

PHASE II INVESTIGATION REPORT

AREA A: PARCEL A10
TRADEPOINT ATLANTIC
SPARROWS POINT, MARYLAND

Prepared For:



ENVIROANALYTICS GROUP
1515 Des Peres Road, Suite 300
Saint Louis, Missouri 63131

Prepared By:



ARM GROUP INC.
9175 Guilford Road
Suite 310
Columbia, Maryland 21046

ARM Project No. 150298M-5

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Taylor R. Smith".

Taylor R. Smith, P.E.
Project Engineer

A handwritten signature in black ink, appearing to read "Neil Peters".

T. Neil Peters, P.E.
Senior Vice President

Revision 1 – July 8, 2019

TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1.	Site History.....	2
1.2.	Objectives.....	2
2.0	ENVIRONMENTAL SETTING	3
2.1.	Land Use and Surface Features	3
2.2.	Regional Geology.....	3
2.3.	Site Geology/Hydrogeology.....	4
3.0	SITE INVESTIGATION	5
3.1.	Sample Target Identification.....	5
3.2.	Geophysics Investigation (Possible UST).....	6
3.3.	Soil Investigation.....	7
3.4.	Groundwater Investigation.....	8
3.5.	Management of Investigation-Derived Waste (IDW).....	9
4.0	ANALYTICAL RESULTS.....	11
4.1.	Soil Conditions.....	11
4.1.1.	Soil Conditions: Organic Compounds	11
4.1.2.	Soil Conditions: Inorganic Constituents	12
4.1.3.	Soil Conditions: Results Summary	12
4.2.	Groundwater Conditions	13
4.2.1.	Groundwater Conditions: Organic Compounds.....	13
4.2.2.	Groundwater Conditions: Inorganic Constituents	14
4.2.3.	Groundwater Conditions: Results Summary	14
4.3.	Non-Aqueous Phase Liquid (NAPL)	15
5.0	DATA USABILITY ASSESSMENT	17
5.1.	Data Verification	17
5.2.	Data Validation	18
5.3.	Data Usability.....	19
6.0	FINDINGS AND RECOMMENDATIONS.....	21
6.1.	Soil	21
6.2.	Groundwater.....	22
6.3.	Non-Aqueous Phase Liquid	23
6.4.	Recommendations	23
7.0	REFERENCES	25

TABLE OF CONTENTS (CONT.)

FIGURES

Figure 1	Area A and Area B Parcel Map	Following Text
Figure 2	1916 Shoreline Map.....	Following Text
Figure 3	Groundwater Sample Locations and Potentiometric Map.....	Following Text
Figure 4	Soil Boring Final Locations.....	Following Text
Figure S-1	Summary of Exceedances – SVOCs in Soil	Following Text
Figure S-2	Summary of Exceedances – PCBs in Soil	Following Text
Figure S-3	Summary of Exceedances – Inorganics in Soil.....	Following Text
Figure GW-1	Summary of Exceedances – VOCs in Groundwater.....	Following Text
Figure GW-2	Summary of Exceedances – SVOCs in Groundwater.....	Following Text
Figure GW-3	Summary of Exceedances – TPH in Groundwater	Following Text
Figure GW-4	Summary of Exceedances – Inorganics in Groundwater.....	Following Text
Figure GW-5	Groundwater Vapor Intrusion Exceedances	Following Text

TABLES

Table 1	Groundwater Elevation Data	Following Text
Table 2	Historical Site Drawing Details.....	Following Text
Table 3	Field Shifted Boring Locations	Following Text
Table 4	Characterization Results for Solid IDW.....	Following Text
Table 5	Characterization Results for Liquid IDW	Following Text
Table 6	Summary of Organics Detected in Soil.....	Following Text
Table 7	Summary of Inorganics Detected in Soil	Following Text
Table 8	Summary of Soil PAL Exceedances	Following Text
Table 9	Soil PAL Exceedances for Specific Targets.....	Following Text
Table 10	Summary of Organics Detected in Groundwater	Following Text
Table 11	Summary of Inorganics Detected in Groundwater.....	Following Text
Table 12	Groundwater Vapor Intrusion Criteria Comparison.....	Following Text
Table 13	Groundwater Cumulative Vapor Intrusion Comparison	Following Text
Table 14	Rejected Analytical Soil Results	Following Text

TABLE OF CONTENTS (CONT.)

APPENDICES

Appendix A	Final Sample Summary Table	Following Text
Appendix B	Soil Boring Logs	Following Text
Appendix C	Groundwater Survey Data	Following Text
Appendix D	Geophysics Investigation Field Notes	Following Text
Appendix E	PID Calibration Log	Following Text
Appendix F	Temporary Groundwater Sample Collection Point Construction Logs	Following Text
Appendix G	Groundwater Purge & Multiparameter Meter Calibration Logs	Following Text
Appendix H	Parcel Specific IDW Drum Log	Following Text
Appendix I	Summary of QA/QC Samples	Following Text
Appendix J	Evaluation of Data Completeness	Following Text

ELECTRONIC ATTACHMENTS

Soil Laboratory Certificates of Analysis.....	Electronic Attachment
Soil Data Validation Reports	Electronic Attachment
Groundwater Laboratory Certificates of Analysis.....	Electronic Attachment
Groundwater Data Validation Reports.....	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 A10 (the Site). Parcel A10 is comprised of 31.7 acres of the approximately 3,100-acre former steel making facility (**Figure 1**). The Site is bounded to the south by a wooded area (within Parcel B7) and residential area beyond Sparrows Point Road, to the north by a stormwater impoundment beyond Warehouse Road, to the west by the former Hot Strip Mill facilities (within Parcel B6), and to the east by commercial/industrial facilities and vegetated areas located beyond the boundary of the Tradepoint Atlantic property.

The Phase II Investigation was performed in accordance with procedures outlined in the approved Phase II Investigation Work Plan – Area A: Parcel A10. This Work Plan (dated April 21, 2016) was approved by the Maryland Department of the Environment (MDE) and the United States Environmental Protection Agency (USEPA) on April 28, 2016 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 A10 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.

The eastern areas of Parcel A10 were formerly occupied by the Nelson Box Company facility including several lumber storage buildings and sheds. Other smaller buildings and facilities associated with the steel mill (Maintenance of Way Yard, ATEC Storeroom and Shop, Office, and Repair Shop) were also present at the Site. The Nelson Box Company building structure was located directly south of the lumber storage areas, and is presumed to be the former consumer of these materials. The Nelson Box Company provided wood packaging to the steel mill beginning in 1921. Operations included the production of wood pallets, cable/wire reels, and industrial packaging products. Through the years, the company expanded its operations to produce crates, corrugated products, angleboard, and slipsheets, and more recently (post 1990) metal and plastic products. All of the large buildings associated with lumber storage and the Nelson Box Company have been demolished. Several smaller buildings associated with the Maintenance of Way Yard (ATEC Storeroom and Shop, Office, and Repair Shop) still remain at the Site. Numerous rail tracks occupy the central and northern portions of the Site.

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 boring 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 primarily of the former Sparrows Point steel mill, but other industrial occupants such as the Nelson Box Company were also historically located at the Site. According to the Phase I Environmental Site Assessment (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 is at an elevation of approximately 12 to 20 feet above mean sea level (amsl) in most areas. Elevations at the Site range from 4 to 36 feet amsl across the entire parcel area. In the northwestern corner of the parcel, the ground slopes sharply downward from 36 to 12 feet amsl. Across most of the Site, elevations are fairly uniform and overland flow appears to discharge across the northern boundary of the Site toward the stormwater impoundment located beyond Warehouse Road. According to Figure B-2 of the Stormwater Pollution Prevention Plan (SWPPP) Revision 5 dated June 1, 2017, runoff waters from Parcel A10 are ultimately directed to the Humphrey Creek Wastewater Treatment Plant (HCWWTP). Surface waters which are collected and treated at the HCWWTP flow through the National Pollutant Discharge Elimination System (NPDES) permitted Outfall 014, which 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 approximately 95% natural soils and 5% fill materials based on the approximate shoreline of the Sparrows Point Peninsula in 1916, as shown on **Figure 2** (adapted from Figure 2-20 in the Description of Current Conditions (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). Slag fill materials were encountered at depths of up to 9.5 feet below the ground surface (bgs). Shallow groundwater was observed in soil cores from 5 to 20 feet bgs across the Site. Soil boring 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.

Temporary groundwater sample collection points were installed at 11 locations across the Site to investigate shallow groundwater conditions. One existing historical well (SG06-PDM001) was also sampled during this investigation. The locations of the groundwater sampling points are indicated on **Figure 3**. The temporary groundwater sample collection points and the existing permanent well were surveyed by a Maryland-licensed surveyor. Supporting documentation from the surveys is included in **Appendix C**. A synoptic round of groundwater level measurements was collected on January 9, 2017 from each of the groundwater points included in the parcel-specific sampling plan, with the exception of A10-021-PZ. Sample location A10-021-PZ was observed to be bent at the surface, and a water level measurement could not be obtained due to the damage. 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.

A groundwater potentiometric surface map was constructed for the shallow hydrogeologic zone based on the field measurements. The localized potentiometric map for shallow groundwater has been included on **Figure 3**. The groundwater elevation contours indicate that groundwater flows from the southern portion of the Site (groundwater elevation of approximately 17 feet amsl) to the northern portion of the Site (groundwater elevation of approximately 4 feet amsl) toward the stormwater impoundment located beyond Warehouse Road. This flow direction appears to be uniform across the Site, but the groundwater elevations decrease at a much steeper gradient in the southern portion of the Site as compared to the northern portion of the Site (near the presumed discharge location of the stormwater impoundment).

3.0 SITE INVESTIGATION

A total of 78 soil samples (from 34 boring locations) and 12 groundwater samples were collected for analysis between July 6, 2016 and July 21, 2016 as part of the Parcel A10 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 A10 Work Plan dated April 21, 2016, and the QAPP.

All site characterization activities were conducted under the site-specific 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 10.2.2).

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. The following RECs were identified in the Parcel A10 Work Plan: Hazardous Materials Storage (REC 10A, Finding 240), Large Historical Aboveground Storage Tank (AST) (REC 10B, Finding 241), and Maintenance of Way Yard Underground Storage Tank (UST) (REC 12A, Finding 246). Additional information regarding these identified RECs was provided in the Phase II Investigation Work Plan dated April 21, 2016. There were no additional 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 A10. 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: Boiler House, Incinerator, Machine Shop, Maintenance of Way Repair Shop, Oil House, Pump House/Foamite Building, Repair Shop Interior, Lumber Storage Warehouse, and Nelson Box Company Building. 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 A10 contained a total of 17.0 acres without engineered barriers and 14.6 acres with engineered barriers. Of the 14.6 acres with engineered barriers, 3.0 acres contained former building slabs and 11.7 acres consists of parking/roads. In accordance with the relevant sampling density requirements, a minimum of 15 soil borings were required to cover the area without engineered barriers, and a minimum of 8 soil borings were required to cover areas with barriers. A total of 23 borings were required to meet the density specification; 34 soil borings were completed during the Phase II Investigation to collect analytical soil samples (including one boring, A10-009A-SB, which was added during the course of fieldwork).

3.2. GEOPHYSICS INVESTIGATION (POSSIBLE UST)

As specified in the Parcel A10 Phase II Investigation Work Plan, ARM Geophysics mobilized to the Site to confirm the presence/absence of the Maintenance of Way Yard UST identified as REC 12A, Finding 246. During a previous field visit conducted during the development of the Work Plan, ARM observed a concrete pad roughly 35 feet southeast of the repair shop, which had dimensions of approximately 15 by 30 feet. No apparent manholes or UST fill pipes were noted in the vicinity of the pad, but two signs indicating gasoline and/or smoking warnings were installed on the chain-link fence directly behind the pad. Based on prior experience, ARM suspected that the Maintenance of Way Yard UST (or another UST) could be located below this concrete pad. The objectives of the geophysics investigation were to refine the investigation plan in the vicinity of the concrete pad and to determine whether tank removal might be required.

The geophysics investigation was conducted in the area to the south of the repair shop on June 22, 2016. This investigation utilized EM61 metal detectors, utility and pipe locators, and ground penetrating radar (GPR) to screen the pad and surrounding open ground. Although a few metallic anomalies were noted and marked on the ground, there was no evidence of a UST below the concrete pad or in the surrounding open areas. The field notes obtained during the geophysics investigation are provided in **Appendix D**. Since the UST was not located, there were no changes to the proposed investigation plan.

3.3. SOIL INVESTIGATION

Continuous core soil borings were advanced at 33 locations across the Site to assess the presence or absence of soil contamination, and to assess the vertical distribution of any encountered contamination (**Figure 4**). One additional soil boring (A10-034-SB) was installed to facilitate the collection of a groundwater sample only, and no soil samples were collected at this location as specified in the Parcel A10 Work Plan. The 34 continuous core soil borings were advanced to depths between 6.5 and 27 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). One additional soil boring (A10-009A-SB) was advanced to a depth of 1-foot bgs using a hand auger and digging bar. This boring was located within the interior of an existing building, so it could not be accessed with the Geoprobe[®]. The boring was therefore shifted outside of the building along the exterior wall (designated as A10-009-SB), but a 1-foot bgs sample was obtained from the original boring location (designated as A10-009A-SB). At each of the 35 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 E**. 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. One additional set of samples was also collected from the 9 to 10 foot depth interval if groundwater had not been encountered; however, these samples were held by the laboratory pending the analysis of the 0 to 1 and 4 to 5 foot depth interval samples, and were only analyzed for parameters that were detected in the 5 foot depth samples at concentrations above the Project Action Limits (PALs). 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. 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.

Soil samples were submitted to Pace Analytical Services, Inc. (PACE), and analyzed for Target Compound List (TCL) volatile organic compounds (VOCs) via USEPA Method 8260B, TCL semi-volatile organic compounds (SVOCs) via USEPA Methods 8270D and 8270D SIM, Target Analyte List (TAL) Metals via USEPA Methods 6010C and 7471C, hexavalent chromium via USEPA Method 7196A, cyanide via USEPA Method 9012, and total petroleum hydrocarbon (TPH) diesel range organics (DRO) and gasoline range organics (GRO) via USEPA Methods 8015B and 8015D. The Work Plan requirements for analysis of TPH-DRO/GRO and/or Oil & Grease have evolved throughout the investigation process and changed several times since late-2015 under agency guidance. During the implementation of the Parcel A10 Work Plan, TPH-DRO/GRO analysis was required at every location, but Oil & Grease analysis was not required or completed. Additionally, the shallow soil samples collected across the Site from the 0 to 1 foot bgs interval were also 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.

3.4. GROUNDWATER INVESTIGATION

One historical shallow groundwater monitoring well (SG06-PDM001) and 11 shallow temporary groundwater sample collection points 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**. The soil boring locations where temporary groundwater sample collection points were installed included A10-002-SB, A10-010-SB, A10-015-SB, A10-018-SB, A10-020-SB, A10-021-SB, A10-024-SB, A10-025-SB, A10-027-SB, A10-029-SB, and A10-034-SB. As specified in the Work Plan, a shallow temporary groundwater sample collection point was installed at A10-034-SB, but soil samples were not collected from this boring. This location was intended to supplement only the groundwater sampling plan. Each sample point was installed in accordance with the procedures and methods referenced in **Field SOP Number 028**. The temporary groundwater sample collection point construction logs have been included as **Appendix F**.

At each location the Geoprobe® DT22 Dual Tube sampling system was advanced to a depth approximately 7 feet below where groundwater was identified in the associated soil cores, 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 each sample collection point, the 0-hour depth to water was documented and the collection point was checked for the presence of non-aqueous phase liquid (NAPL) using an oil-water interface probe in accordance with the methods referenced in **Field SOP Number 019** provided in Appendix A of the QAPP.

After the installation of each 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 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 were submitted to PACE, and analyzed for TCL-VOCs via USEPA Method 8260B, TCL-SVOCs via USEPA Methods 8270D and 8270D SIM, TPH-DRO/GRO via USEPA Methods 8015B and 8015D, TAL-Dissolved Metals via USEPA Methods 6010C and 7470A, hexavalent chromium (total) via USEPA Method 7196A, and cyanide (total) via USEPA Method 9012A. The Work Plan requirements for analysis of TPH-DRO/GRO and/or Oil & Grease have evolved throughout the investigation process and changed several times since late-2015 under agency guidance. During the implementation of the Parcel A10 Work Plan, only TPH-DRO/GRO analysis was required for the groundwater sample, therefore, groundwater samples were not analyzed for Oil & Grease. 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. 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 A10 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**. IDW drums containing aqueous materials (including aqueous waste generated during the Parcel A10 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 CONDITIONS

Soil analytical results were screened against the PALs established in the property-wide QAPP (or other direct guidance from the agencies; i.e. TPH-DRO/GRO) to determine PAL 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). 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 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. 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, exceedances for PAHs are based on the adjusted PALs rather than those presented in the QAPP. Three SVOCs, all of which are PAHs, were detected above their respective PALs. These SVOCs were benzo[a]pyrene, benzo[b]fluoranthene, and dibenz[a,h]anthracene. Each of these three SVOCs exceeded their respective PALs in sample A10-008-SB-4. Benzo[b]fluoranthene and dibenz[a,h]anthracene each exceeded their respective PALs in only a single sample. Benzo[a]pyrene exceeded its PAL in one additional sample (A10-003-SB-1). A summary of the SVOC PAL exceedance locations and results has been provided on **Figure S-1**.

Shallow soil samples collected across the Site from the 0 to 1 foot bgs interval were analyzed for PCBs. **Table 6** provides a summary of the PCBs detected above the laboratory's MDLs. There was only one PAL exceedance for PCBs, with a detection of total PCBs of 1.121 mg/kg in sample A10-027-SB-1. This PAL exceedance of total PCBs had contributions from Aroclor 1248 (with a detection of 0.334 mg/kg), Aroclor 1254 (with a detection of 0.508 mg/kg), and

Aroclor 1260 (with a detection of 0.279 mg/kg). All of the detections of the aroclors were below their individual PALs. This PAL exceedance location has been indicated on **Figure S-2**.

Table 6 provides a summary of the TPH-DRO/GRO detections above the laboratory's MDLs in the soil samples collected in the parcel. The maximum DRO detection (6,000 mg/kg) was identified in sample A10-018-SB-5, which targeted REC 10B (Large Historical AST). The maximum GRO detection (182 mg/kg) was identified in sample A10-022-SB-2, which targeted REC 12B (Maintenance of Way Yard UST and fuel dispensers). None of the detections of DRO or GRO exceeded the PAL of 6,200 mg/kg. There was one location where physical evidence of NAPL was identified in the soil core. This boring (A10-006-SB) is discussed further below.

4.1.2. Soil 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. Five inorganic compounds (arsenic, lead, manganese, thallium, and vanadium) were detected above their respective PALs. Arsenic was by far the most common inorganic exceedance, and was detected above the PAL in 65 (approximately 83%) of the soil samples analyzed for this compound. The maximum detection of arsenic in soil was 71.2 mg/kg in sample A10-006-SB-1. In comparison, lead, manganese, thallium, and vanadium accounted for PAL exceedances in 13 total samples from 9 boring locations. A summary of the inorganic PAL exceedance locations and results has been provided on **Figure S-3**.

4.1.3. Soil 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, and **Figure S-1** through **Figure S-3** 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 A10 Work Plan. PAL exceedances in soil within Parcel A10 consisted of five inorganics (arsenic, lead, manganese, thallium, and vanadium), three SVOCs (benzo[a]pyrene, benzo[b]fluoranthene, and dibenz[a,h]anthracene), and total PCBs. VOCs, DRO, and GRO were not detected above their respective PALs and are not considered to be significant soil contaminants in Parcel A10.

Lead, PCBs, and TPH-DRO/GRO 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-DRO/GRO results above 6,200 mg/kg should be evaluated for the potential presence and mobility of NAPL in any future development planning. Concentrations for these parameters did not exceed the specified thresholds in any soil samples collected at the Site. A10-006-SB

exhibited physical evidence of NAPL in the soil core, and a screening piezometer was subsequently installed to evaluate the presence of potentially mobile NAPL in groundwater. The findings at this location are discussed in Section 4.3.

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 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.

4.2.1. Groundwater Conditions: Organic Compounds

As provided on **Table 10**, several VOCs were identified above the laboratory's MDLs in groundwater samples collected from across the Site. A total of seven VOCs (cis-1,2-dichloroethene and 1,2-dichloroethene (total), carbon tetrachloride, chloroform, tetrachloroethene, trichloroethene, and vinyl chloride) were detected above their respective PALs. Most notably, tetrachloroethene and its degradation products (trichloroethene, 1,2-dichloroethene, and vinyl chloride) were observed to be present in the eastern and southern areas of the Site. Each VOC parameter exceeded its respective PAL at groundwater sample location A10-025-PZ which is located toward the eastern boundary of the Site and provided parcel coverage. Based on the magnitude of the PAL exceedances, location A10-025-PZ appears to be the most heavily impacted by VOCs including chlorinated ethenes. A summary of the VOC PAL exceedance locations and results has been provided as **Figure GW-1**.

Table 10 provides a summary of SVOCs identified in 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. Four SVOCs (1,1-biphenyl, 1,4-dioxane, benz[a]anthracene, and naphthalene) were detected above their respective aqueous PALs. Naphthalene was the only SVOC compound to exceed its PAL at multiple locations, with two total exceedances (A10-018-PZ and A10-025-PZ). A summary of the SVOC PAL exceedance locations and results has been provided as **Figure GW-2**.

Table 10 provides a summary of the DRO and GRO detections in groundwater at the Site. DRO was detected above its PAL in nine sample locations distributed throughout the Site, with a maximum detection of 1,130 µg/L (flagged with the "J" qualifier indicating that it is an estimated value) at location A10-018-PZ. GRO was detected above its PAL in only two groundwater samples with a maximum detection of 565 µg/L at location A10-025-PZ. A summary of the TPH-DRO/GRO PAL exceedance locations and results has been provided on **Figure GW-3**. 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, although it was detected in the NAPL screening piezometer installed as A10-006-PZ. The presence of NAPL at the Site is discussed in Section 4.3.

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 seven inorganic compounds (dissolved arsenic, dissolved cobalt, dissolved iron, dissolved manganese, dissolved thallium, dissolved vanadium, and total hexavalent chromium) were detected above their respective PALs. Arsenic, thallium, vanadium, and hexavalent chromium exceeded their PALs at only one location each. Cobalt (10 exceedances), manganese (10 exceedances), and iron (3 exceedances) were more widespread at the Site. The hexavalent chromium PAL exceedance in sample location SG06-PDM001 is suspect because results for hexavalent chromium have commonly been impacted by sample color (matrix interferences) at other property locations. A summary of the inorganic PAL exceedance locations and results has been provided as **Figure GW-4**.

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. The results of the sample screening against the VI criteria are summarized in **Table 12**.

The parameters which exceeded the individual VI TCR or THQ criteria were tetrachloroethene and trichloroethene. Tetrachloroethene was detected above the VI screening level (240 µg/L) at one shallow groundwater location (A10-025-PZ) with a detection of 1,010 µg/L. Trichloroethene was detected above its VI screening level (22 µg/L) at three shallow groundwater locations (A10-025-PZ, A10-027-PZ, and A10-034-PZ) with a maximum detection of 494 µg/L at sample location A10-025-PZ.

Following the initial screening, a cumulative 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. The cumulative VI non-cancer hazards exceeded 1 (rounded to one significant digit) at three sample locations: A10-025-PZ, A10-027-PZ, and A10-034-PZ. Exceedances of the cumulative non-cancer hazards for multiple target organs at these three locations were caused by the chlorinated ethenes (tetrachloroethene and trichloroethene). In

addition, the cumulative cancer risks exceeded the allowable limit ($1E-5$) at locations A10-025-PZ and A10-027-PZ due primarily to the carcinogenic effect of trichloroethene. The results of the cumulative VI comparisons are provided in **Table 13**, with the exceedances highlighted. The groundwater locations which exceeded the cumulative VI criteria are shown in **Figure GW-5**.

The presence and absence of groundwater impacts within the Site boundaries have been adequately described. Groundwater is not used on the Tradepoint Atlantic property (and is not proposed to be utilized). VI risks/hazards were evaluated and identified three locations which may be impacted by elevated VOC concentrations.

4.3. NON-AQUEOUS PHASE LIQUID (NAPL)

Immediately after the installation of each temporary groundwater sample collection point at the Site (11 total), an oil-water interface probe was used to check for the presence of NAPL. During the initial check, NAPL was not detected in any temporary groundwater sample collection point. Additional NAPL checks were completed 48 hours after installation, and again prior to groundwater sampling (July 18 through July 20, 2016). NAPL was not detected in any temporary groundwater point or the existing well (SG06-PDM001) during any of the NAPL checks and no delineation activities were warranted at these locations.

Soil cores were screened for evidence of possible NAPL contamination during the completion of the Phase II soil borings in Parcel A10. During the field screening, only one location had observations of physical evidence of NAPL. Soil boring A10-006-SB had a visible low viscous amber sheen in the soil core from 7 to 8 feet bgs and from 9 to 9.5 feet bgs which was noted on the boring log. A strong odor was also detected accompanying the sheen. An intermediate soil sample (A10-006-SB-7) collected from the 6 to 7 foot bgs interval just above the observed sheen had a DRO detection of 281 mg/kg and a GRO detection of 47.4 mg/kg, which do not exceed the PAL of 6,200 mg/kg. There were no concentrations of DRO or GRO identified above the soil PAL at the Site.

Based on the observation of NAPL, and in accordance with the Work Plan, a temporary NAPL screening piezometer (A10-006-PZ) was installed with a screen interval from 4 to 14 feet bgs according to the same specifications as the temporary groundwater sample collection points completed throughout the Site. After installation, the piezometer was checked for the presence of accumulated product using an oil-water interface probe. The 0-hour (July 7, 2016), 48-hour (July 11, 2016), and 30-day (August 26, 2016) gauging events at this location were all absent of measurable or trace NAPL. An additional gauging event was completed approximately one year after the installation (July 31, 2017), and again NAPL was not detected. Static groundwater was measured at an approximate depth of 7 feet bgs.

The MDE provided an email on February 26, 2018 stating that the NAPL screening piezometer A10-006-PZ could be abandoned. However, prior to its abandonment, trace NAPL was detected

on January 4, 2019 at this screening location. Additional piezometers were subsequently installed surrounding A10-006-PZ in January and February 2019 to delineate the extent of potentially mobile NAPL, and measurable NAPL was discovered in the area. The details and findings of the NAPL delineation will be reported to the MDE outside of the scope of this Phase II Investigation Report. Subsequent investigation activities or response actions (if required) will be coordinated with the MDE as appropriate.

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, TAL-Metals, cyanide, or TPH-DRO/GRO) are present in Site media (soil and groundwater) at concentrations that could pose an unacceptable risk to Site receptors. Individual results are compared to the PALs established in the QAPP (i.e., the 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**. 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 – VOCs only
 - Water – VOCs only
- Blind Field Duplicate – at a rate of one per twenty samples
 - Soil – VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, PCBs, hexavalent chromium, and cyanide
 - Water – VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, hexavalent chromium, and cyanide
- Matrix Spike/Matrix Spike Duplicate – at a rate of one per twenty samples
 - Soil – VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, PCBs, and hexavalent chromium
 - Water – VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, and hexavalent chromium
- Field Blank and Equipment Blank – at a rate of one per twenty samples
 - Soil – VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, hexavalent chromium, and cyanide
 - Water – VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, 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 E** (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 Chains of Custody to verify that results were provided for all collected samples. The data package case narratives were reviewed to ensure that all exceptions (if any) are described.

5.2. DATA VALIDATION

USEPA Stage 2B data validation was completed for a representative 50% of the environmental sample analyses performed by PACE and supporting Level IV Data Package information by Environmental Data Quality Inc. (EDQI).

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.

Data Validation has been completed for a representative 50% of all sample results, and the DVRs provided by EDQI have been included as electronic attachments. The USEPA has previously specified that results flagged with a “JB” qualifier are erroneous, and any such results should be revised to display the “B” qualifier only. EDQI reviews and corrects any “JB” qualified results during the data validation procedure. Therefore, any result originally flagged with a “JB” qualifier in the laboratory certificate is reported as a “B” qualified non-detect result in this Phase II Investigation Report. ARM has reviewed all non-validated laboratory reports (those which were not designated to be reviewed by EDQI), and applied the same validation correction to any relevant “JB” qualified results. 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. A list of the analytical soil results that were rejected during data validation is provided as **Table 14**. None of the analytical groundwater 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 006, 008, 009, 010, 011, 017, and 024**. Review of the field notes and laboratory sample receipt records indicated that collection of soil and groundwater 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 groundwater compounds had an overall completeness ratio of 100%, indicating that none of the aqueous results were rejected. The only soil compounds with overall completeness values below 90% were methyl acetate, bromomethane, 2,4-dinitrophenol, and 1,4-dioxane. The majority of the methyl acetate dataset was rejected (13.6% completeness), but there were no detections in the validated soil dataset and only one negligible detection (0.012 mg/kg with a “J” qualifier compared to the PAL of 1,200,000 mg/kg) in the non-validated dataset. There were no detections of methyl acetate in groundwater. Bromomethane and 2,4-dinitrophenol had significantly higher completeness ratios of 81.8% and 75.0%, respectively. Although these ratios are below the 90% goal, a significant proportion of the data was deemed suitable for use. In addition, there were no detections of either compound in soil or groundwater throughout the Site.

All of the 1,4-dioxane soil results which underwent the validation process were rejected; however, there were no detections of 1,4-dioxane in soil throughout the parcel. In addition, 1,4-dioxane had a completeness ratio of 100% in groundwater with only five detections out of the 12 groundwater samples. Although one aqueous detection exceeded the PAL, this result (0.55 ug/L in A10-010-PZ) was only slightly above the allowable limit (0.46 ug/L). Sufficient information is available in the groundwater dataset to evaluate the significance of 1,4-dioxane at the Site. Furthermore, the location which exceeded the aqueous PAL for 1,4-dioxane also exhibited exceedances of chlorinated VOCs (tetrachloroethene and trichloroethene). Since 1,4-dioxane is often associated with chlorinated VOCs, any potentially significant concentrations of 1,4-dioxane in the soil would be expected to be accompanied by a significant presence of chlorinated VOCs in the soil, which has not been the case in this parcel.

Overall, the soil and groundwater data can be used as intended, and no significant data gaps were identified. While a limited set of soil compounds did not meet the completeness goal, 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 12 groundwater samples and 78 soil samples (all locations/depths) were collected and analyzed to define the nature and extent of contamination in Parcel A10. 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 samples were analyzed for TCL-VOCs, TCL-SVOCs, TPH-DRO/GRO, TAL-Metals, hexavalent chromium, and cyanide. Shallow soil samples (0 to 1 foot bgs) were additionally analyzed for PCBs. Groundwater samples were analyzed for TCL-VOCs, TCL-SVOCs, TPH-DRO/GRO, TAL-Dissolved Metals, total hexavalent chromium, and total cyanide.

6.1. SOIL

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

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 for VOCs or TPH-DRO/GRO, indicating that these compounds are not significant contaminants in soil at the Site. Exceedances of the PALs in soil within Parcel A10 consisted of five inorganics (arsenic, lead, manganese, thallium, and vanadium), three SVOCs (benzo[a]pyrene, benzo[b]fluoranthene, and dibenz[a,h]anthracene), and PCBs (total). Arsenic exceeded its PAL in the largest proportion of the samples analyzed for this compound site-wide (65 soil samples or 83%), with a maximum detection of 71.2 mg/kg in sample A10-006-SB-1. In comparison, lead, manganese, thallium, and vanadium exceeded their PALs in three samples, eight samples, 11 samples, and six samples, respectively. Three SVOCs (benzo[a]pyrene, benzo[b]fluoranthene, and dibenz[a,h]anthracene) exceeded the PALs at the Site, all of which were detected above their respective PALs at A10-008-SB-4. Benzo[a]pyrene exceeded its PAL in only one additional sample (A10-003-SB-1). Among the shallow samples collected at the Site, PCBs (total) had one PAL exceedance at a single isolated location (A10-027-SB-1) caused by a mixture of Aroclor 1248, Aroclor 1254, and Aroclor 1260 that contributed to a cumulative PCB detection of 1.121 mg/kg.

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.

Analysis of the groundwater samples identified concentrations of seven inorganic compounds that exceeded their PALs (dissolved arsenic, dissolved cobalt, dissolved iron, dissolved manganese, dissolved thallium, dissolved vanadium, and total hexavalent chromium). The single hexavalent chromium exceedance at SG06-PDM001 is suspect because results for hexavalent chromium have commonly been impacted by sample color (matrix interferences) at other locations on the Tradepoint Atlantic property. Arsenic, thallium, and vanadium exceeded their respective PALs at a single location each. Cobalt and manganese each had 10 detections above the aqueous PALs, whereas, iron had three aqueous PAL exceedances.

Seven VOCs exceeded their respective PALs at the Site (cis-1,2-dichloroethene and 1,2-dichloroethene (total), carbon tetrachloride, chloroform, tetrachloroethene, trichloroethene, and vinyl chloride), all of which were detected above their PALs in sample location A10-025-PZ. Chloroform, tetrachloroethene, and trichloroethene each exceeded their respective PALs in two, three, and four additional groundwater samples, respectively. Most notably, tetrachloroethene and its degradation products (trichloroethene, 1,2-dichloroethene, and vinyl chloride) were observed to be present in the eastern and southern areas of the Site. Four SVOCs (1,1-biphenyl, 1,4-dioxane, benz[a]anthracene, and naphthalene) were detected at concentrations above the aqueous PALs at one groundwater sample location each, excluding naphthalene which exceeded its PAL in two groundwater samples. Nine out of the 12 groundwater samples exceeded the PAL for DRO, with a maximum detection of 1,130 µg/L (flagged with the “J” qualifier indicating that it is an estimated value) at location A10-018-PZ. GRO exceeded its PAL in two groundwater samples (A10-025-PZ and A10-027-PZ) with a maximum detection of 565 µg/L.

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. Two parameters were detected above the individual VI TCR or THQ criteria: tetrachloroethene and trichloroethene. When the aqueous results were summed by sample location, the cumulative VI non-cancer hazards exceeded 1 (rounded to one significant digit) at three sample locations: A10-025-PZ, A10-027-PZ, and A10-034-PZ. Exceedances of the cumulative non-cancer hazards for multiple target organs at these three locations were caused by the identified chlorinated ethenes. In addition, the cumulative cancer risks exceeded 1E-5 at A10-025-PZ and A10-027-PZ due primarily to the carcinogenic effect of trichloroethene. Further assessment or

mitigation is recommended to address the potential VI risks/hazards identified at A10-025-PZ, A10-027-PZ, and A10-034-PZ if development is proposed in these areas. The selection of appropriate response measures, based on the specific development plan for the parcel, should be addressed in a project-specific Response and Development Work Plan.

6.3. NON-AQUEOUS PHASE LIQUID

There were no elevated detections of DRO or GRO identified above the soil PAL (6,200 mg/kg) at the Site. None of the temporary groundwater sample collection points installed in Parcel A10 for groundwater sampling showed any evidence of NAPL during the mandatory checks. Furthermore, the exiting historical well SG06-PDM001 did not exhibit evidence of NAPL during a gauging event which was completed prior to sampling.

During field screening of the soil cores installed during this investigation, only one location had observations of physical evidence of NAPL. Soil boring A10-006-SB had a visible low viscous amber sheen in the soil core from 7 to 8 feet bgs and from 9 to 9.5 feet bgs. A strong odor was also detected accompanying the sheen. The potential mobility of NAPL to groundwater at location A10-006-SB was investigated via the installation of a temporary NAPL screening piezometer (A10-006-PZ). Based on 0-hour, 48-hour, and 30-day measurements, as well as an additional gauging event completed approximately one year after installation, it was determined that NAPL was not likely to be present in groundwater at quantities that are likely to migrate.

However, prior to the planned abandonment of A10-006-PZ, trace NAPL was detected at this screening location (January 2019). Additional piezometers were subsequently installed to delineate the extent of potentially mobile NAPL, and measurable NAPL was discovered in the area. The details and findings of the NAPL delineation will be reported to the MDE outside of the scope of this Phase II Investigation Report. Subsequent investigation activities or response actions (if required) will be coordinated with the MDE as appropriate.

The proximity of the NAPL-impacted boring A10-006-SB (and the associated piezometers) to proposed utilities should be evaluated in any future development planning for Parcel A10. 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.

6.4. RECOMMENDATIONS

Sufficient remedial investigation data has been collected to present this evaluation of the nature and extent of possible constituents of concern in Parcel A10. The presence and absence of soil and groundwater impacts within Parcel A10 have been adequately described and further site-wide investigation is not warranted to characterize overall conditions; however, additional investigation may be required to further characterize impacts identified in specific areas of the Site. Recommendations for the Site are as follows:

- The boring location with physical observations of NAPL in the associated soil cores (A10-006-SB) should be considered for proximity to proposed utilities in any future development plans. The details and findings of the NAPL delineation will be reported to the MDE outside of the scope of this Phase II Investigation Report. Subsequent investigation activities or response actions (if required) will be coordinated with the MDE as appropriate. If future utilities are proposed in the vicinity of this boring, appropriate protocols for the mitigation of potential product mobility should be specified in a Response and Development Work Plan.
- Tetrachloroethene and its degradation products were observed to be present in groundwater at elevated levels in the eastern and southern areas of the Site. The nature and extent of the groundwater impacts should be further defined to determine whether response actions are warranted to reduce the detected concentrations of these VOCs to acceptable levels. A separate Work Plan to provide additional delineation of associated groundwater conditions will be coordinated with the MDE and submitted in the future.
- If an enclosed structure is proposed for construction in the vicinity of A10-025-PZ, A10-027-PZ, or A10-034-PZ, further assessment or mitigation of the potential for human exposures via the vapor intrusion to indoor air pathway should be addressed in a Response and Development Work Plan. The vapor intrusion risks associated with these locations may be reduced by any future response actions to address VOCs.

7.0 REFERENCES

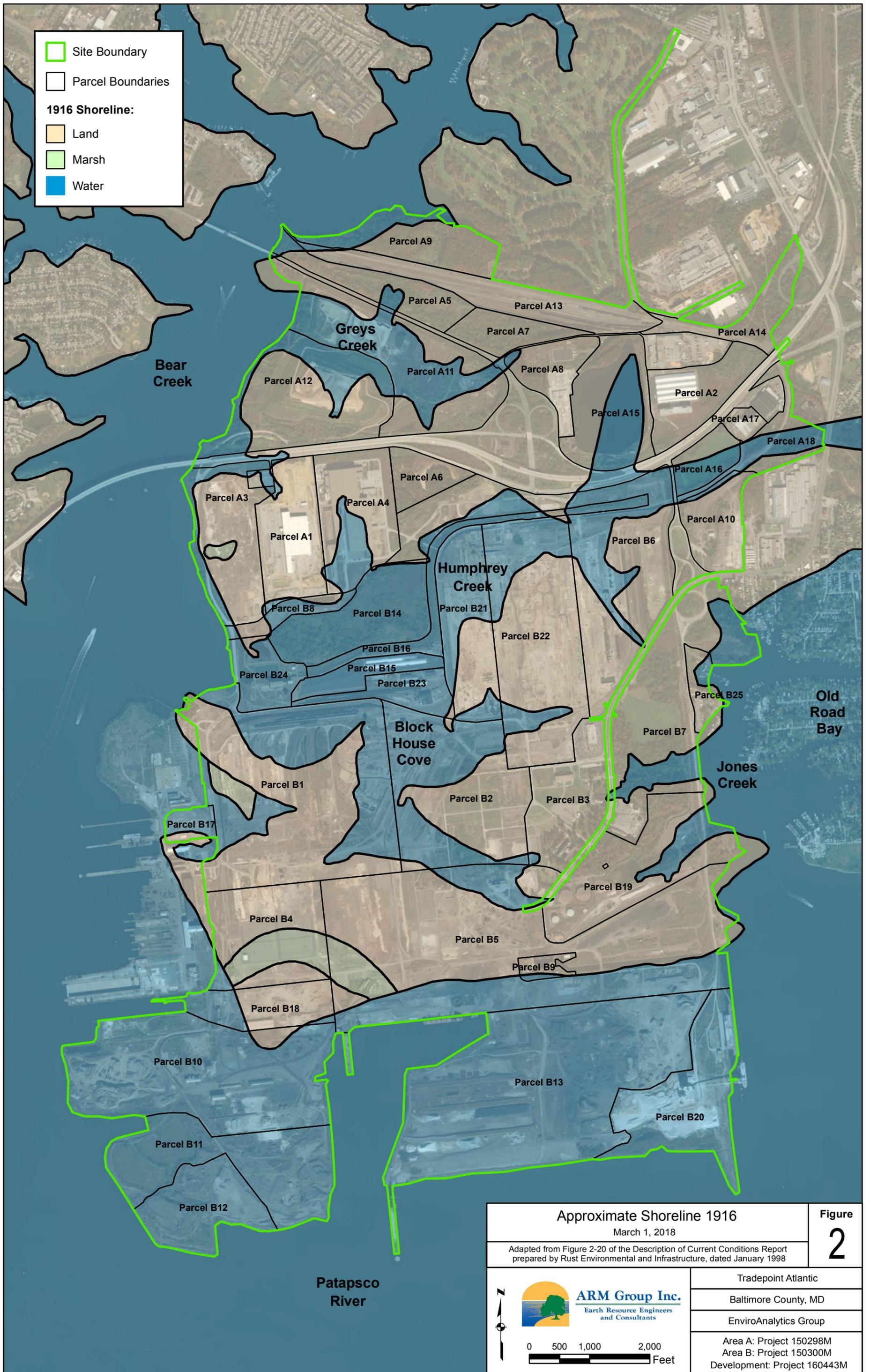
- ARM Group, Inc. (2016). *Phase II Investigation Work Plan: Parcel A10*. Revision 3. April 21, 2016.
- ARM Group, Inc. (2016). *Quality Assurance Project Plan: Sparrows Point Terminal Site*. Revision 3. April 5, 2016.
- ARM Group, Inc. (2017). *Stormwater Pollution Prevention Plan (SWPPP)*. Revision 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



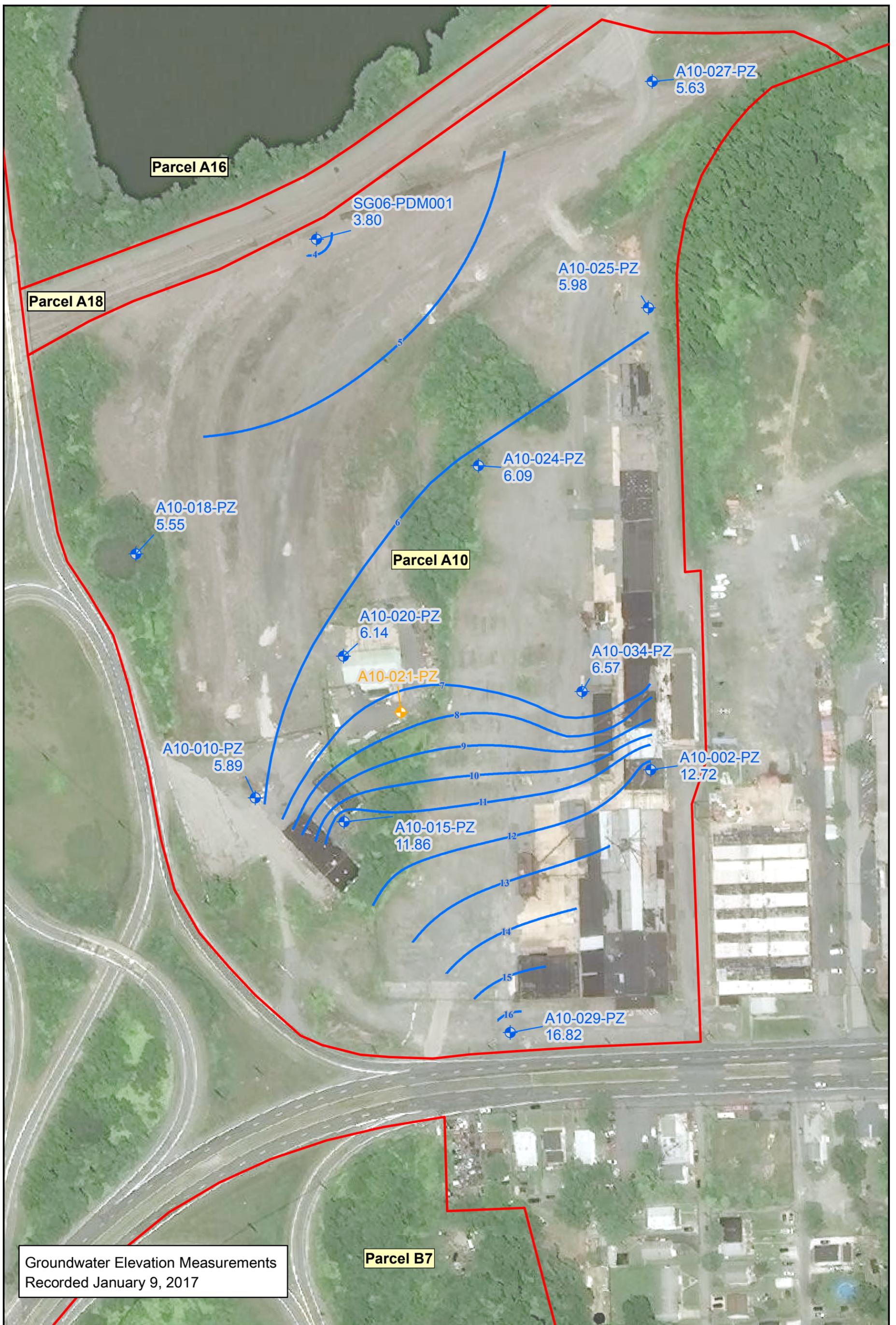
Site Boundary
 Parcel Boundaries
 Private Property

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	



Figure

2



ARM Group Inc.
 Earth Resource Engineers and Consultants

0 50 100 200
 Feet

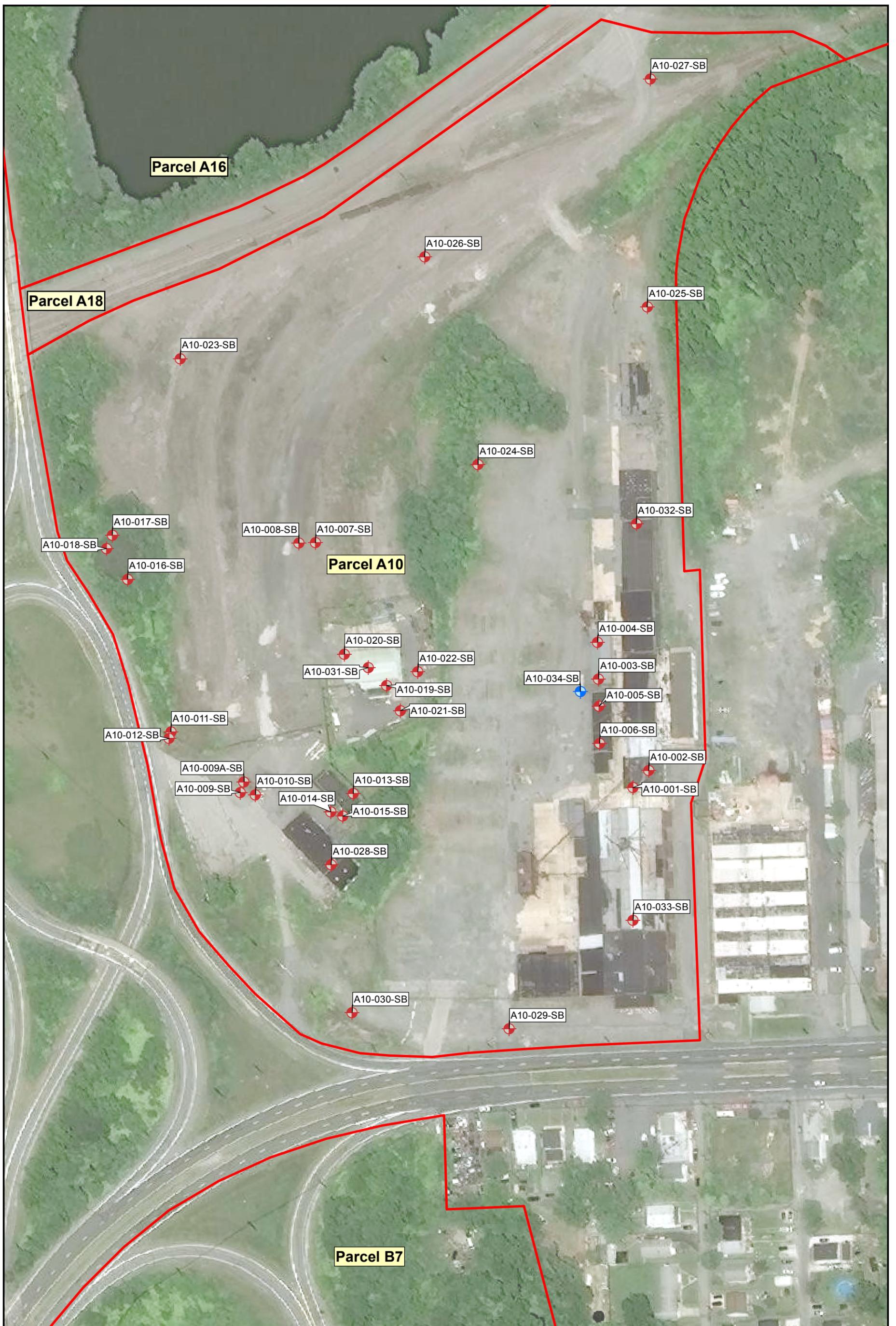
Piezometer/Permanent Well
 Piezometer (damaged)
 Potentiometric Surface Contour (ft amsl)
 Parcel Boundary

A10-029-PZ 16.82
 Piezometer ID
 Groundwater Elevation (ft amsl)

Groundwater Sample Locations and Potentiometric Surface
 April 4, 2018

EnviroAnalytics Group
 ARM Project 150298M-5
 Tradepoint Atlantic
 Baltimore County, MD

Figure
3




ARM Group Inc.
 Earth Resource Engineers
 and Consultants

0 50 100 200
 Feet

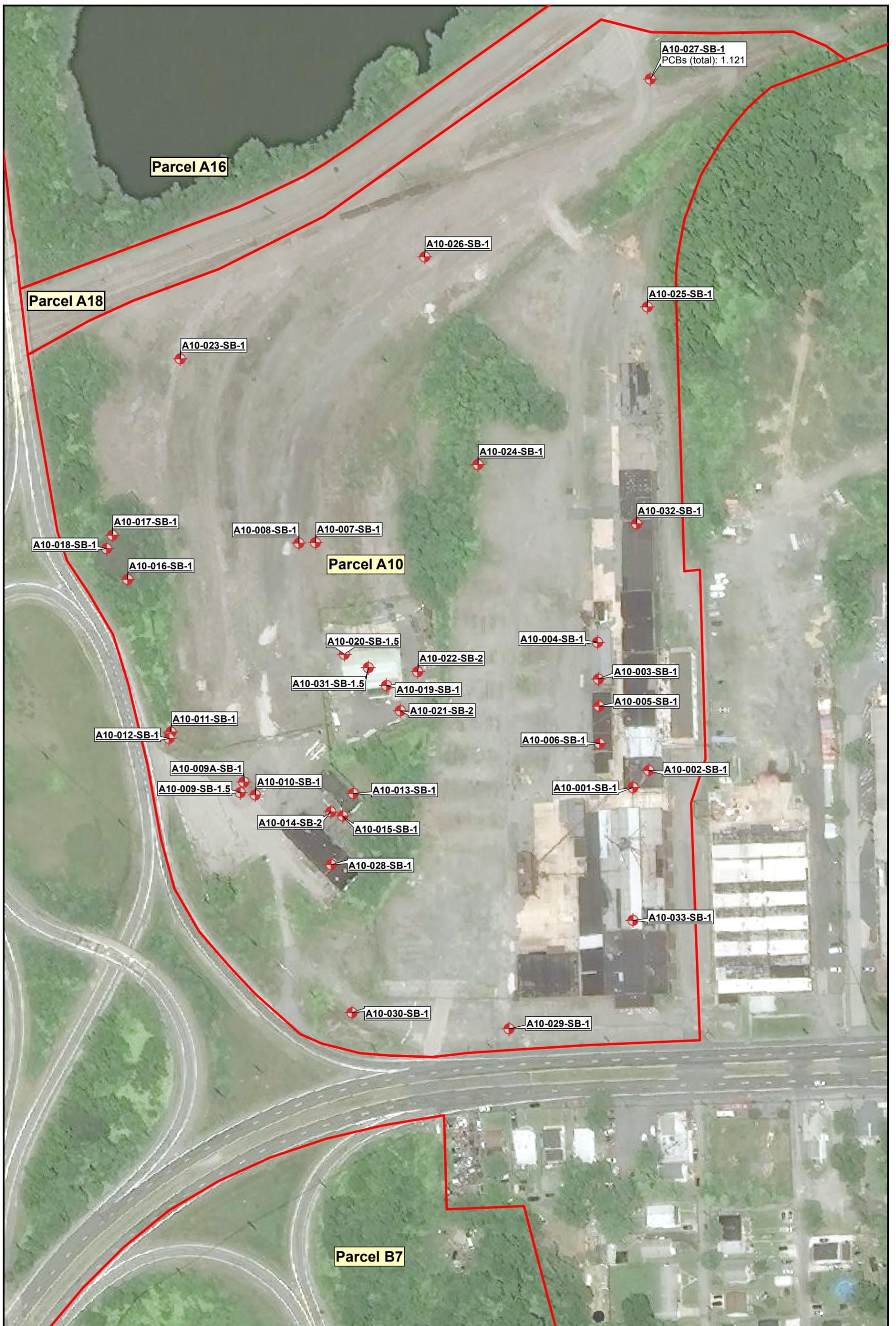
-  Soil Boring
-  Soil Boring
(No Analytical Samples; GW Only)
-  Parcel Boundary

Parcel A10 Soil Borings
Final Field Sample Locations
 April 4, 2018

EnviroAnalytics Group
 ARM Project 150298M-5
 Tradepoint Atlantic
 Baltimore County, MD

Figure
4






ARM Group Inc.
 Earth Resource Engineers
 and Consultants

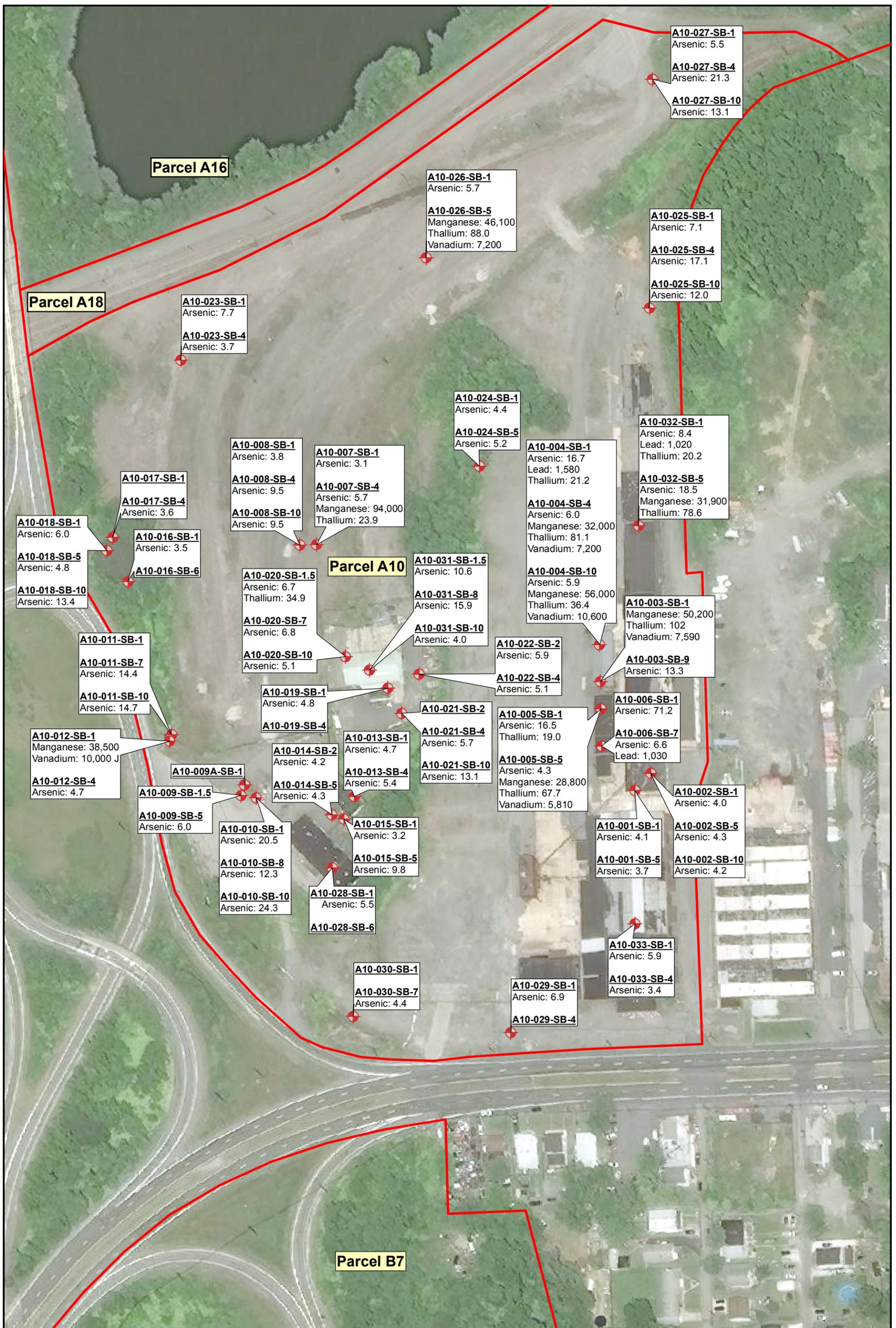
0 50 100 200
 Feet

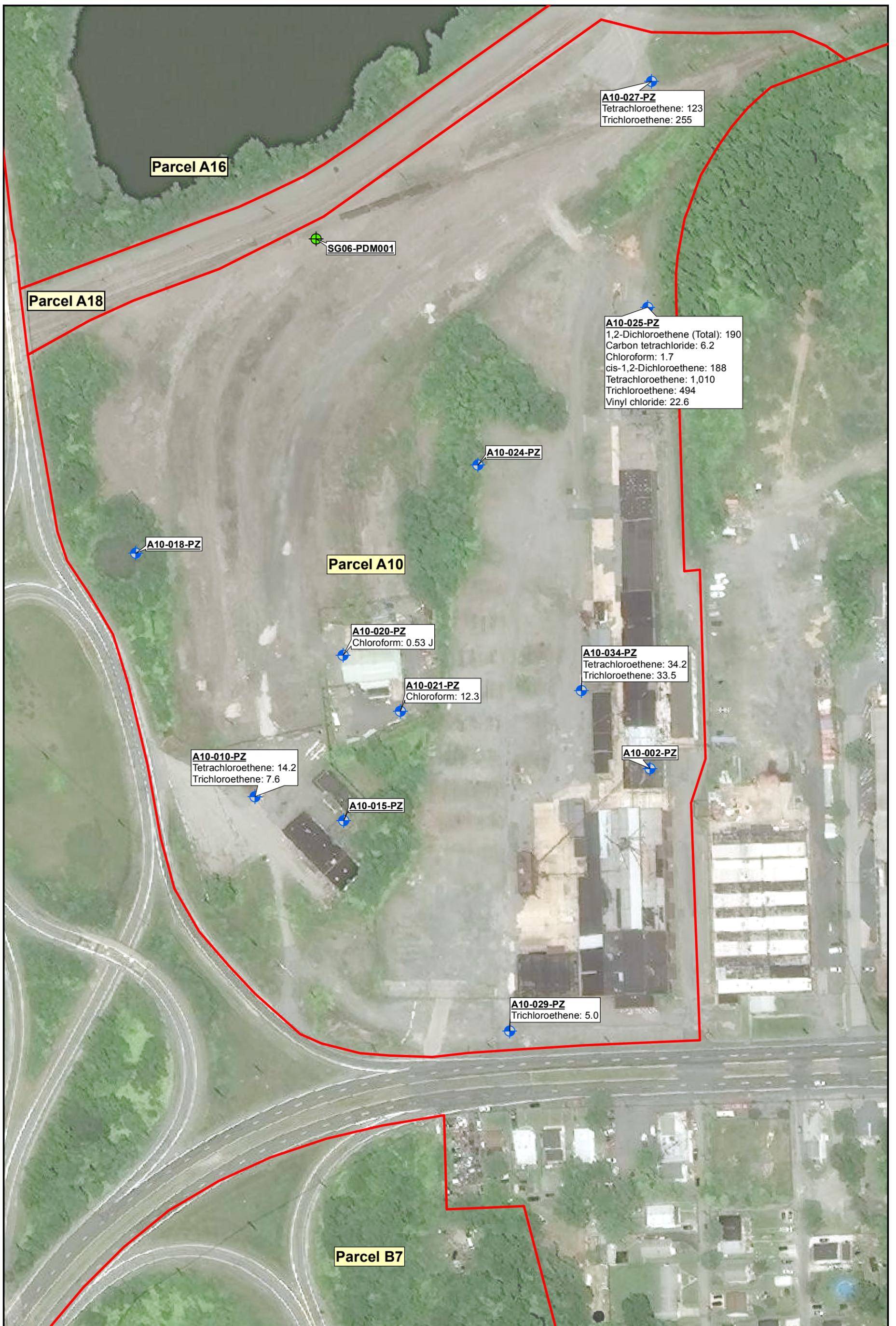
 Phase II Boring
 Parcel Boundary

Parcel A10 Soil Borings
Phase II PCB Exceedances (mg/kg)
 April 4, 2018

EnviroAnalytics Group
 ARM Project 150298M-5
 Tradepoint Atlantic
 Baltimore County, MD

Figure
S-2





ARM Group Inc.
Earth Resource Engineers
and Consultants

0 50 100 200 Feet

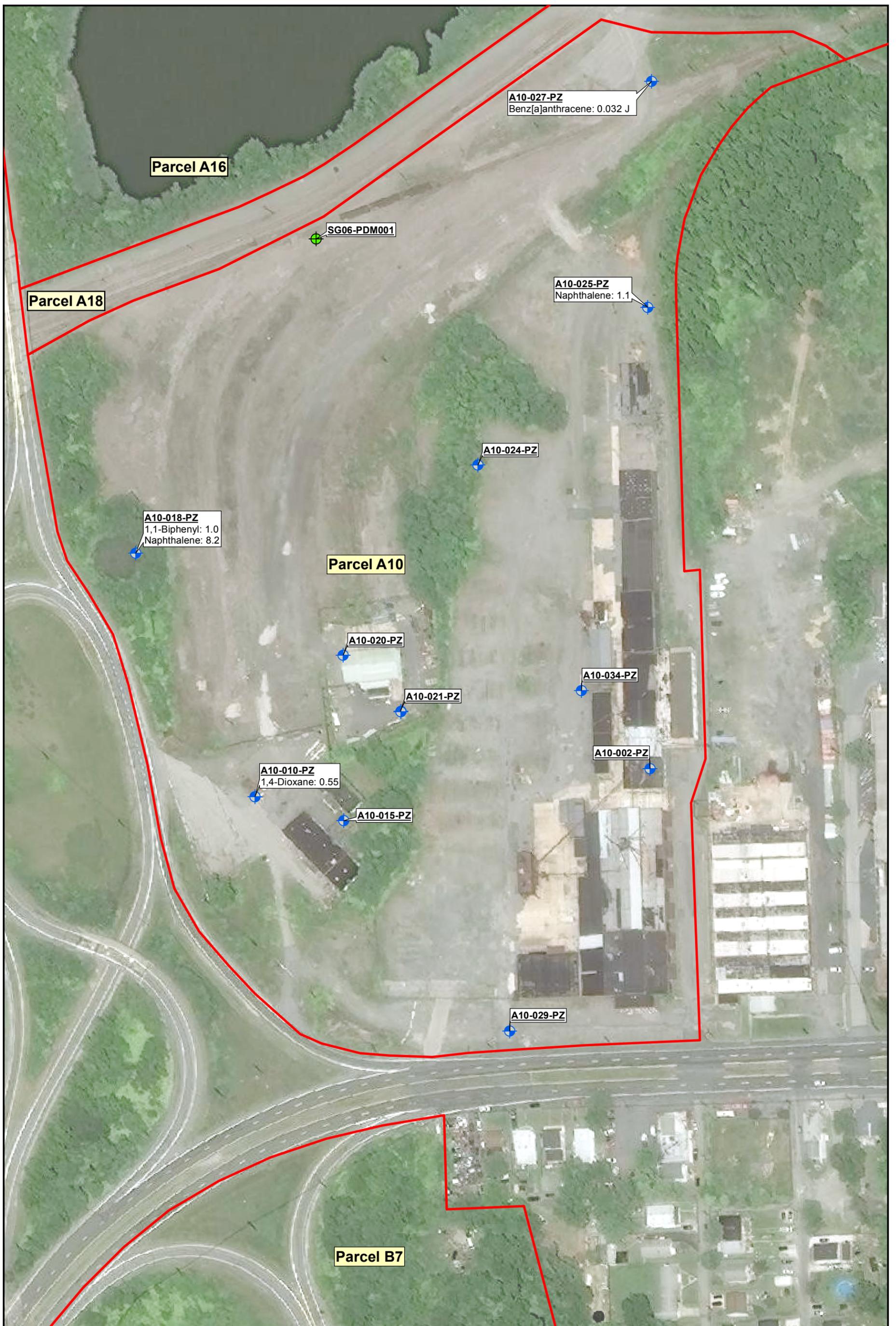
- Piezometer
- Permanent Well
- Parcel Boundary

Parcel A10 Piezometers
Phase II VOC Exceedances (ug/L)
April 4, 2018

EnviroAnalytics Group
ARM Project 150298M-5

Tradeport Atlantic
Baltimore County, MD

Figure
GW-1



ARM Group Inc.
Earth Resource Engineers
and Consultants

0 50 100 200 Feet

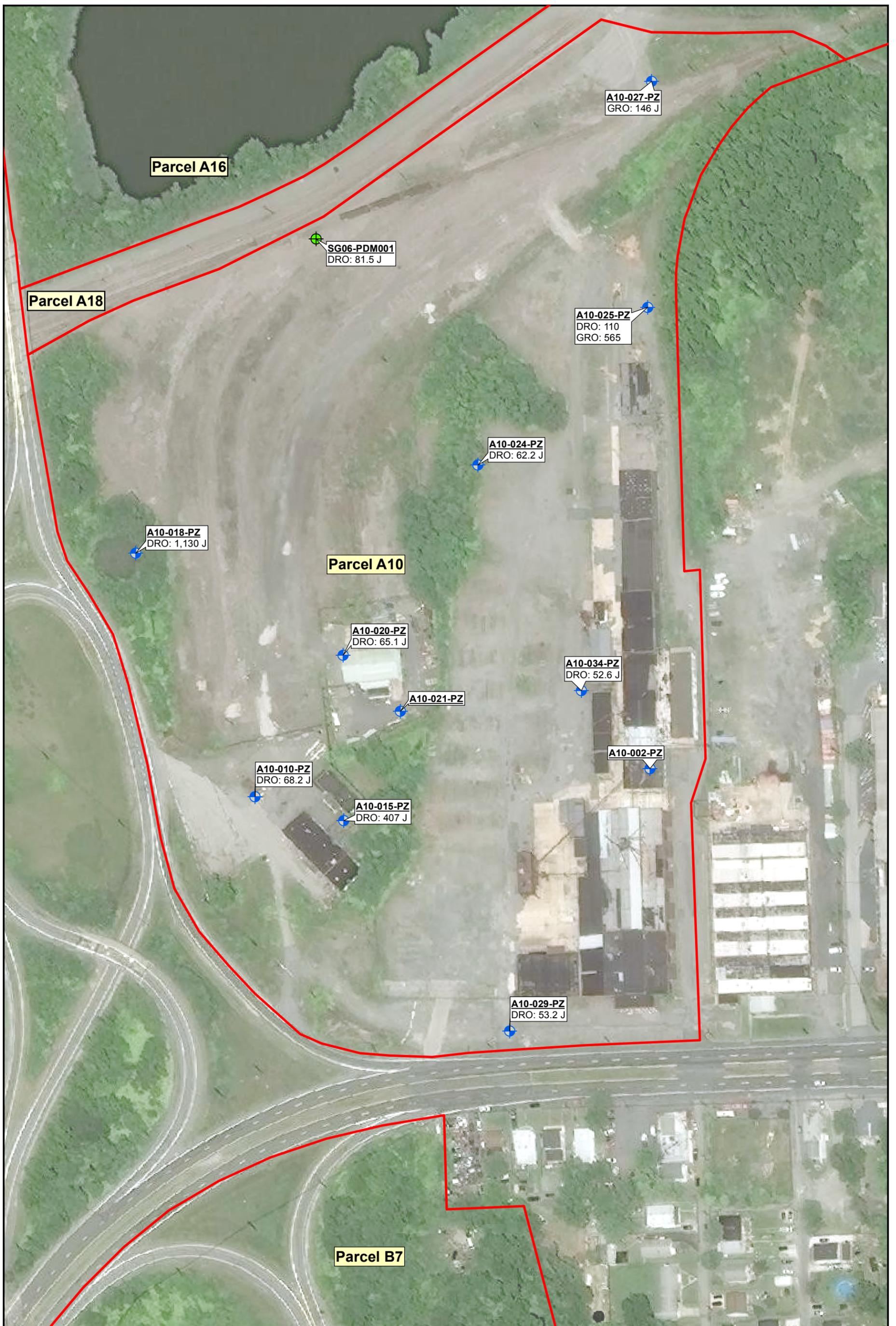
- Piezometer
- Permanent Well
- Parcel Boundary

Parcel A10 Piezometers
Phase II SVOC Exceedances (ug/L)
April 4, 2018

EnviroAnalytics Group
ARM Project 150298M-5

TradePoint Atlantic
Baltimore County, MD

Figure
GW-2




ARM Group Inc.
 Earth Resource Engineers
 and Consultants

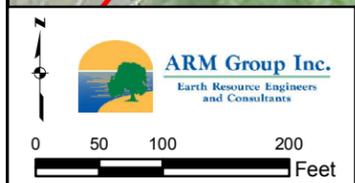
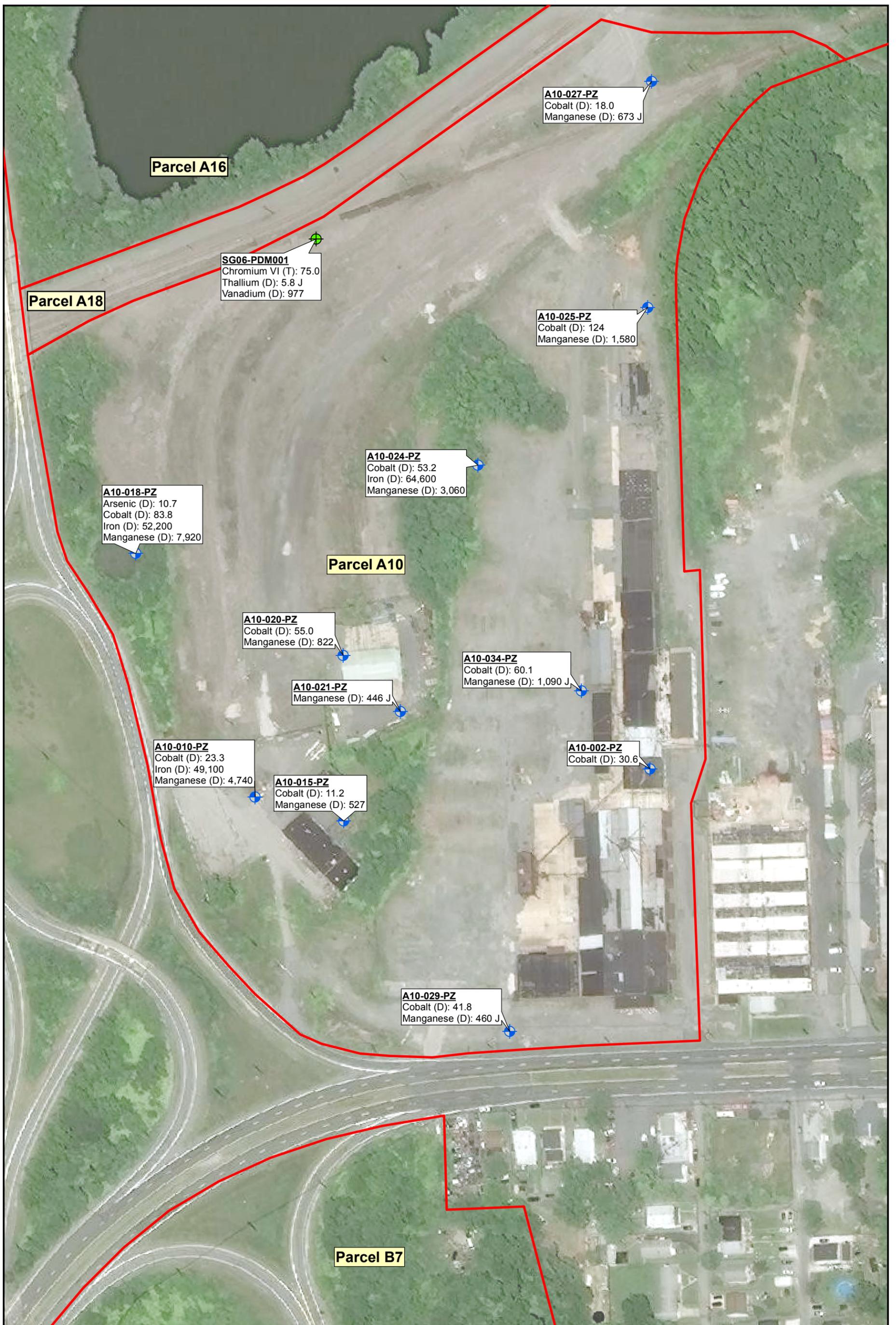
0 50 100 200
 Feet

-  Piezometer
-  Permanent Well
-  Parcel Boundary

Parcel A10 Piezometers
Phase II TPH Exceedances (ug/L)
 April 4, 2018

EnviroAnalytics Group
 ARM Project 150298M-5
 TradePoint Atlantic
 Baltimore County, MD

Figure
GW-3

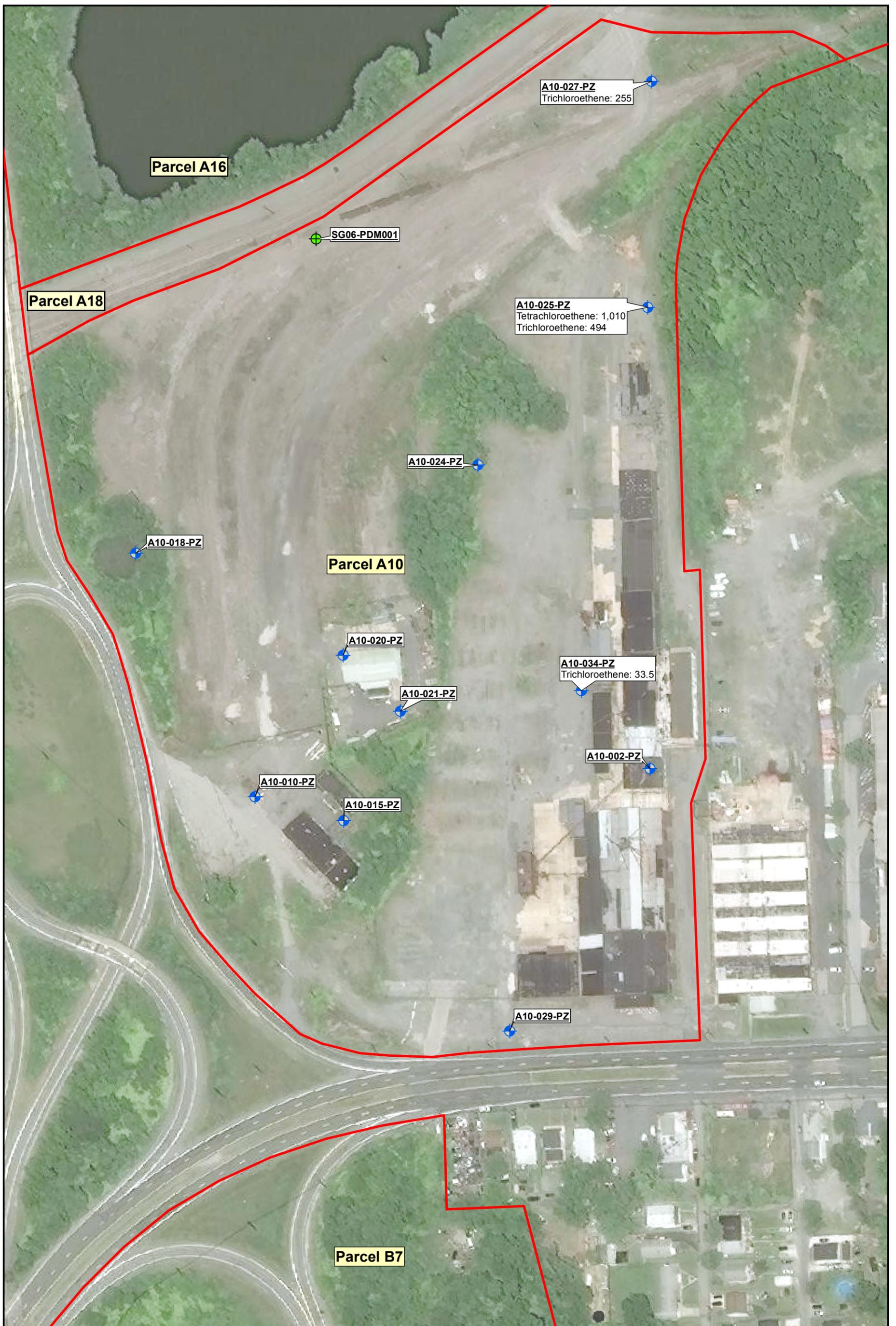


- Piezometer (T) = Total (D) = Dissolved
- Permanent Well
- Parcel Boundary

**Parcel A10 Piezometers
Phase II Inorganic Exceedances (ug/L)**
April 4, 2018

EnviroAnalytics Group
ARM Project 150298M-5
Tradeport Atlantic
Baltimore County, MD

**Figure
GW-4**




ARM Group Inc.
 Earth Resource Engineers
 and Consultants

0 50 100 200
 Feet

-  Piezometer
-  Permanent Well
-  Parcel Boundary

**Parcel A10 Shallow Groundwater
 Vapor Intrusion Exceedances (ug/L)**
 April 4, 2018

EnviroAnalytics Group
 ARM Project 150298M-5
 Tradeport Atlantic
 Baltimore County, MD

Figure
GW-5

TABLES

**TABLE 1
GROUNDWATER ELEVATION DATA**

<u>Location Name</u>	<u>TOC Elevation (feet AMSL)</u>	<u>Ground Elevation (feet AMSL)</u>	<u>Measured DTW (ft)</u>	<u>Groundwater Elevation (feet AMSL)</u>
A10-002-PZ	22.13	18.90	9.41	12.72
A10-010-PZ	17.98	14.24	12.09	5.89
A10-015-PZ	20.09	16.32	8.23	11.86
A10-018-PZ	18.65	15.11	13.10	5.55
A10-020-PZ	13.64	12.29	7.50	6.14
A10-021-PZ	13.26	11.76	Damaged	NA
A10-024-PZ	14.36	11.43	8.27	6.09
A10-025-PZ	16.94	14.14	10.96	5.98
A10-027-PZ	16.38	12.59	10.75	5.63
A10-029-PZ	23.11	19.64	6.29	16.82
A10-034-PZ	20.10	17.11	13.53	6.57
SG06-PDM001	12.04	12.42	8.24	3.80

DTW = Depth to water

TOC = Top of casing

AMSL = Above mean sea level

NA = Not Applicable (due to piezometer damage)

**TABLE 2
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.)	5047	1/17/1966	3/11/1958
		5047A	1/17/1966	3/11/1982
		5052	6/30/1959	3/11/1982
		5052A	1/17/1966	3/11/1982
Plant Index	Roads, water bodies, demolished buildings/structures, electric lines, above-ground pipelines	5147	<i>Unknown</i>	11/10/2008
		5147A	<i>Unknown</i>	11/10/2008
		5152	<i>Unknown</i>	2/25/2008
		5152A	<i>Unknown</i>	2/27/2008
Plant Sewer Lines	Same as above plus trenches, sumps, underground piping (includes pipe materials)	5547	9/16/1959	3/15/1976
		5547A	4/13/1976	6/13/1989
		5552	9/16/1959	3/9/1976
		5552A	2/22/1962	12/15/1987
Drip Legs	Coke Oven Gas Drip Legs Locations	N/A	N/A	N/A

**TABLE 3
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>		
A10-009-SB	Oil House	571,141	1,464,255	571,123	1,464,249	18	SW
A10-010-SB	Oil House	571,124	1,464,264	571,119	1,464,273	10	SE
A10-011-SB	Pump House / Foamite Building	571,223	1,464,127	571,222	1,464,135	8	E
A10-014-SB	Hazardous Materials Storage	571,109	1,464,414	571,091	1,464,396	25	SW
A10-016-SB	Large Historical AST	571,482	1,464,028	571,473	1,464,064	37	E
A10-017-SB	Large Historical AST	571,507	1,464,065	571,545	1,464,039	46	NW
A10-019-SB	Maintenance of Way Yard UST (and Fuel Dispensers)	571,301	1,464,482	571,298	1,464,488	6	SE
A10-024-SB	Parcel A10 Coverage	571,655	1,464,622	571,660	1,464,637	16	E
A10-025-SB	Parcel A10 Coverage	571,920	1,464,921	571,919	1,464,914	7	W
A10-027-SB	Parcel A10 Coverage	572,285	1,464,889	572,292	1,464,919	31	E
A10-029-SB	Parcel A10 Coverage	570,723	1,464,704	570,735	1,464,688	20	NW
A10-030-SB	Parcel A10 Coverage	570,739	1,464,402	570,762	1,464,431	38	NE

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

**TABLE 4
CHARACTERIZATION RESULTS FOR SOLID IDW**

<u>Parameter</u>	<u>Result (mg/L)</u>	<u>Laboratory Flag</u>	<u>TCLP Limit (mg/L)</u>	<u>TCLP Exceedance</u>	<u>Laboratory LOQ (mg/L)</u>
1,1-Dichloroethene	0.05	U	0.7	no	0.05
1,2-Dichloroethane	0.05	U	0.5	no	0.05
1,4-Dichlorobenzene	0.5	U	7.5	no	0.5
2,4,5-Trichlorophenol	5	U	400	no	5
2,4,6-Trichlorophenol	0.1	U	2	no	0.1
2,4-Dinitrotoluene	0.1	U	0.13	no	0.1
2-Butanone (MEK)	5	U	200	no	5
2-Methylphenol	2	U	200	no	2
3&4-Methylphenol(m&p Cresol)	2	U	200	no	2
Arsenic	0.05	U	5	no	0.05
Barium	0.16	J	100	no	1
Benzene	0.05	U	0.5	no	0.05
Cadmium	0.00053	J	1	no	0.05
Carbon tetrachloride	0.05	U	0.5	no	0.05
Chlorobenzene	1	U	100	no	1
Chloroform	0.5	U	6	no	0.5
Chromium	0.0019	B	5	no	0.05
Hexachlorobenzene	0.1	U	0.13	no	0.1
Hexachloroethane	0.5	U	3	no	0.5
Lead	0.01	J	5	no	0.05
Mercury	0.001	U	0.2	no	0.001
Nitrobenzene	0.1	U	2	no	0.1
Pentachlorophenol	5	U	100	no	5
Selenium	0.0045	B	1	no	0.1
Silver	0.05	U	5	no	0.05
Tetrachloroethene	0.05	U	0.7	no	0.05
Trichloroethene	0.05	U	0.5	no	0.05
Vinyl chloride	0.05	U	0.2	no	0.05

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

J: The positive result for this analyte is a quantitative estimate below the laboratory LOQ.

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

TCLP: Toxicity Characteristic Leaching Procedure

LOQ = Limit of Quantitation

**TABLE 5
CHARACTERIZATION RESULTS FOR LIQUID IDW**

<u>Parameter</u>	<u>Result (mg/L)</u>	<u>TCLP Limit (mg/L)</u>	<u>TCLP Exceedance</u>	<u>Laboratory Flag</u>	<u>Laboratory LOQ (mg/L)</u>
1,1-Dichloroethene	0.001	0.7	no	U	0.001
1,2-Dichloroethane	0.001	0.5	no	U	0.001
1,4-Dichlorobenzene	0.001	7.5	no	U	0.001
2-Butanone (MEK)	0.01	200	no	U	0.01
Arsenic	0.005	5	no	U	0.005
Barium	0.0466	100	no		0.01
Benzene	0.001	0.5	no	U	0.001
Cadmium	0.003	1	no	U	0.003
Carbon tetrachloride	0.001	0.5	no	U	0.001
Chlorobenzene	0.001	100	no	U	0.001
Chloroform	0.001	6	no	U	0.001
Chromium	0.0011	5	no	J	0.005
Lead	0.005	5	no	U	0.005
Mercury	0.0002	0.2	no	U	0.0002
Selenium	0.008	1	no	U	0.008
Silver	0.006	5	no	U	0.006
Tetrachloroethene	0.0035	0.7	no		0.001
Trichloroethene	0.003	0.5	no		0.001
Vinyl chloride	0.001	0.2	no	U	0.001

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

J: The positive result for this analyte is a quantitative estimate below the laboratory LOQ.

TCLP: Toxicity Characterization Leaching Procedure

LOQ: Limit of Quantitation

Table 6
Summary of Organics Detected in Soil
Parcel A10
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A10-001-SB-1	A10-001-SB-5	A10-002-SB-1	A10-002-SB-5	A10-003-SB-1*	A10-003-SB-9*	A10-004-SB-1*	A10-004-SB-4*	A10-005-SB-1*	A10-005-SB-5*	A10-006-SB-1*	A10-006-SB-7*	A10-007-SB-1	A10-007-SB-4	A10-008-SB-1
Volatile Organic Compounds																	
1,2,3-Trichlorobenzene	mg/kg	930	0.005 U	0.0049 U	0.0053 U	0.0054 U	0.0082 U	0.0075 U	0.0058 U	0.006 U	0.0055 U	0.0068 U	0.0077 U	0.0057 U	0.0059 U	0.0053 U	0.0065 U
2-Butanone (MEK)	mg/kg	190,000	0.01 UJ	0.0098 UJ	0.011 UJ	0.011 UJ	0.016 U	0.015 U	0.012 U	0.012 U	0.011 U	0.014 U	0.015 U	0.011 U	0.012 U	0.011 U	0.013 U
Acetone	mg/kg	670,000	0.01 U	0.0098 U	0.0073 J	0.016	0.013 J	0.015 J	0.012 U	0.0061 J	0.011 U	0.0073 J	0.024	0.043	0.042 J	0.18 J	0.019 J
Benzene	mg/kg	5.1	0.005 U	0.0049 U	0.0053 U	0.0054 U	0.0082 U	0.0028 J	0.0058 U	0.006 U	0.0055 U	0.0068 U	0.0077 U	0.0057 U	0.0059 U	0.0053 U	0.0065 U
Carbon disulfide	mg/kg	3,500	0.005 UJ	0.0049 UJ	0.0053 UJ	0.0054 UJ	0.0082 U	0.0075 U	0.0058 U	0.006 U	0.0055 U	0.0068 U	0.0077 U	0.0057 U	0.006	0.0053 U	0.0066
Cyclohexane	mg/kg	27,000	0.01 U	0.0098 U	0.011 U	0.011 U	0.016 U	0.015 U	0.012 U	0.012 U	0.011 U	0.014 U	0.015 U	0.011 U	0.012 UJ	0.011 UJ	0.013 UJ
Ethylbenzene	mg/kg	25	0.005 U	0.0049 U	0.0053 U	0.0054 U	0.0082 U	0.0075 U	0.0058 U	0.006 U	0.0055 U	0.0068 U	0.0077 U	0.0029 J	0.0059 U	0.0053 U	0.0065 U
Isopropylbenzene	mg/kg	9,900	0.005 U	0.0049 U	0.0053 U	0.0054 U	0.0082 U	0.0075 U	0.0058 U	0.006 U	0.0055 U	0.0068 U	0.0077 U	0.029	0.0059 U	0.0053 U	0.0065 U
Methyl Acetate	mg/kg	1,200,000	0.05 U	0.049 U	0.053 U	0.054 U	0.082 U	0.075 U	0.058 U	0.06 U	0.055 U	0.068 U	0.077 U	0.057 U	0.059 R	0.053 R	0.065 R
Methyl tert-butyl ether (MTBE)	mg/kg	210	0.005 U	0.0049 U	0.0053 U	0.0054 U	0.0082 U	0.0075 U	0.0058 U	0.006 U	0.0055 U	0.0068 U	0.0077 U	0.0057 U	0.0059 U	0.0053 U	0.0065 U
Methylene Chloride	mg/kg	1,000	0.005 UJ	0.0049 UJ	0.0053 UJ	0.0054 UJ	0.0082 U	0.007 B	0.0058 U	0.006 U	0.0055 U	0.0068 U	0.0077 U	0.0057 U	0.011 J	0.016 J	0.036 J
Tetrachloroethene	mg/kg	100	0.005 U	0.0049 U	0.0053 U	0.0054 U	0.0082 U	0.0075 U	0.0058 U	0.006 U	0.0055 U	0.0068 U	0.0077 U	0.0057 U	0.0059 U	0.0053 U	0.0065 U
Toluene	mg/kg	47,000	0.005 U	0.0049 U	0.0053 U	0.0054 U	0.0082 U	0.0075 U	0.0058 U	0.0025 J	0.0055 U	0.0068 U	0.0077 U	0.0057 U	0.0059 U	0.0053 U	0.0065 U
Xylenes	mg/kg	2,800	0.015 U	0.015 U	0.016 U	0.016 U	0.025 U	0.023 U	0.018 U	0.018 U	0.017 U	0.02 U	0.023 U	0.0068 J	0.018 U	0.016 U	0.02 U
Semi-Volatile Organic Compounds[^]																	
1,1-Biphenyl	mg/kg	200	0.082 U	0.081 U	0.084 U	0.083 U	0.033 J	0.037 J	0.076 U	0.074 U	0.017 J	0.074 U	0.1 U	0.047 J	0.072 U	0.077 U	0.076 U
2,3,4,6-Tetrachlorophenol	mg/kg	25,000	0.082 U	0.081 U	0.084 U	0.083 U	0.078 U	0.08 U	0.076 U	0.074 U	0.075 U	0.074 U	0.1 U	0.087 U	0.072 U	0.077 U	0.076 U
2,4,5-Trichlorophenol	mg/kg	82,000	0.2 U	0.2 U	0.21 U	0.21 U	0.19 U	0.2 U	0.19 U	0.18 U	0.19 U	0.19 U	0.25 U	0.22 U	0.18 U	0.19 U	0.19 U
2,4-Dimethylphenol	mg/kg	16,000	0.082 U	0.081 U	0.084 U	0.083 U	0.018 J	0.02 J	0.076 U	0.074 U	0.075 U	0.074 U	0.1 U	0.078 J	0.072 U	0.077 U	0.076 U
2-Chloronaphthalene	mg/kg	60,000	0.082 U	0.081 U	0.084 U	0.083 U	0.078 U	0.08 U	0.076 U	0.074 U	0.075 U	0.074 U	0.1 U	0.087 U	0.072 U	0.077 U	0.076 U
2-Methylnaphthalene	mg/kg	3,000	0.0082 U	0.0082 U	0.0084 U	0.0085 U	0.24	0.41	0.069 J	0.024	0.21	0.031	0.065 J	0.034 J	0.0027 J	0.013 J	0.075 U
2-Methylphenol	mg/kg	41,000	0.082 U	0.081 U	0.084 U	0.083 U	0.078 U	0.08 U	0.076 U	0.074 U	0.075 U	0.074 U	0.1 U	0.087 U	0.072 U	0.077 U	0.076 U
2-Nitroaniline	mg/kg	8,000	0.2 U	0.2 U	0.21 U	0.21 U	0.19 U	0.2 U	0.19 U	0.18 U	0.19 U	0.19 U	0.25 U	0.22 U	0.18 U	0.19 U	0.19 U
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	0.16 U	0.16 U	0.17 U	0.17 U	0.16 U	0.04 J	0.15 U	0.15 U	0.15 U	0.15 U	0.2 U	0.17 U	0.14 U	0.15 U	0.15 U
Acenaphthene	mg/kg	45,000	0.0082 U	0.0082 U	0.0084 U	0.0085 U	0.22	0.056 J	0.014 J	0.0019 J	0.11	0.0062 J	0.0074 J	0.059 J	0.00098 J	0.089 J	0.075 U
Acenaphthylene	mg/kg	45,000	0.0082 U	0.0082 U	0.0084 U	0.0085 U	0.63	0.029 J	0.13	0.036	0.02 J	0.0099	0.1 U	0.087 U	0.023	0.0043 J	0.14
Acetophenone	mg/kg	120,000	0.082 U	0.081 U	0.084 U	0.083 U	0.078 U	0.08 U	0.025 J	0.074 U	0.075 U	0.074 U	0.1 U	0.087 U	0.072 U	0.077 U	0.076 U
Anthracene	mg/kg	230,000	0.0082 U	0.0082 U	0.0084 U	0.0085 U	1.6	0.21	0.2	0.039	0.31	0.04	0.044 J	0.12	0.024	0.046 J	0.1
Benz[a]anthracene	mg/kg	21	0.0082 U	0.0023 J	0.0084 U	0.0085 U	2.3	0.19	0.64	0.16	0.78	0.12	0.054 J	0.058 J	0.065	0.079 J	0.36
Benzaldehyde	mg/kg	120,000	0.082 UJ	0.081 UJ	0.084 UJ	0.083 UJ	0.032 J	0.067 J	0.044 J	0.074 U	0.044 J	0.074 U	0.1 U	0.087 U	0.072 UJ	0.077 UJ	0.076 UJ
Benzo[a]pyrene	mg/kg	2.1	0.0082 U	0.0011 J	0.0084 U	0.0085 U	3.5	0.14	0.51	0.14	0.61	0.12	0.051 J	0.061 J	0.085	0.057 J	0.36
Benzo[b]fluoranthene	mg/kg	21	0.001 J	0.0016 J	0.001 J	0.0085 U	5.7	0.31	0.84	0.22	1.1	0.23	0.089 J	0.13	0.22	0.085 J	0.91
Benzo[g,h,i]perylene	mg/kg		0.0082 U	0.0082 U	0.0084 U	0.0085 U	5.8	0.13	0.39	0.11	0.41	0.12	0.042 J	0.05 J	0.067	0.03 J	0.31
Benzo[k]fluoranthene	mg/kg	210	0.0082 U	0.0082 U	0.0084 U	0.0085 U	2.1	0.26	0.36	0.089	0.98	0.2	0.034 J	0.11	0.19	0.037 J	0.79
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.082 U	0.081 U	0.084 U	0.083 U	0.034 J	0.08 U	0.02 J	0.074 U	0.018 J	0.074 U	0.68	0.087 U	0.072 U	0.077 U	0.076 U
Carbazole	mg/kg		0.082 U	0.081 U	0.084 U	0.083 U	0.35	0.08 J	0.041 J	0.036 J	0.12	0.074 U	0.1 U	0.087 U	0.072 U	0.025 J	0.028 J
Chrysene	mg/kg	2,100	0.0082 U	0.0011 J	0.00083 J	0.0085 U	4.9	0.34	0.67	0.17	0.83	0.15	0.12	0.17	0.081	0.085 J	0.27
Dibenz[a,h]anthracene	mg/kg	2.1	0.0082 U	0.0082 U	0.0084 U	0.0085 U	1.5	0.059 J	0.13	0.041	0.16	0.038	0.017 J	0.021 J	0.022	0.012 J	0.091
Di-n-butylphthalate	mg/kg	82,000	0.082 U	0.081 U	0.084 U	0.083 U	0.078 U	0.08 U	0.076 U	0.074 U	0.075 U	0.074 U	0.07 J	0.087 U	0.072 U	0.077 U	0.076 U
Fluoranthene	mg/kg	30,000	0.00091 J	0.0019 J	0.0013 J	0.0085 U	3.6	0.33	1.5	0.31	1.7	0.18	0.11	0.099	0.081	0.29 J	0.4
Fluorene	mg/kg	30,000	0.0082 U	0.0082 U	0.0084 U	0.0085 U	0.27	0.11	0.027 J	0.0094	0.12	0.0067 J	0.012 J	0.064 J	0.0016 J	0.06 J	0.075 U
Indeno[1,2,3-c,d]pyrene	mg/kg	21	0.0082 U	0.0082 U	0.0084 U	0.0085 U	3.9	0.09	0.38	0.11	0.38	0.099	0.033 J	0.041 J	0.063	0.028 J	0.27
Naphthalene	mg/kg	17	0.0082 U	0.0082 U	0.0084 U	0.0085 U	0.31	0.25	0.14	0.033	0.18	0.04	0.042 J	0.038 J	0.0045 B	0.023 J	0.024 B
N-Nitrosodiphenylamine	mg/kg	470	0.082 U	0.081 U	0.084 U	0.083 U	0.078 U	0.08 U	0.076 U	0.074 U	0.075 U	0.074 U	0.1 U	0.087 U	0.072 U	0.077 U	0.076 U
Pentachlorophenol	mg/kg	4	0.2 U	0.2 U	0.21 U	0.21 U	0.19 U	0.2 U	0.19 U	0.18 U	0.19 U	0.19 U	0.25 U	0.22 U	0.18 U	0.19 U	0.19 U
Phenanthrene	mg/kg		0.00077 J	0.00096 J	0.0013 J	0.0085 U	2.6	1.4	0.93	0.18	1.5	0.16	0.21	0.35	0.015	0.29 J	0.095
Phenol	mg/kg	250,000	0.082 U	0.081 U	0.084 U	0.083 U	0.078 U	0.08 U	0.076 U	0.074 U	0.075 U	0.074 U	0.1 U	0.087 U	0.072 U	0.077 U	0.076 U
Pyrene	mg/kg	23,000	0.0082 U	0.0016 J	0.0011 J	0.0085 U	3.1	0.29	1.1	0.22	1.5	0.2	0.091 J	0.18	0.09	0.23 J	0.39
PCBs																	
Aroclor 1242	mg/kg	0.97	0.0602 U	N/A	0.0623 U	N/A	0.0564 U	N/A	0.0588 U	N/A	0.0595 U	N/A	0.0573 U	N/A	0.051 U	N/A	0.0582 U
Aroclor 1248	mg/kg	0.94	0.141	N/A	0.0623 U	N/A	0.0564 U	N/A	0.0588 U	N/A	0.0595 U	N/A	0.0573 U	N/A	0.051 U	N/A	0.0582 U
Aroclor 1254	mg/kg	0.97	0.0602 U	N/A	0.0623 U	N/A	0.0564 U	N/A	0.0588 U	N/A	0.0595 U	N/A	0.0573 U	N/A	0.051 U	N/A	0.0582 U
Aroclor 1260	mg/kg	0.99	0.0602 U	N/A	0.0623 U	N/A	0.0564 U	N/A	0.0588 U	N/A	0.0595 U	N/A	0.206	N/A	0.051 U	N/A	0.0582 U
Aroclor 1268	mg/kg		0.0602 U	N/A	0.0623 U	N/A	0.0564 U	N/A	0.0588 U								

**Table 6
Summary of Organics Detected in Soil
Parcel A10
Tradepoint Atlantic
Sparrows Point, Maryland**

Parameter	Units	PAL	A10-008-SB-4	A10-008-SB-10*	A10-009A-SB-1*	A10-009-SB-1.5*	A10-009-SB-5*	A10-010-SB-1	A10-010-SB-8	A10-011-SB-1	A10-011-SB-7	A10-012-SB-1	A10-012-SB-4	A10-013-SB-1	A10-013-SB-4	A10-014-SB-2*	A10-014-SB-5*
Volatiles Organic Compounds																	
1,2,3-Trichlorobenzene	mg/kg	930	0.0047 U	N/A	0.0062 U	0.0074 U	0.0046 U	0.0085 UJ	0.0053 UJ	0.0079 U	0.0051 U	0.0058 U	0.0051 U	0.006 UJ	0.0049 UJ	0.0052 U	0.0048 U
2-Butanone (MEK)	mg/kg	190,000	0.012	N/A	0.012 U	0.015 U	0.0092 U	0.017 U	0.011 U	0.016 U	0.01 U	0.012 U	0.01 U	0.012 U	0.0099 U	0.01 U	0.0097 U
Acetone	mg/kg	670,000	0.16 J	N/A	0.015	0.015 U	0.011	0.017 U	0.02 J	0.016 UJ	0.01 UJ	0.012 UJ	0.01 UJ	0.012 U	0.0099 U	0.01 U	0.0097 U
Benzene	mg/kg	5.1	0.0047 U	N/A	0.0062 U	0.0074 U	0.0046 U	0.0085 U	0.0053 U	0.0079 U	0.0051 U	0.0058 U	0.0051 U	0.006 U	0.0049 U	0.0052 U	0.0048 U
Carbon disulfide	mg/kg	3,500	0.0047 U	N/A	0.0044 J	0.0074 U	0.0046 U	0.0085 U	0.0053 U	0.0065 J	0.0051 U	0.0058 U	0.0051 U	0.006 U	0.0049 U	0.0052 U	0.0048 U
Cyclohexane	mg/kg	27,000	0.0095 UJ	N/A	0.012 U	0.015 U	0.0092 U	0.017 U	0.011 U	0.016 UJ	0.01 UJ	0.012 UJ	0.01 UJ	0.012 U	0.0099 U	0.01 U	0.0097 U
Ethylbenzene	mg/kg	25	0.0047 U	N/A	0.0062 U	0.0074 U	0.0046 U	0.0085 U	0.0053 U	0.0079 U	0.0051 U	0.0058 U	0.0051 U	0.006 U	0.0049 U	0.0052 U	0.0048 U
Isopropylbenzene	mg/kg	9,900	0.0019 J	N/A	0.0062 U	0.0074 U	0.0046 U	0.0085 U	0.0053 U	0.0079 U	0.0051 U	0.0058 U	0.0051 U	0.006 U	0.0049 U	0.0052 U	0.0048 U
Methyl Acetate	mg/kg	1,200,000	0.047 R	N/A	0.062 U	0.074 U	0.046 U	0.085 R	0.053 R	0.079 R	0.051 R	0.058 R	0.051 R	0.06 R	0.049 R	0.052 U	0.048 U
Methyl tert-butyl ether (MTBE)	mg/kg	210	0.0047 U	N/A	0.0062 U	0.0074 U	0.0046 U	0.0085 U	0.0053 U	0.0079 U	0.0051 U	0.0058 U	0.0051 U	0.006 U	0.0049 U	0.0052 U	0.0048 U
Methylene Chloride	mg/kg	1,000	0.0089 J	N/A	0.0062 U	0.0074 U	0.0046 U	0.0085 U	0.0053 U	0.0079 U	0.0051 U	0.0058 U	0.0051 U	0.006 U	0.0049 U	0.0052 U	0.0048 U
Tetrachloroethene	mg/kg	100	0.0047 U	N/A	0.0062 U	0.01	0.0046 U	0.0085 U	0.0053 U	0.0079 U	0.0051 U	0.0058 U	0.0051 U	0.006 U	0.0049 U	0.0052 U	0.0048 U
Toluene	mg/kg	47,000	0.0047 U	N/A	0.0062 U	0.0074 U	0.0046 U	0.0085 U	0.0053 U	0.0079 U	0.0051 U	0.0058 U	0.0051 U	0.006 U	0.0049 U	0.0052 U	0.0048 U
Xylenes	mg/kg	2,800	0.014 U	N/A	0.018 U	0.022 U	0.014 U	0.025 U	0.016 U	0.024 U	0.015 U	0.017 U	0.015 U	0.018 U	0.015 U	0.016 U	0.015 U
Semi-Volatile Organic Compounds[^]																	
1,1-Biphenyl	mg/kg	200	0.077 U	N/A	0.071 U	0.021 J	0.079 U	0.077 U	0.086 U	0.079 U	0.084 U	0.072 U	0.08 U	0.076 U	0.077 U	0.079 U	0.079 U
2,3,4,6-Tetrachlorophenol	mg/kg	25,000	0.077 U	N/A	0.071 U	0.079 U	0.079 U	0.077 U	0.086 U	0.079 U	0.084 U	0.072 U	0.08 U	0.076 U	0.077 U	0.079 U	0.079 U
2,4,5-Trichlorophenol	mg/kg	82,000	0.19 U	N/A	0.18 U	0.2 U	0.2 U	0.19 U	0.21 U	0.2 U	0.21 U	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U
2,4-Dimethylphenol	mg/kg	16,000	0.077 U	N/A	0.071 U	0.079 U	0.079 U	0.077 U	0.086 U	0.079 U	0.084 U	0.072 U	0.08 U	0.076 U	0.077 U	0.079 U	0.079 U
2-Chloronaphthalene	mg/kg	60,000	0.077 U	N/A	0.071 U	0.079 U	0.079 U	0.077 U	0.086 U	0.079 U	0.084 U	0.072 U	0.08 U	0.076 U	0.077 U	0.079 U	0.079 U
2-Methylnaphthalene	mg/kg	3,000	0.75	0.0082 U	0.005 J	0.029 J	0.008 U	0.11	0.0025 J	0.0052 J	0.0083 U	0.091	0.008 U	0.0054 J	0.0077 U	0.0044 J	0.0069 J
2-Methylphenol	mg/kg	41,000	0.077 U	N/A	0.071 U	0.079 U	0.079 U	0.077 U	0.086 U	0.079 U	0.084 U	0.072 U	0.08 U	0.076 U	0.077 U	0.079 U	0.079 U
2-Nitroaniline	mg/kg	8,000	0.19 U	N/A	0.18 U	0.2 U	0.2 U	0.19 U	0.21 U	0.2 U	0.21 U	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	0.15 U	N/A	0.14 U	0.16 U	0.16 U	0.15 U	0.17 U	0.16 U	0.17 U	0.14 U	0.16 U	0.15 U	0.15 U	0.16 U	0.16 U
Acenaphthene	mg/kg	45,000	4.2	0.0082 U	0.00087 J	0.039 J	0.008 U	0.0086 J	0.0085 U	0.0081 U	0.0083 U	0.019 J	0.008 U	0.00071 J	0.0077 U	0.0015 J	0.0011 J
Acenaphthylene	mg/kg	45,000	0.45	0.0082 U	0.0026 J	0.035 J	0.008 U	0.093	0.0085 U	0.0081 U	0.0083 U	0.032 J	0.008 U	0.004 J	0.0077 U	0.028	0.021
Acetophenone	mg/kg	120,000	0.077 U	N/A	0.071 U	0.079 U	0.079 U	0.077 U	0.086 U	0.079 U	0.084 U	0.072 U	0.08 U	0.076 U	0.077 U	0.079 U	0.079 U
Anthracene	mg/kg	230,000	9.1	0.0082 U	0.0047 J	0.088	0.008 U	0.036 J	0.0016 J	0.0081 U	0.0083 U	0.048 J	0.008 U	0.0071 J	0.0077 U	0.038	0.013
Benz[a]anthracene	mg/kg	21	20.8	0.0082 U	0.014	0.38	0.008 U	0.037 J	0.0085 U	0.0081 U	0.0016 J	0.18	0.008 U	0.021	0.0021 J	0.24	0.11
Benzaldehyde	mg/kg	120,000	0.077 UJ	N/A	0.071 U	0.079 U	0.079 U	0.025 J	0.086 UJ	0.079 UJ	0.084 UJ	0.072 UJ	0.08 UJ	0.076 UJ	0.077 UJ	0.079 U	0.079 U
Benzo[a]pyrene	mg/kg	2.1	13.6	0.0082 U	0.014	0.39	0.008 U	0.038 J	0.0085 U	0.0081 U	0.0083 U	0.21	0.008 U	0.023	0.0011 J	0.2	0.12
Benzo[b]fluoranthene	mg/kg	21	33.9	0.0082 U	0.062	0.82	0.008 U	0.083	0.0085 U	0.0009 J	0.0019 J	0.36	0.008 U	0.048	0.002 J	0.41	0.18
Benzo[g,h,i]perylene	mg/kg	7.2	0.0082 U	0.0082 U	0.0083	0.15	0.008 U	0.025 J	0.0085 U	0.0081 U	0.0083 U	0.094	0.008 U	0.017	0.0077 U	0.088	0.069
Benzo[k]fluoranthene	mg/kg	210	7.5	0.0082 U	0.056	0.74	0.008 U	0.075 J	0.0085 U	0.0081 U	0.0083 U	0.1	0.008 U	0.044	0.0077 U	0.38	0.056
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.077 UJ	N/A	0.032 J	0.049 J	0.079 U	0.12 J	0.086 UJ	0.079 U	0.084 U	0.039 J	0.08 U	0.076 UJ	0.077 UJ	0.079 U	0.079 U
Carbazole	mg/kg	0.67	N/A	N/A	0.071 U	0.022 J	0.079 U	0.077 U	0.086 U	0.079 U	0.084 U	0.072 U	0.08 U	0.076 U	0.077 U	0.079 U	0.079 U
Chrysene	mg/kg	2,100	18	0.0082 U	0.049	0.47	0.008 U	0.072 J	0.0085 U	0.0081 U	0.00098 J	0.22	0.008 U	0.024	0.0011 J	0.2	0.1
Dibenz[a,h]anthracene	mg/kg	2.1	3.2	0.0082 U	0.002 J	0.052 J	0.008 U	0.079 U	0.0085 U	0.0081 U	0.0083 U	0.031 J	0.008 U	0.0049 J	0.0077 U	0.033	0.022
Di-n-butylphthalate	mg/kg	82,000	0.077 UJ	N/A	0.071 U	0.079 U	0.079 U	0.077 U	0.086 U	0.079 U	0.084 U	0.072 U	0.08 U	0.076 U	0.077 U	0.079 U	0.079 U
Fluoranthene	mg/kg	30,000	53.8	0.0082 U	0.15	0.66	0.008 U	0.097	0.00075 J	0.00082 J	0.0015 J	0.32	0.008 U	0.034	0.0022 J	0.49	0.19
Fluorene	mg/kg	30,000	4.8	0.0082 U	0.0011 J	0.023 J	0.008 U	0.022 J	0.0076 J	0.0081 U	0.0083 U	0.022 J	0.008 U	0.001 J	0.0077 U	0.0094	0.0018 J
Indeno[1,2,3-c,d]pyrene	mg/kg	21	7.5	0.0082 U	0.0072	0.13	0.008 U	0.015 J	0.0085 U	0.0081 U	0.0083 U	0.088	0.008 U	0.015	0.0077 U	0.098	0.069
Naphthalene	mg/kg	17	1.7	0.0082 U	0.0036 J	0.032 J	0.008 U	0.27	0.016	0.0081 U	0.0083 U	0.05 B	0.008 U	0.0056 B	0.0077 U	0.029	0.11
N-Nitrosodiphenylamine	mg/kg	470	0.077 U	N/A	0.071 U	0.079 U	0.079 U	0.077 U	0.086 U	0.079 U	0.084 U	0.072 U	0.08 U	0.076 U	0.077 U	0.079 U	0.079 U
Pentachlorophenol	mg/kg	4	0.19 U	N/A	0.18 U	0.2 U	0.2 U	0.19 U	0.21 U	0.2 UJ	0.21 UJ	0.18 UJ	0.2 UJ	0.19 U	0.19 U	0.2 U	0.2 U
Phenanthrene	mg/kg	43.7	0.0082 U	0.0082 U	0.05	0.56	0.00089 J	0.22	0.0046 J	0.00099 B	0.0014 B	0.24	0.008 U	0.017	0.0016 J	0.14	0.03
Phenol	mg/kg	250,000	0.077 U	N/A	0.071 U	0.079 U	0.079 U	0.077 U	0.086 U	0.079 U	0.084 U	0.072 U	0.08 U	0.076 U	0.077 U	0.079 U	0.079 U
Pyrene	mg/kg	23,000	39.9	0.0082 U	0.063	0.95	0.008 U	0.1	0.00092 J	0.00082 J	0.0013 J	0.3	0.008 U	0.036	0.002 J	0.35	0.15
PCBs																	
Aroclor 1242	mg/kg	0.97	N/A	N/A	0.0526 U	0.0553 U	N/A	0.0653 U	N/A	0.0594 U	N/A	0.0562 U	N/A	0.0584 U	N/A	0.0632 U	N/A
Aroclor 1248	mg/kg	0.94	N/A	N/A	0.0526 U	0.0553 U	N/A	0.0653 U	N/A	0.0594 U	N/A	0.0562 U	N/A	0.0584 U	N/A	0.0632 U	N/A
Aroclor 1254	mg/kg	0.97	N/A	N/A	0.0526 U	0.0553 U	N/A	0.0653 U	N/A	0.0594 U	N/A	0.0562 U	N/A	0.0584 U	N/A	0.0632 U	N/A
Aroclor 1260	mg/kg	0.99	N/A	N/A	0.0526 U	0.0553 U	N/A	0.0653 U	N/A	0.0594 U	N/A	0.0562 U	N/A	0.0584 U	N/A	0.0632 U	N/A
Aroclor 1268	mg/kg	N/A	N/A	N/A	0.0526 U	0.0553 U	N/A	0.0653 U	N/A	0.0594 U	N/A	0.0562 U	N/A	0.0584 U	N/A	0.0632 U	N/A
PCBs (total)	mg/kg	0.97	N/A	N/A	0.0526 U	0.0553 U	N/A	0.0653 U	N/A	0.0594 U	N/A	0.0562 U	N/A	0.0584 U	N/A	0.0632 U	N/A
TPH																	
Diesel Range Organics																	

Table 6
Summary of Organics Detected in Soil
Parcel A10
Tradeport Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A10-015-SB-1	A10-015-SB-5	A10-016-SB-1*	A10-016-SB-6*	A10-017-SB-1*	A10-017-SB-4*	A10-018-SB-1	A10-018-SB-5	A10-018-SB-10	A10-019-SB-1	A10-019-SB-4	A10-020-SB-1.5	A10-020-SB-7	A10-021-SB-2	A10-021-SB-4
Volatile Organic Compounds																	
1,2,3-Trichlorobenzene	mg/kg	930	0.0048 UJ	0.0053 UJ	0.005 U	0.004 U	0.0055 U	0.0055 U	0.0035 J	0.0043 U	N/A	0.0051 UJ	0.0043 UJ	0.0064 U	0.0058 U	0.0055 UJ	0.005 UJ
2-Butanone (MEK)	mg/kg	190,000	0.0096 U	0.011 U	0.0099 U	0.0081 U	0.011 U	0.011 U	0.0091 U	0.0085 U	N/A	0.01 U	0.0087 U	0.013 U	0.012 U	0.011 U	0.01 U
Acetone	mg/kg	670,000	0.0096 U	0.011 U	0.025	0.038	0.034	0.031	0.028 J	0.045 J	N/A	0.0091 B	0.0087 U	0.037 J	0.084 J	0.011 U	0.01 U
Benzene	mg/kg	5.1	0.0048 U	0.0053 U	0.005 U	0.004 U	0.0055 U	0.0055 U	0.0046 U	0.0043 U	N/A	0.0051 U	0.0043 U	0.0064 U	0.0058 U	0.0055 U	0.005 U
Carbon disulfide	mg/kg	3,500	0.0048 U	0.0053 U	0.005 U	0.004 U	0.0055 U	0.0055 U	0.0046 U	0.0043 U	N/A	0.0051 U	0.0043 U	0.0064 U	0.0058 U	0.0039 J	0.005 U
Cyclohexane	mg/kg	27,000	0.0096 U	0.011 U	0.0099 U	0.023	0.011 U	0.011 U	0.0091 UJ	0.051 J	N/A	0.01 U	0.0087 U	0.013 UJ	0.012 UJ	0.011 U	0.01 U
Ethylbenzene	mg/kg	25	0.0048 U	0.0053 U	0.005 U	0.015	0.0055 U	0.0091	0.0046 U	0.089	N/A	0.0051 U	0.0043 U	0.0064 U	0.0058 U	0.0055 U	0.005 U
Isopropylbenzene	mg/kg	9,900	0.0048 U	0.0053 U	0.005 U	0.023	0.005 J	0.021	0.0046 U	0.069	N/A	0.0051 U	0.0043 U	0.0064 U	0.0058 U	0.0055 U	0.005 U
Methyl Acetate	mg/kg	1,200,000	0.048 R	0.053 R	0.05 U	0.04 U	0.055 U	0.055 U	0.046 R	0.043 R	N/A	0.051 R	0.043 R	0.064 R	0.058 R	0.055 R	0.05 R
Methyl tert-butyl ether (MTBE)	mg/kg	210	0.0048 U	0.0053 U	0.005 U	0.004 U	0.0055 U	0.0055 U	0.0046 U	0.0043 U	N/A	0.0051 U	0.0043 U	0.0064 U	0.0058 U	0.0055 U	0.005 U
Methylene Chloride	mg/kg	1,000	0.0048 U	0.0053 U	0.005 U	0.004 U	0.0055 U	0.0055 U	0.0046 UJ	0.0043 UJ	N/A	0.0051 U	0.0043 U	0.034 J	0.011 J	0.0055 U	0.005 U
Tetrachloroethene	mg/kg	100	0.0048 U	0.0053 U	0.005 U	0.004 U	0.0055 U	0.0055 U	0.0046 U	0.0043 U	N/A	0.0051 U	0.0043 U	0.0064 U	0.0058 U	0.0055 U	0.005 U
Toluene	mg/kg	47,000	0.0048 U	0.0053 U	0.005 U	0.004 U	0.0055 U	0.0055 U	0.0046 U	0.0043 U	N/A	0.0051 U	0.0043 U	0.0064 U	0.0058 U	0.0055 U	0.005 U
Xylenes	mg/kg	2,800	0.014 U	0.016 U	0.015 U	0.02	0.0034 J	0.0075 J	0.014 U	0.11	N/A	0.015 U	0.013 U	0.019 U	0.017 U	0.017 U	0.015 U
Semi-Volatile Organic Compounds^																	
1,1-Biphenyl	mg/kg	200	0.073 U	0.079 U	0.083 U	0.078 U	0.082 U	0.4 U	0.4 U	0.4 U	N/A	0.078 U	0.078 U	0.025 J	0.082 U	0.067 UJ	0.08 U
2,3,4,6-Tetrachlorophenol	mg/kg	25,000	0.073 U	0.079 U	0.083 U	0.078 U	0.082 U	0.4 U	0.4 U	0.4 U	N/A	0.078 U	0.078 U	0.077 U	0.082 U	0.067 U	0.08 U
2,4,5-Trichlorophenol	mg/kg	82,000	0.18 U	0.2 U	0.21 U	0.2 U	0.21 U	0.99 U	1 U	1 U	N/A	0.19 U	0.2 U	0.19 U	0.21 U	0.17 U	0.2 U
2,4-Dimethylphenol	mg/kg	16,000	0.073 U	0.079 U	0.083 U	0.24	0.21	0.49	0.59	0.4 U	N/A	0.078 U	0.078 U	0.077 U	0.082 U	0.067 U	0.08 U
2-Chloronaphthalene	mg/kg	60,000	0.073 U	0.079 U	0.083 U	0.078 U	0.082 U	0.4 U	0.4 U	0.4 U	N/A	0.078 U	0.078 U	0.077 U	0.082 U	0.067 U	0.08 U
2-Methylnaphthalene	mg/kg	3,000	0.37 U	0.079 U	0.0082 U	1.4	2.6	5.5	0.11	12.6	N/A	0.0021 J	0.0078 U	0.053 J	0.0081 U	0.066 U	0.0081 U
2-Methylphenol	mg/kg	41,000	0.073 U	0.079 U	0.083 U	0.078 U	0.082 U	0.079 U	0.08 U	0.4 U	N/A	0.078 U	0.078 U	0.077 U	0.082 U	0.067 U	0.08 U
2-Nitroaniline	mg/kg	8,000	0.18 U	0.2 U	0.21 U	0.2 U	0.21 U	0.99 U	1 U	1 U	N/A	0.19 U	0.2 U	0.19 U	0.21 U	0.17 U	0.2 U
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	0.15 U	0.16 U	0.17 U	0.16 U	0.16 U	0.16 U	0.16 U	0.8 U	N/A	0.15 U	0.16 U	0.15 U	0.16 U	0.13 U	0.16 U
Acenaphthene	mg/kg	45,000	0.37 U	0.0079 U	0.0082 U	0.14	0.23	0.43	0.056 J	0.35	N/A	0.0077 U	0.0078 U	0.019 J	0.0081 U	0.066 U	0.0081 U
Acenaphthylene	mg/kg	45,000	0.37 U	0.0079 U	0.0082 U	0.063	0.079 J	0.13	0.094	0.26	N/A	0.0077 U	0.0078 U	0.053 J	0.0081 U	0.066 U	0.0081 U
Acetophenone	mg/kg	120,000	0.073 U	0.079 U	0.083 U	0.078 U	0.082 U	0.54	0.08 U	0.4 U	N/A	0.078 U	0.078 U	0.077 U	0.082 U	0.067 U	0.08 U
Anthracene	mg/kg	230,000	0.37 U	0.0079 U	0.0082 U	0.15	0.13	0.21	0.074 J	0.41	N/A	0.001 J	0.0078 U	0.09	0.0014 J	0.066 U	0.0081 U
Benz[a]anthracene	mg/kg	21	0.37 U	0.0079 U	0.0021 J	0.0079 U	0.083 U	0.079 U	0.081 U	0.081 U	N/A	0.0056 J	0.0078 U	0.33	0.0031 J	0.017 J	0.0016 J
Benzaldehyde	mg/kg	120,000	0.073 UJ	0.079 UJ	0.083 U	0.078 U	0.082 U	0.079 U	0.08 R	0.4 UJ	N/A	0.078 UJ	0.078 UJ	0.02 J	0.082 UJ	0.067 UJ	0.08 UJ
Benzo[a]pyrene	mg/kg	2.1	0.046 J	0.0079 U	0.0082 U	0.0079 U	0.083 U	0.079 U	0.081 U	0.081 U	N/A	0.0052 J	0.0078 U	0.29	0.0017 J	0.0087 J	0.0081 U
Benzo[b]fluoranthene	mg/kg	21	0.15 J	0.0011 J	0.0048 J	0.0079 U	0.083 U	0.079 U	0.0083 J	0.081 U	N/A	0.012	0.0078 U	0.59	0.0044 J	0.015 J	0.0011 J
Benzo[g,h,i]perylene	mg/kg		0.045 J	0.0079 U	0.0082 U	0.0079 U	0.083 U	0.079 U	0.081 U	0.081 U	N/A	0.0043 J	0.0078 U	0.18	0.0081 U	0.066 U	0.0081 U
Benzo[k]fluoranthene	mg/kg	210	0.14 J	0.0079 U	0.0043 J	0.0079 U	0.083 U	0.079 U	0.081 U	0.081 U	N/A	0.011	0.0078 U	0.52	0.0038 J	0.066 U	0.0081 U
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.053 J	0.079 UJ	0.083 U	0.078 U	0.082 U	0.021 J	0.08 U	0.08 U	N/A	0.078 UJ	0.078 UJ	0.016 B	0.082 U	0.067 UJ	0.08 UJ
Carbazole	mg/kg		0.073 U	0.079 U	0.083 U	0.078 U	0.082 U	0.079 U	0.4 UJ	0.4 UJ	N/A	0.078 U	0.078 U	0.053 J	0.082 U	0.067 U	0.08 U
Chrysene	mg/kg	2,100	0.069 J	0.0079 U	0.0058 J	0.0079 U	0.083 U	0.079 U	0.081 U	0.081 U	N/A	0.005 J	0.0078 U	0.28	0.0024 J	0.0088 J	0.00083 J
Dibenz[a,h]anthracene	mg/kg	2.1	0.37 U	0.0079 U	0.0082 U	0.0079 U	0.083 U	0.079 U	0.081 U	0.081 U	N/A	0.0014 J	0.0078 U	0.065 J	0.0081 U	0.066 U	0.0081 U
Di-n-butylphthalate	mg/kg	82,000	0.073 U	0.079 U	0.083 U	0.078 U	0.082 U	0.079 U	0.4 U	0.4 UJ	N/A	0.078 U	0.078 U	0.077 U	0.082 U	0.067 U	0.08 U
Fluoranthene	mg/kg	30,000	0.077 J	0.00086 J	0.0026 J	0.0043 J	0.009 J	0.015 J	0.012 J	0.014 J	N/A	0.007 J	0.0078 U	0.46	0.0046 J	0.017 J	0.0018 J
Fluorene	mg/kg	30,000	0.37 U	0.0079 U	0.0082 U	0.26	0.46	0.78	0.056 J	1.6	N/A	0.0077 U	0.0078 U	0.019 J	0.0081 U	0.066 U	0.0081 U
Indeno[1,2,3-c,d]pyrene	mg/kg	21	0.37 U	0.0079 U	0.0082 U	0.0079 U	0.083 U	0.079 U	0.081 U	0.081 U	N/A	0.0038 J	0.0078 U	0.17	0.0081 U	0.066 U	0.0081 U
Naphthalene	mg/kg	17	0.37 U	0.0079 U	0.0082 U	0.34	0.31	0.75	0.06 J	2.4	N/A	0.0021 B	0.0078 U	0.26	0.0081 U	0.066 U	0.0081 U
N-Nitrosodiphenylamine	mg/kg	470	0.073 U	0.079 U	0.083 U	0.078 U	0.082 U	0.079 U	0.4 U	0.4 U	N/A	0.078 U	0.078 U	0.077 U	0.082 U	0.067 U	0.08 U
Pentachlorophenol	mg/kg	4	0.18 U	0.2 U	0.21 U	0.2 U	0.21 U	0.2 U	1 U	1 U	N/A	0.19 U	0.2 U	0.19 U	0.21 U	0.17 U	0.2 U
Phenanthrene	mg/kg		0.041 J	0.00091 J	0.00079 J	0.59	0.5	0.98	0.11	2	N/A	0.004 J	0.0078 U	0.18	0.0027 J	0.0092 J	0.0021 J
Phenol	mg/kg	250,000	0.073 U	0.079 U	0.083 U	0.078 U	0.082 U	0.079 U	0.08 U	0.4 U	N/A	0.078 U	0.078 U	0.077 U	0.082 U	0.067 U	0.08 U
Pyrene	mg/kg	23,000	0.14 J	0.0079 U	0.0022 J	0.013	0.017 J	0.022 J	0.028 J	0.041 J	N/A	0.0063 J	0.0078 U	0.45	0.0036 J	0.018 J	0.0015 J
PCBs																	
Aroclor 1242	mg/kg	0.97	0.0561 U	N/A	0.0609 U	N/A	0.0606 U	N/A	0.0599 U	N/A	N/A	0.0568 U	N/A	0.0585 U	N/A	0.0693 U	N/A
Aroclor 1248	mg/kg	0.94	0.0561 U	N/A	0.0609 U	N/A	0.0606 U	N/A	0.0599 U	N/A	N/A	0.0568 U	N/A	0.0585 U	N/A	0.0693 U	N/A
Aroclor 1254	mg/kg	0.97	0.0561 U	N/A	0.0609 U	N/A	0.0606 U	N/A	0.0599 U	N/A	N/A	0.0568 U	N/A	0.0559 J	N/A	0.0693 U	N/A
Aroclor 1260	mg/kg	0.99	0.0561 U	N/A	0.0609 U	N/A	0.0606 U	N/A	0.0599 U	N/A	N/A	0.0568 U	N/A	0.0585 U	N/A	0.0693 U	N/A
Aroclor 1268	mg/kg		0.0561 U	N/A	0.0609 U	N/A	0.0606 U	N/A	0.0599 U	N/A	N/A	0.0568 U	N/A	0.0633	N/A	0.0693 U	N/A
PCBs (total)	mg/kg	0.97	0.0561 U	N/A	0.0609 U	N/A	0.0606 U	N/A	0.0599 U	N/A	N/A	0.0568 U	N/A	0.1192	N/A	0.0693 U	N/A
TPH																	
Diesel Range Organics	mg/kg	6,200	284 J	6.2 J	353	3,200	4,890	4,840	2,510 J	6,000 J	914 J	3.6 J	7.7 UJ	164 J			

**Table 6
Summary of Organics Detected in Soil
Parcel A10
Tradepoint Atlantic
Sparrows Point, Maryland**

Parameter	Units	PAL	A10-022-SB-2	A10-022-SB-4	A10-023-SB-1	A10-023-SB-4	A10-024-SB-1*	A10-024-SB-5*	A10-025-SB-1*	A10-025-SB-4*	A10-026-SB-1	A10-026-SB-5	A10-027-SB-1	A10-027-SB-4	A10-027-SB-10*
Volatiles Organic Compounds															
1,2,3-Trichlorobenzene	mg/kg	930	0.0046 UJ	0.0049 UJ	0.0075 U	0.0075 U	0.006 U	0.038 U	0.006 U	0.0054 U	0.0057 U	0.0055 U	0.0082 U	0.005 U	N/A
2-Butanone (MEK)	mg/kg	190,000	0.0091 U	0.0098 U	0.015 U	0.015 U	0.012 U	0.075 U	0.012 U	0.011 U	0.011 U	0.011 U	0.016 U	0.01 U	N/A
Acetone	mg/kg	670,000	0.0091 U	0.0098 U	0.015 UJ	0.17 J	0.0082 J	0.23	0.012 U	0.011 U	0.017 J	0.07 J	0.016 UJ	0.02 J	N/A
Benzene	mg/kg	5.1	0.015	0.0058	0.0075 U	0.0075 U	0.006 U	0.038 U	0.006 U	0.0054 U	0.0057 U	0.0055 U	0.0082 U	0.005 U	N/A
Carbon disulfide	mg/kg	3,500	0.0062	0.0049 U	0.0075 U	0.0075 U	0.006 U	0.038 U	0.006 U	0.0054 U	0.0039 J	0.0055 U	0.0082 U	0.005 U	N/A
Cyclohexane	mg/kg	27,000	0.0091 U	0.0098 U	0.015 UJ	0.015 UJ	0.012 U	0.075 U	0.012 U	0.011 U	0.011 UJ	0.011 UJ	0.016 UJ	0.01 UJ	N/A
Ethylbenzene	mg/kg	25	0.47	0.008	0.0075 U	0.0075 U	0.006 U	0.038 U	0.006 U	0.0054 U	0.0057 U	0.0055 U	0.0082 U	0.005 U	N/A
Isopropylbenzene	mg/kg	9,900	0.094	0.0049 U	0.0075 U	0.0075 U	0.006 U	0.038 U	0.006 U	0.0054 U	0.0057 U	0.0055 U	0.0082 U	0.005 U	N/A
Methyl Acetate	mg/kg	1,200,000	0.046 R	0.049 R	0.075 R	0.075 R	0.06 U	0.38 U	0.012 J	0.054 U	0.057 R	0.055 R	0.082 R	0.05 R	N/A
Methyl tert-butyl ether (MTBE)	mg/kg	210	0.004 J	0.015	0.0075 U	0.0075 U	0.006 U	0.038 U	0.006 U	0.0054 U	0.0057 U	0.0055 U	0.0082 U	0.005 U	N/A
Methylene Chloride	mg/kg	1,000	0.0046 U	0.0049 U	0.049 J	0.19 J	0.006 U	0.23	0.006 U	0.0054 U	0.026 J	0.0097 J	0.039 J	0.025 J	N/A
Tetrachloroethene	mg/kg	100	0.0046 U	0.0049 U	0.0075 U	0.0075 U	0.006 U	0.038 U	0.006 U	0.0054 U	0.0057 U	0.0055 U	0.0082 U	0.005 U	N/A
Toluene	mg/kg	47,000	0.12	0.0054	0.0075 U	0.0075 U	0.006 U	0.038 U	0.006 U	0.0054 U	0.0057 U	0.0055 U	0.0082 U	0.0025 J	N/A
Xylenes	mg/kg	2,800	0.72 J	0.03	0.022 U	0.022 U	0.018 U	0.11 U	0.018 U	0.016 U	0.017 U	0.017 U	0.025 U	0.015 U	N/A
Semi-Volatile Organic Compounds[^]															
1,1-Biphenyl	mg/kg	200	0.08 U	0.082 U	0.036 J	0.092 U	0.075 U	0.15 J	0.08 U	0.081 U	0.073 U	0.076 U	0.035 J	0.03 J	N/A
2,3,4,6-Tetrachlorophenol	mg/kg	25,000	0.08 U	0.082 U	0.075 U	0.092 U	0.075 U	0.15 J	0.08 U	0.081 U	0.073 U	0.076 R	0.073 U	0.074 U	N/A
2,4,5-Trichlorophenol	mg/kg	82,000	0.2 U	0.21 U	0.19 U	0.23 U	0.19 U	0.042 J	0.2 U	0.2 U	0.18 U	0.19 R	0.18 U	0.19 U	N/A
2,4-Dimethylphenol	mg/kg	16,000	0.08 U	0.082 U	0.075 U	0.092 U	0.075 U	1.9	0.08 U	0.081 U	0.073 U	0.076 R	0.073 U	0.074 U	N/A
2-Chloronaphthalene	mg/kg	60,000	0.08 U	0.082 U	0.054 J	0.092 U	0.075 U	0.17 U	0.08 U	0.081 U	0.073 U	0.076 U	0.073 U	0.074 U	N/A
2-Methylnaphthalene	mg/kg	3,000	0.1	0.0082 U	0.12	0.0051 J	0.035 J	0.43	0.079 U	0.0083 U	0.036 J	0.0081	0.13	0.14	N/A
2-Methylphenol	mg/kg	41,000	0.08 U	0.082 U	0.015 J	0.092 U	0.075 U	2.2	0.08 U	0.081 U	0.073 U	0.076 R	0.073 U	0.074 U	N/A
2-Nitroaniline	mg/kg	8,000	0.2 U	0.21 U	0.19 U	0.23 U	0.19 U	0.34 J	0.2 U	0.2 U	0.18 U	0.19 U	0.18 U	0.19 U	N/A
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	0.16 U	0.16 U	0.046 J	0.18 U	0.15 U	5.8	0.16 U	0.16 U	0.15 U	0.15 R	0.15 U	0.15 U	N/A
Acenaphthene	mg/kg	45,000	0.009 J	0.0082 U	0.012 J	0.0017 J	0.076 U	0.12 J	0.079 U	0.0083 U	0.0067 J	0.0076 U	0.021 J	0.037 J	N/A
Acenaphthylene	mg/kg	45,000	0.0069 J	0.0082 U	0.48	0.053	0.017 J	0.23	0.02 J	0.0083 U	0.12	0.002 J	0.35	0.13	N/A
Acetophenone	mg/kg	120,000	0.08 U	0.082 U	0.075 U	0.092 U	0.075 U	0.44	0.08 U	0.081 U	0.073 U	0.076 U	0.073 U	0.074 U	N/A
Anthracene	mg/kg	230,000	0.021 J	0.0082 U	0.38	0.038	0.024 J	0.11 J	0.024 J	0.0083 U	0.11	0.0035 J	0.31	0.26	N/A
Benz[a]anthracene	mg/kg	21	0.037 J	0.0082 U	0.89	0.19	0.13	0.1 J	0.082	0.0083 U	0.38	0.011	1.2	1	N/A
Benzaldehyde	mg/kg	120,000	0.08 UJ	0.082 UJ	0.059 J	0.092 UJ	0.052 J	1	0.08 U	0.081 U	0.073 UJ	0.076 UJ	0.022 J	0.041 J	N/A
Benzo[a]pyrene	mg/kg	2.1	0.036 J	0.0082 U	1.2	0.15	0.1	0.055 J	0.071 J	0.0083 U	0.4	0.0079	1.5	1.1	0.0032 J
Benzo[b]fluoranthene	mg/kg	21	0.09	0.0082 U	3.3	0.29	0.26	0.12 J	0.19	0.0083 U	0.91	0.021	2.6	1.7	0.0098
Benzo[g,h,i]perylene	mg/kg		0.046 J	0.0082 U	1	0.085	0.084	0.051 J	0.055 J	0.0083 U	0.32	0.0066 J	1.2	0.82	N/A
Benzo[k]fluoranthene	mg/kg	210	0.084	0.0082 U	2.9	0.26	0.22	0.1 J	0.16	0.0083 U	0.79	0.018	0.93	0.64	N/A
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.041 J	0.082 UJ	0.053 B	0.092 U	0.055 J	0.21	0.08 U	0.081 U	0.073 UJ	0.076 U	0.16 J	0.11 J	N/A
Carbazole	mg/kg		0.08 U	0.082 U	0.1	0.092 U	0.075 U	0.17 U	0.08 U	0.081 U	0.073 U	0.076 U	0.09 J	0.074 J	N/A
Chrysene	mg/kg	2,100	0.056 J	0.0082 U	1.2	0.17	0.12	0.069 J	0.081	0.0083 U	0.3	0.0096	1.4	0.99	N/A
Dibenz[a,h]anthracene	mg/kg	2.1	0.082 U	0.0082 U	0.33	0.03	0.03 J	0.17 U	0.019 J	0.0083 U	0.1	0.0021 J	0.37	0.27	N/A
Di-n-butylphthalate	mg/kg	82,000	0.08 U	0.082 U	0.075 U	0.092 U	0.075 U	0.17 J	0.08 U	0.081 U	0.073 U	0.076 U	0.075	0.074 U	N/A
Fluoranthene	mg/kg	30,000	0.082	0.0082 U	1	0.35	0.17	0.25	0.12	0.00067 J	0.42	0.017	1.6	1.5	N/A
Fluorene	mg/kg	30,000	0.02 J	0.0082 U	0.023 J	0.0061 J	0.076 U	0.19	0.079 U	0.0083 U	0.009 J	0.0076 U	0.023 J	0.021 J	N/A
Indeno[1,2,3-c,d]pyrene	mg/kg	21	0.034 J	0.0082 U	0.93	0.086	0.08	0.033 J	0.052 J	0.0083 U	0.28	0.0062 J	1.1	0.73	N/A
Naphthalene	mg/kg	17	0.6	0.0082 U	0.24	0.026	0.045 J	1.1	0.079 U	0.0083 U	0.048 B	0.0068 B	0.13	0.14	N/A
N-Nitrosodiphenylamine	mg/kg	470	0.08 U	0.082 U	0.075 U	0.092 U	0.075 U	0.17 U	0.08 U	0.081 U	0.073 U	0.076 U	0.073 U	0.015 J	N/A
Pentachlorophenol	mg/kg	4	0.2 U	0.21 U	0.19 U	0.23 U	0.19 U	0.34 J	0.2 U	0.2 U	0.18 U	0.19 R	0.18 U	0.19 U	N/A
Phenanthrene	mg/kg		0.078 J	0.0082 U	0.45	0.076	0.077	0.51	0.073 J	0.00098 J	0.15	0.0096	0.41	0.68	N/A
Phenol	mg/kg	250,000	0.08 U	0.082 U	0.025 J	0.092 U	0.075 U	2.2	0.08 U	0.081 U	0.073 U	0.076 R	0.073 U	0.074 U	N/A
Pyrene	mg/kg	23,000	0.086	0.0082 U	1.1	0.28	0.16	0.23	0.1	0.0083 U	0.42	0.012	1.6	1.4	N/A
PCBs															
Aroclor 1242	mg/kg	0.97	0.0593 U	N/A	0.0536 U	N/A	0.0556 U	N/A	0.058 U	N/A	0.0598	N/A	0.0557 U	N/A	N/A
Aroclor 1248	mg/kg	0.94	0.0593 U	N/A	0.0536 U	N/A	0.0556 U	N/A	0.058 U	N/A	0.0538 U	N/A	0.334	N/A	N/A
Aroclor 1254	mg/kg	0.97	0.0593 U	N/A	0.0536 U	N/A	0.0652	N/A	0.058 U	N/A	0.0538 U	N/A	0.508	N/A	N/A
Aroclor 1260	mg/kg	0.99	0.0593 U	N/A	0.0536 U	N/A	0.0556 U	N/A	0.058 U	N/A	0.066	N/A	0.279	N/A	N/A
Aroclor 1268	mg/kg		0.0593 U	N/A	0.0458 J	N/A	0.0556 U	N/A	0.058 U	N/A	0.0538 U	N/A	0.0557 U	N/A	N/A
PCBs (total)	mg/kg	0.97	0.0593 U	N/A	0.0458 J	N/A	0.0652	N/A	0.058 U	N/A	0.1258	N/A	1.121	N/A	N/A
TPH															
Diesel Range Organics	mg/kg	6,200	872 J	4.6 J	94.2 J	12.1 J	67	768	7.5 J	3 J	53.4 J	7.5 J	143 J	82.7 J	N/A
Gasoline Range Organics	mg/kg	6,200	182	9.3 U	12 U	22.3 U	12 U	45.2 U	12.9 U	10.3 U	10.5 U	14.2 U	10.3 U	11.2 U	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

[^] 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.

R: The result for this analyte is unreliable. Additional data is needed to confirm or disprove the presence of this compound/analyte in the sample.

Table 6
Summary of Organics Detected in Soil
Parcel A10
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A10-028-SB-1	A10-028-SB-6	A10-029-SB-1	A10-029-SB-4	A10-030-SB-1	A10-030-SB-7	A10-031-SB-1.5	A10-031-SB-8	A10-032-SB-1*	A10-032-SB-5*	A10-033-SB-1	A10-033-SB-4
Volatile Organic Compounds														
1,2,3-Trichlorobenzene	mg/kg	930	0.0052 UJ	0.0053 UJ	0.0046 U	0.0046 U	0.0052 U	0.0049 U	0.0049 U	0.0046 U	0.0074 U	0.0062 U	0.0052 U	0.0053 U
2-Butanone (MEK)	mg/kg	190,000	0.01 U	0.011 U	0.0092 U	0.0091 U	0.01 U	0.0099 U	0.0099 U	0.0092 U	0.015 U	0.012 U	0.01 UJ	0.011 UJ
Acetone	mg/kg	670,000	0.01 U	0.011 U	0.0092 UJ	0.0091 UJ	0.01 UJ	0.0099 UJ	0.0099 UJ	0.0092 UJ	0.015 U	0.012 U	0.01 U	0.011 U
Benzene	mg/kg	5.1	0.0052 U	0.0053 U	0.0046 U	0.0046 U	0.0052 U	0.0049 U	0.0049 U	0.0046 U	0.0074 U	0.0062 U	0.0052 U	0.0053 U
Carbon disulfide	mg/kg	3,500	0.0052 U	0.0053 U	0.0046 U	0.0046 U	0.0052 U	0.0049 U	0.0049 U	0.0046 U	0.0074 U	0.0062 U	0.0052 UJ	0.0053 UJ
Cyclohexane	mg/kg	27,000	0.01 U	0.011 U	0.0092 UJ	0.0091 UJ	0.01 UJ	0.0099 UJ	0.015 J	0.0092 UJ	0.015 U	0.012 U	0.01 U	0.011 U
Ethylbenzene	mg/kg	25	0.0052 U	0.0053 U	0.0046 U	0.0046 U	0.0052 U	0.0049 U	0.0049 U	0.0046 U	0.0074 U	0.0062 U	0.0052 U	0.0053 U
Isopropylbenzene	mg/kg	9,900	0.0052 U	0.0053 U	0.0046 U	0.0046 U	0.0052 U	0.0049 U	0.0049 U	0.0046 U	0.0074 U	0.0062 U	0.0052 U	0.0053 U
Methyl Acetate	mg/kg	1,200,000	0.052 R	0.053 R	0.046 R	0.046 R	0.052 R	0.049 R	0.049 R	0.046 R	0.074 U	0.062 U	0.052 U	0.053 U
Methyl tert-butyl ether (MTBE)	mg/kg	210	0.0052 U	0.0053 U	0.0046 U	0.0046 U	0.0052 U	0.0049 U	0.0049 U	0.0046 U	0.0074 U	0.0062 U	0.0052 U	0.0053 U
Methylene Chloride	mg/kg	1,000	0.0052 U	0.0053 U	0.0046 U	0.0046 U	0.0052 U	0.0049 U	0.0049 U	0.0046 U	0.0074 U	0.0062 U	0.0052 UJ	0.0053 UJ
Tetrachloroethene	mg/kg	100	0.0052 U	0.0053 U	0.0046 U	0.0046 U	0.0052 U	0.0049 U	0.0049 U	0.0046 U	0.0074 U	0.0062 U	0.0052 U	0.0053 U
Toluene	mg/kg	47,000	0.0052 U	0.0053 U	0.0046 U	0.0046 U	0.0052 U	0.0049 U	0.0037 J	0.0046 U	0.0074 U	0.002 J	0.0052 U	0.0053 U
Xylenes	mg/kg	2,800	0.016 U	0.016 U	0.014 U	0.014 U	0.016 U	0.015 U	0.015 U	0.014 U	0.022 U	0.019 U	0.016 U	0.016 U
Semi-Volatile Organic Compounds^														
1,1-Biphenyl	mg/kg	200	0.079 U	0.081 U	0.069 U	0.08 U	0.073 U	0.084 U	0.081 U	0.081 U	0.042 J	0.076 U	0.079 U	0.081 U
2,3,4,6-Tetrachlorophenol	mg/kg	25,000	0.079 U	0.081 U	0.069 U	0.08 U	0.073 U	0.084 U	0.081 U	0.081 U	0.077 U	0.076 U	0.079 U	0.081 U
2,4,5-Trichlorophenol	mg/kg	82,000	0.2 U	0.2 U	0.17 U	0.2 U	0.18 U	0.21 U	0.2 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U
2,4-Dimethylphenol	mg/kg	16,000	0.079 U	0.081 U	0.069 U	0.08 U	0.073 U	0.084 U	0.081 U	0.081 U	0.077 U	0.076 U	0.079 U	0.081 U
2-Chloronaphthalene	mg/kg	60,000	0.079 U	0.081 U	0.069 U	0.08 U	0.073 U	0.084 U	0.081 U	0.081 U	0.077 U	0.076 U	0.079 U	0.081 U
2-Methylnaphthalene	mg/kg	3,000	0.008 U	0.008 U	0.0042 J	0.0081 U	0.1	0.0085 U	0.054	0.0082 U	0.59	0.0075 U	0.008 U	0.081 U
2-Methylphenol	mg/kg	41,000	0.079 U	0.081 U	0.069 U	0.08 U	0.073 U	0.084 U	0.081 U	0.081 U	0.077 U	0.076 U	0.079 U	0.081 U
2-Nitroaniline	mg/kg	8,000	0.2 U	0.2 U	0.17 U	0.2 U	0.18 U	0.21 U	0.2 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	0.16 U	0.16 U	0.14 U	0.16 U	0.15 U	0.17 U	0.16 U	0.16 U	0.15 U	0.15 U	0.16 U	0.16 U
Acenaphthene	mg/kg	45,000	0.008 U	0.008 U	0.00053 J	0.0081 U	0.016	0.0085 U	0.014	0.0082 U	0.017	0.0075 U	0.008 U	0.081 U
Acenaphthylene	mg/kg	45,000	0.008 U	0.008 U	0.0025 J	0.0081 U	0.014	0.0085 U	0.013	0.0082 U	0.019	0.0075 U	0.008 U	0.081 U
Acetophenone	mg/kg	120,000	0.079 U	0.081 U	0.069 U	0.08 U	0.073 U	0.084 U	0.081 U	0.081 U	0.077 U	0.076 U	0.079 U	0.081 U
Anthracene	mg/kg	230,000	0.008 U	0.008 U	0.0019 J	0.0081 UJ	0.062	0.0085 U	0.075	0.0082 U	0.034	0.0075 U	0.008 U	0.081 U
Benz[a]anthracene	mg/kg	21	0.008 U	0.008 U	0.0073	0.0081 UJ	0.14	0.0085 U	0.38	0.0013 J	0.11	0.0021 J	0.008 U	0.081 U
Benzaldehyde	mg/kg	120,000	0.079 UJ	0.081 UJ	0.069 UJ	0.08 UJ	0.028 J	0.084 UJ	0.081 UJ	0.081 UJ	0.064 J	0.076 U	0.079 UJ	0.081 UJ
Benzo[a]pyrene	mg/kg	2.1	0.008 U	0.008 U	0.011	0.0081 UJ	0.18	0.0085 U	0.41	0.0082 U	0.088	0.0015 J	0.008 U	0.081 U
Benzo[b]fluoranthene	mg/kg	21	0.008 U	0.008 U	0.023	0.0014 J	0.27	0.0085 U	0.89	0.00078 J	0.19	0.0025 J	0.00078 J	0.081 U
Benzo[g,h,i]perylene	mg/kg		0.008 U	0.008 U	0.0096	0.0081 U	0.13	0.0085 U	0.3	0.0082 U	0.063	0.0011 J	0.008 U	0.081 U
Benzo[k]fluoranthene	mg/kg	210	0.008 U	0.008 U	0.021	0.0081 U	0.084	0.0085 U	0.78	0.0082 U	0.17	0.0075 U	0.008 U	0.081 U
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.079 UJ	0.081 UJ	0.069 UJ	0.08 U	0.017 J	0.084 U	0.064 B	0.081 U	0.077 U	0.076 U	0.079 U	0.04 J
Carbazole	mg/kg		0.079 U	0.081 U	0.069 U	0.08 U	0.017 J	0.084 U	0.038 J	0.081 U	0.028 J	0.076 U	0.079 U	0.081 U
Chrysene	mg/kg	2,100	0.008 U	0.008 U	0.011	0.0081 UJ	0.19	0.0085 U	0.4	0.0082 U	0.17	0.0013 J	0.008 U	0.081 U
Dibenz[a,h]anthracene	mg/kg	2.1	0.008 U	0.008 U	0.0029 J	0.0081 UJ	0.034	0.0085 U	0.12	0.0082 U	0.033	0.0075 U	0.008 U	0.081 U
Di-n-butylphthalate	mg/kg	82,000	0.079 U	0.081 U	0.069 U	0.08 U	0.073 U	0.084 U	0.081 U	0.081 U	0.077 U	0.076 U	0.079 U	0.081 U
Fluoranthene	mg/kg	30,000	0.008 U	0.008 U	0.0099	0.0081 UJ	0.22	0.0085 U	0.56	0.00093 J	0.18	0.0028 J	0.00094 J	0.0055 J
Fluorene	mg/kg	30,000	0.008 U	0.008 U	0.00084 J	0.0081 U	0.0096	0.0085 U	0.011	0.0082 U	0.026	0.0075 U	0.008 U	0.081 U
Indeno[1,2,3-c,d]pyrene	mg/kg	21	0.008 U	0.008 U	0.0077	0.0081 UJ	0.11	0.0085 U	0.3	0.0082 U	0.058	0.0011 J	0.008 U	0.081 U
Naphthalene	mg/kg	17	0.008 U	0.008 U	0.0035 B	0.0081 U	0.064	0.0085 U	0.075	0.0082 U	0.36	0.0075 U	0.008 U	0.081 U
N-Nitrosodiphenylamine	mg/kg	470	0.079 U	0.081 U	0.069 U	0.08 U	0.073 U	0.084 U	0.081 U	0.081 U	0.077 U	0.076 U	0.079 U	0.081 U
Pentachlorophenol	mg/kg	4	0.2 U	0.2 U	0.17 UJ	0.2 UJ	0.18 UJ	0.21 UJ	0.2 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U
Phenanthrene	mg/kg		0.008 U	0.008 U	0.0068 B	0.0081 U	0.33	0.0085 U	0.29	0.00091 J	0.42	0.0015 J	0.008 U	0.081 U
Phenol	mg/kg	250,000	0.079 U	0.081 U	0.069 U	0.08 U	0.073 U	0.084 U	0.081 U	0.081 U	0.077 U	0.076 U	0.079 U	0.081 U
Pyrene	mg/kg	23,000	0.008 U	0.008 U	0.011	0.0081 UJ	0.22	0.0085 U	0.47	0.00078 J	0.16	0.0017 J	0.00081 J	0.081 U
PCBs														
Aroclor 1242	mg/kg	0.97	0.0561 U	N/A	0.0592 U	N/A	0.0589 U	N/A	0.0606 U	N/A	0.0577 U	N/A	0.0616 U	N/A
Aroclor 1248	mg/kg	0.94	0.0561 U	N/A	0.0592 U	N/A	0.0589 U	N/A	0.0606 U	N/A	0.0577 U	N/A	0.0616 U	N/A
Aroclor 1254	mg/kg	0.97	0.0561 U	N/A	0.0592 U	N/A	0.0589 U	N/A	0.0606 U	N/A	0.0751	N/A	0.0616 U	N/A
Aroclor 1260	mg/kg	0.99	0.0561 U	N/A	0.0592 U	N/A	0.0589 U	N/A	0.0606 U	N/A	0.0577 U	N/A	0.0616 U	N/A
Aroclor 1268	mg/kg		0.0561 U	N/A	0.0592 U	N/A	0.0589 U	N/A	0.0606 U	N/A	0.0577 U	N/A	0.0616 U	N/A
PCBs (total)	mg/kg	0.97	0.0561 U	N/A	0.0592 U	N/A	0.0589 U	N/A	0.0606 U	N/A	0.0751	N/A	0.0616 U	N/A
TPH														
Diesel Range Organics	mg/kg	6,200	3.6 J	8.8 J	6.3 J	7.9 UJ	58.5 J	5.2 J	84.6 J	4.9 J	55.1	7.5 U	4.1 J	30.2 J
Gasoline Range Organics	mg/kg	6,200	10.3 U	9.3 U	9.7 U	9.9 U	11.2 U	11.2 U	10.2 U	9.8 U	12.2 U	11.8 U	10.2 U	11.4 U

Detections in bold

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

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

* indicates non-validated data

^ PAH compounds were analyzed via SIM

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.

R: The result for this analyte is unreliable. Additional data is needed to confirm or disprove the presence of this compound/analyte in the sample.

Table 7
Summary of Inorganics Detected in Soil
Parcel A10
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A10-001-SB-1	A10-001-SB-5	A10-002-SB-1	A10-002-SB-5	A10-002-SB-10*	A10-003-SB-1*	A10-003-SB-9*	A10-004-SB-1*
Metals										
Aluminum	mg/kg	1,100,000	18,300	16,900	17,800	19,200	N/A	11,500	12,200	19,400
Antimony	mg/kg	470	2.8 U	2.9 U	2.9 U	3.1 U	N/A	3.1 U	3 U	2.7 U
Arsenic	mg/kg	3	4.1	3.7	4	4.3	4.2	2.6 U	13.3	16.7
Barium	mg/kg	220,000	54.4	73.1	73.6	117	N/A	115	179	429
Beryllium	mg/kg	2,300	0.67 J	0.57 J	0.81 J	0.96 J	N/A	1 U	0.85 J	1.9
Cadmium	mg/kg	980	1.4 U	1.4 U	1.4 U	1.5 U	N/A	0.86 B	0.98 B	4.3
Chromium	mg/kg	120,000	21	19.5	24.4	28.7	N/A	2,300	73.7	408
Chromium VI	mg/kg	6.3	0.39 B	0.35 B	0.4 B	0.3 B	N/A	0.52 B	0.43 B	0.45 B
Cobalt	mg/kg	350	4.4 J	3.9 J	9.9	5.4	N/A	5.1 J	16.7	23
Copper	mg/kg	47,000	7.4	7.2	10.5	12	N/A	106	93.4	170
Iron	mg/kg	820,000	25,400	21,500	22,500	23,400	N/A	126,000	117,000	116,000
Lead	mg/kg	800	14.3	11.9	15	13.2	N/A	143	397	1,580
Manganese	mg/kg	26,000	76.7	62.7	161	53.2	N/A	50,200	3,420	10,700
Mercury	mg/kg	350	0.0093 J	0.0088 J	0.039 J	0.022 J	N/A	0.037 J	0.018 J	0.78
Nickel	mg/kg	22,000	9.5	9.6	13.1	13.3	N/A	26.1	36	80.8
Selenium	mg/kg	5,800	3.7 U	3.8 U	3.8 U	4.1 U	N/A	4.2 U	4 U	2.3 B
Silver	mg/kg	5,800	2.8 U	2.9 U	2.9 U	3.1 U	N/A	3.1 U	3 U	2.7 U
Thallium	mg/kg	12	9.3 U	9.5 U	9.6 U	10.3 U	N/A	102	7.1 J	21.2
Vanadium	mg/kg	5,800	31.1	27.8	31.5	38	N/A	7,590	414	1,610
Zinc	mg/kg	350,000	27.7	26.5	67.2	48	N/A	31.4	543	1,420
Other										
Cyanide	mg/kg	150	0.05 J	0.59 U	0.61 U	0.73 U	N/A	1.6	2.1	6.9

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
Summary of Inorganics Detected in Soil
Parcel A10
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A10-004-SB-4*	A10-004-SB-10*	A10-005-SB-1*	A10-005-SB-5*	A10-006-SB-1*	A10-006-SB-7*	A10-007-SB-1	A10-007-SB-4
Metals										
Aluminum	mg/kg	1,100,000	8,240	N/A	30,500	7,300	12,600	13,700	44,300	7,750
Antimony	mg/kg	470	2.6 U	N/A	2.2 U	2.4 U	3.2 U	2.7 U	2.4 UJ	2.5 UJ
Arsenic	mg/kg	3	6	5.9	16.5	4.3	71.2	6.6	3.1	5.7
Barium	mg/kg	220,000	102	N/A	643	82.6	96.2	62.6	731 J	85.9 J
Beryllium	mg/kg	2,300	0.85 U	N/A	2.6	0.23 J	0.61 J	0.61 J	5.3	0.15 J
Cadmium	mg/kg	980	0.71 B	N/A	0.39 B	1.4 B	1.6 U	0.82 B	0.32 J	0.77 J
Chromium	mg/kg	120,000	1,440	N/A	359	1,840	26.7	112	71	830
Chromium VI	mg/kg	6.3	1.3 B	N/A	0.48 B	1.4 B	0.48 B	0.87 B	0.35 B	0.46 B
Cobalt	mg/kg	350	15.4	N/A	2.2 J	4.7	4.8 J	6.1	3.4 J	3.6 J
Copper	mg/kg	47,000	116	N/A	17.2	64	23	447	20 J	32 J
Iron	mg/kg	820,000	183,000	N/A	37,800	96,900	18,800	29,100	28,000	83,600
Lead	mg/kg	800	73.4	N/A	15.9	543	83.1	1,030	9.5 J	21.5 J
Manganese	mg/kg	26,000	32,000	56,000	17,600	28,800	604	1,880	7,980	94,000
Mercury	mg/kg	350	0.05 J	N/A	0.16	0.057 J	0.024 J	0.024 J	0.0027 J	0.053 J
Nickel	mg/kg	22,000	42.9	N/A	5.2 J	13.6	13.1	12.4	13.9	25.2
Selenium	mg/kg	5,800	3.4 U	N/A	2.9 U	3.3 U	4.3 U	3.6 U	2.9 J	3.3 U
Silver	mg/kg	5,800	2.6 U	N/A	2.2 U	2.4 U	3.2 U	2.7 U	2.4 U	3.2
Thallium	mg/kg	12	81.1	36.4	19	67.7	10.7 U	6.4 J	8 U	23.9
Vanadium	mg/kg	5,800	7,200	10,600	1,850	5,810	44.8	460	91.2	1,580
Zinc	mg/kg	350,000	65.5	N/A	60.3	401	91.6	99.5	12.4 J	101 J
Other										
Cyanide	mg/kg	150	2.8	N/A	0.9	4.5	0.26 J	0.19 J	0.61 J	0.16 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 7
Summary of Inorganics Detected in Soil
Parcel A10
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A10-008-SB-1	A10-008-SB-4	A10-008-SB-10*	A10-009A-SB-1*	A10-009-SB-1.5*	A10-009-SB-5*	A10-010-SB-1	A10-010-SB-8
Metals										
Aluminum	mg/kg	1,100,000	42,100	15,300	N/A	32,300	16,600	16,500	16,900	15,800
Antimony	mg/kg	470	2.8 UJ	2.6 UJ	N/A	2.5 U	2.6 U	3.3 U	2.6 UJ	2.5 UJ
Arsenic	mg/kg	3	3.8	9.5	9.5	2.1 U	2.6	6	20.5	12.3
Barium	mg/kg	220,000	652 J	93.8 J	N/A	495	195	47.3	213 J	43.4 J
Beryllium	mg/kg	2,300	4.8	0.76 J	N/A	2.7	1.6	0.41 J	1.5	0.96
Cadmium	mg/kg	980	0.4 J	2.3	N/A	0.46 B	0.42 B	0.19 B	0.58 B	1.2 U
Chromium	mg/kg	120,000	34.5	35.8	N/A	12.8	136	17.8	138	23.7
Chromium VI	mg/kg	6.3	0.41 B	0.51 B	N/A	0.25 B	0.43 B	0.23 B	0.37 B	0.31 B
Cobalt	mg/kg	350	1.5 J	9.2	N/A	0.94 J	4.2 J	3 J	5.5	8
Copper	mg/kg	47,000	12.9 J	32.3 J	N/A	5.8	16	4.8 J	23.3	11.9
Iron	mg/kg	820,000	8,550	35,100	N/A	5,600	24,100	21,300	32,700	29,400
Lead	mg/kg	800	17.1 J	65.7 J	N/A	7.3	15.9	10.2	25 J	68 J
Manganese	mg/kg	26,000	5,510	721	N/A	8,220	6,500	51	2,710 J	483 J
Mercury	mg/kg	350	0.11 U	0.081 J	N/A	0.1 U	0.11 U	0.11 U	0.032 J	0.012 J
Nickel	mg/kg	22,000	3.6 J	16.3	N/A	4.6 B	12.6	8.6 J	19.4 J	10.5 J
Selenium	mg/kg	5,800	4.5	3.5 U	N/A	3.4 U	3.5 U	4.4 U	3.5 U	3.3 U
Silver	mg/kg	5,800	2.8 U	2.6 U	N/A	2.5 U	2.6 U	3.3 U	2.6 U	2.5 U
Thallium	mg/kg	12	9.3 U	8.7 U	N/A	8.4 U	8.7 U	10.9 U	8.8 U	8.2 U
Vanadium	mg/kg	5,800	74.6	47.4	N/A	147	197	24.6	203 J	91 J
Zinc	mg/kg	350,000	33.2 J	2,290 J	N/A	17.8	56.9	21.8	47.9	41.6
Other										
Cyanide	mg/kg	150	0.59	0.16 J	N/A	0.41 J	0.41 J	0.65 U	0.19 J	0.71 U

Detections in bold

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

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

* indicates non-validated data

U: This analyte was not detected in the sample. The numeric value 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
Summary of Inorganics Detected in Soil
Parcel A10
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A10-010-SB-10	A10-011-SB-1	A10-011-SB-7	A10-011-SB-10*	A10-012-SB-1	A10-012-SB-4	A10-013-SB-1	A10-013-SB-4
Metals										
Aluminum	mg/kg	1,100,000	N/A	8,140	16,100	N/A	37,500	9,940	14,400	28,700
Antimony	mg/kg	470	N/A	2.5 UJ	2.6 UJ	N/A	2.4 UJ	2.9 UJ	3 UJ	2.5 UJ
Arsenic	mg/kg	3	24.3	2.1 U	14.4	14.7	2 U	4.7	4.7	5.4
Barium	mg/kg	220,000	N/A	19.2 J	63.6 J	N/A	273 J	30.6 J	70.5 J	102 J
Beryllium	mg/kg	2,300	N/A	0.19 J	1.1	N/A	3.5	0.32 J	0.48 J	0.96
Cadmium	mg/kg	980	N/A	1.2 U	1.3 U	N/A	0.29 B	1.5 U	0.43 B	0.35 B
Chromium	mg/kg	120,000	N/A	10.1	31.6	N/A	764	12.5	26.5	63.6
Chromium VI	mg/kg	6.3	N/A	0.39 B	0.56 B	N/A	0.47 B	0.42 B	0.37 B	0.46 B
Cobalt	mg/kg	350	N/A	2.7 J	7	N/A	3.9 U	2.7 J	4.8 J	2.8 J
Copper	mg/kg	47,000	N/A	4.4	13.1	N/A	44.5	2.8 J	18.6	39.4
Iron	mg/kg	820,000	N/A	8,310	22,500	N/A	75,700	12,800	18,800	43,200
Lead	mg/kg	800	N/A	5.8	17	N/A	13.6	6.3	70.9 J	44.9 J
Manganese	mg/kg	26,000	N/A	49.7	95.8	N/A	38,500	84.6	247 J	72.1 J
Mercury	mg/kg	350	N/A	0.02 J	0.011 J	N/A	0.1 U	0.11 U	0.12	0.0064 J
Nickel	mg/kg	22,000	N/A	8.5	14.7	N/A	5.6 J	7.1 J	10.7 J	22.5 J
Selenium	mg/kg	5,800	N/A	3.3 U	3.5 U	N/A	3.1 U	3.9 U	4.1 U	3.3 U
Silver	mg/kg	5,800	N/A	2.5 U	2.6 U	N/A	2.4 U	2.9 U	3 U	2.5 U
Thallium	mg/kg	12	N/A	8.3 U	8.8 U	N/A	7.8 U	9.7 U	10.1 U	8.3 U
Vanadium	mg/kg	5,800	N/A	11.2 J	46.3 J	N/A	10,000 J	28.1 J	32.4 J	107 J
Zinc	mg/kg	350,000	N/A	25.6 J	54 J	N/A	32 J	14.8 J	118	284
Other										
Cyanide	mg/kg	150	N/A	0.74 U	0.63 U	N/A	1.4	0.69 U	0.6 U	0.64 U

Detections in bold

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

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

* indicates non-validated data

U: This analyte was not detected in the sample. The numeric value 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
Summary of Inorganics Detected in Soil
Parcel A10
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A10-014-SB-2*	A10-014-SB-5*	A10-015-SB-1	A10-015-SB-5	A10-016-SB-1*	A10-016-SB-6*	A10-017-SB-1*	A10-017-SB-4*
Metals										
Aluminum	mg/kg	1,100,000	17,000	17,900	23,700	14,300	15,400	15,200	14,800	15,500
Antimony	mg/kg	470	2.6 U	2.5 U	2.6 UJ	2.9 UJ	2.8 U	2.4 U	3.1 U	2.8 U
Arsenic	mg/kg	3	4.2	4.3	3.2	9.8	3.5	2 U	2.6 U	3.6
Barium	mg/kg	220,000	127	149	210 J	46.6 J	73.5	38.8	38.1	37.5
Beryllium	mg/kg	2,300	1.3	0.63 J	2.4	0.54 J	0.61 J	0.32 J	0.29 J	0.31 J
Cadmium	mg/kg	980	0.59 B	0.28 B	0.45 B	1.4 U	0.19 B	1.2 U	0.22 B	1.4 U
Chromium	mg/kg	120,000	76.4	21.8	269	26.1	21.4	16.2	15.9	15.6
Chromium VI	mg/kg	6.3	0.33 B	0.33 B	0.35 B	0.37 B	0.3 B	0.23 B	0.25 B	0.38 B
Cobalt	mg/kg	350	7.5	2.6 J	4.3	2.1 J	10.7	3.2 J	3.5 J	3.4 J
Copper	mg/kg	47,000	21.4	8.6	47.3	8.1	11	5.9	5.2	4.2 J
Iron	mg/kg	820,000	17,900	17,000	50,000	28,800	18,300	11,500	9,000	10,400
Lead	mg/kg	800	77.3	22.4	13.9 J	8.2 J	23.5	10.4	11.9	10.9
Manganese	mg/kg	26,000	1,350	1,210	3,590 J	158 J	168	69.2	38.3	39.9
Mercury	mg/kg	350	0.069 J	0.034 J	0.029 J	0.0084 J	0.019 J	0.057 J	0.029 J	0.05 J
Nickel	mg/kg	22,000	12.3	8.9 B	18.8 J	7.8 J	14.8	8.1 B	6.6 J	8.8 J
Selenium	mg/kg	5,800	3.4 U	3.3 U	3.4 U	3.9 U	3.7 U	3.2 U	4.1 U	3.8 U
Silver	mg/kg	5,800	2.6 U	2.5 U	2.6 U	2.9 U	2.8 U	2.4 U	3.1 U	2.8 U
Thallium	mg/kg	12	8.6 U	8.4 U	4 J	9.6 U	9.3 U	8.1 U	10.3 U	9.4 U
Vanadium	mg/kg	5,800	197	45	322 J	50.8 J	29.5	23	21.5	19.6
Zinc	mg/kg	350,000	156	39.4	42.4	24.5	69.1	27.7	24.9	24.6
Other										
Cyanide	mg/kg	150	0.2 J	0.69 U	0.16 J	0.62 U	0.69 U	0.62 U	0.067 J	0.043 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 7
Summary of Inorganics Detected in Soil
Parcel A10
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A10-018-SB-1	A10-018-SB-5	A10-018-SB-10	A10-019-SB-1	A10-019-SB-4	A10-020-SB-1.5	A10-020-SB-7	A10-020-SB-10*
Metals										
Aluminum	mg/kg	1,100,000	15,100	16,500	N/A	28,200	12,800	11,900	19,300	N/A
Antimony	mg/kg	470	3 UJ	2.6 UJ	N/A	2.3 UJ	2.5 UJ	3.4 UJ	3.3 UJ	N/A
Arsenic	mg/kg	3	6	4.8	13.4	4.8	2.1 U	6.7	6.8	5.1
Barium	mg/kg	220,000	71.8 J	40.9 J	N/A	254 J	50.6 J	223 J	70 J	N/A
Beryllium	mg/kg	2,300	0.8 J	0.38 J	N/A	4.2	0.44 J	0.23 J	1.1	N/A
Cadmium	mg/kg	980	0.27 B	1.3 U	N/A	0.24 B	0.13 B	1.8	1.7 U	N/A
Chromium	mg/kg	120,000	23	22.1	N/A	15.4	15.9	749	31.4	N/A
Chromium VI	mg/kg	6.3	0.33 B	0.38 B	N/A	0.32 B	0.37 B	0.45 B	0.63 B	N/A
Cobalt	mg/kg	350	8	3.3 J	N/A	3.8 J	3.8 J	6.6	4.6 J	N/A
Copper	mg/kg	47,000	14.4	7.8	N/A	7.5	7.1	90.1 J	10.2 J	N/A
Iron	mg/kg	820,000	23,100 J	15,200 J	N/A	13,300	9,830	139,000	14,900	N/A
Lead	mg/kg	800	23.6 J	10.6 J	N/A	12 J	10.4 J	418 J	15.7 J	N/A
Manganese	mg/kg	26,000	273	67.2	N/A	1,320 J	39.2 J	17,200	35.7	N/A
Mercury	mg/kg	350	0.075 J-	0.024 J-	N/A	0.029 J	0.0023 J	0.12 U	0.007 J	N/A
Nickel	mg/kg	22,000	16.9	8.3 J	N/A	7.9 J	10.8 J	24.1	15.6	N/A
Selenium	mg/kg	5,800	4 U	2.7 B	N/A	3.1 U	3.3 U	4.6 U	4.4 U	N/A
Silver	mg/kg	5,800	3 U	2.6 U	N/A	2.3 U	2.5 U	3.4 U	3.3 U	N/A
Thallium	mg/kg	12	9.9 U	8.6 U	N/A	7.7 U	8.3 U	34.9	11.1 U	N/A
Vanadium	mg/kg	5,800	33.2	27.2	N/A	28.4 J	18.2 J	3,320	32	N/A
Zinc	mg/kg	350,000	89.1 J	22.2 J	N/A	24.2	29.5	437 J	23.1 J	N/A
Other										
Cyanide	mg/kg	150	0.052 J	0.66 U	N/A	0.64 U	0.57 U	0.45 J	0.11 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
Summary of Inorganics Detected in Soil
Parcel A10
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A10-021-SB-2	A10-021-SB-4	A10-021-SB-10	A10-022-SB-2	A10-022-SB-4	A10-023-SB-1	A10-023-SB-4	A10-024-SB-1*
Metals										
Aluminum	mg/kg	1,100,000	27,200	19,400	N/A	28,200	17,100	7,730	35,700	33,300
Antimony	mg/kg	470	2.6 UJ	2.6 UJ	N/A	3 UJ	2.9 UJ	2.6 UJ	2.8 UJ	2.6 U
Arsenic	mg/kg	3	2.2 U	5.7	13.1	5.9	5.1	7.7	3.7	4.4
Barium	mg/kg	220,000	275 J	129 J	N/A	219 J	83.3 J	175 J	739 J	409
Beryllium	mg/kg	2,300	5	1.2	N/A	2.7	0.76 J	0.88	3.3	4.5
Cadmium	mg/kg	980	0.28 B	1.3 U	N/A	0.66 B	1.5 U	0.61 J	9.4	1.2 B
Chromium	mg/kg	120,000	23.7	21.4	N/A	29.2	24.1	293	152	26.5
Chromium VI	mg/kg	6.3	0.37 B	0.38 B	N/A	0.53 B	0.38 B	0.4 B	0.44 B	0.31 B
Cobalt	mg/kg	350	2.4 J	7	N/A	7.3	7.9	8.7	2.1 J	3.2 J
Copper	mg/kg	47,000	5.7	13.3	N/A	14.6	9.5	78.3 J	17.1 J	34.7
Iron	mg/kg	820,000	11,900	14,000	N/A	20,500	20,900	66,500	29,800	21,900
Lead	mg/kg	800	8.4 J	18.3 J	N/A	25.7 J	13.2 J	46.9 J	37.5 J	121
Manganese	mg/kg	26,000	1,390 J	79.5 J	N/A	1,050 J	88.9 J	9,600	9,550	1,880
Mercury	mg/kg	350	0.0043 J	0.0082 J	N/A	0.0029 J	0.12 U	0.056 J	0.0045 J	0.023 J
Nickel	mg/kg	22,000	5 J	15.9 J	N/A	14.4 J	17.4 J	30.9	5.4 J	11.8
Selenium	mg/kg	5,800	3.5 U	3.4 U	N/A	2.3 J	3.9 U	3.5 U	3.2 J	2.8 B
Silver	mg/kg	5,800	2.6 U	2.6 U	N/A	3 U	2.9 U	0.73 J	2.8 U	2.6 U
Thallium	mg/kg	12	8.8 U	8.6 U	N/A	9.9 U	9.7 U	4.9 J	5.2 J	8.7 U
Vanadium	mg/kg	5,800	54.7 J	26.9 J	N/A	39.9 J	30.7 J	325	313	39.4
Zinc	mg/kg	350,000	19.3	35.8	N/A	79.7	42.3	134 J	1,070 J	210
Other										
Cyanide	mg/kg	150	0.046 J	0.64 U	N/A	0.91	0.68 U	0.96	0.26 J	0.57 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 7
Summary of Inorganics Detected in Soil
Parcel A10
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A10-024-SB-5*	A10-025-SB-1*	A10-025-SB-4*	A10-025-SB-10*	A10-026-SB-1	A10-026-SB-5	A10-027-SB-1	A10-027-SB-4
Metals										
Aluminum	mg/kg	1,100,000	7,000	14,700	11,900	N/A	28,800	16,900	23,600	9,410
Antimony	mg/kg	470	6 U	2.4 U	2.9 U	N/A	2.6 UJ	2.6 UJ	2.8 UJ	5 J
Arsenic	mg/kg	3	5.2	7.1	17.1	12	5.7	2.2 UJ	5.5	21.3
Barium	mg/kg	220,000	160	52.2	22.4	N/A	363 J	387 J	218 J	202 J
Beryllium	mg/kg	2,300	0.61 J	0.65 J	0.28 J	N/A	2.4	0.87 U	3.1	0.88
Cadmium	mg/kg	980	0.51 B	0.13 B	1.4 U	N/A	0.96 J	0.56 J	1.1 J	2.7
Chromium	mg/kg	120,000	43	21.5	29.7	N/A	486	1,960	199	172
Chromium VI	mg/kg	6.3	0.71 J	0.34 B	0.39 B	N/A	0.43 B	1.1 B	0.48 B	0.44 B
Cobalt	mg/kg	350	5.9 J	4.9	2.3 J	N/A	7	0.91 J	5.8	27.9
Copper	mg/kg	47,000	56.9	14.2	9.6	N/A	63.6 J	34.4 J	72.2 J	375 J
Iron	mg/kg	820,000	56,000	14,900	17,500	N/A	84,400	89,700	71,700	156,000
Lead	mg/kg	800	113	17.6	10.2	N/A	230 J	3 J	95.3 J	241 J
Manganese	mg/kg	26,000	1,340	236	42.4	N/A	13,100	46,100	6,230	4,630
Mercury	mg/kg	350	0.0065 J	0.0033 J	0.16	N/A	0.11 U	0.11 U	0.18	0.37
Nickel	mg/kg	22,000	20.6	12.2	7.1 J	N/A	26.6	8.8	25.8	91.5
Selenium	mg/kg	5,800	8 U	3.2 U	3.8 U	N/A	3.5 U	3.5 U	3.8 U	3.2 U
Silver	mg/kg	5,800	6 U	2.4 U	2.9 U	N/A	2.6 U	1.7 J	2.8 U	1.9 J
Thallium	mg/kg	12	8 U	7.9 U	9.5 U	N/A	10.1	88	9.5 U	8.1 U
Vanadium	mg/kg	5,800	73.9	41.1	49	N/A	843	7,200	178	208
Zinc	mg/kg	350,000	164	49.8	24.4	N/A	191 J	7.5 J	250 J	830 J
Other										
Cyanide	mg/kg	150	0.14 J	0.37 J	0.74 U	N/A	0.65	0.42 J	1.6	0.46 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 7
Summary of Inorganics Detected in Soil
Parcel A10
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A10-027-SB-10*	A10-028-SB-1	A10-028-SB-6	A10-029-SB-1	A10-029-SB-4	A10-030-SB-1	A10-030-SB-7
Metals									
Aluminum	mg/kg	1,100,000	N/A	20,700	11,400	5,780	16,500	36,000	13,100
Antimony	mg/kg	470	N/A	2.9 UJ	3.1 UJ	2.7 UJ	2.6 UJ	2.3 UJ	2.9 UJ
Arsenic	mg/kg	3	13.1	5.5	2.8	6.9	2.1 U	1.9 U	4.4
Barium	mg/kg	220,000	N/A	65.4 J	35.7 J	36.2 J	62.3 J	265 J	36.3 J
Beryllium	mg/kg	2,300	N/A	0.61 J	0.39 J	0.42 J	0.61 J	5.6	0.67 J
Cadmium	mg/kg	980	N/A	0.16 B	1.5 U	1.4 U	1.3 U	0.61 B	1.4 U
Chromium	mg/kg	120,000	N/A	31.1	14.1	17.5	18.4	145	14.8
Chromium VI	mg/kg	6.3	N/A	0.42 B	0.38 B	0.38 B	0.38 B	0.26 B	0.5 B
Cobalt	mg/kg	350	N/A	5.5	3.7 J	1.2 J	4.7	2.8 J	6.1
Copper	mg/kg	47,000	N/A	11.4	6.7	9.5	5	18	6.8
Iron	mg/kg	820,000	N/A	28,700	19,200	14,700	14,300	49,200	27,000
Lead	mg/kg	800	N/A	12.3 J	9.1 J	14.3	10.7	42.7	8.4
Manganese	mg/kg	26,000	N/A	105 J	104 J	347	466	4,930	77
Mercury	mg/kg	350	N/A	0.0038 J	0.02 J	0.025 J	0.015 J	0.11 U	0.0072 J
Nickel	mg/kg	22,000	N/A	14.2 J	9.3 J	3.8 J	12.7	8.7	13.1
Selenium	mg/kg	5,800	N/A	3.9 U	4.1 U	2.8 J	3.4 U	3.1 U	3.9 U
Silver	mg/kg	5,800	N/A	2.9 U	3.1 U	2.7 U	2.6 U	2.3 U	2.9 U
Thallium	mg/kg	12	N/A	9.7 U	10.3 U	9.1 U	8.5 U	7.7 U	9.6 U
Vanadium	mg/kg	5,800	N/A	39 J	18.5 J	35.7 J	30.3 J	234 J	22.2 J
Zinc	mg/kg	350,000	N/A	45.8	27.8	22.5 J	29.5 J	68.5 J	31.3 J
Other									
Cyanide	mg/kg	150	N/A	0.72 U	0.61 U	0.067 J	0.72 U	0.77	0.036 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 7
Summary of Inorganics Detected in Soil
Parcel A10
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A10-031-SB-1.5	A10-031-SB-8	A10-031-SB-10*	A10-032-SB-1*	A10-032-SB-5*	A10-033-SB-1	A10-033-SB-4
Metals									
Aluminum	mg/kg	1,100,000	12,900	14,800	N/A	13,000	3,440	15,500	10,700
Antimony	mg/kg	470	2.6 UJ	2.6 UJ	N/A	2.8 U	2.6 U	2.7 U	2.9 U
Arsenic	mg/kg	3	10.6	15.9	4	8.4	18.5	5.9	3.4
Barium	mg/kg	220,000	73 J	50.6 J	N/A	204	63.8	62.8	78.6
Beryllium	mg/kg	2,300	0.7 J	0.98	N/A	1.5	0.88 U	0.69 J	0.61 J
Cadmium	mg/kg	980	1.2 J	1.3 U	N/A	4	0.66 B	1.4 U	1.4 U
Chromium	mg/kg	120,000	105	42.8	N/A	256	1,340	23.1	17.9
Chromium VI	mg/kg	6.3	0.47 B	0.92 B	N/A	1.3 B	0.76 B	0.43 B	0.39 B
Cobalt	mg/kg	350	43.1	5.9	N/A	14.6	50.2	4.7	7.8
Copper	mg/kg	47,000	142 J	13.2 J	N/A	138	355	9.6	13.6
Iron	mg/kg	820,000	60,100	27,700	N/A	62,300	361,000	19,300	12,300
Lead	mg/kg	800	98.2 J	19.2 J	N/A	1,020	6.2	9	47.2
Manganese	mg/kg	26,000	1,500	72	N/A	6,850	31,900	108	179
Mercury	mg/kg	350	0.1 J	0.0029 J	N/A	0.051 J	0.11 U	0.011 J	0.045 J
Nickel	mg/kg	22,000	40	16.2	N/A	52.7	111	12.7	11
Selenium	mg/kg	5,800	3.5 U	3.5 U	N/A	3.8 U	3.5 U	3.6 U	3.8 U
Silver	mg/kg	5,800	0.64 J	2.6 U	N/A	2.8 U	2.6 U	2.7 U	2.9 U
Thallium	mg/kg	12	8.6 U	8.6 U	N/A	20.2	78.6	9 U	9.5 U
Vanadium	mg/kg	5,800	173	39.4	N/A	1,640	5,610	29.7	23.1
Zinc	mg/kg	350,000	278 J	48.7 J	N/A	1,560	4.4 U	38.7	64.8
Other									
Cyanide	mg/kg	150	1.2	0.59 U	N/A	4.3	0.38 J	0.66 U	0.74 U

Detections in bold

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

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

* indicates non-validated data

U: This analyte was not detected in the sample. The numeric value 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
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	86	A10-006-SB-1	71.2	3	mg/kg
Benzo[a]pyrene	50-32-8	61	A10-008-SB-4	13.6	2.1	mg/kg
Benzo[b]fluoranthene	205-99-2	77	A10-008-SB-4	33.9	21	mg/kg
Dibenz[a,h]anthracene	53-70-3	47	A10-008-SB-4	3.2	2.1	mg/kg
Lead	7439-92-1	100	A10-004-SB-1	1,580	800	mg/kg
Manganese	7439-96-5	100	A10-007-SB-4	94,000	26,000	mg/kg
PCBs (total)	1336-36-3	24	A10-027-SB-1	1.121	0.97	mg/kg
Thallium	7440-28-0	25	A10-003-SB-1	102	12	mg/kg
Vanadium	744-62-2	100	A10-004-SB-10	10,600	5,800	mg/kg

**TABLE 9
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>
Boiler House	A10-001-SB	1	Arsenic	3	4.1	
		5	Arsenic	3	3.7	
	A10-002-SB	1	Arsenic	3	4	
		5	Arsenic	3	4.3	
		10	Arsenic	3	4.2	
Incinerator	A10-003-SB	1	Benzo[a]pyrene	2.1	3.5	
		1	Manganese	26,000	50,200	
		1	Thallium	12	102	
		1	Vanadium	5,800	7,590	
		9	Arsenic	3	13.3	
	A10-004-SB	1	Arsenic	3	16.7	
		1	Lead	800	1,580	
		1	Thallium	12	21	
		4	Arsenic	3	6	
		4	Manganese	26,000	32,000	
		4	Thallium	12	81.1	
		4	Vanadium	5,800	7,200	
		10	Arsenic	3	5.9	
		10	Manganese	26,000	56,000	
10	Thallium	12	36.4			
10	Vanadium	5,800	10,600			
Machine Shop	A10-005-SB	1	Arsenic	3	17	
		1	Thallium	12	19	
		5	Arsenic	3	4	
		5	Manganese	26,000	28,800	
		5	Thallium	12	67.7	
		5	Vanadium	5,800	5,810	
	A10-006-SB	1	Arsenic	3	71.2	
		7	Arsenic	3	6.6	
7	Lead	800	1,030			
Maintenance of Way Shop	A10-007-SB	1	Arsenic	3	3.1	
		4	Arsenic	3	5.7	
		4	Manganese	26,000	94,000	
		4	Thallium	12	23.9	
	A10-008-SB	1	Arsenic	3	3.8	
		4	Arsenic	3	9.5	
		4	Benzo[a]pyrene	2.1	13.6	
		4	Benzo[b]fluoranthene	21	33.9	
4	Dibenz[a,h]anthracene	2.1	3.2			
10	Arsenic	3	9.5			

**TABLE 9
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>
Oil House	A10-009-SB	5	Arsenic	3	6	
	A10-010-SB	1	Arsenic	3	21	
		8	Arsenic	3	12.3	
		10	Arsenic	3	24	
Pump House/Foamite Building	A10-011-SB	7	Arsenic	3	14	
		10	Arsenic	3	15	
	A10-012-SB	1	Manganese	26,000	38,500	
		1	Vanadium	5,800	10,000	J
		4	Arsenic	3	4.7	
Hazardous Materials Storage	A10-013-SB	1	Arsenic	3	4.7	
		4	Arsenic	3	5.4	
	A10-014-SB	2	Arsenic	3	4.2	
		5	Arsenic	3	4.3	
	A10-015-SB	1	Arsenic	3	3.2	
		5	Arsenic	3	9.8	
Large Historical AST	A10-016-SB	1	Arsenic	3	3.5	
	A10-017-SB	4	Arsenic	3	3.6	
		1	Arsenic	3	6	
	A10-018-SB	5	Arsenic	3	4.8	
		10	Arsenic	3	13	
Maintenance of Way Yard UST (and Fuel Dispensers)	A10-019-SB	1	Arsenic	3	4.8	
	A10-020-SB	1.5	Arsenic	3	6.7	
		1.5	Thallium	12	34.9	
		7	Arsenic	3	6.8	
		10	Arsenic	3	5.1	
	A10-021-SB	4	Arsenic	3	5.7	
		10	Arsenic	3	13.1	
	A10-022-SB	2	Arsenic	3	5.9	
		4	Arsenic	3	5.1	
Repair Shop Interior	A10-031-SB	1.5	Arsenic	3	10.6	
		8	Arsenic	3	15.9	
		10	Arsenic	3	4	
Lumber Storage Warehouse	A10-032-SB	1	Arsenic	3	8.4	
		1	Lead	800	1,020	
		1	Thallium	12	20.2	
		5	Arsenic	3	18.5	
		5	Manganese	26,000	31,900	
		5	Thallium	12	78.6	
Nelson Box Company Building	A10-033-SB	1	Arsenic	3	5.9	
		4	Arsenic	3	3.4	

J = The positive result is a quantitative estimate.

Table 10
Summary of Organics Detected in the Groundwater
Parcel A10
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A10-002-PZ*	A10-010-PZ	A10-015-PZ	A10-018-PZ	A10-020-PZ*	A10-021-PZ	A10-024-PZ*	A10-025-PZ*	A10-027-PZ	A10-029-PZ	A10-034-PZ	SG06-PDM001
Volatile Organics Compounds														
1,1-Dichloroethane	µg/L	2.7	1 U	0.49 J	1 U	1 U	0.64 J	1 U	1 U	1 U	1 U	1 U	0.23 J	1 U
1,1-Dichloroethene	µg/L	7	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.2	1 U	1 U	0.28 J	1 U
1,2-Dichlorobenzene	µg/L	600	1 U	3.1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dichloroethene (Total)	µg/L	70	2 U	1.5 J	2 U	0.82 J	1 J	2 U	2 U	190	8.5	1.3 J	10.2	2 U
Benzene	µg/L	5	1 U	1 U	1 U	0.68 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Carbon tetrachloride	µg/L	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	6.2	1 U	1 U	1 U	1 U
Chlorobenzene	µg/L	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.1	1 U	1 U	0.21 J	1 U
Chloroform	µg/L	0.22	1 U	1 U	1 U	1 U	0.53 J	12.3	1 U	1.7	1 U	1 U	1 U	1 U
cis-1,2-Dichloroethene	µg/L	70	1 U	1.5	1 U	0.82 J	1	1 U	1 U	188	8.5	1.3	10.1	1 U
Cyclohexane	µg/L	13,000	10 U	10 U	10 U	0.46 J	10 U	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U
Isopropylbenzene	µg/L	450	1 U	1 U	1 U	1.1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Methyl tert-butyl ether (MTBE)	µg/L	14	1 U	1 U	1 U	1 U	2.7	1 U	1 U	1 U	1 U	1 U	0.61 J	1 U
Tetrachloroethene	µg/L	5	1 U	14.2	1 U	1.7	3.9	1 U	1 U	1,010	123	4.6	34.2	1 U
trans-1,2-Dichloroethene	µg/L	100	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.4	1 U	1 U	1 U	1 U
Trichloroethene	µg/L	5	1 U	7.6	1 U	3.5	3.3	1 U	1 U	494	255	5	33.5	1 U
Vinyl chloride	µg/L	2	1 U	0.35 J	1 U	1 U	1 U	1 U	1 U	22.6	0.24 J	1 U	1.4	1 U
Semi-Volatile Organic Compounds^														
1,1-Biphenyl	µg/L	0.83	1 U	1 U	1 U	1	1 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U
1,4-Dioxane	µg/L	0.46	0.1 U	0.55	0.1 U	0.05 J	0.31	0.1 U	0.1 U	0.1 U	0.1 U	0.084 J	0.27	0.1 U
2-Methylnaphthalene	µg/L	36	0.1 U	0.11 U	0.1 U	18.3	0.1 U	0.1 U	0.1 U	0.041 J	0.1 U	0.1 U	0.1 U	0.1 U
Acenaphthene	µg/L	530	0.1 U	0.11 U	0.1 U	0.45	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Acenaphthylene	µg/L	530	0.1 U	0.11 U	0.1 U	0.12	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Anthracene	µg/L	1,800	0.1 U	0.11 U	0.015 J	0.047 J	0.1 U	0.1 U	0.1 U	0.1 U	0.013 J	0.1 U	0.1 U	0.025 J
Benz[a]anthracene	µg/L	0.03	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.018 J	0.032 J	0.1 U	0.1 U	0.1 U
Benzaldehyde	µg/L	1,900	1 U	1 U	1 U	1.1	1 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U
Benzo[a]pyrene	µg/L	0.2	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.011 J	0.022 J	0.1 U	0.1 U	0.1 U
Benzo[b]fluoranthene	µg/L	0.25	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.029 J	0.039 J	0.1 U	0.1 U	0.1 U
Benzo[g,h,i]perylene	µg/L		0.1 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.02 J	0.1 U	0.1 U	0.1 U
Benzo[k]fluoranthene	µg/L	2.5	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.027 J	0.021 J	0.1 U	0.1 U	0.1 U
Caprolactam	µg/L	9,900	0.17 J	2.5 U	2.5 U	2.6 U	2.5 U	2.5 U	2.6 U	2.6 U	2.6 U	2.6 U	2.7 U	2.6 U
Chrysene	µg/L	25	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.011 J	0.018 J	0.1 U	0.1 U	0.1 U
Diethylphthalate	µg/L	15,000	0.24 J	1 U	1 U	2.5	1 U	1 U	0.47 J	1 U	1 U	1 U	1.1 U	1 U
Fluoranthene	µg/L	800	0.1 U	0.11 U	0.1 U	0.013 J	0.013 J	0.1 U	0.1 U	0.013 J	0.025 J	0.015 J	0.1 U	0.1 U
Fluorene	µg/L	290	0.1 U	0.11 U	0.1 U	1.2	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Naphthalene	µg/L	0.17	0.018 J	0.11 U	0.018 B	8.2	0.1 U	0.1 U	0.1 U	1.1	0.025 B	0.021 B	0.1 U	0.1 U
Phenanthrene	µg/L		0.1 U	0.11 U	0.1 U	1.2	0.019 J	0.1 U	0.1 U	0.1 U	0.017 J	0.022 J	0.1 U	0.1 U
Pyrene	µg/L	120	0.1 U	0.11 U	0.1 U	0.016 J	0.1 U	0.1 U	0.1 U	0.013 J	0.025 J	0.1 U	0.1 U	0.1 U
TPH														
Diesel Range Organics	µg/L	47	105 U	68.2 J	407 J	1,130 J	65.1 J	105 UJ	62.2 J	110	104 UJ	53.2 J	52.6 J	81.5 J
Gasoline Range Organics	µg/L	47	200 U	200 U	200 U	200 U	200 U	200 U	200 U	565	146 J	200 U	200 U	200 U

Detections in bold

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

* indicates non-validated data

^ PAH compounds were analyzed via SIM

U: This analyte was not detected in the sample. The numeric value 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
Summary of Inorganics Detected in Groundwater
Parcel A10
Tradepoint Atlantic
Sparrows Point, Maryland

Parameter	Units	PAL	A10-002-PZ*	A10-010-PZ	A10-015-PZ	A10-018-PZ	A10-020-PZ*	A10-021-PZ	A10-024-PZ*	A10-025-PZ*	A10-027-PZ	A10-029-PZ	A10-034-PZ	SG06-PDM001
Metals														
Chromium VI	µg/L	0.035	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10,000 U	75
Aluminum, Dissolved	µg/L	20,000	1,020	410	120	245	87	20.3 J	50 U	73.7	51	79.8	80.6	51.7
Arsenic, Dissolved	µg/L	10	5 U	5 U	3.3 J	10.7	5 U	5 U	9.8	5 U	5 U	4.6 J	5 U	5 U
Barium, Dissolved	µg/L	2,000	32.5	36	14.4	68.6	33.4	18.4	57.7	38	15.8	21.9	45.4	11.8
Beryllium, Dissolved	µg/L	4	1.4	1 U	1 U	1 U	0.39 J	1 U	1 U	1 U	1 U	1 U	0.59 J	1 U
Cadmium, Dissolved	µg/L	5	0.59 J	3 U	3 U	3 U	0.75 J	0.5 J	3 U	3 U	0.53 J	0.61 J	0.75 J	3 U
Chromium, Dissolved	µg/L	100	0.82 J	1.3 J	5 U	1.5 J	2 J	5 U	5 U	1.2 J	0.93 J	2.4 J	3.8 J	87.1
Cobalt, Dissolved	µg/L	6	30.6	23.3	11.2	83.8	55	1.5 J	53.2	124	18	41.8	60.1	5 U
Copper, Dissolved	µg/L	1,300	2.4 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1.6 J
Iron, Dissolved	µg/L	14,000	184	49,100	3,740	52,200	4,360	2,090	64,600	3,910	1,900	2,760	8,430	13.7 J
Lead, Dissolved	µg/L	15	2.8 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Manganese, Dissolved	µg/L	430	395	4,740	527	7,920	822	446 J	3,060	1,580	673 J	460 J	1,090 J	5 U
Nickel, Dissolved	µg/L	390	23.9	23	23.6	11.4	57.4	7.1 J	14.7	93.2	24.4 J	47.9 J	68.9 J	10 U
Selenium, Dissolved	µg/L	50	7.8 J	8 U	8 U	8 U	8 U	5.4 J	8 U	8 U	8 U	5.7 J	4.2 J	4.8 J
Silver, Dissolved	µg/L	94	6 U	6 U	6 U	0.6 J	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Thallium, Dissolved	µg/L	2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5.8 J
Vanadium, Dissolved	µg/L	86	0.9 J	2.6 J	1.4 J	2.5 J	0.98 J	0.89 J	2.6 J	1.3 J	0.88 J	0.9 J	1.2 J	977
Zinc, Dissolved	µg/L	6,000	39.3	19.4	19	10	52.1	2.6 B	15.4	74.8	26.2	49	77.8	10 U
Other														
Cyanide	µg/L	200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	4.3 J	2.4 J	10 U

Detections in bold

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

* indicates non-validated data

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

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

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

Table 12
Vapor Intrusion Criteria Comparison

Sample Location	Parameter	Result (ug/L)	Final Flag	Target Groundwater Concentration (ug/L) TCR=1E-05 or THQ=1	Exceeds Criteria	Comparison= <u>Result</u> Target	Toxicity Type
A10-025-PZ*	Tetrachloroethene	1,010		240	YES	4.21	NC
A10-025-PZ*	Trichloroethene	494		22 (74)	YES	22.45 (6.68)	NC (C)
A10-027-PZ	Trichloroethene	255		22 (74)	YES	11.59 (3.45)	NC (C)
A10-034-PZ	Trichloroethene	33.5		22 (74)	YES	1.52 (0.45)	NC (C)

C indicates carcinogenic

NC indicates non-carcinogenic

* indicates non-validated data

**Table 13
Cumulative Vapor Intrusion Criteria Comparison**

Parameter	Type	Organ Systems	VI Screening Criteria (ug/L)	A10-002-PZ		A10-010-PZ		A10-015-PZ		A10-018-PZ		A10-020-PZ		A10-021-PZ	
				Conc. (ug/L)	Cancer Risk										
Cancer Risk															
1,4-Dioxane	SVOC		130,000	0.1 U	0	0.55	4.2E-11	0.1 U	0	0.05 J	3.8E-12	0.31	2.4E-11	0.1 U	0
Naphthalene	SVOC		200	0.018 J	9.0E-10	0.11 U	0	0.018 B	0	8.2	4.1E-07	0.1 U	0	0.1 U	0
1,1-Dichloroethane	VOC		330	1 U	0	0.49 J	1.5E-08	1 U	0	1 U	0	0.64 J	1.9E-08	1 U	0
Benzene	VOC		69	1 U	0	1 U	0	1 U	0	0.68 J	9.9E-08	1 U	0	1 U	0
Carbon tetrachloride	VOC		18	1 U	0	1 U	0	1 U	0	1 U	0	1 U	0	1 U	0
Chloroform	VOC		36	1 U	0	1 U	0	1 U	0	1 U	0	0.53 J	1.5E-07	12.3	3.4E-06
Methyl tert-butyl ether (MTBE)	VOC		20,000	1 U	0	1 U	0	1 U	0	1 U	0	2.7	1.4E-09	1 U	0
Trichloroethene	VOC		74	1 U	0	7.6	1.0E-06	1 U	0	3.5	4.7E-07	3.3	4.5E-07	1 U	0
Vinyl Chloride	VOC		25	1 U	0	0.35 J	1.4E-07	1 U	0	1 U	0	1 U	0	1 U	0
Cumulative Vapor Intrusion Cancer Risk				9E-10		1E-06		0E+00		1E-06		6E-07		3E-06	
Non-Cancer Hazard															
				Conc. (ug/L)	Non-Cancer HQ										
Tetrachlorethene	VOC	Nervous; Ocular	240	1 U	0	14.2	0.06	1 U	0	1.7	0.007	3.9	0.02	1 U	0
Cumulative Vapor Intrusion Non-Cancer Hazard				0		0		0		0		0		0	
Trichloroethene	VOC	Cardiovascular; Developmental; Immune	22	1 U	0	7.6	0.3	1 U	0	3.5	0.2	3.3	0.2	1 U	0
Cumulative Vapor Intrusion Non-Cancer Hazard				0		0		0		0		0		0	

Parameter	Type	Organ Systems	VI Screening Criteria (ug/L)	A10-024-PZ		A10-025-PZ		A10-027-PZ		A10-029-PZ		A10-034-PZ		SG06-PDM001	
				Conc. (ug/L)	Cancer Risk										
Cancer Risk															
1,4-Dioxane	SVOC		130,000	0.1 U	0	0.1 U	0	0.1 U	0	0.084 J	6.5E-12	0.27	2.1E-11	0.1 U	0
Naphthalene	SVOC		200	0.1 U	0	1.1	5.5E-08	0.025 B	0	0.025 B	0	0.1 U	0	0.1 U	0
1,1-Dichloroethane	VOC		330	1 U	0	1 U	0	1 U	0	1 U	0	0.23 J	7.0E-09	1 U	0
Benzene	VOC		69	1 U	0	1 U	0	1 U	0	1 U	0	1 U	0	1 U	0
Carbon tetrachloride	VOC		18	1 U	0	6.2	3.4E-06	1 U	0	1 U	0	1 U	0	1 U	0
Chloroform	VOC		36	1 U	0	1.7	4.7E-07	1 U	0	1 U	0	1 U	0	1 U	0
Methyl tert-butyl ether (MTBE)	VOC		20,000	1 U	0	1 U	0	1 U	0	1 U	0	0.61 J	3.1E-10	1 U	0
Trichloroethene	VOC		74	1 U	0	494	6.7E-05	255	3.4E-05	5	6.8E-07	33.5	4.5E-06	1 U	0
Vinyl Chloride	VOC		25	1 U	0	22.6	9.0E-06	0.24 J	9.6E-08	1 U	0	1.4	5.6E-07	1 U	0
Cumulative Vapor Intrusion Cancer Risk				0E+00		8E-05		3E-05		7E-07		5E-06		0E+00	
Non-Cancer Hazard															
				Conc. (ug/L)	Non-Cancer HQ										
Tetrachlorethene	VOC	Nervous; Ocular	240	1 U	0	1,010	4	123	0.5	4.6	0.02	34.2	0.1	1 U	0
Cumulative Vapor Intrusion Non-Cancer Hazard				0		4		1		0		0		0	
Trichloroethene	VOC	Cardiovascular; Developmental; Immune	22	1 U	0	494	22	255	12	5	0.2	33.5	2	1 U	0
Cumulative Vapor Intrusion Non-Cancer Hazard				0		22		12		0		2		0	

Highlighted values indicate exceedances of the cumulative vapor intrusion criteria: TCR > 1E-05 or THI > 1
Conc. = Concentration

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



Parcel A10 - Table 14

Rejected Results for Soil

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
Sample: A10-001-SB-1					
1,4-Dioxane	0.1	mg/kg	24	no	R
Bromomethane	0.005	mg/kg	30	no	R
Sample: A10-001-SB-5					
1,4-Dioxane	0.098	mg/kg	24	no	R
Bromomethane	0.0049	mg/kg	30	no	R
Sample: A10-002-SB-1					
1,4-Dioxane	0.11	mg/kg	24	no	R
Bromomethane	0.0053	mg/kg	30	no	R
Sample: A10-002-SB-5					
1,4-Dioxane	0.11	mg/kg	24	no	R
Bromomethane	0.0054	mg/kg	30	no	R
Sample: A10-007-SB-1					
1,4-Dioxane	0.12	mg/kg	24	no	R
Methyl Acetate	0.059	mg/kg	1,200,000	no	R
Sample: A10-007-SB-4					
1,4-Dioxane	0.11	mg/kg	24	no	R
2,4-Dinitrophenol	0.19	mg/kg	1,600	no	R
Methyl Acetate	0.053	mg/kg	1,200,000	no	R
Sample: A10-008-SB-1					
1,4-Dioxane	0.13	mg/kg	24	no	R
Methyl Acetate	0.065	mg/kg	1,200,000	no	R
Sample: A10-008-SB-4					
1,4-Dioxane	0.095	mg/kg	24	no	R

Rejected Results for Soil

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
-----------	--------	-------	-----	--------------	------

Sample: *A10-008-SB-4*

Methyl Acetate	0.047	mg/kg	1,200,000	no	R
----------------	-------	-------	-----------	----	---

Sample: *A10-010-SB-1*

1,4-Dioxane	0.17	mg/kg	24	no	R
Methyl Acetate	0.085	mg/kg	1,200,000	no	R

Sample: *A10-010-SB-8*

1,4-Dioxane	0.11	mg/kg	24	no	R
Methyl Acetate	0.053	mg/kg	1,200,000	no	R

Sample: *A10-011-SB-1*

1,4-Dioxane	0.16	mg/kg	24	no	R
2,4-Dinitrophenol	0.2	mg/kg	1,600	no	R
Methyl Acetate	0.079	mg/kg	1,200,000	no	R

Sample: *A10-011-SB-7*

1,4-Dioxane	0.1	mg/kg	24	no	R
2,4-Dinitrophenol	0.21	mg/kg	1,600	no	R
Methyl Acetate	0.051	mg/kg	1,200,000	no	R

Sample: *A10-012-SB-1*

1,4-Dioxane	0.12	mg/kg	24	no	R
2,4-Dinitrophenol	0.18	mg/kg	1,600	no	R
Methyl Acetate	0.058	mg/kg	1,200,000	no	R

Sample: *A10-012-SB-4*

1,4-Dioxane	0.1	mg/kg	24	no	R
2,4-Dinitrophenol	0.2	mg/kg	1,600	no	R
Methyl Acetate	0.051	mg/kg	1,200,000	no	R

Sample: *A10-013-SB-1*

1,4-Dioxane	0.12	mg/kg	24	no	R
Methyl Acetate	0.06	mg/kg	1,200,000	no	R

Rejected Results for Soil

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
-----------	--------	-------	-----	--------------	------

Sample: *A10-013-SB-4*

1,4-Dioxane	0.099	mg/kg	24	no	R
Methyl Acetate	0.049	mg/kg	1,200,000	no	R

Sample: *A10-015-SB-1*

1,4-Dioxane	0.096	mg/kg	24	no	R
Methyl Acetate	0.048	mg/kg	1,200,000	no	R

Sample: *A10-015-SB-5*

1,4-Dioxane	0.11	mg/kg	24	no	R
Methyl Acetate	0.053	mg/kg	1,200,000	no	R

Sample: *A10-018-SB-1*

1,4-Dioxane	0.091	mg/kg	24	no	R
2,4-Dinitrophenol	1	mg/kg	1,600	no	R
Benzaldehyde	0.08	mg/kg	120,000	no	R
Bromomethane	0.0046	mg/kg	30	no	R
Methyl Acetate	0.046	mg/kg	1,200,000	no	R

Sample: *A10-018-SB-5*

1,4-Dioxane	0.085	mg/kg	24	no	R
Bromomethane	0.0043	mg/kg	30	no	R
Methyl Acetate	0.043	mg/kg	1,200,000	no	R

Sample: *A10-019-SB-1*

1,4-Dioxane	0.1	mg/kg	24	no	R
Methyl Acetate	0.051	mg/kg	1,200,000	no	R

Sample: *A10-019-SB-4*

1,4-Dioxane	0.087	mg/kg	24	no	R
Methyl Acetate	0.043	mg/kg	1,200,000	no	R

Sample: *A10-020-SB-1.5*

1,4-Dioxane	0.13	mg/kg	24	no	R
Methyl Acetate	0.064	mg/kg	1,200,000	no	R

Rejected Results for Soil

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
-----------	--------	-------	-----	--------------	------

Sample: *A10-020-SB-7*

1,4-Dioxane	0.12	mg/kg	24	no	R
Methyl Acetate	0.058	mg/kg	1,200,000	no	R

Sample: *A10-021-SB-2*

1,4-Dioxane	0.11	mg/kg	24	no	R
Methyl Acetate	0.055	mg/kg	1,200,000	no	R

Sample: *A10-021-SB-4*

1,4-Dioxane	0.1	mg/kg	24	no	R
Methyl Acetate	0.05	mg/kg	1,200,000	no	R

Sample: *A10-022-SB-2*

1,4-Dioxane	0.091	mg/kg	24	no	R
Methyl Acetate	0.046	mg/kg	1,200,000	no	R

Sample: *A10-022-SB-4*

1,4-Dioxane	0.098	mg/kg	24	no	R
Methyl Acetate	0.049	mg/kg	1,200,000	no	R

Sample: *A10-023-SB-1*

1,4-Dioxane	0.15	mg/kg	24	no	R
Methyl Acetate	0.075	mg/kg	1,200,000	no	R

Sample: *A10-023-SB-4*

1,4-Dioxane	0.15	mg/kg	24	no	R
Methyl Acetate	0.075	mg/kg	1,200,000	no	R

Sample: *A10-026-SB-1*

1,4-Dioxane	0.11	mg/kg	24	no	R
Methyl Acetate	0.057	mg/kg	1,200,000	no	R

Sample: *A10-026-SB-5*

1,4-Dioxane	0.11	mg/kg	24	no	R
2,3,4,6-Tetrachlorophenol	0.076	mg/kg	25,000	no	R

Rejected Results for Soil

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
-----------	--------	-------	-----	--------------	------

Sample: **A10-026-SB-5**

2,4,5-Trichlorophenol	0.19	mg/kg	82,000	no	R
2,4,6-Trichlorophenol	0.076	mg/kg	210	no	R
2,4-Dichlorophenol	0.076	mg/kg	2,500	no	R
2,4-Dimethylphenol	0.076	mg/kg	16,000	no	R
2,4-Dinitrophenol	0.19	mg/kg	1,600	no	R
2-Chlorophenol	0.076	mg/kg	5,800	no	R
2-Methylphenol	0.076	mg/kg	41,000	no	R
3&4-Methylphenol(m&p Cresol)	0.15	mg/kg	41,000	no	R
Methyl Acetate	0.055	mg/kg	1,200,000	no	R
Pentachlorophenol	0.19	mg/kg	4	no	R
Phenol	0.076	mg/kg	250,000	no	R

Sample: **A10-027-SB-1**

1,4-Dioxane	0.16	mg/kg	24	no	R
Methyl Acetate	0.082	mg/kg	1,200,000	no	R

Sample: **A10-027-SB-4**

1,4-Dioxane	0.1	mg/kg	24	no	R
Methyl Acetate	0.05	mg/kg	1,200,000	no	R

Sample: **A10-028-SB-1**

1,4-Dioxane	0.1	mg/kg	24	no	R
Methyl Acetate	0.052	mg/kg	1,200,000	no	R

Sample: **A10-028-SB-6**

1,4-Dioxane	0.11	mg/kg	24	no	R
Methyl Acetate	0.053	mg/kg	1,200,000	no	R

Sample: **A10-029-SB-1**

1,4-Dioxane	0.092	mg/kg	24	no	R
2,4-Dinitrophenol	0.17	mg/kg	1,600	no	R
Methyl Acetate	0.046	mg/kg	1,200,000	no	R

Rejected Results for Soil

Parameter	Result	Units	PAL	Exceeds PAL?	Flag
-----------	--------	-------	-----	--------------	------

Sample: *A10-029-SB-4*

1,4-Dioxane	0.091	mg/kg	24	no	R
2,4-Dinitrophenol	0.2	mg/kg	1,600	no	R
Methyl Acetate	0.046	mg/kg	1,200,000	no	R

Sample: *A10-030-SB-1*

1,4-Dioxane	0.1	mg/kg	24	no	R
2,4-Dinitrophenol	0.18	mg/kg	1,600	no	R
Methyl Acetate	0.052	mg/kg	1,200,000	no	R

Sample: *A10-030-SB-7*

1,4-Dioxane	0.099	mg/kg	24	no	R
2,4-Dinitrophenol	0.21	mg/kg	1,600	no	R
Methyl Acetate	0.049	mg/kg	1,200,000	no	R

Sample: *A10-031-SB-1.5*

1,4-Dioxane	0.099	mg/kg	24	no	R
Methyl Acetate	0.049	mg/kg	1,200,000	no	R

Sample: *A10-031-SB-8*

1,4-Dioxane	0.092	mg/kg	24	no	R
Methyl Acetate	0.046	mg/kg	1,200,000	no	R

Sample: *A10-033-SB-1*

1,4-Dioxane	0.1	mg/kg	24	no	R
Bromomethane	0.0052	mg/kg	30	no	R

Sample: *A10-033-SB-4*

1,4-Dioxane	0.11	mg/kg	24	no	R
Bromomethane	0.0053	mg/kg	30	no	R

"

"

"

"

"

"

"

"

"

APPENDIX A

"

"

"

"

"

"

"

"

"

"

"

"

Parcel A10 Sampling Plan Summary
Former Sparrows Point Steel Mill
Sparrows Point, Maryland

Table 1 - Soil Samples

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
Boiler House		Drawing 5047-A	Investigate potential impacts related to the boiler house (potential leaks or releases).	2	A10-001 and A10-002	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, PCBs (0-1')
Incinerator		Drawing 5147	Investigate potential impacts related to the incinerator (potential leaks or releases).	2	A10-003 and A10-004	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, PCBs (0-1')
Machine Shop		Drawing 5147	Investigate potential impacts related to the machine shop (potential leaks or releases).	2	A10-005 and A10-006	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, PCBs (0-1')
Maintenance of Way Repair Shop		Drawing 5052	Investigate potential impacts related to the maintenance of way repair shop (potential leaks or releases).	2	A10-007 and A10-008	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, PCBs (0-1')
Oil House		Drawing 5147	Investigate potential impacts related to the oil house (potential leaks or releases).	2	A10-009 and A10-010	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, PCBs (0-1')
Pump House/ Foamite Building		Drawings 5047 and 5147	Investigate potential impacts related to the pump house/foamite building (potential leaks or releases).	2	A10-011 and A10-012	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, PCBs (0-1')

Parcel A10 Sampling Plan Summary
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
Hazardous Materials Storage	REC 10A, Finding 240	REC Location Map/ Drawing 5147	During Weaver Boos' site visit, an ATEC building was observed to contain a hazardous materials storage room. The building held several ASTs and containers, the condition of which could not be determined due to restricted access (building locks). An additional AST with a hazardous materials label was observed along the western exterior wall. It is unknown whether any leaks or spills occurred. The location of the storage room was confirmed by ARM. Several boilers were observed in the storage room ,but there was no evidence of hazardous materials.	3	A10-013 through A10-015	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, PCBs (0-1')
Large Historical AST	REC 10B, Finding 241	REC Location Map/ Drawing 5052	A large circular structure appearing to be an AST surrounded by a berm was identified on historical aerial photography. Based on the size and location, it is reasonable that the AST may have contained petroleum products. The condition of the tank and berm, as well as the contents and spill/leak history, are unknown.	3	A10-016 through A10-018	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, PCBs (0-1')
Maintenance of Way Yard UST (and Fuel Dispensers)	REC 12A, Finding 246	REC Location Map/ Drawing 5147	The Maintenance of Way Yard located north of the ATEC facility was identified as containing a 12,000-gallon gasoline UST, listed as permanently out of service. Additionally, three (3) fuel dispensers were observed outside of a building in the yard. It is unknown whether the dispensers were associated with the UST, or if they had underground piping which may have leaked or spilled. ARM confirmed the location of the fuel dispensers, and observed a concrete pad which may overly the UST. A spill of de minimis quantities of PVC glue was also noted by the MDE.	4	A10-019 through A10-022	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, PCBs (0-1')
Parcel A10 Coverage			Investigate potential impacts related to any historical activities which may have occurred (potential leaks or releases).	8	A10-023 through A10-030	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, PCBs (0-1')
Repair Shop Interior		Drawing 5047	MDE Request. Investigate potential impacts related to any historical activities in the repair shop (potential leaks or releases).	1	A10-031	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, PCBs (0-1')

Parcel A10 Sampling Plan Summary
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
Lumber Storage Warehouse		Drawing 5052-A	MDE Request. Investigate potential impacts related to any historical activities in the lumber storage warehouses (potential leaks or releases).	1	A10-032	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, PCBs (0-1')
Nelson Box Company Building		Drawing 5047 and 5047-A	MDE Request. Investigate potential impacts related to any historical activities in the main Nelson Box Company building (potential leaks or releases).	1	A10-033	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, PCBs (0-1')
			Total:	33				

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

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

Engineered Barrier (1-15 acres): 0.5 boring per acre with no less than 2.

No Engineered Barrier (17.0 acres) = **15 borings required, 15 proposed**

Engineered Barrier (14.6 acres) = **8 borings required, 18 proposed**

Parking/Roads (11.7 acres)

Buildings (3.0 acres)

VOCs - Volatile Organic Compounds (Target Compound List)

SVOCs - Semivolatile Organic Compounds (Target Compound List)

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

PCBs - Polychlorinated Biphenyls

DRO/GRO - Diesel Range Organics/Gasoline Range Organics

bgs - Below Ground Surface

Parcel A10 Sampling Plan Summary
Former Sparrows Point Steel Mill
Sparrows Point, Maryland

Table 2 - Groundwater Samples

Source Area/ Description	REC & Finding/ SWMU/ AOC	Figure or Drawing of Reference	Condition of Existing Well	Number of Locations	Sample Locations	Boring Depth	Screen Interval	Analytical Parameters: Groundwater Samples†
Boiler House		Drawing 5047-A	N/A	1	A10-002	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, Dissolved Metals, DRO/GRO
Oil House		Drawing 5147	N/A	1	A10-010	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, Dissolved Metals, DRO/GRO
Hazardous Materials Storage	REC 10A, Finding 240	REC Location Map/ Drawing 5147	N/A	1	A10-015	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, Dissolved Metals, DRO/GRO
Large Historical AST	REC 10B, Finding 241	REC Location Map/ Drawing 5052	N/A	1	A10-018	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, Dissolved Metals, DRO/GRO
Maintenance of Way Yard UST (and Fuel Dispensers)	REC 12A, Finding 246	REC Location Map/ Drawing 5147	N/A	2	A10-020 and A10-021	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, Dissolved Metals, DRO/GRO
Parcel A10 Coverage			N/A	4	A10-024, A10-025, A10-027 and A10-029	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, Dissolved Metals, DRO/GRO
Machine Shop/ Incinerator		Drawing 5147	N/A	1	A10-034*	Total depth of 7 feet below water table.	7 feet below water table to 3 feet above water table.	VOC, SVOC, Dissolved Metals, DRO/GRO
Existing Groundwater Well			Good structural condition.	1	SG06- PDM001	Total depth of 14 feet bgs (historic reported)	14 to 4 feet bgs (historic reported)	VOC, SVOC, Dissolved Metals, DRO/GRO
			Total:	12				

*Piezometer only - no additional soil samples.

†Field measurements include pH, DO, ORP, conductivity, temperature.

"

"

"

"

"

"

"

"

"

APPENDIX B

"

"

"

"

"

"

"

"

"

"

"

"



ARM Group Inc.
Earth Resource Engineers
and Consultants

Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/6/2016
 Weather : 80s, Sunny

Northing (US ft) : 571130.63
 Easting (US ft) : 1464890.46

Boring ID: A10-001-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		-	A10-001-SB-1	(0-5') CLAY with some CONCRETE and GRAVEL, soft to firm, reddish yellow, moist, medium plasticity, cohesive	CL	
		-				
	60	0.2				
		0.3				
		0.2	A10-001-SB-5			
5		0.6		(5-5.9') SANDY CLAY, very soft, light gray and reddish yellow, wet, low plasticity, cohesive	CL	Wet at 5.5' bgs
		1.5		(5.9-7.5') SILTY SLAG GRAVEL, loose, very dark gray, wet, non plastic, non cohesive	GW/GM	
	100	4.2		(7.5-9.5') SILT, hard, brown grading to reddish yellow and light gray, dry to moist, non plastic, non cohesive		
		4.9			ML	
		0.3		(9.5-10') SAND with CLAY, medium dense, reddish yellow and pale brown, very moist, non plastic, non cohesive	SP	
10				End of Boring		

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/6/2016
 Weather : 80s, Sunny
 Northing (US ft) : 571158.50
 Easting (US ft) : 1464916.50

Boring ID: A10-002-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		-	A10-002-SB-1	(0-0.2') CONCRETE, loose, whitish, dry, non plastic, non cohesive	-	
	60	-		(0.2-5') CLAY, soft grading to very soft, reddish yellow and pale brown mottling changing to light gray, dry to very moist, medium plasticity to high plasticity, cohesive	CL	
		0.4				
		1.3				
		0.3	A10-002-SB-5			
5		-		(5-8') CLAY, soft, light gray with black streaks, very moist, high plasticity, cohesive	CL	
	60	0.3				
		0.3		(8-9.5') SANDY CLAY, firm, reddish yellow and pale brown mottled, dry, medium plasticity, cohesive	CL	
		0.4				
10		-	A10-002-SB-10	(9.5-12') SAND, fine grained, medium dense, reddish yellow, very moist to wet, non plastic, non cohesive	SP	Wet at 10' bgs
	80	-		(12-13') SANDY CLAY, soft, reddish yellow and pale brown, very moist, medium plasticity, cohesive	CL	
		-		(13-15') CLAY, firm, very pale brown and pale brown mottling, moist, high plasticity, cohesive	CL	
		-				
15		-		(15-17') CLAY, soft, pale brown, moist, high plasticity, cohesive	CL	
	100	-				
		-				
End of Boring						
20						

Total Borehole Depth: 17' bgs.
 Boring terminated at 17' bgs due to water and piezometer installation.



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/7/2016
 Weather : 90s, Sunny
 Northing (US ft) : 571308.90
 Easting (US ft) : 1464834.32

Boring ID: A10-003-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS	
0			A10-003-SB-1	(0-0.2') CONCRETE, loose, white, dry, non plastic, non cohesive	- ML		
				(0.2-0.5') SILT, soft, very dark brown, dry, non plastic, non cohesive	SW		
				(0.5-1.5') SAND, fine to medium grained, with small GRAVEL and SILT, loose, very dark brown, dry, non plastic, non cohesive	SW/GW		
	60	30.7		(1.5-3') SLAG GRAVEL, loose, brownish gray, dry, non plastic, non cohesive	SW/GW		
		20.7		(3-4') SILT type material, soft, white with oxidation, moist, non plastic, non cohesive	-		
		0.2		(4-5') SLAG GRAVEL, loose, brownish gray, dry, non plastic, non cohesive	SW/GW		
5				(5-9') SAND and SLAG GRAVEL, fine to coarse SAND, loose, brown and gray, dry, non plastic, non cohesive	SP/GP		
	70	10.3					
		14.1					
		82.1	A10-003-SB-9				
		49.1		(9-10') SILTY CLAY, soft, yellowish brown, wet, low plasticity, cohesive	CL	Wet at 9' bgs	
10			End of Boring				

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/7/2016
 Weather : 90s, Sunny
 Northing (US ft) : 571369.31
 Easting (US ft) : 1464833.07

Boring ID: A10-004-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		-	A10-004-SB-1	(0-0.3') CONCRETE, loose, white, dry, non plastic, non cohesive	-	Wet at 10' bgs
		-		(1-3.4') SILT, soft, very dark brown, dry, non plastic, non cohesive	ML	
60		3.4				
		37.5	A10-004-SB-4	(3.4-9.5') SLAG, SAND and GRAVEL sized, with SILT, loose, brown and gray to gray, dry, non plastic, non cohesive		
5		5.1				
		-			GW/SW	
50		5.7				
		7.8				
10		3.3	A10-004-SB-10	(9.5-10') CLAYEY SILT, yellowish brown, moist, low plasticity, cohesive	ML	
		-		(10-13.5') CLAY, very soft, yellowish brown, wet, high plasticity, cohesive	CL	
50		-				
		-		(13.5-14.5') CLAY, very firm, reddish yellow and light gray mottling, dry, high plasticity, cohesive	CL	
15		-		(14.5-15') SANDY CLAY, soft, reddish yellow, very moist, medium plasticity, cohesive	CL	
				End of Boring		

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/7/2016
 Weather : 80s, Sunny
 Northing (US ft) : 571264.10
 Easting (US ft) : 1464835.31

Boring ID: A10-005-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		-	A10-005-SB-1	(0-0.4') CONCRETE, loose, white, dry, non plastic, non cohesive	-	
				(0.4-0.6') SILT, soft, red, dry, non plastic, non cohesive	ML	
				(0.6-5') SILTY SAND with very large SLAG at 2.5', loose, dark brown, gray and brown, dry, non plastic, non cohesive		
60		12.0			SM	
		17.1				
		18.3	A10-005-SB-5			
5		-		(5-8') SAND, fine to coarse, with large SLAG GRAVEL, loose, brown and gray, dry, non plastic, non cohesive	SW	Wet at 8' bgs
		-				
60		1.8				
		0.2		(8-10') CLAY with SAND, very soft grading to firm, dark yellowish brown grading to light gray and reddish yellow mottling, wet, high plasticity, cohesive	CL	
		0.3				
10				End of Boring		

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/7/2016
 Weather : 90s, Sunny
 Northing (US ft) : 571203.33
 Easting (US ft) : 1464836.17

Boring ID: A10-006-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS	
0		-	A10-006-SB-1	(0-0.5') CONCRETE, loose, white, dry, non plastic, non cohesive	-		
		4.6		(0.5-1.5') SILT with GRAVEL, soft, red then brownish yellow, dry, non plastic, non cohesive	ML		
	90	4.2		(1.5-2.5') SAND, fine to coarse grained, loose, black, dry, non plastic, non cohesive	SW		
		3.7		(2.5-5') CLAY, firm, yellowish brown, dry to moist, medium plasticity to high plasticity, cohesive	CL		
		2.3					
5		11.3		(5-7') CLAY grading to SANDY CLAY, firm to soft, yellowish brown, dry to very moist, medium plasticity, cohesive	CL		
		127.0	A10-006-SB-7				
	100	12.6		(7-7.5') SAND, fine grained, loose, brown, wet, non plastic, non cohesive	SP	Wet at 7' bgs High sheen and low viscosity product from 7-8' and 9-9.5' bgs, strong odor, amber color	
		110.8		(7.5-9') CLAY, very firm, yellowish brown, dry, high plasticity, cohesive	CL		
		133.5		(9-9.5') SAND, fine grained, loose, yellowish brown, non plastic, non cohesive	SP		
10		-		(9.5-10') CLAYEY SAND, dense, yellowish brown, dry, non plastic, non cohesive	SP-SC		
		-		(10-15') CLAY, firm to very firm, yellowish brown grading to yellowish red and yellowish brown mottling, moist to dry, medium plasticity, cohesive	CL		
15			End of Boring				

Total Borehole Depth: 15' bgs.
 Boring terminated at 15' bgs due to water and piezometer installation.



ARM Group Inc.
Earth Resource Engineers
and Consultants

Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/8/2016
 Weather : 90s, Sunny

Northing (US ft) : 571532.49
 Easting (US ft) : 1464371.45

Boring ID: A10-007-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0			A10-007-SB-1	(0-0.3') SILT with trace GRAVEL, soft, brown, dry, non plastic, non cohesive	ML	
				(0.3-2.5') SLAG GRAVEL, loose, grayish brown, dry to very moist, non plastic, non cohesive	GP	
80		34.3		(2.5-5') SILT with organic matter throughout, firm to soft, yellowish brown and brown with some greenish gray mottling, moist to very moist, low plasticity, cohesive	ML	
		46.3	A10-007-SB-4		ML	
		12.8			ML	
5				(5-7.5') SILT with CLAY, very soft to soft, brown and greenish gray mottling, wet, low plasticity, cohesive	ML	Wet at 5.5' bgs
90				(7.5-10') CLAY, hard, reddish yellow and yellowish brown, dry, low plasticity, cohesive	CL	
10				End of Boring		

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/8/2016
 Weather : 90s, Sunny
 Northing (US ft) : 571531.45
 Easting (US ft) : 1464344.54

Boring ID: A10-008-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS	
0		-	A10-008-SB-1	(0-0.4') SILT with SLAG GRAVEL, soft, brown, dry, non plastic, non cohesive	ML		
	80	7.4		(0.4-2.5') SLAG GRAVEL and SAND, loose, brown and white, dry to very moist, non plastic, non cohesive	GP/SP		
		56.8		(2.5-5') SILT, hard, light olive brown, dry, low plasticity, cohesive	ML		
		91.8	A10-008-SB-4				
		21.7					
5		6.7		(5-7') CLAY, soft to firm, greenish gray and reddish yellow mottling, moist, high plasticity, cohesive	CL		
		7.3					
	100	7.7		(7-10') CLAY, hard, reddish yellow and very pale brown, dry, medium plasticity, cohesive	CL		
		2.1					
		-	A10-008-SB-10				
10		-		(10-12.5') CLAY, very soft, very pale brown with reddish yellow mottling, wet, high plasticity, cohesive	CL		Wet at 10.5' bgs
	90	-		(12.5-13.5') SANDY CLAY, soft, very pale brown, wet, medium plasticity, cohesive	CL		
		-		(13.5-15') SAND, fine to medium grained, medium dense, reddish yellow to yellowish red, wet, non plastic, non cohesive	SW	Heavy oxidation from 14-15' bgs	
15				End of Boring			

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



ARM Group Inc.
Earth Resource Engineers
and Consultants

Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Hand Auger

Date : 7/21/2016
 Weather : 90s, Sunny
 Northing (US ft) : 571140.51
 Easting (US ft) : 1464254.60

Boring ID: A10-009A-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		-		(0-0.5') CONCRETE, loose, light gray, dry, non plastic, non cohesive	-	
100		0.7	A10-009A-SB-1	(0.5-1') SAND, fine to medium grained, with very small GRAVEL, loose, brown, dry, non plastic, non cohesive	SW	
1	End of Boring					
2						
3						
4						
5						

Total Borehole Depth: 1' bgs.
 Boring terminated at 1' bgs due to refusal and space limitations.



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/21/2016
 Weather : 90s, Sunny
 Northing (US ft) : 571123.10
 Easting (US ft) : 1464248.71

Boring ID: A10-009-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0				(0-0.5') ASPHALT, loose, gray, dry, non plastic, non cohesive	-	
1			A10-009-SB-1.5	(0.5-2') SILTY SAND with very small GRAVEL, fine to medium grained, loose, black, dry, non plastic, non cohesive	SW	
2	70	11.6		(2-2.5') SILT, hard, reddish yellow, dry, non plastic, non cohesive	ML	
3				(2.5-3.5') SLAG GRAVEL, loose, brown and gray, wet, non plastic, non cohesive	GP	
4		4.0		(3.5-4.5') CLAY, firm light gray and yellowish brown mottling, moist, high plasticity, cohesive	CL	
5		0.0	A10-009-SB-5	(4.5-5') SANDY CLAY, firm, light gray and reddish yellow mottling, moist, low plasticity, cohesive	CL	
6				(5-5.2') SAND with CLAY, fine grained, loose, light gray and very pale brown, wet, non plastic, non cohesive	SP	Wet at 5' bgs
7				(5.2-7.5') SANDY CLAY, firm, light gray and very pale brown, very moist, low plasticity, cohesive	CL	
8	100			(7.5-7.7') SAND with CLAY, fine grained, loose, very pale brown, wet, non plastic, non cohesive	SP CL	
9				(7.7-7.9') SANDY CLAY, soft, reddish yellow, wet, low plasticity, cohesive	SW	
10				(7.9-8.9') SAND, fine to medium grained, loose, reddish yellow, wet, non plastic, non cohesive		
11				(8.9-10') CLAY with SAND, soft, very pale brown, moist, medium plasticity, cohesive	CL	
End of Boring						

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/11/2016
 Weather : 80s, Sunny
 Northing (US ft) : 571119.28
 Easting (US ft) : 1464273.31

Boring ID: A10-010-SB

(page 1 of 2)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		2.9		(0-0.4') ASPHALT, loose, dark gray, dry, non plastic, non cohesive	-	
		53.2	A10-010-SB-1	(0.4-0.8') SILT, soft, brown, dry, non plastic, non cohesive	ML	Slightly vitreous
				(0.8-1.3') SAND and very small GRAVEL, loose, very dark brown, dry, non plastic, non cohesive	SP/GP	
				(1.3-2') SLAG, SAND to GRAVEL sized, loose, gray and red, dry to wet, non plastic, non cohesive	GP/SP	Moderate oxidation
96		147.5		(2-3.5') CLAYEY SAND, dense, very pale brown, moist to very moist, non plastic, non cohesive	SP-SC	
		31.7		(3.5-4.5') CLAY, very firm, light gray and very pale brown, dry, medium plasticity, cohesive	CL	
		0.3		(4.5-5') SAND, fine grained, medium dense, very pale brown, wet, non plastic, non cohesive	SP	
5		-		(5-6') SAND, fine to medium grained, loose, light brownish gray, wet, non plastic, non cohesive	SW	
		13.3		(6-7.5') SANDY CLAY with small pockets of SAND, soft, light brownish gray, wet, low plasticity, cohesive	CL	
90		319.9	A10-010-SB-8	(7.5-10') CLAY with SAND, very firm, light gray and reddish yellow mottling, high plasticity, cohesive	CL	Strong odor at 7.5' bgs
		3.4			CL	
		5.5	A10-010-SB-10			
10		-		(10-15') CLAY with SAND, very soft, very pale brown grading to very pale brown and reddish yellow mottling, very moist, high plasticity, cohesive		
		-				
70		-			CL	
		-				
		-				
15		-				

Total Borehole Depth: 24' bgs.
 Boring terminated at 24' bgs due to water and piezometer installation.



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/11/2016
 Weather : 80s, Sunny
 Northing (US ft) : 571119.28
 Easting (US ft) : 1464273.31

Boring ID: A10-010-SB

(page 2 of 2)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
15		-		(15-17') CLAY, very soft, light brownish gray, wet, high plasticity, cohesive	CL	Wet at 17' bgs
	100	-		(17-20') SAND, fine to medium grained, medium dense, strong brown to reddish yellow, wet, non plastic, non cohesive	SW	
20		-		(20-23') SAND, fine to medium grained, loose, very pale brown to light gray to gray, wet, non plastic, non cohesive	SW	
	100	-		(23-24') CLAY, soft, dark gray, moist, high plasticity, cohesive	CL	
25				End of Boring		
30						

Total Borehole Depth: 24' bgs.
 Boring terminated at 24' bgs due to water and piezometer installation.



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/12/2016
 Weather : 80s, Sunny
 Northing (US ft) : 571222.23
 Easting (US ft) : 1464135.22

Boring ID: A10-011-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		192.2	A10-011-SB-1	(0-1.5') SILTY SLAG, GRAVEL and SAND sized, loose, brown and light gray, dry, non plastic, non cohesive	GP-GM	
		207.3		(1.5-2.5') SILT, firm, brownish yellow, dry, non plastic, non cohesive	ML	
	100	40.0		(2.5-5') SILTY CLAY with very thin layer of SAND at depth, very firm, brownish yellow and reddish yellow mottling, dry, low plasticity, cohesive	CL	
		41.3				
		26.6				
5		231.6		(5-6') SILTY CLAY, very firm, light gray and reddish yellow, dry, low plasticity, cohesive	CL	
		269.0	A10-011-SB-7	(6-8') CLAY with SAND, very firm, light gray and reddish yellow mottling, dry, medium plasticity, cohesive	CL	
	100	30.0				
		0.9		(8-10') CLAY with SAND, soft, light gray and reddish yellow mottling, moist, high plasticity, cohesive	CL	
		15.2	A10-011-SB-10			
10		0.0		(10-14') CLAY, firm grading to soft, very pale brown with trace reddish yellow mottling, moist to very moist, high plasticity, cohesive	CL	
	100	0.0				
		0.0				
		0.0				
15		-		(14-15') CLAY, very soft, very pale brown, very moist to wet, high plasticity, cohesive	CL	Wet at 14' bgs
End of Boring						

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/12/2016
 Weather : 80s, Sunny
 Northing (US ft) : 571211.06
 Easting (US ft) : 1464132.14

Boring ID: A10-012-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		6.2	A10-012-SB-1	(0-0.9') ORGANIC SILT, soft, brown, dry, non plastic, non cohesive	OL/OH	Small roots throughout
		102.7		(0.9-2') SILTY SLAG, GRAVEL and SAND sized	GP-GM	
	100	80.1		(2-3') CLAY, firm, brown, moist, high plasticity, cohesive	CH	
		65.3	A10-012-SB-4	(3-3.5') CLAY, firm, brown and reddish yellow, dry, medium plasticity, cohesive	CL	Wet at 6' bgs
		3.8		(3.5-5.5') SAND, fine to medium grained, medium dense, reddish yellow, moist, non plastic, non cohesive	SW	
5		3.7		(5.5-6') SILTY SAND, very fine grained, firm, light gray, non plastic, non cohesive	SM	
		-		(6-6.5') SAND, loose, light gray, wet, non plastic, non cohesive	SW	
	100	-		(6.5-8') SANDY CLAY, firm, reddish yellow and light gray mottling, moist, cohesive, medium plasticity, cohesive	CL	
		-		(8-10') CLAY, firm, reddish yellow and light gray mottling, moist, high plasticity, cohesive	CL	
10		2.2		End of Boring		

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/11/2016
 Weather : 80s, Sunny
 Northing (US ft) : 571121.34
 Easting (US ft) : 1464433.29

Boring ID: A10-013-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		-	A10-013-SB-1	(0-0.2') ORGANIC SILT, soft, brown, dry, non plastic, non cohesive	OL	Small roots throughout
				(0.2-3') SILT, very firm, brown, dry, non plastic, non cohesive		
		3.7			ML	
90		11.4				
		10.7	A10-013-SB-4	(3-4.5') SILTY CLAY, very firm, light gray and reddish yellow, dry, low plasticity, cohesive	CL	
		9.0		(4.5-6') SAND, fine grained, medium dense, light gray and reddish yellow, moist to very moist, non plastic, non cohesive	SP	Wet at 6' bgs
5		-		(6-6.5') SANDY CLAY, soft, light gray and reddish yellow, wet, low plasticity, cohesive	CL	
		-		(6.5-7.5') SAND, medium dense, light gray and reddish yellow, wet, non plastic, non cohesive	SP	
		-		(7.5-8') SANDY CLAY, soft, light gray and reddish yellow, wet, low plasticity, cohesive	CL	
		-		(8-9.7') CLAY with SAND, soft, light gray and reddish yellow mottling, moist, high plasticity, cohesive	CL	
100		-		(9.7-10') SANDY CLAY, soft, very pale brown, very moist, high plasticity, cohesive	CL	
10		-		End of Boring		

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/21/2016
 Weather : 80s, Sunny
 Northing (US ft) : 571091.15
 Easting (US ft) : 1464396.38

Boring ID: A10-014-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0				(0-0.5') CONCRETE, loose, light gray, dry, non plastic, non cohesive	NA	Hand augered
				(0.5-1') SLAG SAND and GRAVEL, loose, light gray, dry, non plastic, non cohesive	GP/SP	
		0.0	A10-014-SB-2	(1-5') SILTY CLAY, soft, yellowish brown and very pale brown, dry to moist, medium plasticity, cohesive	CL	
100		0.0				
		0.0				
		0.0	A10-014-SB-5			
5	100	0.0		(5-6.3') CLAY, soft, yellowish brown and light gray mottling, dry to moist, high plasticity, cohesive	CL	Wet at 5' bgs
		0.1		(6.3-6.5') CLAYEY SAND, fine grained, loose, yellowish brown, moist, non plastic, non cohesive	SP	
				End of boring		
10						

Total Borehole Depth: 6.5' bgs.
 Boring terminated at 6.5' bgs.



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/11/2016
 Weather : 80s, Sunny
 Northing (US ft) : 571084.12
 Easting (US ft) : 1464416.22

Boring ID: A10-015-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		3.9	A10-015-SB-1	(0-0.1') ASPHALT, loose, drak gray, dry, non plastic, non cohesive	ML	Wet at 6.5' bgs
		4.6		(0.1-0.7') SILT with GRAVEL, soft, brown, dry, non plastic, non cohesive	CL	
	100	2.6		(0.7-4.5') CLAY, firm, reddish yellow and light gray mottling, moist, low plasticity, cohesive		
		2.9				
5		5.0	A10-015-SB-5	(4.5-8') SAND, fine grained, medium dense, reddish yellow and light gray, moist to wet, non plastic, non cohesive	SP	
		-			SP-SC	
	60	1.3		(8-10') CLAYEY SAND, loose, reddish yellow and light gray, wet, non plastic, non cohesive		
		0.5				
10		-		(10-11.5') SANDY CLAY, very soft, wet, high plasticity, cohesive	CL	
		-			SW	
	80	-		(11.5-12') SAND, fine to medium grained, loose, very pale brown, wet, non plastic, non cohesive		
		-		(12-14') CLAY with SAND, very soft, very pale brown and reddish yellow, very moist, high plasticity, cohesive	CL	
		-			CL	
		-		(14-15') CLAY, soft, gray, very moist, high plasticity, cohesive		
15				End of Boring		

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



ARM Group Inc.
Earth Resource Engineers
and Consultants

Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/21/2016
 Weather : 90s, Sunny
 Northing (US ft) : 571472.60
 Easting (US ft) : 1464064.32

Boring ID: A10-016-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0				(0-5') SILTY CLAY, soft, brown, dry, low plasticity, cohesive		some roots
1		-	A10-016-SB-1			
2	20	-			CL	
3		-				
4		28.0				
5		102.8	A10-016-SB-6	(5-6.5') SILTY CLAY, soft, grayish brown, very moist to wet, low plasticity, cohesive	CL	Wet at 6' bgs Strong odor, no visible product
6		189.7				
7	100	42.5		(6.5-5') SANDY CLAY, very soft, grayish brown, wet, low plasticity, cohesive	CL	
8		51.3				
9		78.5		(8-10') CLAY, hard, light gray and reddish yellow, dry, medium plasticity, cohesive	CL	
10				End of Boring		
11						

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/21/2016
 Weather : 90s, Sunny
 Northing (US ft) : 571544.56
 Easting (US ft) : 1464039.25

Boring ID: A10-017-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0			A10-017-SB-1	(0-2.5') CLAY with SILT, very soft, brown, wet, low plasticity, cohesive	CL	Wet at 4' bgs Moderate odor
1						
2	50	168.6		(2.5-3') CLAY with SILT, soft, brown, very moist, low plasticity, cohesive	CL	
3			A10-017-SB-4	(3-4') SILTY CLAY, very firm, light gray and reddish yellow, dry, low plasticity, cohesive	CL	
4		197.0				
5		29.5		(4-5') CLAYEY SAND, fine grained, loose, light gray, wet, non plastic, non cohesive	SP	
6					CL	
7	100					
8						
9						
10						
11				End of Boring		

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/14/2016
 Weather : 90s, Sunny
 Northing (US ft) : 571522.55
 Easting (US ft) : 1464029.88

Boring ID: A10-018-SB

(page 1 of 2)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		-	A10-018-SB-1	(0-2.5') ORGANIC CLAY, very soft, yellowish brown, very moist to wet, medium plasticity, cohesive	CL	Abundant organic matter
80		282.2		(2.5-5') CLAY, soft to firm, light olive brown, moist, high plasticity, cohesive	CL	Moderate odor
		154.6				
5		386.5	A10-018-SB-5	(5-8.5') SANDY CLAY, more SAND with depth, very soft, light olive brown, wet, high plasticity, cohesive	CL	Super saturated CLAY at 6.5' bgs
70		185.6				
		118.2		(8.5-10') CLAY with trace SAND, soft to firm, reddish yellow and light gray and very pale brown mottling, moist, high plasticity, cohesive	CL	
10		31.3				
		-		(10-15') CLAY with SAND, soft to firm, very pale brown with trace light gray and reddish yellow mottling, very moist to moist, high plasticity, cohesive	CL	
50		-				
		-				
15		-				

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/14/2016
 Weather : 90s, Sunny
 Northing (US ft) : 571522.55
 Easting (US ft) : 1464029.88

Boring ID: A10-018-SB

(page 2 of 2)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
15		-		(15-19.5') CLAY with SAND, very soft, very pale brown with trace light gray and reddish yellow mottling, very moist to moist, high plasticity, cohesive	CL	Wet at 20' bgs
100		-			CL	
20		-		(19.5-20') SANDY CLAY, very soft, very pale brown, moist, high plasticity, cohesive	CL	
50		-		(20-23') SAND with CLAY, fine to medium grained, very soft, light olive brown, wet, non plastic, non cohesive	SW	
25		-		(23-25') SAND, medium dense, very pale brown, wet, non plastic, non cohesive	SW	
25		-		(25-27') No core recovered due to heaving sand; driller pushed to 27' and installed piezometer.		
End of Boring						
30						

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/11/2016
 Weather : 80s, Sunny
 Northing (US ft) : 571297.81
 Easting (US ft) : 1464487.94

Boring ID: A10-019-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		10.4		(0-1') CONCRETE, loose, light gray, dry, non plastic, non cohesive	-	
		15.6	A10-019-SB-2	(1-1.3') SILTY SAND with small GRAVEL, fine to medium grained, loose, brown, wet, non plastic, non cohesive	SM	
	100	19.6		(1.3-4') SILT, hard, very pale brown, dry, low plasticity, cohesive	ML	
		14.8	A10-019-SB-4			
5		3.7		(4-5.5') SANDY CLAY, firm, very pale brown with trace reddish yellow mottling, moist, medium plasticity, cohesive	CL	
		0.0		(5.5-6.5') CLAYEY SILT, hard, light gray and reddish yellow, dry, low plasticity, cohesive	ML	
	100	10.0		(6.5-10') CLAY, hard, very pale brown and reddish yellow mottling, dry, medium plasticity, cohesive		
		10.7			CL	
		6.9				
		5.5	A10-019-SB-10			
10		-		(10-15') CLAY, soft to very soft, very pale brown and reddish yellow mottling, moist to wet, high plasticity, cohesive		
	90	0.0			CL	
		0.0				
		0.0				
15		0.0				Wet at 15' bgs
End of Boring						

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/8/2016
 Weather : 90s, Sunny
 Northing (US ft) : 571349.75
 Easting (US ft) : 1464418.77

Boring ID: A10-020-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		-		(0-0.3') CONCRETE, loose, white, dry, non plastic, non cohesive	-	
	70	8.0	A10-020-SB-1.5	(0.3-4') SLAG, with SILT, GRAVEL and SAND, brown, moist to wet, non plastic, non cohesive	GW/SW	
		32.4				
		0.9				
5		0.3		(4-6.5') CLAYEY SILT, hard, reddish yellow and very pale brown mottling, dry, low plasticity, cohesive	ML	
		4.0				
	100	8.7	A10-020-SB-7	(6.5-7.5') CLAY, very soft to hard, brown to reddish yellow and very pale brown, wet, high plasticity, cohesive	CL	
		-		(7.5-8.5') SANDY CLAY, very soft, very pale brown, wet, low plasticity, cohesive	CL	
		-			SW	
10		3.5	A10-020-SB-10	(8.5-9') SAND, fine grained, loose, very pale brown, wet, non plastic, non cohesive	CL	
		-		(9-10') SANDY CLAY, hard, reddish yellow and yellowish brown, dry, low plasticity, cohesive	CL	
	70	-		(10-12.5') SANDY CLAY, firm, reddish yellow and very pale brown, moist, low plasticity, cohesive	CL	
		-		(12.5-15') CLAY, firm to very soft, reddish yellow and very pale brown mottling, moist to wet, high plasticity, cohesive	CL	
15		-		(15-17') CLAY with trace SAND, soft to very soft, very pale brown, wet, high plasticity, cohesive	CL	
		-				
	100	-		(17-20') SAND, fine to medium grained, medium dense to dense, reddish yellow, wet, non plastic, non cohesive	SW	Wet at 17' bgs
		-				
20		-		(20-24') No core recovered due to heaving sand. Drillers bored to 24' and set piezometer.		
		-				
		-				
		-				
25				End of boring		

Total Borehole Depth: 24' bgs.
 Boring terminated at 24 bgs due to water and installation of piezometer.



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/11/2016
 Weather : 80s, Sunny
 Northing (US ft) : 571257.27
 Easting (US ft) : 1464510.42

Boring ID: A10-021-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		2.8		(0-1') CONCRETE, loose, white, dry, non plastic, non cohesive	NA	
	96	12.4	A10-021-SB-2	(1-2') GRAVELLY SILT, firm, brown and black, dry, non plastic, non cohesive	ML	
		8.8		(2-5') CLAY, hard, reddish yellow, dry, low plasticity, cohesive	CL	
		11.4	A10-021-SB-4			
5		3.2				
		2.1		(5-6.5') CLAYEY SILT, very firm, moist, low plasticity, cohesive	ML	
	100	9.4		(6.5-6.7') SAND, fine grained, medium dense, reddish yellow, very moist, non plastic, non cohesive	SP	
		6.3		(6.7-8.5') CLAY, hard, very pale brown and reddish yellow, dry, medium plasticity, cohesive	CL	
		0.2				
		0.4	A10-021-SB-10	(8.5-10') SANDY CLAY, soft to firm, moist to very moist, medium plasticity, cohesive	CL	
10		-		(10-15') CLAY, soft, very pale brown with reddish yellow mottling, moist, high plasticity, cohesive	CL	Saturated CLAY
	60	0.0				
		0.0				
		0.0				
15		-		(15-17') CLAY, very soft, dark yellowish brown, very moist, high plasticity, cohesive	CL	
	100	-		(17-20') SAND, fine to medium grained, loose, strong brown to reddish yellow, wet, non plastic, non cohesive	SW	Wet at 17' bgs
		-				
20		-		(20-24') No recovery due to apparent heaving sand; drillers advanced to 24' and installed piezometer.		
	0	-				
		-				
		-				
25				End of boring		

Total Borehole Depth: 24' bgs.
 Boring terminated at 24' bgs due to water and piezometer installation.



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/11/2016
 Weather : 80s, Sunny
 Northing (US ft) : 571320.85
 Easting (US ft) : 1464538.93

Boring ID: A10-022-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		5.4		(0-0.1') ASPHALT, loose, very dark gray, dry, non plastic, non cohesive	-	Strong sweet odor, 1.5-2.5' bgs
				(0.1-1.5') SLAG GRAVEL and SAND, loose, light gray, moist to wet, non plastic, non cohesive	GP/SP	
		5177	A10-022-SB-2	(1.5-2') SILT, hard, very dark gray, wet, non plastic, non cohesive	ML	
	100	1791		(2-2.5') SANDY SILT, very soft, very dark brown and gray, wet, low plasticity, cohesive	ML	
		740.3	A10-022-SB-4	(2.5-5') CLAY, hard, very pale brown and reddish yellow mottling, dry, low plasticity, cohesive	CL	
		129.4				
5		-		(5-8') SILTY CLAY, very firm, moist, low plasticity, cohesive	CL	Wet at 8' bgs
		-				
	70	-		(8-9.5') SAND, fine grained, medium dense, very pale brown, wet, non plastic, non cohesive	SP	
		-		(9.5-10') SANDY CLAY, soft, very pale brown, wet, low plasticity, cohesive	CL	
10				End of Boring		

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. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/8/2016
 Weather : 90s, Sunny
 Northing (US ft) : 571834.23
 Easting (US ft) : 1464150.48

Boring ID: A10-023-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		-	A10-023-SB-1	(0-2.5') SILT with small GRAVEL, soft, dark brown, dry, non plastic, non cohesive	ML	Trace organics
	90	0.9				
		2.0		(2.5-4.2') SLAG GRAVEL and SAND, loose, gray to brown, dry to very moist at bottom, non plastic, non cohesive	GP/SP	
		7.7	A10-023-SB-4			
		0.2		(4.2-6.5') SAND, medium dense, reddish yellow, very moist to wet, non plastic, non cohesive	SP	Wet at 6' bgs
5		-				
	90	-		(6.5-8.5') SLAG GRAVEL and SAND, loose, brown and red, wet, non plastic, non cohesive	GP/SP	
		-				
		-		(8.5-10') CLAY with trace SAND, very soft, light olive brown, wet, high plasticity, cohesive	CL	
10				End of Boring		

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : W. Mader P.G., CPSS
 Drilling Company : Green Services, Inc
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/7/2016
 Weather : 90s, Sunny
 Northing (US ft) : 571660.31
 Easting (US ft) : 1464637.15

Boring ID: A10-024-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		-		(0-1.9') ORGANIC SILT, soft, dark brown, moist, non plastic, non cohesive	OL	Small roots, some small wood fragments
	70	2.6	A10-024-SB-1			
		1.3		(1.9-2.5') SILTY SAND with small GRAVEL, loose, brown to dark brown and gray, dry, non plastic, non cohesive	SM	Large wood fragments throughout
		1.3		(2.5-5') SILT, soft, black, moist, non plastic, non cohesive	ML	
		0.3	A10-024-SB-5			
5		-		(5-7') WOOD fragments with CLAY, loose, dark brown, very moist, non plastic, non cohesive	CL	Wet at 11' bgs
	90	0.3				
		0.1		(7-8') SANDY CLAY, very soft, yellowish brown, very moist to wet, high plasticity, cohesive	CL	
		0.0		(8-10') CLAY, soft, yellowish brown, wet, high plasticity, cohesive	CL	
		0.0				
10		-		(10-15') SAND, fine to medium grained, dense, reddish yellow, wet, non plastic, non cohesive	SW	
	80	-				
		-				
		-				
15		-		(15-18') SANDY CLAY, soft, light gray, moist, low plasticity, cohesive	CL	
	50	-				
		-		(18-20') SAND, fine grained, dense, reddish yellow and pale brown, wet, non plastic, non cohesive	SP	
		-				
20				End of Boring		

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/7/2016
 Weather : 90s, Sunny
 Northing (US ft) : 571918.78
 Easting (US ft) : 1464914.07

Boring ID: A10-025-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		63.6	A10-025-SB-1	(0-0.7') ORGANIC SILT, soft, very dark, non plastic, non cohesive	OL	Tufts of grass and roots
		56.7		(0.7-1.5') SLAG GRAVEL, loose, gray, dry, non plastic, non cohesive	GP/SP	
	94	38.8		(1.5-2.5') SILT, very firm, reddish yellow with pale brown mottling, dry, low plasticity, cohesive	ML	
		13.9	A10-025-SB-4	(2.5-5') SAND grading to SANDY CLAY, fine grained, very firm, reddish yellow, dry to moist, non plastic grading to low plasticity, non cohesive grading to cohesive	SP-CL	
		5.6				
5		0.2		(5-10') SILTY CLAY, very firm to soft, reddish yellow with pale brown mottling, dry to wet, cohesive, medium plasticity	CL	Wet at 15' bgs
		0.2				
100		0.3				
		0.0				
		0.0	A10-025-SB-10			
10		0.0		(10-15') CLAY, very soft, pale brown, very moist to wet, cohesive, high plasticity	CL	
		0.0				
100		0.0				
		0.0				
15		0.0				
		-		(15-20') SAND, fine to medium grained, medium dense, reddish yellow, wet, non plastic, non cohesive	SW	
		-				
100		-				
		-				
20		-				
End of Boring						

Total Borehole Depth: 20' bgs.
 Boring terminated at 20' bgs due to water and installation of piezometer.



ARM Group Inc.
Earth Resource Engineers
and Consultants

Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/8/2016
 Weather : 90s, Sunny

Northing (US ft) : 572000.90
 Easting (US ft) : 1464550.22

Boring ID: A10-026-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		-	A10-026-SB-1	(0-0.8') SILT, firm dark brown, moist, non plastic, non cohesive	ML	Trace CLAY lenses
		-		(0.8-4') SLAG with SILT, SAND, and some GRAVEL, loose, brown, moist, non plastic, non cohesive	SW	
60	16.3	127.1				
		142.8	A10-026-SB-5	(4-8') SLAG GRAVEL, loose, brown and gray with white soft coating on SLAG, moist to wet, non plastic, non cohesive	GP	
5		-				
		22.2				Wet at 7.5' bgs
80	11.1	0.2		(8-8.9') CLAY with some SAND and GRAVEL at top, very soft, black, wet, high plasticity, cohesive	CL	
		0.3		(8.9-10') CLAY, hard, reddish yellow, dry, low plasticity, cohesive	CL	
10				End of Boring		

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/8/2016
 Weather : 90s, Sunny
 Northing (US ft) : 572292.23
 Easting (US ft) : 1464919.22

Boring ID: A10-027-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		-	A10-027-SB-1	(0-0.5') ORGANIC SILT, soft, brown, dry, non plastic, non cohesive	OL	Abundant very small roots
	60	-		(0.5-4') SILT with trace SAND, soft, brown grading to dark brown, dry, non plastic, non cohesive	ML	
		2.1				
		97.0	A10-027-SB-4			
		0.1		(4-5') CLAY, soft, yellowish brown, moist, medium plasticity, cohesive	CL	
5		0.3		(5-6') SAND with CLAY, fine to medium grained, medium dense, brownish yellow, moist, non plastic, non cohesive	SW/SC	
		0.6		(6-10') CLAY, very firm to firm, brownish yellow with reddish yellow mottling, moist, high plasticity, cohesive	CL	
	100	6.2				
		0.5				
		0.2				
10		-		(10-14.8') CLAY with trace SAND, soft to very soft, brownish yellow, moist, to very moist, high plasticity, cohesive	CL	Very saturated CLAY beginning at 12.5' bgs
	100	-				
		-				
		-				
15		-		(14.8-15') SANDY CLAY, soft, light gray, wet, medium plasticity, cohesive	CL	Wet at 15' bgs
		-		(15-16.2') SAND, fine grained, loose, brown, wet, non plastic, non cohesive	SP	
		-		(16.2-16.9') SANDY CLAY, soft, light gray, wet, medium plasticity, cohesive	CL	
	80	-		(16.9-20') SAND, fine to medium grained, medium dense, yellowish red to reddish yellow, wet, non plastic, non cohesive	SW	
		-				
20		-		(20-22') Apparent heaving sand, no sleeve collected, drillers advanced to 22' and set piezometer		
		-				
End of Boring						

Total Borehole Depth: 22' bgs.
 Boring terminated at 22' bgs due to water and piezometer installation.



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/11/2016
 Weather : 80s, Sunny
 Northing (US ft) : 571004.46
 Easting (US ft) : 1464397.18

Boring ID: A10-028-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		0.2		(0-0.5') CONCRETE, loose, white, dry, non plastic, non cohesive	-	Wet at 12' bgs Very saturated CLAY
			028-SB-1.5	(0.5-1') SILT, very firm, reddish yellow, dry, non plastic, non cohesive	ML	
	94	1.0		(1-4.5') SILTY CLAY, very firm, reddish yellow and very pale brown mottling, dry, low plasticity, cohesive	CL	
		1.8				
		1.9				
		4.1		(4.5-5') SILTY SAND, fine grained, medium dense, reddish yellow, moist, non plastic, non cohesive	SM	
5		5.0	A10-028-SB-6	(5-5.5') SANDY CLAY, soft, reddish yellow, very moist, low plasticity, cohesive	CL	
		3.8		(5.5-6') SILTY SAND, fine grained, medium dense, reddish yellow, wet, non plastic, non cohesive	SM	
	100	2.6		(6-10') CLAY, very firm, very pale brown and reddish yellow mottling, moist, high plasticity, cohesive	CL	
		1.8				
		1.0	A10-028-SB-10			
10		-		(10-13') SANDY CLAY, very soft, very pale brown and reddish yellow mottling, wet, high plasticity, cohesive	CL	
	60	-				
		-		(13-15') CLAY, very soft, very pale brown with trace reddish yellow mottling, wet, high plasticity, cohesive	CL	
		-				
15				End of Boring		

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



ARM Group Inc.
Earth Resource Engineers
and Consultants

Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/12/2016
 Weather : 80s, Sunny

Northing (US ft) : 570735.43
 Easting (US ft) : 1464688.13

Boring ID: A10-029-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		1.9	A10-029-SB-1	(0-1.5') SILTY SAND, fine grained, loose, brownish yellow, dry, non plastic, non cohesive	SM	Wet at 7' bgs
		7.8		(1.5-5.3') CLAY, firm to soft, brown and very pale brown and reddish yellow mottling, dry to very moist, low plasticity to medium plasticity, cohesive	CL	
100		7.3				
		3.6	A10-029-SB-4			
		0.0				
5		0.0		(5.3-8') SAND, fine grained, medium dense, brownish yellow and reddish yellow, moist to wet, non plastic, non cohesive	SP	
	100	-				
		-		(8-10') SAND, fine grained, loose, reddish yellow and light gray then strong brown, wet, non plastic, non cohesive	SP	
10				End of Boring		

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/12/2016
 Weather : 80s, Sunny
 Northing (US ft) : 570761.87
 Easting (US ft) : 1464431.41

Boring ID: A10-030-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0				(0-0.5') SANDY SILT, soft, brown, dry, non plastic, non cohesive	ML	
		9.8	A10-030-SB-1	(0.5-2') SANDY SILT with SLAG GRAVEL, soft, dark brown, dry, non plastic, non cohesive	ML	
		3.9				
	90	3.3		(2-3.1') CLAYEY SILT, very firm, brownish yellow and reddish yellow, dry, low plasticity, cohesive	ML	
		2.9		(3.1-7') CLAY, hard, reddish yellow and brownish yellow, dry, low plasticity, cohesive		
5		6.8			CL	
		2.5				
		8.5	A10-030-SB-7			
	100	-		(7-7.5') SANDY CLAY, firm, reddish yellow, moist, low plasticity, cohesive	CL	Wet at 7.5' bgs
		0.2		(7.5-10') SAND, fine to medium grained, loose grading to medium dense, reddish yellow and light gray, wet, non plastic, non cohesive	SW	
		0.0				
10				End of Boring		

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/8/2016
 Weather : 90s, Sunny
 Northing (US ft) : 571327.23
 Easting (US ft) : 1464457.87

Boring ID: A10-031-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		-		(0-0.5') CONCRETE, loose, white, dry, non plastic, non cohesive	NA	Saturated CLAY 3-4.3' bgs
		34.9	A10-031-SB-1.5	(0.5-2.5') SILTY SLAG, GRAVEL and SAND-sized, loose, red, wet, non plastic, non cohesive	SW/GW	
	92	1.7		(2.5-3') SILT, hard, reddish yellow, dry, low plasticity, cohesive	ML	
		0.3		(3-4.3') CLAY with SAND, very soft, white, wet, low plasticity, cohesive	CL	
		4.8		(4.3-5') CLAY, hard, white and yellowish red, dry, low plasticity, cohesive	CL	
5		1.0		(5-8.5') CLAY, hard, reddish yellow and light gray mottling, dry, medium plasticity, cohesive	CL	
	100	8.5				
		8.6	A10-031-SB-8			
		0.5		(8.5-10') SANDY CLAY, very firm, reddish yellow and light gray mottling, moist, medium plasticity, cohesive	CL	
		0.4	A10-031-SB-10			
10		-		(10-14') CLAY, very firm to firm, reddish yellow, moist, high plasticity, cohesive	CL	
	100	-				
		-				
		-		(14-15') SANDY CLAY, soft, very pale brown, very moist to wet, high plasticity, cohesive	CL	Wet at 14' bgs
15				End of Boring		

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/7/2016
 Weather : 90s, Sunny
 Northing (US ft) : 571563.52
 Easting (US ft) : 1464896.33

Boring ID: A10-032-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0			A10-032-SB-1	(0-0.5') CONCRETE, loose, white, dry, non plastic, non cohesive	NA	
				(0.5-1.8') SILT with SAND, soft, very dark brown, dry to moist, non plastic, non cohesive	ML	
				(1.8-3.5') BRICK GRAVEL and SAND, loose, yellow, dry, non plastic, non cohesive	-	
60		2.5				
		13.6		(3.5-5') SLAG GRAVEL and SAND, loose, gray and dark brown, dry, non plastic, non cohesive	GP/SP	
		34.6	A10-032-SB-5			
5				(5-7') SILTY SLAG GRAVEL and SAND, loose, brown, dry, non plastic, cohesive	GP-GM	
		2.4				
70		1.6		(7-9') SLAG, BRICK, and GRAVEL, loose, dark gray and yellow, dry, non plastic, non cohesive	GP	
		0.8				
		1.8		(9-9.5') SILTY SLAG GRAVEL and SAND, loose, brown, dry, cohesive, non plastic	GP-GM	
10				(9.5-10') SILT, soft, grayish brown, wet, low plasticity, cohesive	ML	
End of Boring						

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/6/2016
 Weather : 90s, Sunny
 Northing (US ft) : 570913.26
 Easting (US ft) : 1464890.86

Boring ID: A10-033-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		-	A10-033-SB-1	(0-4') CLAY with SILT, firm to soft, reddish yellow and light brown mottling, moist to wet, medium plasticity, cohesive	CL	
	75	0.4				
		0.7				
		1.9	A10-033-SB-4			
5		0.1		(4-4.4') CONCRETE with large SLAG GRAVEL, hard, gray, dry, non plastic, non cohesive	-	
		0.2		(4.4-8.5') CLAY, soft to very firm, reddish yellow and pale brown, moist to dry, medium plasticity, cohesive	CL	
	100	0.3				
		1.5				
		0.3				
		0.3		(8.5-10') SAND, fine grained, medium dense, light gray and very pale brown and yellow, wet, non plastic, non cohesive	SP	Wet at 8.5' bgs
10				End of Boring		

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



Client : EnviroAnalytics Group
 ARM Project No. : 150298M-5-3
 Project Description : Sparrows Point - Parcel A10
 Site Location : Sparrows Point, MD
 ARM Representative : L. Perrin
 Checked by : M. Replogle, E.I.T.
 Drilling Company : Green Services, Inc.
 Driller : Don Marchese
 Drilling Equipment : Geoprobe 7822DT

Date : 7/7/2016
 Weather : 80s, Sunny
 Northing (US ft) : 571288.34
 Easting (US ft) : 1464804.71

Boring ID: A10-034-SB

(page 1 of 1)

Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval	DESCRIPTION	USCS	REMARKS
0		-	None (See Below)	(0-3.1') ASPHALT, loose, gray, dry, non plastic, non cohesive	-	Very saturated
40		-		(3.1-4') SLAG GRAVEL and SAND, loose, light gray and brown, dry, non plastic, non cohesive	GP/SP	
5		3.5		(4-7.1') SANDY SILT, soft, dark brown, moist, non plastic, non cohesive	ML	
		3.7				
60		-		(7.1-8') CLAY, very soft, brown, very moist to wet, medium plasticity, cohesive	CL	
		0.3		(8-12') CLAY, very firm, yellowish brown and light gray mottling, dry, medium plasticity, cohesive	CL	
10		0.3				
		0.0		(12-13') CLAY, very soft, yellowish brown with trace reddish yellow, very moist to wet, medium plasticity, cohesive	CL	
100		0.0		(13-15') CLAY, very firm, yellowish brown and light gray mottling, dry, medium plasticity, cohesive	CL	
		0.0		(15-17') CLAY, soft, yellowish brown, moist, medium plasticity, cohesive	CL	
15		0.0	(17-19') CLAY, very soft, yellowish brown, very moist to wet, high plasticity, cohesive	CL		
		0.0	(19-20') SANDY CLAY, very soft, very moist to wet, high plasticity, cohesive	CL		
20		-	(20-25') No recovery due to apparent heaving sand; drillers advanced to 25' and installed piezometer.			
25	0	-	End of Boring			

Total Borehole Depth: 25' bgs.
 Boring terminated at 25' bgs due to water, sand layer and piezometer installation.
 No samples taken as per work plan.

APPENDIX C

APPENDIX D



ARM Group Inc.

Earth Resource Engineers and Consultants

1129 West Governor Road • P.O. Box 797
Hershey, PA 17033-0797
Phone: (717) 533-8600 Fax: (717) 533-8605

SUBJECT SPARROWS POINT MD

UST LOCATE

AUTHOR R. Gecelesky

DATE 6-22-16

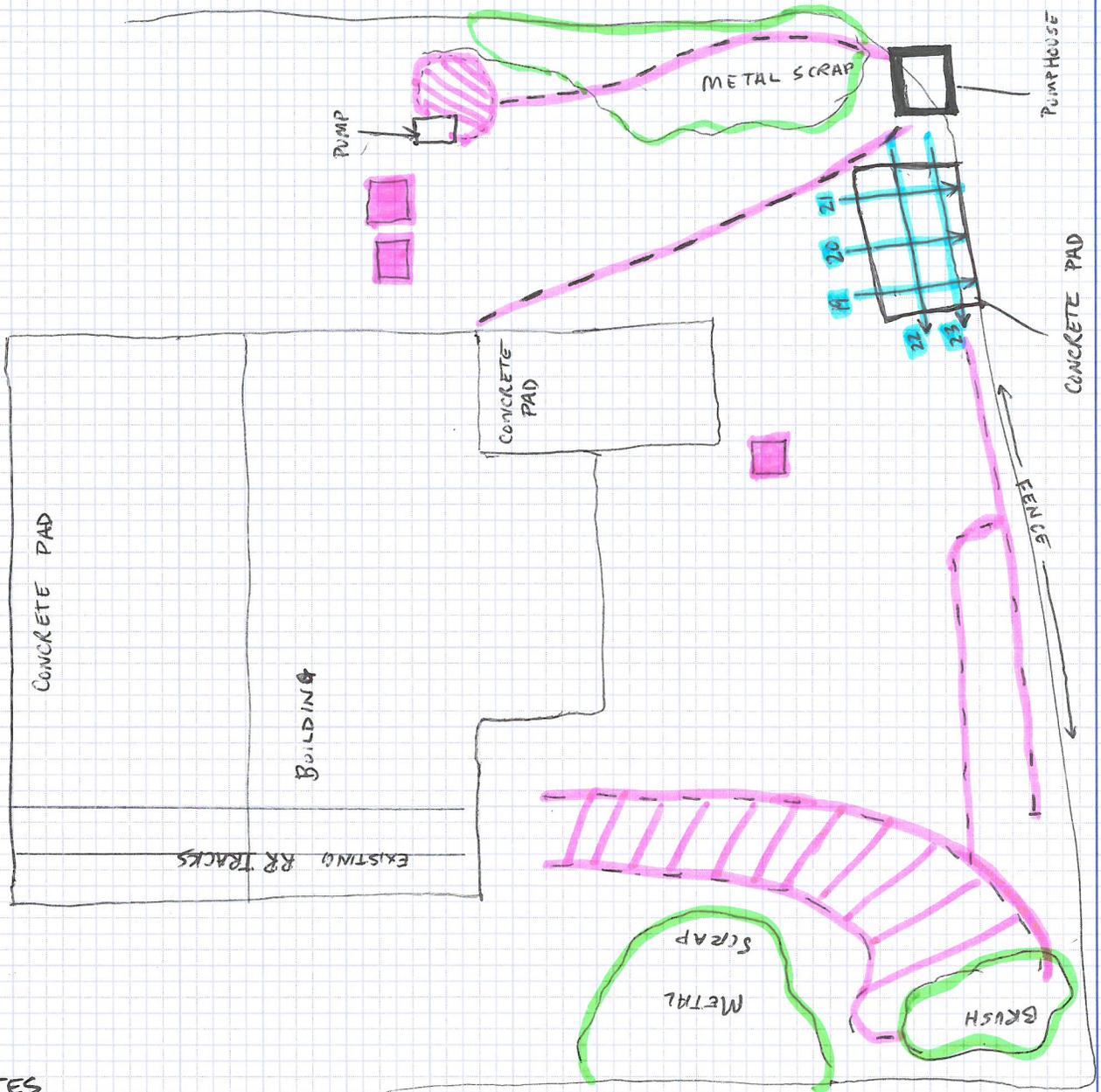
JOB NO. _____

CHECKED BY _____

DATE _____

PAGE _____ of _____

Reference



- METALLIC ANOMALIES
- GPR TRANSECTS
- METAL INTERFERENCE BRUSH

NOTES

- No evidence of UST's after Geophysical Survey
- All metallic anomalies are highlighted in pink, and spray painted in the field.
 - Metal debris on surface limited survey in some areas
- GPR showed 2 lines on east side of property. All other metal anomalies did not show conclusive evidence of obvious UST features with GPR.
- GPR Transects in blue were saved on file. No evidence of UST under concrete pad.

This document is the property of ARM Group Inc. and is delivered on the express condition that it is not to be disclosed, reproduced in whole or in part, or used for manufacture by anyone other than ARM Group Inc. This restriction does not apply to information obtained from another source.

APPENDIX E

APPENDIX F



LOG OF TEMPORARY GROUNDWATER SAMPLE COLLECTION POINT: A10-002-PZ

Client: EnviroAnalytics Group
Site: Sparrows Point - Area A Parcel A10
Sparrows Point, MD
ARM Project No.: 150298M-5-3
Page 1 of 1

Date Installed : 7/6/16
Casing/Riser Type : PVC
Borehole Diameter : 2.25"
Drilling Method : 7822DT Geoprobe
Driller : Don Marchese

Drilling Company : Green Services, Inc
TOC Elevation : 22.1'
0-Hr DTW : 9.2' TOC
48-Hr DTW : 9.5' TOC
ARM Representative : L. Perrin

Depth in Feet	Surf. Elev.	DESCRIPTION		REMARKS
0		Riser Type: PVC Riser Diameter: 1" Riser Stickup: 3.2'		Northing (US ft): 571161.93 Easting (US ft): 1464918.46 No product detected
1		Screen Type: PVC Screen Diameter: 1" Screen Amount: 10' Slot Size: 0.010"		
2		Sand Pack: Top: 5' bgs Bottom: 17' bgs Grain Size: WG #1		
3		Bentonite Seal: Top: 0 (surface) Bottom: 5' bgs Grain Size: 3/8" chips/granular (30-50 mesh)		
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17		End of Boring		
18				
19				
20				

Total Depth: 17' bgs

TOC: Top of PVC casing
DTW: Depth to water



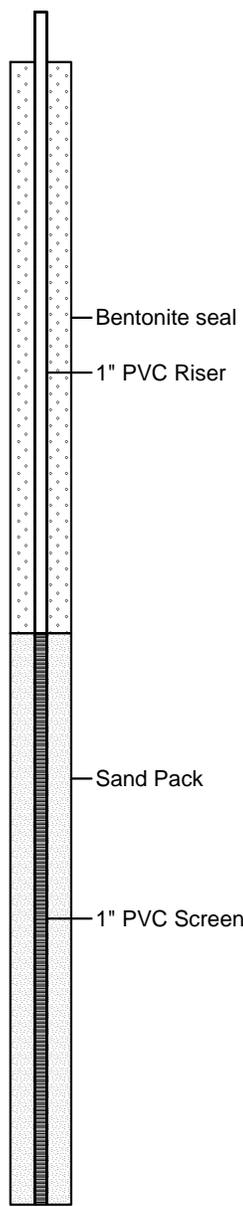
LOG OF TEMPORARY GROUNDWATER SAMPLE COLLECTION POINT: A10-010-PZ

Client: EnviroAnalytics Group
Site: Sparrows Point - Area A Parcel A10
Sparrows Point, MD
ARM Project No.: 150298M-5-3
Page 1 of 1

Date Installed : 7/11/16
Casing/Riser Type : PVC
Borehole Diameter : 2.25"
Drilling Method : 7822DT Geoprobe
Driller : Don Marchese

Drilling Company : Green Services, Inc
TOC Elevation : 18.0'
0-Hr DTW : 12.8' TOC
48-Hr DTW : 12.3' TOC
ARM Representative : L. Perrin

Depth in Feet	Surf. Elev.	DESCRIPTION	REMARKS
0		Riser Type: PVC Riser Diameter: 1" Riser Stickup: 3.7'	Northing (US ft): 571116.39 Easting (US ft): 1464272.67 No product detected
1			
2			
3		Screen Type: PVC Screen Diameter: 1" Screen Amount: 10' Slot Size: 0.010"	
4			
5		Sand Pack: Top: 12' bgs Bottom: 24' bgs Grain Size: WG #1	
6			
7			
8		Bentonite Seal: Top: 0 (surface) Bottom: 12' bgs Grain Size: 3/8" chips/granular (30-50 mesh)	
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25		End of Boring	



Total Depth: 24' bgs

TOC: Top of PVC casing
DTW: Depth to water



LOG OF TEMPORARY GROUNDWATER SAMPLE COLLECTION POINT: A10-015-PZ

Client: EnviroAnalytics Group
Site: Sparrows Point - Area A Parcel A10
Sparrows Point, MD
ARM Project No.: 150298M-5-3
Page 1 of 1

Date Installed : 7/11/16
Casing/Riser Type : PVC
Borehole Diameter : 2.25"
Drilling Method : 7822DT Geoprobe
Driller : Don Marchese

Drilling Company : Green Services, Inc
TOC Elevation : 20.1'
0-Hr DTW : 9.1' TOC
48-Hr DTW : 9.1' TOC
ARM Representative : L. Perrin

Depth in Feet	Surf. Elev.	DESCRIPTION		REMARKS
0		Riser Type: PVC Riser Diameter: 1" Riser Stickup: 3.8'	<p style="font-size: small;">Bentonite seal 1" PVC Riser Sand Pack 1" PVC Screen</p>	<p>Northing (US ft): 571076.94 Easting (US ft): 1464417.67</p> <p style="text-align: center;">No product detected</p>
1		Screen Type: PVC Screen Diameter: 1" Screen Amount: 10' Slot Size: 0.010"		
2		Sand Pack: Top: 2' bgs Bottom: 13.5' bgs Grain Size: WG #1		
3		Bentonite Seal: Top: 0 (surface) Bottom: 2' bgs Grain Size: 3/8" chips/granular (30-50 mesh)		
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14		End of Boring		
15				

Total Depth: 13.5' bgs

TOC: Top of PVC casing
DTW: Depth to water



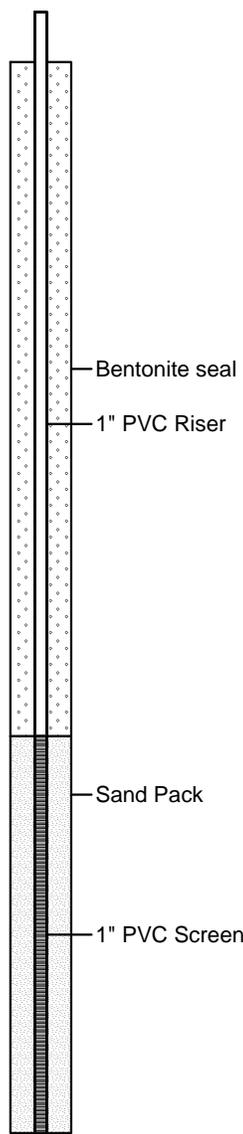
LOG OF TEMPORARY GROUNDWATER SAMPLE COLLECTION POINT: A10-018-PZ

Client: EnviroAnalytics Group
Site: Sparrows Point - Area A Parcel A10
Sparrows Point, MD
ARM Project No.: 150298M-5-3
Page 1 of 1

Date Installed : 7/14/16
Casing/Riser Type : PVC
Borehole Diameter : 2.25"
Drilling Method : 7822DT Geoprobe
Driller : Don Marchese

Drilling Company : Green Services, Inc
TOC Elevation : 18.7'
0-Hr DTW : 10.8' TOC
48-Hr DTW : 13.2' TOC
ARM Representative : L. Perrin

Depth in Feet	Surf. Elev.	DESCRIPTION	REMARKS
0		Riser Type: PVC Riser Diameter: 1" Riser Stickup: 3.5'	Northing (US ft): 571514.97 Easting (US ft): 1464077.29 No product detected
1			
2			
3			
4			
5			
6		Screen Type: PVC Screen Diameter: 1" Screen Amount: 10' Slot Size: 0.010"	
7			
8		2-5' PrePacked PVC Well Screen (17-27')	
9			
10			
11		Sand Pack: Top: 17' bgs Bottom: 27' bgs Grain Size: WG #1	
12			
13			
14			
15			
16		Bentonite Seal: Top: 0 (surface) Bottom: 12' bgs Grain Size: 3/8" chips/granular (30-50 mesh)	
17			
18		(0- 12') 3/8" chips	
19		2-2.5' Bentonite Sleeve (12-17')	
20			
21			
22			
23			
24			
25			
26			
27		End of Boring	
28			
29			
30			



Total Depth: 27' bgs

TOC: Top of PVC casing
DTW: Depth to water



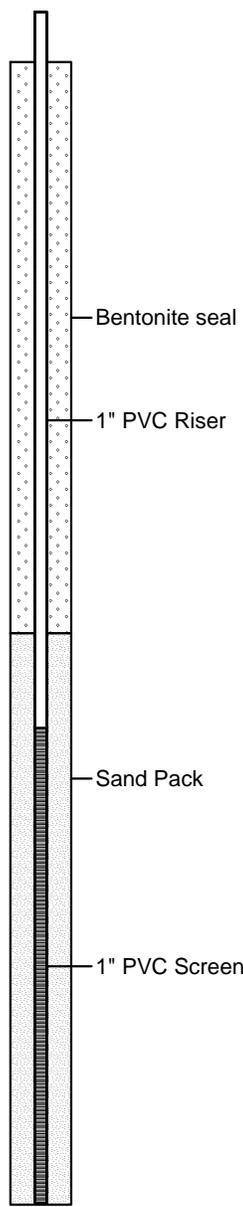
LOG OF TEMPORARY GROUNDWATER SAMPLE COLLECTION POINT: A10-020-PZ

Client: EnviroAnalytics Group
Site: Sparrows Point - Area A Parcel A10
Sparrows Point, MD
ARM Project No.: 150298M-5-3
Page 1 of 1

Date Installed : 7/8/16
Casing/Riser Type : PVC
Borehole Diameter : 2.25"
Drilling Method : 7822DT Geoprobe
Driller : Don Marchese

Drilling Company : Green Services, Inc
TOC Elevation : 13.6'
0-Hr DTW : 7.9' TOC
48-Hr DTW : 7.7' TOC
ARM Representative : L. Perrin

Depth in Feet	Surf. Elev.	DESCRIPTION	REMARKS
0		Riser Type: PVC Riser Diameter: 1" Riser Stickup: 1.4'	<p>Northing (US ft): 571348.36 Easting (US ft): 1464416.91</p> <p style="text-align: center;">No product det57134</p>
1			
2			
3			
4			
5		Screen Type: PVC Screen Diameter: 1" Screen Amount: 10' Slot Size: 0.010"	
6			
7			
8			
9			
10		Sand Pack: Top: 12' bgs Bottom: 24' bgs Grain Size: WG #1	
11			
12			
13			
14			
15		Bentonite Seal: Top: 0 (surface) Bottom: 12' bgs Grain Size: 3/8" chips/granular (30-50 mesh)	
16			
17			
18			
19			
20			
21			
22			
23			
24		End of Boring	
25			



Total Depth: 24' bgs

TOC: Top of PVC casing
DTW: Depth to water



LOG OF TEMPORARY GROUNDWATER SAMPLE COLLECTION POINT: A10-021-PZ

Client: EnviroAnalytics Group
Site: Sparrows Point - Area A Parcel A10
ARM Project No.: 150298M-5-3
Page 1 of 1

Date Installed : 7/11/16
Casing/Riser Type : PVC
Borehole Diameter : 2.25"
Drilling Method : 7822DT Geoprobe
Driller : Don Marchese

Drilling Company : Green Services, Inc
TOC Elevation : 13.3'
0-Hr DTW : 7.8' TOC
48-Hr DTW : 7.1' TOC
ARM Representative : L. Perrin

Depth in Feet	Surf. Elev.	DESCRIPTION		REMARKS
0		Riser Type: PVC Riser Diameter: 1" Riser Stickup: 1.5'		<p>Northing (US ft): 571256.27 Easting (US ft): 1464510.46</p> <p>No product detected</p>
1				
2				
3				
4				
5		Screen Type: PVC Screen Diameter: 1" Screen Amount: 10' Slot Size: 0.010"		
6				
7				
8				
9				
10		Sand Pack: Top: 12' bgs Bottom: 24' bgs Grain Size: WG #1		
11				
12				
13				
14				
15		Bentonite Seal: Top: 0 (surface) Bottom: 12' bgs Grain Size: 3/8" chips/granular (30-50 mesh)		
16				
17				
18				
19				
20				
21				
22				
23				
24		End of Boring		
25				

Total Depth: 24' bgs

TOC: Top of PVC casing
DTW: Depth to water



LOG OF TEMPORARY GROUNDWATER SAMPLE COLLECTION POINT: A10-024-PZ

Client: EnviroAnalytics Group
Site: Sparrows Point - Area A Parcel A10
Sparrows Point, MD
ARM Project No.: 150298M-5-3
Page 1 of 1

Date Installed : 7/7/16
Casing/Riser Type : PVC
Borehole Diameter : 2.25"
Drilling Method : 7822DT Geoprobe
Driller : Don Marchese

Drilling Company : Green Services, Inc
TOC Elevation : 14.4'
0-Hr DTW : 11.8' TOC
48-Hr DTW : 8.8' TOC
ARM Representative : L. Perrin

Depth in Feet	Surf. Elev.	DESCRIPTION		REMARKS
0		Riser Type: PVC Riser Diameter: 1" Riser Stickup: 2.9'	<p style="text-align: right;">Bentonite seal</p> <p style="text-align: right;">1" PVC Riser</p> <p style="text-align: right;">Sand Pack</p> <p style="text-align: right;">1" PVC Screen</p>	<p>Northing (US ft): 571659.56 Easting (US ft): 1464636.91</p> <p style="text-align: center;">No product detected</p>
1				
2				
3				
4				
5		Screen Type: PVC Screen Diameter: 1" Screen Amount: 10' Slot Size: 0.010"		
6				
7				
8				
9				
10		Sand Pack: Top: 8' bgs Bottom: 20' bgs Grain Size: WG #1		
11				
12				
13				
14				
15		Bentonite Seal: Top: 0 (surface) Bottom: 8' bgs Grain Size: 3/8" chips/granular (30-50 mesh)		
16				
17				
18				
19				
20		End of Boring		
21				
22				
23				
24				
25				

Total Depth: 20' bgs

TOC: Top of PVC casing
DTW: Depth to water



LOG OF TEMPORARY GROUNDWATER SAMPLE COLLECTION POINT: A10-025-PZ

Client: EnviroAnalytics Group
Site: Sparrows Point - Area A Parcel A10
Sparrows Point, MD
ARM Project No.: 150298M-5-3
Page 1 of 1

Date Installed : 7/7/16
Casing/Riser Type : PVC
Borehole Diameter : 2.25"
Drilling Method : 7822DT Geoprobe
Driller : Don Marchese

Drilling Company : Green Services, Inc
TOC Elevation : 16.9'
0-Hr DTW : 10.7' TOC
48-Hr DTW : 11.3' TOC
ARM Representative : L. Perrin

Depth in Feet	Surf. Elev.	DESCRIPTION		REMARKS
0		Riser Type: PVC Riser Diameter: 1" Riser Stickup: 2.8'	<p style="font-size: small;">Bentonite seal 1" PVC Riser Sand Pack 1" PVC Screen</p>	Northing (US ft): 571918.14 Easting (US ft): 1464914.72 No product detected
1				
2				
3				
4				
5		Screen Type: PVC Screen Diameter: 1" Screen Amount: 10' Slot Size: 0.010"		
6				
7		2-5' PrePacked PVC Well Screen (10-20')		
8				
9				
10		Sand Pack: Top: 8' bgs Bottom: 20' bgs Grain Size: WG #1		
11				
12				
13				
14				
15		Bentonite Seal: Top: 0 (surface) Bottom: 8' bgs Grain Size: 3/8" chips/granular (30-50 mesh)		
16				
17				
18				
19				
20		End of Boring		
21				
22				
23				
24				
25				

Total Depth: 20'



LOG OF TEMPORARY GROUNDWATER SAMPLE COLLECTION POINT: A10-027-PZ

Client: EnviroAnalytics Group
Site: Sparrows Point - Area A Parcel A10
Sparrows Point, MD
ARM Project No.: 150298M-5-3
Page 1 of 1

Date Installed : 7/8/16
Casing/Riser Type : PVC
Borehole Diameter : 2.25"
Drilling Method : 7822DT Geoprobe
Driller : Don Marchese

Drilling Company : Green Services, Inc
TOC Elevation : 16.4'
0-Hr DTW : 11.4' TOC
48-Hr DTW : 11.3' TOC
ARM Representative : L. Perrin

Depth in Feet	Surf. Elev.	DESCRIPTION		REMARKS
0		Riser Type: PVC Riser Diameter: 1" Riser Stickup: 3.8'	<p style="font-size: small;">Bentonite seal 1" PVC Riser Sand Pack 1" PVC Screen</p>	Northing (US ft): 572288.37 Easting (US ft): 1464921.09 No product detected
1				
2				
3				
4				
5		Screen Type: PVC Screen Diameter: 1" Screen Amount: 10' Slot Size: 0.010"		
6				
7		2-5' PrePacked PVC Well Screen (12-22')		
8				
9				
10		Sand Pack: Top: 10' bgs Bottom: 22' bgs Grain Size: WG #1		
11				
12				
13				
14				
15		Bentonite Seal: Top: 0 (surface) Bottom: 10' bgs Grain Size: 3/8" chips/granular (30-50 mesh)		
16				
17				
18				
19				
20				
21				
22		End of Boring		
23				
24				
25				

Total Depth: 22' bgs

TOC: Top of PVC casing
DTW: Depth to water

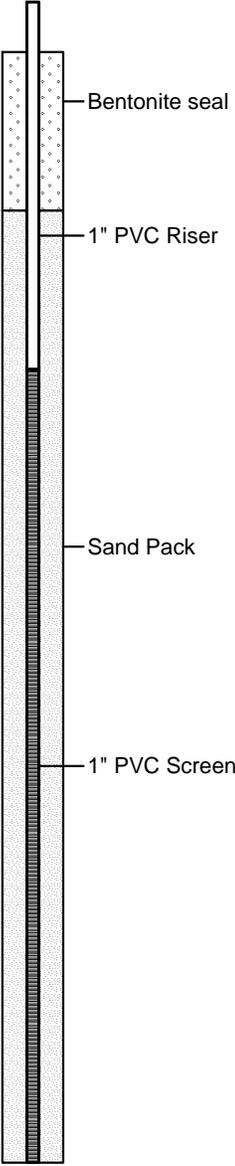


LOG OF TEMPORARY GROUNDWATER SAMPLE COLLECTION POINT: A10-029-PZ

Client: EnviroAnalytics Group
Site: Sparrows Point - Area A Parcel A10
Sparrows Point, MD
ARM Project No.: 150298M-5-3
Page 1 of 1

Date Installed : 7/12/16
Casing/Riser Type : PVC
Borehole Diameter : 2.25"
Drilling Method : 7822DT Geoprobe
Driller : Don Marchese

Drilling Company : Green Services, Inc
TOC Elevation : 23.1'
0-Hr DTW : 7.3' TOC
48-Hr DTW : 6.8' TOC
ARM Representative : L. Perrin

Depth in Feet	Surf. Elev.	DESCRIPTION		REMARKS
0		Riser Type: PVC Riser Diameter: 1" Riser Stickup: 3.5'		Northing (US ft): 570731.74 Easting (US ft): 1464689.15 No product detected
1				
2				
3				
4		Screen Type: PVC Screen Diameter: 1" Screen Amount: 10' Slot Size: 0.010"		
5				
6				
7		Sand Pack: Top: 2' bgs Bottom: 14' bgs Grain Size: WG #1		
8				
9				
10		Bentonite Seal: Top: 0 (surface) Bottom: 2' bgs Grain Size: 3/8" chips/granular (30-50 mesh)		
11				
12				
13				
14		End of Boring		
15				

Total Depth: 14' bgs

TOC: Top of PVC casing
DTW: Depth to water



LOG OF TEMPORARY GROUNDWATER SAMPLE COLLECTION POINT: A10-034-PZ

Client: EnviroAnalytics Group
Site: Sparrows Point - Area A Parcel A10
Sparrows Point, MD
ARM Project No.: 150298M-5-3
Page 1 of 1

Date Installed : 7/12/16
Casing/Riser Type : PVC
Borehole Diameter : 2.25"
Drilling Method : 7822DT Geoprobe
Driller : Don Marchese

Drilling Company : Green Services, Inc
TOC Elevation : 20.1'
0-Hr DTW : 7.3' TOC
48-Hr DTW : 6.8' TOC
ARM Representative : L. Perrin

Depth in Feet	Surf. Elev.	DESCRIPTION		REMARKS
0		Riser Type: PVC Riser Diameter: 1" Riser Stickup: 3.0'		<p>Northing (US ft): 571289.59 Easting (US ft): 1464806.40</p> <p>No product detected</p>
1				
2				
3				
4		Screen Type: PVC Screen Diameter: 1" Screen Amount: 5' Slot Size: 0.010"		
5				
6				
7		Sand Pack: Top: 20' bgs Bottom: 25' bgs Grain Size: WG #1		
8				
9				
10		Bentonite Seal: Top: 0 (surface) Bottom: 20' bgs Grain Size: 3/8" chips/granular (30-50 mesh)		
11				
12				
13		(0- 15') 3/8" chips (15-20') 1-5' Bentonite Sleeve		
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26		End of Boring		

Total Depth: 14' bgs

TOC: Top of PVC casing
DTW: Depth to water

CRRGPFKZ'I "

Low Flow Sampling Temporary Piezometers



ARM Group Inc.

Earth Resource Engineers and Consultants

Project Name: <u>Area A Parcel A10</u>	Project Number: <u>150290M-5</u>
Piezometer Number: <u>A10-002-P2</u>	Date: <u>7-18-16</u> <u>0900</u>
Piezometer Diameter (in): <u>1</u>	One Well Volume (gal): <u>0.656</u>
Depth to Product (ft): <u>NA</u>	QED Controller Settings: <u>—</u>
Depth to Water (ft): <u>8.94 TOC</u>	Flow Rate (mL/min) <u>300</u>
Product Thickness (ft): <u>NA</u>	Length of time Purged (min) <u>33 ; 17</u>
Depth to Bottom (ft): <u>18.94 TOC</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
933	1.50	10.45	21.26	5.53	0.780	0.49	188.4	25.4	light gray
936	1.95	10.46	21.33	5.53	0.779	0.50	194.9	34.1	
939	2.00	10.46	21.21	5.55	0.775	0.49	194.1	38.8	
942	2.25	10.46	21.27	5.54	0.772	0.46	194.7	35.9	
947	2.65	10.46	21.34	5.53	0.773	0.45	197.7	38.4	
950	2.90	10.46	21.24	5.56	0.770	0.44	197.5	36.6	

MONITORING SAMPLE RECORD

Sample ID	Time Collected	Parameter/Order	Container	Perservative	Collected?
<u>A10-002-P2</u>	<u>0955</u>	TCL-VOCs	3 - 40 mL VOA	HCl	Y
		TPH-GRO	3 - 40 mL VOA	HCl	Y
		TPH-DRO	2 - 1 L Amber	none	Y
		TCL-SVOCs	2 - 1 L Amber	none	Y
		Cyanide	1 - 250 mL Plastic	NaOH	Y
		TAL-Metals & Mercury (Dissolved) Field Filtered	1 - 250 mL Plastic	HNO3	Y
		Hexavalent Chromium (Dissolved) Field Filtered	1 - 250 mL Plastic	None	Y
Matrix Spike					N
Duplicate					N

Sampled By: LLP

Comments: Dev. 900 - 933
Purged 933 - 950

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
16 ft x 0.041 gal/ft = 0.656 (gal)

Low Flow Sampling Temporary Piezometers



ARM Group Inc.

Earth Resource Engineers and Consultants

Project Name: Area A Parcel A10

Project Number: 15029AM-5-3

Piezometer Number: A10-010-P2

Date: 7-20-16 1205

Piezometer Diameter (in): 1

One Well Volume (gal): 0.9

Depth to Product (ft): NA

QED Controller Settings: —

Depth to Water (ft): 11.84 TOC Before → After Dev 12.06 TOC

Flow Rate (mL/min) 300

Product Thickness (ft): NA

Length of time Purged (min) 50

Depth to Bottom (ft): 25.88 TOC

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
1250	2.74 4.4	12.06	20.18	6.39	0.911	0.37	-42.3	3349 AU	
1255	4.4	12.05	20.35	6.30	0.932	0.24	-46.8	3653 AU	
1300	4.8	12.05	20.47	6.30	0.936	0.18	-52.6	3471 AU	
1305	5.2	12.05	20.65	6.29	0.933	0.26	-55.2	3058 AU	
1310	5.6	12.05	20.79	6.29	0.933	0.25	-55.8	2588 AU	
1315	6.0	12.04	20.87	6.26	0.930	0.24	-56.1	1659 AU	
1320	6.4	12.04	21.04	6.25	0.927	0.34	-55.9	1364 AU	
1325	6.8	12.04	21.18	6.23	0.923	0.31	-55.0	895 AU	
1330	7.2	12.04	20.94	6.22	0.923	0.32	-53.6	706 AU	
1335	7.6	12.03	20.88	6.21	0.919	0.31	-52.5	173 NTU	
1331 1340	7.85 8.0	12.03	20.82	6.21	0.917	0.30	-51.2	149 NTU	
1340	8.0	12.03	20.90	6.21	0.917	0.28	-50.8	144 NTU	

MONITORING SAMPLE RECORD

Sample ID	Time Collected	Parameter/Order	Container	Perservative	Collected?
A10-010-P2	1340	TCL-VOCs	3 - 40 mL VOA	HCl	Y
		TPH-GRO	3 - 40 mL VOA	HCl	Y
		TPH-DRO	2 - 1 L Amber	none	Y
		TCL-SVOCs	2 - 1 L Amber	none	Y
		Cyanide	1 - 250 mL Plastic	NaOH	Y
		TAL-Metals & Mercury (Dissolved) Field Filtered	1 - 250 mL Plastic	HNO3	Y
		Hexavalent Chromium (Dissolved) Field Filtered	1 - 250 mL Plastic	None	Y
Matrix Spike					N
Duplicate					N

Sampled By: LLP

Comments: ~~Part~~ Dev. 4 gallons due to high turbidity
DW: 1205-1250
Purged: 1250-1340

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

22 ft x 0.041 gal/ft = 0.9 (gal)

Low Flow Sampling Temporary Piezometers



ARM Group Inc.

Earth Resource Engineers and Consultants

Project Name: Area A Parcel A10

Project Number: 150298m-5

Piezometer Number: A10-015-P2

Date: 7-20-16 815

Piezometer Diameter (in): 1

One Well Volume (gal): 0.56

Depth to Product (ft): NA

QED Controller Settings: ---

Depth to Water (ft): Dev. 8.23 TOC → 9.12 TOC

Flow Rate (mL/min) 300

Product Thickness (ft): NA

Length of time Purged (min) 27

Depth to Bottom (ft): 15.90 TOC

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
856	1.75	9.12	20.42	5.88	0.748	0.47	43.5	626 AU	
901	2.15	9.12	20.48	5.95	0.737	0.39	41.2	628 AU	
906	2.55	9.11	20.75	5.80	0.725	0.46	44.4	84.1	
911	2.95	9.11	20.91	5.85	0.718	0.45	47.2	37.8	
914	3.20	9.11	20.90	5.85	0.718	0.49	48.1	18.1	
917	3.45	9.11	20.90	5.85	0.717	0.42	48.5	13.6	
920	3.70	9.10	20.98	5.87	0.714	0.50	47.9	13.9	
923	3.95	9.10	21.10	5.87	0.710	0.44	47.3	12.7	

MONITORING SAMPLE RECORD

Sample ID	Time Collected	Parameter/Order	Container	Perservative	Collected?
A10-015-P2	925	TCL-VOCs	3 - 40 mL VOA	HCl	Y
		TPH-GRO	3 - 40 mL VOA	HCl	Y
		TPH-DRO	2 - 1 L Amber	none	Y
		TCL-SVOCs	2 - 1 L Amber	none	Y
		Cyanide	1 - 250 mL Plastic	NaOH	Y
		TAL-Metals & Mercury (Dissolved) Field Filtered	1 - 250 mL Plastic	HNO3	Y
		Hexavalent Chromium (Dissolved) Field Filtered	1 - 250 mL Plastic	None	Y
Matrix Spike					N
Duplicate					N

Sampled By: LLP

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

14 ft x 0.041 gal/ft = _____ (gal)

Low Flow Sampling Temporary Piezometers



ARM Group Inc.
Earth Resource Engineers and Consultants

Project Name: Area A Parcel A10
 Piezometer Number: A10-021-PZ
 Piezometer Diameter (in): 1
 Depth to Product (ft): NA
 Depth to Water (ft): 6.89 TOC
 Product Thickness (ft): NA
 Depth to Bottom (ft): 24.37 TOC

Project Number: 150298m-5
 Date: 7-19-16 1305
 One Well Volume (gal): 0.66
 QED Controller Settings: —
 Flow Rate (mL/min) 300
 Length of time Purged (min) 16

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
1340	2.10	6.67	18.53	6.40	0.556	0.27	-222.5	156	
1345	2.50	6.67	18.61	6.35	0.556	0.27	-233.0	104	
1350	2.90	6.67	18.46	6.32	0.557	0.28	-199.4	101.1	
1353	3.15	6.66	18.61	6.31	0.556	0.28	-253.3	105.2	
1356	3.35	6.66	18.60	6.30	0.556	0.28	-260.7	103.3	

MONITORING SAMPLE RECORD

Sample ID	Time Collected	Parameter/Order	Container	Perservative	Collected?
A10-021-PZ	1358	TCL-VOCs	3 - 40 mL VOA	HCl	Y
		TPH-GRO	3 - 40 mL VOA	HCl	Y
		TPH-DRO	2 - 1 L Amber	none	Y
		TCL-SVOCs	2 - 1 L Amber	none	Y
		Cyanide	1 - 250 mL Plastic	NaOH	Y
		TAL-Metals & Mercury (Dissolved) Field Filtered	1 - 250 mL Plastic	HNO3	Y
		Hexavalent Chromium (Dissolved) Field Filtered	1 - 250 mL Plastic	None	Y
Matrix Spike					N
Duplicate					N

Sampled By: LLP Comments: Dev: 1305-1340
Purged: 1340-1356

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
16 ft x 0.041 gal/ft = 0.66 (gal)

Low Flow Sampling Temporary Piezometers



ARM Group Inc.
Earth Resource Engineers and Consultants

Project Name: Area A Parcel A10

Project Number: 150298m-5

Piezometer Number: A10-024-PZ

Date: 7-18-16 1140

Piezometer Diameter (in): 1

One Well Volume (gal): 0.8

Depth to Product (ft): NA

QED Controller Settings: —

Depth to Water (ft): 8.12 TOC

Flow Rate (mL/min) 300 mL/min

Product Thickness (ft): NA

Length of time Purged (min) 31; 34

Depth to Bottom (ft): 22-46 TOC

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
1211	2.50	9.35	18.37	6.02	0.680	0.29	6.6	1508 AU	brownish yellow
1216	2.90	9.38	20.33	6.00	0.673	1.13	3.0	914 AU	
1220	3.30	9.40	19.15	6.05	0.691	0.69	5.8	614 AU	
1225	3.70	9.40	19.29	6.08	0.704	0.44	1.2	104 NTU	slightly cloudy
1228	3.95	9.40	19.46	6.09	0.714	0.39	1.6	72.6	
1231	4.20	9.41	19.31	6.10	0.720	0.40	1.3	45.9	
1234	4.45	9.41	19.49	6.11	0.724	0.40	0.9	34.4	
1237	4.70	9.41	19.55	6.12	0.728	0.42	0.8	28.8	clear
1242	5.11	9.42	19.45	6.11	0.733	0.44	0.5	26.6	
1245	5.36	9.42	19.34	6.14	0.737	0.45	0.3	24.3	

MONITORING SAMPLE RECORD

Sample ID	Time Collected	Parameter/Order	Container	Perservative	Collected?
A10-024-PZ	1250	TCL-VOCs	3 - 40 mL VOA	HCl	Y
		TPH-GRO	3 - 40 mL VOA	HCl	Y
		TPH-DRO	2 - 1 L Amber	none	Y
		TCL-SVOCs	2 - 1 L Amber	none	Y
		Cyanide	1 - 250 mL Plastic	NaOH	Y
		TAL-Metals & Mercury (Dissolved) Field Filtered	1 - 250 mL Plastic	HNO3	Y
		Hexavalent Chromium (Dissolved) Field Filtered	1 - 250 mL Plastic	None	Y
Matrix Spike					N
Duplicate					N

Sampled By: LLP

Comments: Dev - 1140 - 1211
Purged - 1211 - 45

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
19.5 ft x 0.041 gal/ft = 0.8 (gal)

Low Flow Sampling Temporary Piezometers



ARM Group Inc.
Earth Resource Engineers and Consultants

Project Name: Area A Parcel A10
 Piezometer Number: A10-025-PZ
 Piezometer Diameter (in): 1
 Depth to Product (ft): NA
 Depth to Water (ft): 10.40 TOC
 Product Thickness (ft): NA
 Depth to Bottom (ft): 20.35 TOC

Project Number: 150298m-5
 Date: 7-18-16 1342
 One Well Volume (gal): 0.74
 QED Controller Settings: —
 Flow Rate (mL/min): 300 mL/min
 Length of time Purged (min): 25; 31

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
1407	2.50	10.55	18.20	6.12	0.828	0.30	-3.4	781 AU	brown
1412	2.90	10.55	19.02	6.06	0.813	0.33	-2.1	1071 AU	Very pale brown
1417	3.30	10.55	18.97	6.03	0.814	0.33	-2.7	633 AU	↓
1422	3.70	10.55	18.54	6.05	0.810	0.36	1.3	94.9 NTU	↓
1427	4.10	10.56	18.43	6.04	0.801	0.39	3.9	86.3	
1432	4.50	10.56	18.21	6.02	0.798	0.41	5.9	64.3	lightly cloudy
1435	4.75	10.56	18.62	6.00	0.794	0.43	8.3	58.1	
1438	5.00	10.56	18.73	5.93	0.792	0.43	8.8	55.2	clear

MONITORING SAMPLE RECORD

Sample ID	Time Collected	Parameter/Order	Container	Perservative	Collected?
A10-025-PZ	1440	TCL-VOCs	3 - 40 mL VOA	HCl	Y
		TPH-GRO	3 - 40 mL VOA	HCl	Y
		TPH-DRO	2 - 1 L Amber	none	Y
		TCL-SVOCs	2 - 1 L Amber	none	Y
		Cyanide	1 - 250 mL Plastic	NaOH	Y
		TAL-Metals & Mercury (Dissolved) Field Filtered	1 - 250 mL Plastic	HNO3	Y
		Hexavalent Chromium (Dissolved) Field Filtered	1 - 250 mL Plastic	None	Y
Matrix Spike					N
Duplicate					N

Sampled By: LLP

Comments: DEV-1342-1407
purge-1407-1438

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
18 ft x 0.041 gal/ft = 0.74 (gal)

Low Flow Sampling Temporary Piezometers



ARM Group Inc.

Earth Resource Engineers and Consultants

Project Name: Area A Parcel A10
 Piezometer Number: ~~150298m-5~~ A10-027-PZ
 Piezometer Diameter (in): 1
 Depth to Product (ft): NA
 Depth to Water (ft): 10.35 TOC
 Product Thickness (ft): NA
 Depth to Bottom (ft): 24.32 TOC

Project Number: 150298m-5
 Date: 7-19-16 1050
 One Well Volume (gal): 0.56
 QED Controller Settings: —
 Flow Rate (mL/min): 300
 Length of time Purged (min): 29

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
1138	3.00	10.45	18.20	6.26	0.326	0.87	27.5	117 AU	High Turb
1143	3.40	10.45	18.57	6.24	0.329	0.50	29.0	929 AU	med yellow/brown
1148	3.80	10.45	18.62	6.23	0.330	0.43	29.5	772 AU	
1153	4.20	10.45	18.85	6.21	0.328	0.41	30.2	602 AU	
1158	4.60	10.44	18.85	6.20	0.327	0.56	31.4	128 NTU	
1202	5.00	10.44	18.82	6.20	0.327	0.56	31.3	121 NTU	
1207	5.40	10.44	18.93	6.17	0.322	0.53	33.0	113.8 NTU	cloudy

MONITORING SAMPLE RECORD

Sample ID	Time Collected	Parameter/Order	Container	Perservative	Collected?
A10-027-PZ	1215	TCL-VOCs	3 - 40 mL VOA	HCl	y
		TPH-GRO	3 - 40 mL VOA	HCl	y
		TPH-DRO	2 - 1 L Amber	none	y
		TCL-SVOCs	2 - 1 L Amber	none	y
		Cyanide	1 - 250 mL Plastic	NaOH	y
		TAL-Metals & Mercury (Dissolved) Field Filtered	1 - 250 mL Plastic	HNO3	y
		Hexavalent Chromium (Dissolved) Field Filtered	1 - 250 mL Plastic	None	y

Matrix Spike

Duplicate

Sampled By: LLP

Comments: Dev: 1050 - 1138
Purge: 1138 - 1207

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

14 ft x 0.041 gal/ft = 0.56 (gal)

Low Flow Sampling Temporary Piezometers



ARM Group Inc.
Earth Resource Engineers and Consultants

Project Name: Area A Parcel A10
 Piezometer Number: A10-029-PZ
 Piezometer Diameter (in): 1
 Depth to Product (ft): NA
 Depth to Water (ft): 6.75 TOC
 Product Thickness (ft): NA
 Depth to Bottom (ft): 17.05 TOC

Project Number: 150298m-5
 Date: 7-19-16 1445
 One Well Volume (gal): 0.56
 QED Controller Settings: —
 Flow Rate (mL/min): 300*
 Length of time Purged (min): 19

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
1509	1.75	7.43	22.77	6.36	0.914	0.35	-137.1	48.8	
1504	1.15	7.42	22.73	6.34	0.914	0.36	-117.5	33.6	
1519	1.55	7.42	22.58	6.31	0.911	0.36	-112.7	23.2	
1522	1.80	7.42	22.76	6.29	0.898	0.37	-160.8	15.5	
1525	2.05	7.41	23.10	6.29	0.863	0.36	-169.3	13.8	
1528	2.30	7.41	23.03	6.28	0.872	0.37	-177.7	12.2	

MONITORING SAMPLE RECORD

Sample ID	Time Collected	Parameter/Order	Container	Perservative	Collected?
A10-029-PZ	1530	TCL-VOCs	3 - 40 mL VOA	HCl	Y
		TPH-GRO	3 - 40 mL VOA	HCl	Y
		TPH-DRO	2 - 1 L Amber	none	Y
		TCL-SVOCs	2 - 1 L Amber	none	Y
		Cyanide	1 - 250 mL Plastic	NaOH	Y
		TAL-Metals & Mercury (Dissolved) Field Filtered	1 - 250 mL Plastic	HNO3	Y
		Hexavalent Chromium (Dissolved) Field Filtered	1 - 250 mL Plastic	None	Y

Matrix Spike

Duplicate

Sampled By: LLP

Comments: Dev. 1445-1509
Purged: 1509-1528

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
14 ft x 0.041 gal/ft = 0.56 (gal)

Low Flow Sampling Temporary Piezometers



ARM Group Inc.

Earth Resource Engineers and Consultants

Project Name: Area A Parcel A10
 Piezometer Number: A10-034-P2
 Piezometer Diameter (in): 1
 Depth to Product (ft): NA
 Depth to Water (ft): 13.07 TOC 13.00 TOC
 Product Thickness (ft): NA
 Depth to Bottom (ft): 27.52 TOC

Project Number: 150290M-3
 Date: 7-19-16 815
 One Well Volume (gal): 0.56
 QED Controller Settings: ---
 Flow Rate (mL/min): 300ml/min
 Length of time Purged (min): 27

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
0852	2.00	13.07	18.63	6.00	0.566	0.43	-89.2	60.0	
857	2.40	13.07	18.50	5.97	0.556	0.49	-121.8	78.3	
902	2.80	13.07	18.58	5.94	0.541	0.46	-141.0	68.4	
907	3.20	13.07	18.70	5.91	0.522	0.45	-107.9	34.8	
910	3.45	13.06	18.75	5.91	0.519	0.37	-137.3	28.4	
913	3.70	13.06	18.77	5.90	0.517	0.36	-150.9	23.3	
916	3.95	13.06	18.73	5.90	0.512	0.36	-185.6	21.8	
919	4.20	13.05	18.73	5.90	0.512	0.39	-165.7	19.7	

MONITORING SAMPLE RECORD

Sample ID	Time Collected	Parameter/Order	Container	Perservative	Collected?
A10-034-P2	925	TCL-VOCs	3 - 40 mL VOA	HCl	<input checked="" type="checkbox"/>
		TPH-GRO	3 - 40 mL VOA	HCl	<input checked="" type="checkbox"/>
		TPH-DRO	2 - 1 L Amber	none	<input checked="" type="checkbox"/>
		TCL-SVOCs	2 - 1 L Amber	none	<input checked="" type="checkbox"/>
		Cyanide	1 - 250 mL Plastic	NaOH	<input checked="" type="checkbox"/>
		TAL-Metals & Mercury (Dissolved) Field Filtered	1 - 250 mL Plastic	HNO3	<input checked="" type="checkbox"/>
		Hexavalent Chromium (Dissolved) Field Filtered	1 - 250 mL Plastic	None	<input checked="" type="checkbox"/>
Matrix Spike /MSD					<input checked="" type="checkbox"/>
Duplicate					<input checked="" type="checkbox"/>

Sampled By: LLP

Comments: REV: 815-852
Purged: 852-919

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
14 ft x 0.041 gal/ft = _____ (gal)

TABLE 1
MULTIPARAMETER CALIBRATION LOG

Project Name Area A Parcel A10 Phase II Date 7-18-16
 Weather Sunny, 90s
 Calibrated by L. Perrin Instrument YSI 556 MPS
 Serial Number 018952

Parameters	Morning Calibration	Morning Temperature	End of Day Calibration Check	End of Day Temperature
Specific Conductance Standard #1	1.413	79 F	1.432	79 F
Specific Conductance Standard #2	-		-	
pH (7)	7.00		-	
pH (4)	4.00		4.15	
pH(10)	10.00		-	
ORP Zobel Solution	240.0		223.6 [‡]	
Dissolved Oxygen 100% water saturated air mg/L	101.1% [‡]		112.0% [‡]	
Dissolved Oxygen Zero Dissolved Oxygen Solution mg/L	-		-	
Barometric Pressure mm Hg	765.56		777.24	
Turbidity #1 (0 NTU)	0.00		0.76 [‡]	
Turbidity #2 (1 NTU)	1.00		1.75 [‡]	
Turbidity #3 (10 NTU)	9.95		10.74 [‡]	

[‡] **Turbidity and ORP are outside of the post-calibration acceptance criteria. DO was recorded as %. Values displayed on field purge logs may be inaccurate.**

TABLE 1
MULTIPARAMETER CALIBRATION LOG

Project Name Area A Parcel A10 Phase II Date 7-19-16
 Weather Sunny, 80s
 Calibrated by L. Perrin Instrument YSI 556 MPS
 Serial Number 018952

Parameters	Morning Calibration	Morning Temperature	End of Day Calibration Check	End of Day Temperature
Specific Conductance Standard #1	1.413	83 F	1.406	87 F
Specific Conductance Standard #2	-		-	
pH (7)	7.00		7.07	
pH (4)	4.00		4.30	
pH(10)	10.00		9.74	
ORP Zobel Solution	240.0		230.9	
Dissolved Oxygen 100% water saturated air mg/L	101.1% [‡]		106.1% [‡]	
Dissolved Oxygen Zero Dissolved Oxygen Solution mg/L	-		-	
Barometric Pressure mm Hg	773.21		775.48	
Turbidity #1 (0 NTU)	0.00		0.69 [‡]	
Turbidity #2 (1 NTU)	1.00		1.36 [‡]	
Turbidity #3 (10 NTU)	10.02		11.10 [‡]	

[‡]Turbidity and ORP are outside of the post-calibration acceptance criteria. DO was recorded as %. Values displayed on field purge logs may be inaccurate.

TABLE 1
MULTIPARAMETER CALIBRATION LOG

Project Name Area A Parcel A10 Phase II Date 7-20-16
 Weather Sunny, 90s
 Calibrated by L. Perrin Instrument YSI 556 MPS
 Serial Number 018952

Parameters	Morning Calibration	Morning Temperature	End of Day Calibration Check	End of Day Temperature
Specific Conductance Standard #1	1.413	75 F	1.423	85 F
Specific Conductance Standard #2	-		-	
pH (7)	7.00		7.00	
pH (4)	4.00		3.96	
pH(10)	10.00		10.16	
ORP Zobel Solution	240.1		224.1 [¥]	
Dissolved Oxygen 100% water saturated air mg/L	8.75		9.32 [¥]	
Dissolved Oxygen Zero Dissolved Oxygen Solution mg/L	-		-	
Barometric Pressure mm Hg	766.83		766.32	
Turbidity #1 (0 NTU)	0.00		1.04 [¥]	
Turbidity #2 (1 NTU)	1.00		2.01 [¥]	
Turbidity #3 (10 NTU)	10.00		11.10 [¥]	

[¥] **Turbidity, DO, and ORP are outside of the post-calibration acceptance criteria. Values displayed on field purge logs may be inaccurate.**

"

"

"

"

"

"

"

"

"

APPENDIX H

"

"

Parcel A10 - IDW Drum Log

Drum Identification Number	Designation	Activity/Phase	Parcel	Contents	Open Date
572-Soil-7/6/16-A10	Non-haz.	Parcel A10 Phase II	A10	Soil	7/6/2016
573-Liners-7/6/16-A10	Non-haz.	Parcel A10 Phase II	A10	Liners	7/6/2016
574-PPE-7/6/16-A10	Non-haz.	Parcel A10 Phase II	A10	PPE	7/6/2016
575-Decon Water-7/6/16-A10	Non-haz.	Parcel A10 Phase II	A10	Decon Water	7/6/2016
576-Nitric Acid- 7/6/16-A10	Non-haz.	Parcel A10 Phase II	A10	Nitric Acid	7/6/2016
577-Soil-7/8/16-A10	Non-haz.	Parcel A10 Phase II	A10	Soil	7/8/2016
579-Soil-7/14/17-A10	Non-haz.	Parcel A10 Phase II	A10	Soil	7/14/2017
580-Purge Water-7/18/16-A10	Non-haz.	Parcel A10 Phase II	A10	Purge Water	7/18/2016
581-PPE-7/19/16-A10	Non-haz.	Parcel A10 Phase II	A10	PPE	7/19/2016

APPENDIX I

QA/QC Tracking Log

<u>Trip Blank:</u>	<u>Date:</u>	<u>Sample IDs</u>	
Trip Blank 2	7/6/2016	1) A10-033-SB-1	
		2) A10-033-SB-4	
		3) A10-001-SB-1	
		4) A10-001-SB-5	
		5) A10-002-SB-1	
		6) A10-002-SB-5	
		7) A10-002-SB-10	<u>Duplicate 2:</u> A10-033-SB-4
Trip Blank 1	7/7/2016	8) A10-006-SB-1	<u>Date:</u> 7/6/2016
		9) A10-006-SB-7	<u>MS/MSD:</u> A10-006-SB-7
		10) A10-005-SB-1	<u>Date:</u> 7/7/2016
		11) A10-005-SB-5	<u>Field Blank:</u>
		12) A10-003-SB-1	<u>Date:</u> 7/7/2016
		13) A10-003-SB-9	<u>Eq. Blank:</u>
		14) A10-004-SB-1	<u>Date:</u> 7/7/2016
		15) A10-004-SB-4	
		16) A10-004-SB-10	
		17) A10-032-SB-1	
		18) A10-032-SB-5	
		19) A10-025-SB-1	
		20) A10-025-SB-4	

<u>Trip Blank:</u>	<u>Date:</u>	<u>Sample IDs</u>	
Trip Blank 2	7/8/2016	1) A10-031-SB-10	
Trip Blank	7/11/2016	2) A10-021-SB-2	
		3) A10-021-SB-4	
		4) A10-021-SB-10	
		5) A10-019-SB-2	
		6) A10-019-SB-4	
		7) A10-019-SB-10	<u>Duplicate:</u> A10-019-SB-4
		8) A10-022-SB-2	<u>Date:</u> 7/11/2016
		9) A10-022-SB-4	<u>MS/MSD:</u> A10-021-SB-4
		10)	<u>Date:</u> 7/11/2016
		11)	<u>Field Blank:</u>
		12) A10-015-SB-1	<u>Date:</u> 7/11/2016
		13) A10-015-SB-5	<u>Eq. Blank:</u>
		Trip Blank 2	7/11/2016
15) A10-013-SB-4			
16) A10-028-SB-1.5			
17) A10-028-SB-6			
18) A10-028-SB-10			
19) A10-010-SB-1			
20) A10-010-SB-8			

Trip Blank 1	7/7/2016	1) A10-025-SB-10			
Trip Blank 1	7/8/2016	2) A10-024-SB-1			
		3) A10-024-SB-5			
		4) A10-027-SB-1			
		5) A10-027-SB-4			
		6) A10-027-SB-10			
		7) A10-026-SB-1	<u>Duplicate:</u> A10-008-SB-4		
		8) A10-026-SB-5	<u>Date:</u> 7/8/2016		
		9) A10-023-SB-1	<u>MS/MSD:</u> A10-007-SB-4		
		10) A10-023-SB-4	<u>Date:</u> 7/8/2016		
		11) A10-008-SB-1	<u>Field Blank:</u>		
		12) A10-008-SB-4	<u>Date:</u> 7/8/2016		
		13) A10-008-SB-10	<u>Eq. Blank:</u>		
		14) A10-007-SB-1	<u>Date:</u> 7/8/2016		
		15) A10-007-SB-4			
		16) A10-020-SB-1.5			
		17) A10-020-SB-7			
		18) A10-020-SB-10			
		Trip Blank 2	7/8/2016	19) A10-031-SB-1	
				20) A10-031-SB-8	

Trip Blank 2	7/11/2016	1) A10-010-SB-10	
Trip Blank	7/12/2016	2) A10-011-SB-1	
		3) A10-011-SB-7	
		4) A10-011-SB-10	
		5) A10-029-SB-1	
		6) A10-029-SB-4	
		7) A10-030-SB-1	<u>Duplicate:</u> A10-011-SB-7
		8) A10-030-SB-7	<u>Date:</u> 7/12/2016
		9) A10-012-SB-1	<u>MS/MSD:</u> A10-029-SB-4
		10) A10-012-SB-4	<u>Date:</u> 7/12/2016
		Trip Blank	7/14/2016
12) A10-018-SB-5	<u>Date:</u> 7/12/2016		
13) A10-018-SB-10	<u>Eq. Blank:</u>		
Trip Blank 1	7/21/2016	14) A10-014-SB-2	<u>Date:</u> 7/12/2016
		15) A10-014-SB-5	
		16) A10-009A-SB-1	
		17) A10-009-SB-1.5	
		18) A10-009-SB-5	
		19) A10-016-SB-1	
		20) A10-016-SB-6	

QA/QC Tracking Log

<u>Trip Blank:</u>	<u>Date:</u>	<u>Sample IDs</u>	
Trip Blank 1	7/21/2016	1) A10-017-SB-1	
		2) A10-017-SB-4	
3)			
4)			
5)			
6)			
7)	<u>Duplicate:</u> A10-017-SB-1		
8)	<u>Date:</u> 7/21/2016		
9)	<u>MS/MSD:</u> A10-017-SB-4		
10)	<u>Date:</u> 7/21/2016		
11)	<u>Field Blank:</u>		
12)	<u>Date:</u> 7/21/2016		
13)	<u>Eq. Blank:</u>		
14)	<u>Date:</u> 7/21/2016		
15)	<u>Notes:</u>		
16)			
17)			
18)			
19)			
20)			

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

<u>Trip Blank</u>	<u>Date:</u>	<u>Sample IDs</u>	
Trip Blank	7/18/2016	1) A10-002-PZ	
Trip Blank 2		2) A10-024-PZ	
	3) A10-025-PZ		
	4) A10-020-PZ		
Trip Blank 1	7/19/2016	5) A10-034-PZ	
		6) A10-027-PZ	
	7) A10-029-PZ	<u>Duplicate:</u> A10-027-PZ	
	8) A10-021-PZ	<u>Date:</u> 7/19/2016	
	9) A10-015-PZ	<u>MS/MSD:</u> A10-034-PZ	
Trip Blank 1	7/20/2016	10) A10-010-PZ	<u>Date:</u> 7/19/2016
		11) SG06-PDM001	<u>Field Blank:</u>
	12) A10-018-PZ	<u>Date:</u> 7/19/2016	
	13)	<u>Eq. Blank:</u>	
	14)	<u>Date:</u>	
	15)		
	16)		
	17)		
	18)		
	19)		
	20)		

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

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 Results	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
Cyanide	CN	Soil	mg/kg	44	23	0	44	100.00%
Aluminum	Metal	Soil	mg/kg	44	44	0	44	100.00%
Antimony	Metal	Soil	mg/kg	44	1	0	44	100.00%
Arsenic	Metal	Soil	mg/kg	47	40	0	47	100.00%
Barium	Metal	Soil	mg/kg	44	44	0	44	100.00%
Beryllium	Metal	Soil	mg/kg	44	43	0	44	100.00%
Cadmium	Metal	Soil	mg/kg	44	12	0	44	100.00%
Chromium	Metal	Soil	mg/kg	44	44	0	44	100.00%
Chromium VI	Metal	Soil	mg/kg	44	0	0	44	100.00%
Cobalt	Metal	Soil	mg/kg	44	43	0	44	100.00%
Copper	Metal	Soil	mg/kg	44	44	0	44	100.00%
Iron	Metal	Soil	mg/kg	44	44	0	44	100.00%
Lead	Metal	Soil	mg/kg	44	44	0	44	100.00%
Manganese	Metal	Soil	mg/kg	44	44	0	44	100.00%
Mercury	Metal	Soil	mg/kg	44	36	0	44	100.00%
Nickel	Metal	Soil	mg/kg	44	44	0	44	100.00%
Selenium	Metal	Soil	mg/kg	44	5	0	44	100.00%
Silver	Metal	Soil	mg/kg	44	5	0	44	100.00%
Thallium	Metal	Soil	mg/kg	44	7	0	44	100.00%
Vanadium	Metal	Soil	mg/kg	44	44	0	44	100.00%
Zinc	Metal	Soil	mg/kg	44	44	0	44	100.00%
Aroclor 1016	PCB	Soil	mg/kg	22	0	0	22	100.00%
Aroclor 1221	PCB	Soil	mg/kg	22	0	0	22	100.00%
Aroclor 1232	PCB	Soil	mg/kg	22	0	0	22	100.00%
Aroclor 1242	PCB	Soil	mg/kg	22	1	0	22	100.00%
Aroclor 1248	PCB	Soil	mg/kg	22	2	0	22	100.00%
Aroclor 1254	PCB	Soil	mg/kg	22	2	0	22	100.00%
Aroclor 1260	PCB	Soil	mg/kg	22	2	0	22	100.00%
Aroclor 1262	PCB	Soil	mg/kg	22	0	0	22	100.00%
Aroclor 1268	PCB	Soil	mg/kg	22	2	0	22	100.00%
PCBs (total)	PCB	Soil	mg/kg	22	5	0	22	100.00%
1,1-Biphenyl	SVOC	Soil	mg/kg	44	4	0	44	100.00%
1,2,4,5-Tetrachlorobenzene	SVOC	Soil	mg/kg	44	0	0	44	100.00%
2,3,4,6-Tetrachlorophenol	SVOC	Soil	mg/kg	44	0	1	43	97.73%
2,4,5-Trichlorophenol	SVOC	Soil	mg/kg	44	0	1	43	97.73%
2,4,6-Trichlorophenol	SVOC	Soil	mg/kg	44	0	1	43	97.73%
2,4-Dichlorophenol	SVOC	Soil	mg/kg	44	0	1	43	97.73%
2,4-Dimethylphenol	SVOC	Soil	mg/kg	44	1	1	43	97.73%
2,4-Dinitrophenol	SVOC	Soil	mg/kg	44	0	11	33	75.00%
2,4-Dinitrotoluene	SVOC	Soil	mg/kg	44	0	0	44	100.00%
2,6-Dinitrotoluene	SVOC	Soil	mg/kg	44	0	0	44	100.00%
2-Chloronaphthalene	SVOC	Soil	mg/kg	44	1	0	44	100.00%
2-Chlorophenol	SVOC	Soil	mg/kg	44	0	1	43	97.73%
2-Methylnaphthalene	SVOC	Soil	mg/kg	44	22	0	44	100.00%
2-Methylphenol	SVOC	Soil	mg/kg	44	1	1	43	97.73%
2-Nitroaniline	SVOC	Soil	mg/kg	44	0	0	44	100.00%
3&4-Methylphenol(m&p Cresol)	SVOC	Soil	mg/kg	44	1	1	43	97.73%
3,3'-Dichlorobenzidine	SVOC	Soil	mg/kg	44	0	0	44	100.00%
4-Chloroaniline	SVOC	Soil	mg/kg	44	0	0	44	100.00%
4-Nitroaniline	SVOC	Soil	mg/kg	44	0	0	44	100.00%
Acenaphthene	SVOC	Soil	mg/kg	44	18	0	44	100.00%
Acenaphthylene	SVOC	Soil	mg/kg	44	20	0	44	100.00%
Acetophenone	SVOC	Soil	mg/kg	44	0	0	44	100.00%
Anthracene	SVOC	Soil	mg/kg	44	23	0	44	100.00%
Benz[a]anthracene	SVOC	Soil	mg/kg	44	26	0	44	100.00%
Benzaldehyde	SVOC	Soil	mg/kg	44	6	1	43	97.73%
Benzo[a]pyrene	SVOC	Soil	mg/kg	44	24	0	44	100.00%
Benzo[b]fluoranthene	SVOC	Soil	mg/kg	44	34	0	44	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 Results	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
Benzo[g,h,i]perylene	SVOC	Soil	mg/kg	44	20	0	44	100.00%
Benzo[k]fluoranthene	SVOC	Soil	mg/kg	44	21	0	44	100.00%
bis(2-chloroethoxy)methane	SVOC	Soil	mg/kg	44	0	0	44	100.00%
bis(2-Chloroethyl)ether	SVOC	Soil	mg/kg	44	0	0	44	100.00%
bis(2-Chloroisopropyl)ether	SVOC	Soil	mg/kg	44	0	0	44	100.00%
bis(2-Ethylhexyl)phthalate	SVOC	Soil	mg/kg	44	8	0	44	100.00%
Caprolactam	SVOC	Soil	mg/kg	44	0	0	44	100.00%
Carbazole	SVOC	Soil	mg/kg	44	9	0	44	100.00%
Chrysene	SVOC	Soil	mg/kg	44	27	0	44	100.00%
Dibenz[a,h]anthracene	SVOC	Soil	mg/kg	44	17	0	44	100.00%
Diethylphthalate	SVOC	Soil	mg/kg	44	0	0	44	100.00%
Di-n-butylphthalate	SVOC	Soil	mg/kg	44	1	0	44	100.00%
Di-n-octylphthalate	SVOC	Soil	mg/kg	44	0	0	44	100.00%
Fluoranthene	SVOC	Soil	mg/kg	44	36	0	44	100.00%
Fluorene	SVOC	Soil	mg/kg	44	19	0	44	100.00%
Hexachlorobenzene	SVOC	Soil	mg/kg	44	0	0	44	100.00%
Hexachlorobutadiene	SVOC	Soil	mg/kg	44	0	0	44	100.00%
Hexachlorocyclopentadiene	SVOC	Soil	mg/kg	44	0	0	44	100.00%
Hexachloroethane	SVOC	Soil	mg/kg	44	0	0	44	100.00%
Indeno[1,2,3-c,d]pyrene	SVOC	Soil	mg/kg	44	19	0	44	100.00%
Isophorone	SVOC	Soil	mg/kg	44	0	0	44	100.00%
Naphthalene	SVOC	Soil	mg/kg	44	14	0	44	100.00%
Nitrobenzene	SVOC	Soil	mg/kg	44	0	0	44	100.00%
N-Nitroso-di-n-propylamine	SVOC	Soil	mg/kg	44	0	0	44	100.00%
N-Nitrosodiphenylamine	SVOC	Soil	mg/kg	44	1	0	44	100.00%
Pentachlorophenol	SVOC	Soil	mg/kg	44	0	1	43	97.73%
Phenanthrene	SVOC	Soil	mg/kg	44	31	0	44	100.00%
Phenol	SVOC	Soil	mg/kg	44	1	1	43	97.73%
Pyrene	SVOC	Soil	mg/kg	44	33	0	44	100.00%
Diesel Range Organics	TPH	Soil	mg/kg	45	42	0	45	100.00%
Gasoline Range Organics	TPH	Soil	mg/kg	44	3	0	44	100.00%
1,1,1-Trichloroethane	VOC	Soil	mg/kg	44	0	0	44	100.00%
1,1,2,2-Tetrachloroethane	VOC	Soil	mg/kg	44	0	0	44	100.00%
1,1,2-Trichloro-1,2,2-Trifluoroethane	VOC	Soil	mg/kg	44	0	0	44	100.00%
1,1,2-Trichloroethane	VOC	Soil	mg/kg	44	0	0	44	100.00%
1,1-Dichloroethane	VOC	Soil	mg/kg	44	0	0	44	100.00%
1,1-Dichloroethene	VOC	Soil	mg/kg	44	0	0	44	100.00%
1,2,3-Trichlorobenzene	VOC	Soil	mg/kg	44	1	0	44	100.00%
1,2,4-Trichlorobenzene	VOC	Soil	mg/kg	44	0	0	44	100.00%
1,2-Dibromo-3-chloropropane	VOC	Soil	mg/kg	44	0	0	44	100.00%
1,2-Dibromoethane	VOC	Soil	mg/kg	44	0	0	44	100.00%
1,2-Dichlorobenzene	VOC	Soil	mg/kg	44	0	0	44	100.00%
1,2-Dichloroethane	VOC	Soil	mg/kg	44	0	0	44	100.00%
1,2-Dichloroethene (Total)	VOC	Soil	mg/kg	44	0	0	44	100.00%
1,2-Dichloropropane	VOC	Soil	mg/kg	44	0	0	44	100.00%
1,3-Dichlorobenzene	VOC	Soil	mg/kg	44	0	0	44	100.00%
1,4-Dichlorobenzene	VOC	Soil	mg/kg	44	0	0	44	100.00%
2-Butanone (MEK)	VOC	Soil	mg/kg	44	1	0	44	100.00%
2-Hexanone	VOC	Soil	mg/kg	44	0	0	44	100.00%
4-Methyl-2-pentanone (MIBK)	VOC	Soil	mg/kg	44	0	0	44	100.00%
Acetone	VOC	Soil	mg/kg	44	15	0	44	100.00%
Benzene	VOC	Soil	mg/kg	44	2	0	44	100.00%
Bromodichloromethane	VOC	Soil	mg/kg	44	0	0	44	100.00%
Bromoform	VOC	Soil	mg/kg	44	0	0	44	100.00%
Bromomethane	VOC	Soil	mg/kg	44	0	8	36	81.82%
Carbon disulfide	VOC	Soil	mg/kg	44	6	0	44	100.00%
Carbon tetrachloride	VOC	Soil	mg/kg	44	0	0	44	100.00%
Chlorobenzene	VOC	Soil	mg/kg	44	0	0	44	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 Results	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
Chloroethane	VOC	Soil	mg/kg	44	0	0	44	100.00%
Chloroform	VOC	Soil	mg/kg	44	0	0	44	100.00%
Chloromethane	VOC	Soil	mg/kg	44	0	0	44	100.00%
cis-1,2-Dichloroethene	VOC	Soil	mg/kg	44	0	0	44	100.00%
cis-1,3-Dichloropropene	VOC	Soil	mg/kg	44	0	0	44	100.00%
Cyclohexane	VOC	Soil	mg/kg	44	2	0	44	100.00%
Dibromochloromethane	VOC	Soil	mg/kg	44	0	0	44	100.00%
Dichlorodifluoromethane	VOC	Soil	mg/kg	44	0	0	44	100.00%
Ethylbenzene	VOC	Soil	mg/kg	44	3	0	44	100.00%
Isopropylbenzene	VOC	Soil	mg/kg	44	3	0	44	100.00%
Methyl Acetate	VOC	Soil	mg/kg	44	0	38	6	13.64%
Methyl tert-butyl ether (MTBE)	VOC	Soil	mg/kg	44	2	0	44	100.00%
Methylene Chloride	VOC	Soil	mg/kg	44	12	0	44	100.00%
Styrene	VOC	Soil	mg/kg	44	0	0	44	100.00%
Tetrachloroethene	VOC	Soil	mg/kg	44	0	0	44	100.00%
Toluene	VOC	Soil	mg/kg	44	4	0	44	100.00%
trans-1,2-Dichloroethene	VOC	Soil	mg/kg	44	0	0	44	100.00%
trans-1,3-Dichloropropene	VOC	Soil	mg/kg	44	0	0	44	100.00%
Trichloroethene	VOC	Soil	mg/kg	44	0	0	44	100.00%
Trichlorofluoromethane	VOC	Soil	mg/kg	44	0	0	44	100.00%
Vinyl chloride	VOC	Soil	mg/kg	44	0	0	44	100.00%
Xylenes	VOC	Soil	mg/kg	44	3	0	44	100.00%
1,4-Dioxane	VOC/SVOC	Soil	mg/kg	44	0	44	0	0.00%
Cyanide	CN	Water	ug/L	8	2	0	8	100.00%
Aluminum	Metal	Water	ug/L	8	8	0	8	100.00%
Antimony	Metal	Water	ug/L	8	0	0	8	100.00%
Arsenic	Metal	Water	ug/L	8	3	0	8	100.00%
Barium	Metal	Water	ug/L	8	8	0	8	100.00%
Beryllium	Metal	Water	ug/L	8	1	0	8	100.00%
Cadmium	Metal	Water	ug/L	8	4	0	8	100.00%
Chromium	Metal	Water	ug/L	8	6	0	8	100.00%
Chromium VI	Metal	Water	ug/L	8	1	0	8	100.00%
Cobalt	Metal	Water	ug/L	8	7	0	8	100.00%
Copper	Metal	Water	ug/L	8	1	0	8	100.00%
Iron	Metal	Water	ug/L	8	8	0	8	100.00%
Lead	Metal	Water	ug/L	8	0	0	8	100.00%
Manganese	Metal	Water	ug/L	8	7	0	8	100.00%
Mercury	Metal	Water	ug/L	8	0	0	8	100.00%
Nickel	Metal	Water	ug/L	8	7	0	8	100.00%
Selenium	Metal	Water	ug/L	8	4	0	8	100.00%
Silver	Metal	Water	ug/L	8	1	0	8	100.00%
Thallium	Metal	Water	ug/L	8	1	0	8	100.00%
Vanadium	Metal	Water	ug/L	8	8	0	8	100.00%
Zinc	Metal	Water	ug/L	8	6	0	8	100.00%
1,1-Biphenyl	SVOC	Water	ug/L	8	1	0	8	100.00%
1,2,4,5-Tetrachlorobenzene	SVOC	Water	ug/L	8	0	0	8	100.00%
2,3,4,6-Tetrachlorophenol	SVOC	Water	ug/L	8	0	0	8	100.00%
2,4,5-Trichlorophenol	SVOC	Water	ug/L	8	0	0	8	100.00%
2,4,6-Trichlorophenol	SVOC	Water	ug/L	8	0	0	8	100.00%
2,4-Dichlorophenol	SVOC	Water	ug/L	8	0	0	8	100.00%
2,4-Dimethylphenol	SVOC	Water	ug/L	8	0	0	8	100.00%
2,4-Dinitrophenol	SVOC	Water	ug/L	8	0	0	8	100.00%
2,4-Dinitrotoluene	SVOC	Water	ug/L	8	0	0	8	100.00%
2,6-Dinitrotoluene	SVOC	Water	ug/L	8	0	0	8	100.00%
2-Chloronaphthalene	SVOC	Water	ug/L	8	0	0	8	100.00%
2-Chlorophenol	SVOC	Water	ug/L	8	0	0	8	100.00%
2-Methylnaphthalene	SVOC	Water	ug/L	8	1	0	8	100.00%
2-Methylphenol	SVOC	Water	ug/L	8	0	0	8	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 Results	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
2-Nitroaniline	SVOC	Water	ug/L	8	0	0	8	100.00%
3&4-Methylphenol(m&p Cresol)	SVOC	Water	ug/L	8	0	0	8	100.00%
3,3'-Dichlorobenzidine	SVOC	Water	ug/L	8	0	0	8	100.00%
4-Chloroaniline	SVOC	Water	ug/L	8	0	0	8	100.00%
4-Nitroaniline	SVOC	Water	ug/L	8	0	0	8	100.00%
Acenaphthene	SVOC	Water	ug/L	8	1	0	8	100.00%
Acenaphthylene	SVOC	Water	ug/L	8	1	0	8	100.00%
Acetophenone	SVOC	Water	ug/L	8	0	0	8	100.00%
Anthracene	SVOC	Water	ug/L	8	4	0	8	100.00%
Benz[a]anthracene	SVOC	Water	ug/L	8	1	0	8	100.00%
Benzaldehyde	SVOC	Water	ug/L	8	1	0	8	100.00%
Benzo[a]pyrene	SVOC	Water	ug/L	8	1	0	8	100.00%
Benzo[b]fluoranthene	SVOC	Water	ug/L	8	1	0	8	100.00%
Benzo[g,h,i]perylene	SVOC	Water	ug/L	8	1	0	8	100.00%
Benzo[k]fluoranthene	SVOC	Water	ug/L	8	1	0	8	100.00%
bis(2-chloroethoxy)methane	SVOC	Water	ug/L	8	0	0	8	100.00%
bis(2-Chloroethyl)ether	SVOC	Water	ug/L	8	0	0	8	100.00%
bis(2-Chloroisopropyl)ether	SVOC	Water	ug/L	8	0	0	8	100.00%
bis(2-Ethylhexyl)phthalate	SVOC	Water	ug/L	8	0	0	8	100.00%
Caprolactam	SVOC	Water	ug/L	8	0	0	8	100.00%
Carbazole	SVOC	Water	ug/L	8	0	0	8	100.00%
Chrysene	SVOC	Water	ug/L	8	1	0	8	100.00%
Dibenz[a,h]anthracene	SVOC	Water	ug/L	8	0	0	8	100.00%
Diethylphthalate	SVOC	Water	ug/L	8	1	0	8	100.00%
Di-n-butylphthalate	SVOC	Water	ug/L	8	0	0	8	100.00%
Di-n-octylphthalate	SVOC	Water	ug/L	8	0	0	8	100.00%
Fluoranthene	SVOC	Water	ug/L	8	3	0	8	100.00%
Fluorene	SVOC	Water	ug/L	8	1	0	8	100.00%
Hexachlorobenzene	SVOC	Water	ug/L	8	0	0	8	100.00%
Hexachlorobutadiene	SVOC	Water	ug/L	8	0	0	8	100.00%
Hexachlorocyclopentadiene	SVOC	Water	ug/L	8	0	0	8	100.00%
Hexachloroethane	SVOC	Water	ug/L	8	0	0	8	100.00%
Indeno[1,2,3-c,d]pyrene	SVOC	Water	ug/L	8	0	0	8	100.00%
Isophorone	SVOC	Water	ug/L	8	0	0	8	100.00%
Naphthalene	SVOC	Water	ug/L	8	1	0	8	100.00%
Nitrobenzene	SVOC	Water	ug/L	8	0	0	8	100.00%
N-Nitroso-di-n-propylamine	SVOC	Water	ug/L	8	0	0	8	100.00%
N-Nitrosodiphenylamine	SVOC	Water	ug/L	8	0	0	8	100.00%
Pentachlorophenol	SVOC	Water	ug/L	8	0	0	8	100.00%
Phenanthrene	SVOC	Water	ug/L	8	3	0	8	100.00%
Phenol	SVOC	Water	ug/L	8	0	0	8	100.00%
Pyrene	SVOC	Water	ug/L	8	2	0	8	100.00%
Diesel Range Organics	TPH	Water	ug/L	8	6	0	8	100.00%
Gasoline Range Organics	TPH	Water	ug/L	8	1	0	8	100.00%
1,1,1-Trichloroethane	VOC	Water	ug/L	8	0	0	8	100.00%
1,1,2,2-Tetrachloroethane	VOC	Water	ug/L	8	0	0	8	100.00%
1,1,2-Trichloro-1,2,2-Trifluoroethane	VOC	Water	ug/L	8	0	0	8	100.00%
1,1,2-Trichloroethane	VOC	Water	ug/L	8	0	0	8	100.00%
1,1-Dichloroethane	VOC	Water	ug/L	8	2	0	8	100.00%
1,1-Dichloroethene	VOC	Water	ug/L	8	1	0	8	100.00%
1,2,3-Trichlorobenzene	VOC	Water	ug/L	8	0	0	8	100.00%
1,2,4-Trichlorobenzene	VOC	Water	ug/L	8	0	0	8	100.00%
1,2-Dibromo-3-chloropropane	VOC	Water	ug/L	8	0	0	8	100.00%
1,2-Dibromoethane	VOC	Water	ug/L	8	0	0	8	100.00%
1,2-Dichlorobenzene	VOC	Water	ug/L	8	1	0	8	100.00%
1,2-Dichloroethane	VOC	Water	ug/L	8	0	0	8	100.00%
1,2-Dichloroethene (Total)	VOC	Water	ug/L	8	5	0	8	100.00%
1,2-Dichloropropane	VOC	Water	ug/L	8	0	0	8	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 Results	Detections	Number of Rejected Results	Number of Non-rejected Results	Completeness
1,3-Dichlorobenzene	VOC	Water	ug/L	8	0	0	8	100.00%
1,4-Dichlorobenzene	VOC	Water	ug/L	8	0	0	8	100.00%
2-Butanone (MEK)	VOC	Water	ug/L	8	0	0	8	100.00%
2-Hexanone	VOC	Water	ug/L	8	0	0	8	100.00%
4-Methyl-2-pentanone (MIBK)	VOC	Water	ug/L	8	0	0	8	100.00%
Acetone	VOC	Water	ug/L	8	0	0	8	100.00%
Benzene	VOC	Water	ug/L	8	1	0	8	100.00%
Bromodichloromethane	VOC	Water	ug/L	8	0	0	8	100.00%
Bromoform	VOC	Water	ug/L	8	0	0	8	100.00%
Bromomethane	VOC	Water	ug/L	8	0	0	8	100.00%
Carbon disulfide	VOC	Water	ug/L	8	0	0	8	100.00%
Carbon tetrachloride	VOC	Water	ug/L	8	0	0	8	100.00%
Chlorobenzene	VOC	Water	ug/L	8	1	0	8	100.00%
Chloroethane	VOC	Water	ug/L	8	0	0	8	100.00%
Chloroform	VOC	Water	ug/L	8	1	0	8	100.00%
Chloromethane	VOC	Water	ug/L	8	0	0	8	100.00%
cis-1,2-Dichloroethene	VOC	Water	ug/L	8	5	0	8	100.00%
cis-1,3-Dichloropropene	VOC	Water	ug/L	8	0	0	8	100.00%
Cyclohexane	VOC	Water	ug/L	8	1	0	8	100.00%
Dibromochloromethane	VOC	Water	ug/L	8	0	0	8	100.00%
Dichlorodifluoromethane	VOC	Water	ug/L	8	0	0	8	100.00%
Ethylbenzene	VOC	Water	ug/L	8	0	0	8	100.00%
Isopropylbenzene	VOC	Water	ug/L	8	1	0	8	100.00%
Methyl Acetate	VOC	Water	ug/L	8	0	0	8	100.00%
Methyl tert-butyl ether (MTBE)	VOC	Water	ug/L	8	1	0	8	100.00%
Methylene Chloride	VOC	Water	ug/L	8	0	0	8	100.00%
Styrene	VOC	Water	ug/L	8	0	0	8	100.00%
Tetrachloroethene	VOC	Water	ug/L	8	5	0	8	100.00%
Toluene	VOC	Water	ug/L	8	0	0	8	100.00%
trans-1,2-Dichloroethene	VOC	Water	ug/L	8	0	0	8	100.00%
trans-1,3-Dichloropropene	VOC	Water	ug/L	8	0	0	8	100.00%
Trichloroethene	VOC	Water	ug/L	8	5	0	8	100.00%
Trichlorofluoromethane	VOC	Water	ug/L	8	0	0	8	100.00%
Vinyl chloride	VOC	Water	ug/L	8	3	0	8	100.00%
Xylenes	VOC	Water	ug/L	8	0	0	8	100.00%
1,4-Dioxane	VOC/SVOC	Water	ug/L	8	4	0	8	100.00%

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