100.00%
Fluorene	SVOC	Soil	mg/kg	24	11	0	24	100.00%
Hexachlorobenzene	SVOC	Soil	mg/kg	24	0	0	24	100.00%
Hexachlorobutadiene	SVOC	Soil	mg/kg	24	0	0	24	100.00%
Hexachlorocyclopentadiene	SVOC	Soil	mg/kg	24	0	0	24	100.00%
Hexachloroethane	SVOC	Soil	mg/kg	24	0	0	24	100.00%
Indeno[1,2,3-c,d]pyrene	SVOC	Soil	mg/kg	24	22	0	24	100.00%
Isophorone	SVOC	Soil	mg/kg	24	0	0	24	100.00%
Naphthalene	SVOC	Soil	mg/kg	24	17	0	24	100.00%
Nitrobenzene	SVOC	Soil	mg/kg	24	0	0	24	100.00%
N-Nitroso-di-n-propylamine	SVOC	Soil	mg/kg	24	0	0	24	100.00%
N-Nitrosodiphenylamine	SVOC	Soil	mg/kg	24	0	0	24	100.00%
Pentachlorophenol	SVOC	Soil	mg/kg	24	0	11	13	54.17%
Phenanthrene	SVOC	Soil	mg/kg	24	23	0	24	100.00%
Phenol	SVOC	Soil	mg/kg	24	1	0	24	100.00%
Pyrene	SVOC	Soil	mg/kg	24	23	0	24	100.00%
Diesel Range Organics	TPH	Soil	mg/kg	25	22	0	25	100.00%
Gasoline Range Organics	TPH	Soil	mg/kg	25	0	0	25	100.00%
Oil and Grease	TPH	Soil	mg/kg	25	24	0	25	100.00%
1,1,1-Trichloroethane	VOC	Soil	mg/kg	3	0	0	3	100.00%
1,1,2,2-Tetrachloroethane	VOC	Soil	mg/kg	3	0	0	3	100.00%
1,1,2-Trichloro-1,2,2-Trifluoroethane	VOC	Soil	mg/kg	3	0	0	3	100.00%
1,1,2-Trichloroethane	VOC	Soil	mg/kg	3	0	0	3	100.00%
1,1-Dichloroethane	VOC	Soil	mg/kg	3	0	0	3	100.00%
1,1-Dichloroethene	VOC	Soil	mg/kg	3	0	0	3	100.00%
1,2,3-Trichlorobenzene	VOC	Soil	mg/kg	3	0	0	3	100.00%
1,2,4-Trichlorobenzene	VOC	Soil	mg/kg	3	0	0	3	100.00%
1,2-Dibromo-3-chloropropane	VOC	Soil	mg/kg	3	0	0	3	100.00%
1,2-Dibromoethane	VOC	Soil	mg/kg	3	0	0	3	100.00%
1,2-Dichlorobenzene	VOC	Soil	mg/kg	3	0	0	3	100.00%
1,2-Dichloroethane	VOC	Soil	mg/kg	3	0	0	3	100.00%
1,2-Dichloroethene (Total)	VOC	Soil	mg/kg	3	0	0	3	100.00%
1,2-Dichloropropane	VOC	Soil	mg/kg	3	0	0	3	100.00%
1,3-Dichlorobenzene	VOC	Soil	mg/kg	3	0	0	3	100.00%
1,4-Dichlorobenzene	VOC	Soil	mg/kg	3	0	0	3	100.00%
2-Butanone (MEK)	VOC	Soil	mg/kg	3	0	0	3	100.00%
2-Hexanone	VOC	Soil	mg/kg	3	0	0	3	100.00%
4-Methyl-2-pentanone (MIBK)	VOC	Soil	mg/kg	3	0	0	3	100.00%
Acetone	VOC	Soil	mg/kg	3	0	0	3	100.00%
Benzene	VOC	Soil	mg/kg	3	0	0	3	100.00%
Bromodichloromethane	VOC	Soil	mg/kg	3	0	0	3	100.00%

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

Parameter	Parameter Group	Matrix	Unit	Number of Validated Result	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
Bromoform	VOC	Soil	mg/kg	3	0	0	3	100.00%
Bromomethane	VOC	Soil	mg/kg	3	0	0	3	100.00%
Carbon disulfide	VOC	Soil	mg/kg	3	1	0	3	100.00%
Carbon tetrachloride	VOC	Soil	mg/kg	3	0	0	3	100.00%
Chlorobenzene	VOC	Soil	mg/kg	3	0	0	3	100.00%
Chloroethane	VOC	Soil	mg/kg	3	0	0	3	100.00%
Chloroform	VOC	Soil	mg/kg	3	0	0	3	100.00%
Chloromethane	VOC	Soil	mg/kg	3	0	0	3	100.00%
cis-1,2-Dichloroethene	VOC	Soil	mg/kg	3	0	0	3	100.00%
cis-1,3-Dichloropropene	VOC	Soil	mg/kg	3	0	0	3	100.00%
Cyclohexane	VOC	Soil	mg/kg	3	0	0	3	100.00%
Dibromochloromethane	VOC	Soil	mg/kg	3	0	0	3	100.00%
Dichlorodifluoromethane	VOC	Soil	mg/kg	3	0	0	3	100.00%
Ethylbenzene	VOC	Soil	mg/kg	3	0	0	3	100.00%
Isopropylbenzene	VOC	Soil	mg/kg	3	0	0	3	100.00%
Methyl Acetate	VOC	Soil	mg/kg	3	0	0	3	100.00%
Methyl tert-butyl ether (MTBE)	VOC	Soil	mg/kg	3	0	0	3	100.00%
Methylene Chloride	VOC	Soil	mg/kg	3	0	0	3	100.00%
Styrene	VOC	Soil	mg/kg	3	0	0	3	100.00%
Tetrachloroethene	VOC	Soil	mg/kg	3	0	0	3	100.00%
Toluene	VOC	Soil	mg/kg	3	0	0	3	100.00%
trans-1,2-Dichloroethene	VOC	Soil	mg/kg	3	0	0	3	100.00%
trans-1,3-Dichloropropene	VOC	Soil	mg/kg	3	0	0	3	100.00%
Trichloroethene	VOC	Soil	mg/kg	3	0	0	3	100.00%
Trichlorofluoromethane	VOC	Soil	mg/kg	3	0	0	3	100.00%
Vinyl chloride	VOC	Soil	mg/kg	3	0	0	3	100.00%
Xylenes	VOC	Soil	mg/kg	3	0	0	3	100.00%
1,4-Dioxane	VOC/SVOC	Soil	mg/kg	3	0	3	0	0.00%
Available Cyanide	CN	Groundwater	ug/L	2	1	0	2	100.00%
Total Cyanide	CN	Groundwater	ug/L	2	0	2	0	0.00%
Aluminum	Metal	Groundwater	ug/L	3	2	0	3	100.00%
Antimony	Metal	Groundwater	ug/L	3	0	0	3	100.00%
Arsenic	Metal	Groundwater	ug/L	3	1	0	3	100.00%
Barium	Metal	Groundwater	ug/L	3	3	0	3	100.00%
Beryllium	Metal	Groundwater	ug/L	3	1	0	3	100.00%
Cadmium	Metal	Groundwater	ug/L	3	0	0	3	100.00%
Chromium	Metal	Groundwater	ug/L	3	1	0	3	100.00%
Chromium VI	Metal	Groundwater	ug/L	3	1	0	3	100.00%
Cobalt	Metal	Groundwater	ug/L	3	1	0	3	100.00%
Copper	Metal	Groundwater	ug/L	3	0	0	3	100.00%
Iron	Metal	Groundwater	ug/L	3	3	0	3	100.00%
Lead	Metal	Groundwater	ug/L	3	0	0	3	100.00%
Manganese	Metal	Groundwater	ug/L	3	3	0	3	100.00%
Mercury	Metal	Groundwater	ug/L	3	0	0	3	100.00%
Nickel	Metal	Groundwater	ug/L	3	2	0	3	100.00%
Selenium	Metal	Groundwater	ug/L	3	0	0	3	100.00%
Silver	Metal	Groundwater	ug/L	3	0	0	3	100.00%
Thallium	Metal	Groundwater	ug/L	3	0	0	3	100.00%
Vanadium	Metal	Groundwater	ug/L	3	3	0	3	100.00%
Zinc	Metal	Groundwater	ug/L	3	2	0	3	100.00%
1,1-Biphenyl	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
1,2,4,5-Tetrachlorobenzene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
2,3,4,6-Tetrachlorophenol	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
2,4,5-Trichlorophenol	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
2,4,6-Trichlorophenol	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
2,4-Dichlorophenol	SVOC	Groundwater	ug/L	2	0	0	2	100.00%

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

Parameter	Parameter Group	Matrix	Unit	Number of Validated Result	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
2,4-Dimethylphenol	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
2,4-Dinitrophenol	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
2,4-Dinitrotoluene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
2,6-Dinitrotoluene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
2-Chloronaphthalene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
2-Chlorophenol	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
2-Methylnaphthalene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
2-Methylphenol	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
2-Nitroaniline	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
3&4-Methylphenol(m&p Cresol)	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
3,3'-Dichlorobenzidine	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
4-Chloroaniline	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
4-Nitroaniline	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Acenaphthene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Acenaphthylene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Acetophenone	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Anthracene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Benz[a]anthracene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Benzaldehyde	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Benzo[a]pyrene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Benzo[b]fluoranthene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Benzo[g,h,i]perylene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Benzo[k]fluoranthene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
bis(2-chloroethoxy)methane	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
bis(2-Chloroethyl)ether	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
bis(2-Chloroisopropyl)ether	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
bis(2-Ethylhexyl)phthalate	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Caprolactam	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Carbazole	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Chrysene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Dibenz[a,h]anthracene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Diethylphthalate	SVOC	Groundwater	ug/L	2	1	0	2	100.00%
Di-n-butylphthalate	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Di-n-ocetylphthalate	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Fluoranthene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Fluorene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Hexachlorobenzene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Hexachlorobutadiene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Hexachlorocyclopentadiene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Hexachloroethane	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Indeno[1,2,3-c,d]pyrene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Isophorone	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Naphthalene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Nitrobenzene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
N-Nitroso-di-n-propylamine	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
N-Nitrosodiphenylamine	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Pentachlorophenol	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Phenanthrene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Phenol	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Pyrene	SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Diesel Range Organics	TPH	Groundwater	ug/L	2	1	0	2	100.00%
Gasoline Range Organics	TPH	Groundwater	ug/L	2	0	0	2	100.00%
Oil and Grease	TPH	Groundwater	ug/L	2	0	0	2	100.00%
1,1,1-Trichloroethane	VOC	Groundwater	ug/L	2	0	0	2	100.00%
1,1,2,2-Tetrachloroethane	VOC	Groundwater	ug/L	2	0	0	2	100.00%
1,1,2-Trichloro-1,2,2-Trifluoroethane	VOC	Groundwater	ug/L	2	0	0	2	100.00%

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

Parameter	Parameter Group	Matrix	Unit	Number of Validated Result	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
1,1,2-Trichloroethane	VOC	Groundwater	ug/L	2	0	0	2	100.00%
1,1-Dichloroethane	VOC	Groundwater	ug/L	2	0	0	2	100.00%
1,1-Dichloroethene	VOC	Groundwater	ug/L	2	0	0	2	100.00%
1,2,3-Trichlorobenzene	VOC	Groundwater	ug/L	2	0	0	2	100.00%
1,2,4-Trichlorobenzene	VOC	Groundwater	ug/L	2	0	0	2	100.00%
1,2-Dibromo-3-chloropropane	VOC	Groundwater	ug/L	2	0	0	2	100.00%
1,2-Dibromoethane	VOC	Groundwater	ug/L	2	0	0	2	100.00%
1,2-Dichlorobenzene	VOC	Groundwater	ug/L	2	0	0	2	100.00%
1,2-Dichloroethane	VOC	Groundwater	ug/L	2	0	0	2	100.00%
1,2-Dichloroethene (Total)	VOC	Groundwater	ug/L	2	0	0	2	100.00%
1,2-Dichloropropane	VOC	Groundwater	ug/L	2	0	0	2	100.00%
1,3-Dichlorobenzene	VOC	Groundwater	ug/L	2	0	0	2	100.00%
1,4-Dichlorobenzene	VOC	Groundwater	ug/L	2	0	0	2	100.00%
2-Butanone (MEK)	VOC	Groundwater	ug/L	2	0	0	2	100.00%
2-Hexanone	VOC	Groundwater	ug/L	2	0	0	2	100.00%
4-Methyl-2-pentanone (MIBK)	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Acetone	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Benzene	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Bromodichloromethane	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Bromoform	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Bromomethane	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Carbon disulfide	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Carbon tetrachloride	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Chlorobenzene	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Chloroethane	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Chloroform	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Chloromethane	VOC	Groundwater	ug/L	2	0	0	2	100.00%
cis-1,2-Dichloroethene	VOC	Groundwater	ug/L	2	0	0	2	100.00%
cis-1,3-Dichloropropene	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Cyclohexane	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Dibromochloromethane	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Dichlorodifluoromethane	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Ethylbenzene	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Isopropylbenzene	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Methyl Acetate	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Methyl tert-butyl ether (MTBE)	VOC	Groundwater	ug/L	2	1	0	2	100.00%
Methylene Chloride	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Styrene	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Tetrachloroethene	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Toluene	VOC	Groundwater	ug/L	2	0	0	2	100.00%
trans-1,2-Dichloroethene	VOC	Groundwater	ug/L	2	0	0	2	100.00%
trans-1,3-Dichloropropene	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Trichloroethene	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Trichlorofluoromethane	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Vinyl chloride	VOC	Groundwater	ug/L	2	0	0	2	100.00%
Xylenes	VOC	Groundwater	ug/L	2	0	0	2	100.00%
1,4-Dioxane	VOC/SVOC	Groundwater	ug/L	2	0	0	2	100.00%
Cyanide	CN	Sediment	mg/kg	4	4	0	4	100.00%
Aluminum	Metal	Sediment	mg/kg	4	4	0	4	100.00%
Antimony	Metal	Sediment	mg/kg	4	0	0	4	100.00%
Arsenic	Metal	Sediment	mg/kg	4	4	0	4	100.00%
Barium	Metal	Sediment	mg/kg	4	4	0	4	100.00%
Beryllium	Metal	Sediment	mg/kg	4	0	0	4	100.00%
Cadmium	Metal	Sediment	mg/kg	4	3	0	4	100.00%
Chromium	Metal	Sediment	mg/kg	4	4	0	4	100.00%
Chromium VI	Metal	Sediment	mg/kg	4	0	0	4	100.00%

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

Parameter	Parameter Group	Matrix	Unit	Number of Validated Result	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
Cobalt	Metal	Sediment	mg/kg	4	4	0	4	100.00%
Copper	Metal	Sediment	mg/kg	4	4	0	4	100.00%
Iron	Metal	Sediment	mg/kg	4	4	0	4	100.00%
Lead	Metal	Sediment	mg/kg	4	4	0	4	100.00%
Manganese	Metal	Sediment	mg/kg	4	4	0	4	100.00%
Mercury	Metal	Sediment	mg/kg	4	4	0	4	100.00%
Nickel	Metal	Sediment	mg/kg	4	4	0	4	100.00%
Selenium	Metal	Sediment	mg/kg	4	4	0	4	100.00%
Silver	Metal	Sediment	mg/kg	4	3	0	4	100.00%
Thallium	Metal	Sediment	mg/kg	4	0	0	4	100.00%
Vanadium	Metal	Sediment	mg/kg	4	4	0	4	100.00%
Zinc	Metal	Sediment	mg/kg	4	4	0	4	100.00%
Aroclor 1016	PCB	Sediment	mg/kg	4	0	0	4	100.00%
Aroclor 1221	PCB	Sediment	mg/kg	4	0	0	4	100.00%
Aroclor 1232	PCB	Sediment	mg/kg	4	0	0	4	100.00%
Aroclor 1242	PCB	Sediment	mg/kg	4	0	0	4	100.00%
Aroclor 1248	PCB	Sediment	mg/kg	4	0	0	4	100.00%
Aroclor 1254	PCB	Sediment	mg/kg	4	0	0	4	100.00%
Aroclor 1260	PCB	Sediment	mg/kg	4	0	0	4	100.00%
Aroclor 1262	PCB	Sediment	mg/kg	4	0	0	4	100.00%
Aroclor 1268	PCB	Sediment	mg/kg	4	0	0	4	100.00%
PCBs (total)	PCB	Sediment	mg/kg	4	0	0	4	100.00%
1,1-Biphenyl	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
1,2,4,5-Tetrachlorobenzene	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
2,3,4,6-Tetrachlorophenol	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
2,4,5-Trichlorophenol	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
2,4,6-Trichlorophenol	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
2,4-Dichlorophenol	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
2,4-Dimethylphenol	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
2,4-Dinitrophenol	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
2,4-Dinitrotoluene	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
2,6-Dinitrotoluene	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
2-Chloronaphthalene	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
2-Chlorophenol	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
2-Methylnaphthalene	SVOC	Sediment	mg/kg	4	4	0	4	100.00%
2-Methylphenol	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
2-Nitroaniline	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
3&4-Methylphenol(m&p Cresol)	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
3,3'-Dichlorobenzidine	SVOC	Sediment	mg/kg	4	0	1	3	75.00%
4-Chloroaniline	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
4-Nitroaniline	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
Acenaphthene	SVOC	Sediment	mg/kg	4	3	0	4	100.00%
Acenaphthylene	SVOC	Sediment	mg/kg	4	3	0	4	100.00%
Acetophenone	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
Anthracene	SVOC	Sediment	mg/kg	4	4	0	4	100.00%
Benz[a]anthracene	SVOC	Sediment	mg/kg	4	4	0	4	100.00%
Benzaldehyde	SVOC	Sediment	mg/kg	4	2	0	4	100.00%
Benzo[a]pyrene	SVOC	Sediment	mg/kg	4	4	0	4	100.00%
Benzo[b]fluoranthene	SVOC	Sediment	mg/kg	4	4	0	4	100.00%
Benzo[g,h,i]perylene	SVOC	Sediment	mg/kg	4	3	0	4	100.00%
Benzo[k]fluoranthene	SVOC	Sediment	mg/kg	4	4	0	4	100.00%
bis(2-chloroethoxy)methane	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
bis(2-Chloroethyl)ether	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
bis(2-Chloroisopropyl)ether	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
bis(2-Ethylhexyl)phthalate	SVOC	Sediment	mg/kg	4	1	0	4	100.00%
Caprolactam	SVOC	Sediment	mg/kg	4	0	0	4	100.00%

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

Parameter	Parameter Group	Matrix	Unit	Number of Validated Result	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
Carbazole	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
Chrysene	SVOC	Sediment	mg/kg	4	4	0	4	100.00%
Dibenz[a,h]anthracene	SVOC	Sediment	mg/kg	4	2	0	4	100.00%
Diethylphthalate	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
Di-n-butylphthalate	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
Di-n-ocylphthalate	SVOC	Sediment	mg/kg	4	1	0	4	100.00%
Fluoranthene	SVOC	Sediment	mg/kg	4	4	0	4	100.00%
Fluorene	SVOC	Sediment	mg/kg	4	3	0	4	100.00%
Hexachlorobenzene	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
Hexachlorobutadiene	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
Hexachlorocyclopentadiene	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
Hexachloroethane	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
Indeno[1,2,3-c,d]pyrene	SVOC	Sediment	mg/kg	4	4	0	4	100.00%
Isophorone	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
Naphthalene	SVOC	Sediment	mg/kg	4	4	0	4	100.00%
Nitrobenzene	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
N-Nitroso-di-n-propylamine	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
N-Nitrosodiphenylamine	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
Pentachlorophenol	SVOC	Sediment	mg/kg	4	0	4	0	0.00%
Phenanthrene	SVOC	Sediment	mg/kg	4	4	0	4	100.00%
Phenol	SVOC	Sediment	mg/kg	4	0	0	4	100.00%
Pyrene	SVOC	Sediment	mg/kg	4	4	0	4	100.00%
Diesel Range Organics	TPH	Sediment	mg/kg	4	4	0	4	100.00%
Gasoline Range Organics	TPH	Sediment	mg/kg	4	0	0	4	100.00%
Oil and Grease	TPH	Sediment	mg/kg	4	4	0	4	100.00%
1,1,1-Trichloroethane	VOC	Sediment	mg/kg	4	0	0	4	100.00%
1,1,2,2-Tetrachloroethane	VOC	Sediment	mg/kg	4	0	0	4	100.00%
1,1,2-Trichloro-1,2,2-Trifluoroethane	VOC	Sediment	mg/kg	4	0	0	4	100.00%
1,1,2-Trichloroethane	VOC	Sediment	mg/kg	4	0	0	4	100.00%
1,1-Dichloroethane	VOC	Sediment	mg/kg	4	0	0	4	100.00%
1,1-Dichloroethene	VOC	Sediment	mg/kg	4	0	0	4	100.00%
1,2,3-Trichlorobenzene	VOC	Sediment	mg/kg	4	0	0	4	100.00%
1,2,4-Trichlorobenzene	VOC	Sediment	mg/kg	4	0	0	4	100.00%
1,2-Dibromo-3-chloropropane	VOC	Sediment	mg/kg	4	0	0	4	100.00%
1,2-Dibromoethane	VOC	Sediment	mg/kg	4	0	0	4	100.00%
1,2-Dichlorobenzene	VOC	Sediment	mg/kg	4	0	0	4	100.00%
1,2-Dichloroethane	VOC	Sediment	mg/kg	4	0	0	4	100.00%
1,2-Dichloroethene (Total)	VOC	Sediment	mg/kg	4	0	0	4	100.00%
1,2-Dichloropropane	VOC	Sediment	mg/kg	4	0	0	4	100.00%
1,3-Dichlorobenzene	VOC	Sediment	mg/kg	4	0	0	4	100.00%
1,4-Dichlorobenzene	VOC	Sediment	mg/kg	4	0	0	4	100.00%
2-Butanone (MEK)	VOC	Sediment	mg/kg	4	2	0	4	100.00%
2-Hexanone	VOC	Sediment	mg/kg	4	0	0	4	100.00%
4-Methyl-2-pentanone (MIBK)	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Acetone	VOC	Sediment	mg/kg	4	2	0	4	100.00%
Benzene	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Bromodichloromethane	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Bromoform	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Bromomethane	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Carbon disulfide	VOC	Sediment	mg/kg	4	1	0	4	100.00%
Carbon tetrachloride	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Chlorobenzene	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Chloroethane	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Chloroform	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Chloromethane	VOC	Sediment	mg/kg	4	0	0	4	100.00%
cis-1,2-Dichloroethene	VOC	Sediment	mg/kg	4	0	0	4	100.00%

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

Parameter	Parameter Group	Matrix	Unit	Number of Validated Result	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
cis-1,3-Dichloropropene	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Cyclohexane	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Dibromochloromethane	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Dichlorodifluoromethane	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Ethylbenzene	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Isopropylbenzene	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Methyl Acetate	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Methyl tert-butyl ether (MTBE)	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Methylene Chloride	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Styrene	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Tetrachloroethene	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Toluene	VOC	Sediment	mg/kg	4	0	0	4	100.00%
trans-1,2-Dichloroethene	VOC	Sediment	mg/kg	4	0	0	4	100.00%
trans-1,3-Dichloropropene	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Trichloroethene	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Trichlorofluoromethane	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Vinyl chloride	VOC	Sediment	mg/kg	4	0	0	4	100.00%
Xylenes	VOC	Sediment	mg/kg	4	0	0	4	100.00%
1,4-Dioxane	VOC/SVOC	Sediment	mg/kg	4	0	4	0	0.00%
Total Cyanide	CN	Surf. Water	ug/L	4	2	0	4	100.00%
Aluminum	Metal	Surf. Water	ug/L	4	4	0	4	100.00%
Antimony	Metal	Surf. Water	ug/L	4	0	0	4	100.00%
Arsenic	Metal	Surf. Water	ug/L	4	3	0	4	100.00%
Barium	Metal	Surf. Water	ug/L	4	4	0	4	100.00%
Beryllium	Metal	Surf. Water	ug/L	4	2	0	4	100.00%
Cadmium	Metal	Surf. Water	ug/L	4	4	0	4	100.00%
Chromium	Metal	Surf. Water	ug/L	4	4	0	4	100.00%
Chromium VI	Metal	Surf. Water	ug/L	4	3	0	4	100.00%
Cobalt	Metal	Surf. Water	ug/L	4	3	0	4	100.00%
Copper	Metal	Surf. Water	ug/L	4	4	0	4	100.00%
Iron	Metal	Surf. Water	ug/L	4	4	0	4	100.00%
Lead	Metal	Surf. Water	ug/L	4	3	0	4	100.00%
Manganese	Metal	Surf. Water	ug/L	4	4	0	4	100.00%
Mercury	Metal	Surf. Water	ug/L	4	3	0	4	100.00%
Nickel	Metal	Surf. Water	ug/L	4	3	0	4	100.00%
Selenium	Metal	Surf. Water	ug/L	4	3	0	4	100.00%
Silver	Metal	Surf. Water	ug/L	4	1	0	4	100.00%
Thallium	Metal	Surf. Water	ug/L	4	3	0	4	100.00%
Vanadium	Metal	Surf. Water	ug/L	4	4	0	4	100.00%
Zinc	Metal	Surf. Water	ug/L	4	4	0	4	100.00%
1,1-Biphenyl	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
1,2,4,5-Tetrachlorobenzene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
2,3,4,6-Tetrachlorophenol	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
2,4,5-Trichlorophenol	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
2,4,6-Trichlorophenol	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
2,4-Dichlorophenol	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
2,4-Dimethylphenol	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
2,4-Dinitrophenol	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
2,4-Dinitrotoluene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
2,6-Dinitrotoluene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
2-Chloronaphthalene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
2-Chlorophenol	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
2-Methylnaphthalene	SVOC	Surf. Water	ug/L	4	1	0	4	100.00%
2-Methylphenol	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
2-Nitroaniline	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
3&4-Methylphenol(m&p Cresol)	SVOC	Surf. Water	ug/L	4	1	0	4	100.00%

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

Parameter	Parameter Group	Matrix	Unit	Number of Validated Result	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
3,3'-Dichlorobenzidine	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
4-Chloroaniline	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
4-Nitroaniline	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Acenaphthene	SVOC	Surf. Water	ug/L	4	1	0	4	100.00%
Acenaphthylene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Acetophenone	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Anthracene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Benz[a]anthracene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Benzaldehyde	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Benzo[a]pyrene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Benzo[b]fluoranthene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Benzo[g,h,i]perylene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Benzo[k]fluoranthene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
bis(2-chloroethoxy)methane	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
bis(2-Chloroethyl)ether	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
bis(2-Chloroisopropyl)ether	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
bis(2-Ethylhexyl)phthalate	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Caprolactam	SVOC	Surf. Water	ug/L	4	3	0	4	100.00%
Carbazole	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Chrysene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Dibenz[a,h]anthracene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Diethylphthalate	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Di-n-butylphthalate	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Di-n-ocetylphthalate	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Fluoranthene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Fluorene	SVOC	Surf. Water	ug/L	4	1	0	4	100.00%
Hexachlorobenzene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Hexachlorobutadiene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Hexachlorocyclopentadiene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Hexachloroethane	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Indeno[1,2,3-c,d]pyrene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Isophorone	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Naphthalene	SVOC	Surf. Water	ug/L	4	1	0	4	100.00%
Nitrobenzene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
N-Nitroso-di-n-propylamine	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
N-Nitrosodiphenylamine	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Pentachlorophenol	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Phenanthrene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Phenol	SVOC	Surf. Water	ug/L	4	2	0	4	100.00%
Pyrene	SVOC	Surf. Water	ug/L	4	0	0	4	100.00%
Diesel Range Organics	TPH	Surf. Water	ug/L	4	4	0	4	100.00%
Gasoline Range Organics	TPH	Surf. Water	ug/L	4	0	0	4	100.00%
Oil and Grease	TPH	Surf. Water	ug/L	4	1	0	4	100.00%
1,1,1-Trichloroethane	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
1,1,2,2-Tetrachloroethane	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
1,1,2-Trichloro-1,2,2-Trifluoroethane	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
1,1,2-Trichloroethane	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
1,1-Dichloroethane	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
1,1-Dichloroethene	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
1,2,3-Trichlorobenzene	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
1,2,4-Trichlorobenzene	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
1,2-Dibromo-3-chloropropane	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
1,2-Dibromoethane	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
1,2-Dichlorobenzene	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
1,2-Dichloroethane	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
1,2-Dichloroethene (Total)	VOC	Surf. Water	ug/L	4	0	0	4	100.00%

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

Parameter	Parameter Group	Matrix	Unit	Number of Validated Result	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
1,2-Dichloropropane	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
1,3-Dichlorobenzene	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
1,4-Dichlorobenzene	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
2-Butanone (MEK)	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
2-Hexanone	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
4-Methyl-2-pentanone (MIBK)	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Acetone	VOC	Surf. Water	ug/L	4	4	0	4	100.00%
Benzene	VOC	Surf. Water	ug/L	4	1	0	4	100.00%
Bromodichloromethane	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Bromoform	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Bromomethane	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Carbon disulfide	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Carbon tetrachloride	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Chlorobenzene	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Chloroethane	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Chloroform	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Chloromethane	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
cis-1,2-Dichloroethene	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
cis-1,3-Dichloropropene	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Cyclohexane	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Dibromochloromethane	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Dichlorodifluoromethane	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Ethylbenzene	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Isopropylbenzene	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Methyl Acetate	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Methyl tert-butyl ether (MTBE)	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Methylene Chloride	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Styrene	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Tetrachloroethene	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Toluene	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
trans-1,2-Dichloroethene	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
trans-1,3-Dichloropropene	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Trichloroethene	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Trichlorofluoromethane	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Vinyl chloride	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
Xylenes	VOC	Surf. Water	ug/L	4	0	0	4	100.00%
1,4-Dioxane	VOC/SVOC	Surf. Water	ug/L	4	2	0	4	100.00%

Data validation has been completed for a representative 50% of all samples