

# PHASE II INVESTIGATION REPORT

AREA B: PARCEL B19  
TRADEPOINT ATLANTIC  
SPARROWS POINT, MARYLAND

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Revision 0 – April 9, 2018

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## 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 B: Parcel B19 (the Site). Parcel B19 is comprised of 85.6 acres of the approximately 3,100-acre former steel making facility (**Figure 1**). The Site is bounded to the northwest by Parcel B3 containing several former administrative buildings, to the north by an existing wooded area and the Baltimore Fire Academy and Baltimore County Vehicle Maintenance Shops (within Parcel B7), to the south by several railways and portions of the former Blast Furnace Area (within Parcel B5), and to the east by Jones Creek and Old Road Bay. A small area of private property (approximately 0.1 acres occupied by a Baltimore County Pump Station which is not owned by Tradepoint Atlantic) is located in the center of the parcel and was excluded from the established parcel boundary.

As noted in the approved Response and Development Work Plan (RADWP) for Area B: Sub-Parcel B19-1 (Revision 3 dated September 27, 2017), a 3.2-acre area of the eastern portion of the Site has recently undergone limited industrial redevelopment. Development activities in Sub-Parcel B19-1 included the construction of a concrete plant and support structures for the storage of cement and aggregate materials and mixing of concrete product.

The Phase II Investigation was performed in accordance with procedures outlined in the approved Phase II Investigation Work Plan – Parcel B19. This Work Plan (Revision 1 dated August 9, 2016) and an associated comment response letter (dated March 7, 2017) were approved on September 22, 2016 and March 9, 2017, respectively, by the Maryland Department of the Environment (MDE) and the United States Environmental Protection Agency (USEPA). In addition, a sampling Work Plan to complete four additional soil borings in Parcel B19 was submitted to the agencies in support of the development of Sub-Parcel B19-1 on May 15, 2017. The sampling approach for the four additional soil borings was approved by the agencies on May 22, 2017. Site investigation activities were performed 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 B19 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 MDE and delivered on June 27, 2014. The property's current and anticipated future use is Tier 3 (Industrial), and plans for the property include demolition and redevelopment over the next several years.

### **1.1. SITE HISTORY**

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

Parcel B19 was formerly occupied in part by the Pennwood Storage Tank Farm and the Maryland Pig Plant. The large aboveground storage tanks (ASTs) of the Pennwood Storage Tank Farm are still present at the Site but are not in use. A small area of private property (approximately 0.1 acres) is located in the center of the Site and is occupied by a Baltimore County Pump Station. This station is not owned by Tradepoint Atlantic and was thus excluded from the established parcel boundary. Historic aerial images (sourced from NETR Online) indicate that portions of Parcel B19 were formerly occupied by residential housing for mill workers. Descriptions of the main facilities and processes within Parcel B19 are given below:

#### **Pennwood Storage Tank Farm:**

Several large ASTs are located in the Pennwood Storage Tank Farm, directly north of the Pennwood Power Station (within Parcel B9). The power station operated four boilers to generate electricity and steam for general plant use and was operated on a variety of fuels including blast furnace gas, No. 6 Fuel Oil, used oil or waste combustible fluids, and natural gas. The tanks in the AST farm formerly held No. 6 Fuel Oil and recycled oil. One additional AST was formerly located directly east of the Pennwood Storage Tank Farm, but aerial images show that this tank was removed between December 2002 and September 2005.

#### **Maryland Pig Plant:**

To extract iron from ore and other iron-rich recyclable materials, the blast furnaces were used to reduce iron and melt it so that product could be cast from the furnace in molten form. This molten iron is referred to as pig iron or hot-metal. Liquid iron produced in the blast furnace was cast at periodic intervals through an iron notch, flowing down runners into transfer cars. The

hot-metal was transferred either directly to the Basic Oxygen Furnace (BOF), to the Maryland Pig Plant for casting into iron “pigs”, or beached (cooled/stored) in the No. 3 Mould Yard. Iron pigs are an intermediate product of the steel making process which are cast into small ingots intended for re-melting.

## 1.2. OBJECTIVES

The objective of this Phase II Investigation was to fully characterize the nature and extent of contamination at the Site. 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. A summary table of the site investigation locations, including the boring identification numbers and the analyses performed, is provided as **Appendix A**. A human health Screening Level Risk Assessment (SLRA) was prepared to identify constituents and pathways of potential concern and to evaluate the significance of any observed impacts or elevated concentrations with respect to the potential future use of the Site.

As specified in the approved Work Plan for Parcel B19, groundwater at the Site was investigated as described in the separate Area B Groundwater Investigation Work Plan (dated October 6, 2015), the final version of which was approved by the agencies on October 5, 2015. A separate Area B Groundwater Phase II Investigation Report has been submitted (Revision 0 dated September 30, 2016) to discuss the detailed findings of the groundwater investigation.

## **2.0 ENVIRONMENTAL SETTING**

### **2.1. LAND USE AND SURFACE FEATURES**

The Tradepoint Atlantic property consists of the former Sparrows Point steel mill. According to the Phase I Environmental Site Assessment (ESA) prepared by Weaver Boos dated May 19, 2014, 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 approximate mean elevation of 12 feet above mean sea level (amsl). Elevations in the parcel range between 0 feet amsl and 22 feet amsl over the entire parcel. There are several sloped berms surrounding ASTs in the western portion of the parcel within the Pennwood Storage Tank Farm. The central portion of the Site appears to be relatively flat, and ranges in elevation between 8 feet amsl and 12 feet amsl. Along the eastern edge of the parcel, the Site slopes sharply downward to the adjacent Jones Creek and Old Road Bay (at sea level). According to Figure B-2 of the Stormwater Pollution Prevention Plan (SWPPP) Revision 5 dated June 1, 2017, stormwater from the majority of the parcel is discharged through the permitted National Pollution Discharge Elimination System (NPDES) Outfalls 016 and 017 to the adjoining surface waters of Jones Creek and Old Road Bay located to the east.

### **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

Groundcover at the Site is comprised of approximately 84% natural soils and 16% fill material 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 fill materials overlying 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 15 feet below the ground surface (bgs), although typical thicknesses ranged from 0 to 4 feet bgs. Shallow groundwater was observed in the soil borings at depths ranging from 1 foot bgs (likely stormwater) to 17.5 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.

### 3.0 SITE INVESTIGATION

A total of 90 soil samples (from 42 locations) were collected for analysis between September 21, 2016 and May 24, 2017 as part of the Parcel B19 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 B19 Work Plan dated August 9, 2016 (and associated comment response letter dated March 7, 2017), and the QAPP.

All site characterization activities were conducted under the site-specific health and safety plan (HASP) provided as Appendix C 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 REC was identified in the Parcel B19 Work Plan: Pennwood Storage Tank Farm ASTs (REC 19, Finding 266). Additional information regarding the Pennwood Storage Tank Farm is presented above in Section 1.1. There were no additional SWMUs or AOCs identified at the Site based on the review of 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 within the parcel boundaries. A summary of the specific drawings covering the Site is presented in **Table 1**. 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 (or based on direct agency guidance), additional non-REC sampling targets were identified at the Site that included the following: Former Fire Training Area, Oil Trap (sanitary line), Former Fuel Oil Storage Tank and Berm Area, Pig Plant Caster Building, Pig Plant Caster Machine, Pig Plant Storage Area, Pump Houses, Rail Car Dumper, and Weir/Oil Barrier. 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 2** 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. As defined in the Work Plan, Parcel B19 contained a total of 80.4 acres without engineered barriers and 5.2 acres with engineered barriers. Of the 5.2 acres with engineered barriers, 3.43 acres contained current/former building slabs and 1.73 acres consisted of parking/roads. In accordance with the relevant sampling density requirements, a minimum of 35 soil boring locations were required to cover the area without engineered barriers, and a minimum of 3 soil boring locations were required to cover areas with engineered barriers. A total of 38 borings were required to meet the density specification; 42 locations were completed during this Phase II Investigation.

### 3.2. SOIL INVESTIGATION

Continuous core soil borings were successfully advanced at 40 locations across the Site to assess the presence or absence of soil contamination, and to assess the vertical distribution of any encountered contamination. Two additional locations (B19-007-SB and B19-008-SB) were completed as test pits using excavation equipment due to the presence of saturated surface conditions in an area surrounded by an historic AST berm. The 42 completed sample locations are shown on **Figure 3**; the four supplemental soil borings completed in support of the development of Sub-Parcel B19-1 (B19-039-SB through B19-042-SB) and the two locations completed as test pits (B19-007-SB and B19-008-SB) are highlighted using different symbols to distinguish them. The continuous core soil borings were advanced to depths between 8 and 20 feet bgs using the Geoprobe® MC-7 Macrocore soil sampler (surface to 10 feet bgs) and the Geoprobe® D-22 Dual-Tube Sampler (depths >10 feet bgs). The test pit locations were

completed using a CAT<sup>®</sup> Backhoe 415F2. At each location, each soil core was visually inspected and screened with a hand-held photoionization detector (PID) prior to logging soil types. Soil boring logs have been included as **Appendix B**, and the PID calibration log has been included as **Appendix C**. Unless otherwise indicated, all USCS group symbols provided on the attached boring logs are from visual observations.

One shallow sample was collected from the 0 to 1 foot depth interval, and a deeper sample was collected from the 4 to 5 foot depth interval from each continuous core soil boring. If clean surface cover materials (such as paving or gravel) were present, the first 1 foot of fine-grained material beneath this layer was collected as the surface sample. 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. 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 bgs (or field adjusted) samples at concentrations above the Project Action Limits (PALs). During field screening of the soil cores, any sample interval that exceeded a PID reading of 10 ppm had a sample collected for volatile organic compounds (VOCs), although 10-foot samples were still held prior to analysis. (These VOC sampling requirements have been adjusted several times under agency guidance and were updated for recent investigations, as described in the Soil Sampling Analysis Clarification: Standard Work Plan Procedure Letter prepared by ARM dated April 7, 2017. The four additional soil borings completed in support of the development of Sub-Parcel B19-1 were subject to the updated analytical requirements as outlined in the referenced letter.)

Soil sampling activities were conducted in accordance with the procedures and methods referenced in **Field Standard Operating Procedure (SOP) Numbers 008, 009, 012, and 013** provided in Appendix A of the QAPP. Down-hole soil sampling equipment was decontaminated after soil sampling had been concluded at a location, according to the procedures and methods referenced in **Field SOP Number 016** provided in Appendix A of the QAPP.

Each soil sample collected during this investigation was submitted to Pace Analytical Services, Inc. (PACE) for analysis. As stated above, the 10-foot bgs samples may have been held by the laboratory and were only analyzed for parameters that were detected in the overlying 5-foot bgs (or field adjusted) sample at concentrations above the PALs. Excluding these deep samples, the remaining soil samples were analyzed for Target Compound List (TCL) semi-volatile organic compounds (SVOCs) via USEPA Methods 8270D and 8270D SIM, Target Analyte List (TAL) Metals via USEPA Methods 6010C and 7471C, Oil & Grease via USEPA Method 9071, total petroleum hydrocarbon (TPH) diesel range organics (DRO) and gasoline range organics (GRO) via USEPA Methods 8015B and 8015D, hexavalent chromium via USEPA Method 7196A, and

cyanide via USEPA Method 9012. Samples with a sustained PID reading of greater than 10 ppm were also analyzed for TCL VOCs via USEPA Method 8260B. Additionally, the shallow soil samples collected across the Site from the 0 to 1 foot bgs interval were analyzed for polychlorinated biphenyls (PCBs) via USEPA Method 8082. Analytical methods, sample containers, preservatives, and holding times for the sample analyses are listed in the QAPP Worksheet 19 & 30 – Sample Containers, Preservation, and Holding Times.

### **3.3. 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 (described in trailing sections of this report);
- decontamination fluids; and
- used personal protective equipment

Following the completion of field activities, composite samples were gathered with aliquots from each of the Parcel B19 Phase II IDW soil drums for waste characterization. Following the analysis of each sample, the waste soil was characterized as non-hazardous. A list of all results from the soil waste characterization procedure can be found in **Table 3**. IDW drums containing aqueous materials (including aqueous waste generated during the Parcel B19 Phase II Investigation) were characterized by preparing composite samples from randomly selected drums. Each 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 the analysis of each sample, the aqueous waste was characterized as non-hazardous. A list of all results from the aqueous waste characterization procedure can be found in **Table 4**.

The parcel specific IDW drum log from the Phase II investigation is included as **Appendix D**. 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 PALs established in the property-wide QAPP (or other direct guidance from the agencies; e.g. TPH/Oil & Grease) to determine exceedances. PALs are generally based on the USEPA's Regional Screening Levels (RSLs) for the Composite Worker exposure to soil. The Composite Worker is defined by the USEPA as a long-term receptor exposed during the work day who is a full time employee that spends most of the workday conducting maintenance activities (which typically involve on-site exposures to surface soils) outdoors.

The analytical results for the detected parameters are summarized and compared to the PALs in **Table 5** (Organics) and **Table 6** (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 5**, several VOCs and SVOCs were identified above the laboratory's method detection limits (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, PAH detections are compared to the adjusted PALs rather than those presented in the QAPP. Although detections were noted at multiple sample locations throughout the parcel, there were no VOCs or SVOCs detected above their respective PALs.

Shallow soil samples collected across the Site from the 0 to 1 foot bgs interval were also analyzed for PCBs. **Table 5** provides a summary of the PCBs detected above the laboratory's MDLs. No sample exceeded the PAL for total PCBs or any individual aroclor mixture.

**Table 5** provides a summary of the TPH/Oil & Grease detections in soil within the parcel. Oil & Grease, DRO, and GRO were all detected above the laboratory's MDLs at multiple locations; however, only Oil & Grease was detected above the PAL (6,200 mg/kg). Oil & Grease was detected above the PAL in three surface soil samples (B19-010-SB-1.5, B19-034-SB-1, and B19-035-SB-1), all of which are located in the western half of the parcel. The maximum detection of Oil & Grease was 23,600 mg/kg in sample B19-034-SB-1. A summary of the Oil & Grease PAL exceedance locations and results has been provided on **Figure S-1**. One soil core (B19-010-SB) also exhibited evidence of possible non-aqueous phase liquid (NAPL) during field screening of the soil core. This boring location is also highlighted on the exceedance figure, and the specific observations are discussed in greater detail in Section 4.2.

#### 4.1.2. Soil Conditions: Inorganic Constituents

**Table 6** provides a summary of inorganic constituents detected above the laboratory's MDLs in the soil samples collected from across the Site. Four inorganic compounds (arsenic, manganese, thallium, and hexavalent chromium) were detected above their respective PALs. Arsenic was by far the most common inorganic exceedance and was detected above the PAL in 65 (approximately 72%) of the soil samples analyzed for this compound. The maximum detection of arsenic was 47.9 mg/kg in sample B19-005-SB-6. In comparison, manganese, hexavalent chromium, and thallium exceeded their respective PALs in 14 samples (maximum detection of manganese at 43,100 mg/kg in B19-022-SB-4), four samples (maximum detection of hexavalent chromium at 13.5 mg/kg in B19-032-SB-1), and one sample (15.4 mg/kg of thallium in B19-027-SB-1), respectively. A summary of the inorganic PAL exceedance locations and results has been provided on **Figure S-2**.

#### 4.1.3. Soil Conditions: Results Summary

**Table 5** and **Table 6** provide a summary of the detected organic compounds and inorganics in the soil samples submitted for laboratory analysis, and **Figure S-1** and **Figure S-2** present a summary of the soil sample results that exceeded the PALs. **Table 7** provides a summary of results for all PAL exceedances in soil, including maximum values and detection frequencies. **Table 8** indicates which soil impacts (PAL exceedances) are associated with the specific targets listed in the Parcel B19 Work Plan. There were no detections of VOCs, SVOCs, or PCBs above their applicable PALs, and these compounds are not considered to be significant soil contaminants in Parcel B19. Exceedances in soil within Parcel B19 consisted of four inorganics (arsenic, manganese, thallium, and hexavalent chromium) and Oil & Grease. The soil analytical results are further evaluated in the SLRA provided in Section 6.0.

#### 4.2. NON-AQUEOUS PHASE LIQUID (NAPL)

Soil cores were screened for evidence of possible NAPL contamination during the completion of the Phase II soil borings in Parcel B19. During the field screening, only one location had observations of physical evidence of NAPL. Soil boring B19-010-SB had trace product observed at approximately 0.5 feet bgs (water was encountered at approximately 6 feet bgs). This location, which targeted the Pennwood Storage Tank Farm, is highlighted on **Figure S-1**. A piezometer with a screen interval from 3 to 13 feet bgs was installed on November 3, 2017 in accordance with standard specifications for temporary groundwater sample collection points described in **Field SOP Number 028**. The screening piezometer was checked for the presence of product using an oil-water interface probe immediately after installation, approximately 48 hours after installation, and again after 30 days. The static water level (following the initial 0-hour measurement) was detected at less than 1 foot bgs. No NAPL was detected in the piezometer during any of the NAPL checks, and no additional installations or delineation were warranted. Since NAPL was not detected during any of the gauging events, it has been

determined that free product is not present at quantities that are likely to migrate. The screening piezometer B19-010-PZ will be abandoned in accordance with Maryland abandonment standards as stated in COMAR 26.04.04.34 through 36, and will be gauged a final time on the abandonment date in accordance with current MDE guidance.

Elevated detections of Oil & Grease above the PAL of 6,200 mg/kg were documented in three shallow soil samples (B19-010-SB-1.5, B19-034-SB-1, and B19-035-SB-1). The elevated Oil & Grease detection at B19-010-SB was co-located with observations of NAPL in the soil core, and has been investigated via the installation of a NAPL screening piezometer as described above. The two remaining Oil & Grease soil PAL exceedances at B19-034-SB and B19-035-SB were reviewed and it was determined that these locations did not warrant the installation of a screening piezometer. These additional locations are described below:

- B19-034-SB: Oil & Grease was detected at 23,600 mg/kg in the shallow soil sample collected from B19-034-SB in the 0 to 1 foot bgs interval. DRO was detected well below the soil PAL in the shallow soil sample (257 mg/kg) and GRO was undetected in the shallow sample. Silty topsoil was observed in this soil interval, along with a mild odor from 0 to 0.5 feet bgs. An intermediate soil sample was collected from 3 to 4 feet bgs. TPH/Oil & Grease were not detected above the PAL in the intermediate soil sample. A dry confining clay unit was observed from 2 to 5.5 feet bgs. Another clay (with silt) unit was observed from 5.5 to 10 feet bgs and groundwater was observed at approximately 7 feet bgs. Since a confining clay unit was observed above the groundwater table, and the Oil & Grease soil exceedance was limited to the shallow soil, it is unlikely that any potential petroleum impacts have migrated to groundwater.
- B19-035-SB: Oil & Grease was detected at 8,510 mg/kg in the shallow soil sample collected from B19-035-SB in the 0 to 1 foot bgs interval. DRO was detected well below the soil PAL in the shallow soil sample (600 mg/kg) and GRO was undetected in the shallow sample. Slag gravel was observed in this soil interval. An intermediate soil sample was collected from 3 to 4 feet bgs directly beneath a confining clay unit. TPH/Oil & Grease were not detected above the PAL in the intermediate soil sample. The dry confining clay unit was observed from 1 to 3 feet bgs between the shallow and intermediate samples. Several clay units were observed between the elevated shallow soil sample and groundwater, which was observed at 9.5 feet bgs. The Oil & Grease soil exceedance was limited to the shallow soil, and it is unlikely that any potential petroleum impacts have migrated to groundwater.

#### **4.3. GROUNDWATER CONDITIONS – AREA B GROUNDWATER INVESTIGATION**

As specified in the approved Parcel B19 Work Plan, groundwater at the Site was investigated as described in the separate Area B Groundwater Investigation Work Plan (dated October 6, 2015). A separate Area B Groundwater Phase II Investigation Report has been submitted (Revision 0



dated September 30, 2016) to discuss the detailed findings of the groundwater investigation. Groundwater results obtained during this separate investigation were screening against the PALs established in the property-wide QAPP (or other direct guidance from the agencies) to determine exceedances. The complete findings of the groundwater investigation, including detection summary tables and exceedance figures, were provided in the Area B Groundwater Phase II Investigation Report. A figure summarizing the shallow aqueous PAL exceedances (for all classes of compounds) in the vicinity of Parcel B19 is provided in **Appendix E**. The groundwater analytical results obtained from the intermediate and lower hydrogeologic zones can be reviewed in the separate Area B Groundwater Phase II Investigation Report.

Regarding the shallow groundwater exceedances, some of the PALs have been updated since the submission of the Area B Groundwater Phase II Investigation Report. In particular, the aqueous screening levels for some PAH constituents have been adjusted upward. Similar to the evaluation of soil data, the PALs for relevant PAHs have been modified based on revised toxicity data published in the USEPA RSL Resident Tapwater Table. Aqueous PAL exceedances in the shallow groundwater in the vicinity of Parcel B19 consisted of two SVOCs (benz[a]anthracene and pentachlorophenol), DRO, and eight total/dissolved metals (beryllium, cobalt, iron, lead, manganese, nickel, vanadium, and hexavalent chromium). For simplicity, the inorganic PAL exceedances shown on the figure do not include duplicate exceedances of total and dissolved metals at relevant sample locations. If both total and dissolved concentrations exceeded the PAL for a specific compound, the value for total metals is displayed on the figure for each sample.

Each permanent well sampled during the Area B Groundwater Investigation 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 permanent groundwater monitoring wells.

Groundwater data were also screened to determine whether any individual sample results, or cumulative results summed by sample location, 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 aqueous PALs specified in the QAPP are based upon drinking water use, which is not a potential exposure pathway for groundwater at the Site. There were no potential VI risks/hazards identified from the shallow groundwater sampling points located in the vicinity of Parcel B19.

## 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/Oil & Grease) are present in Site media (soil) 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 F**. 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
  - Soil – VOCs only
- Blind Field Duplicate – at a rate of one per twenty samples
  - Soil – VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, Oil & Grease, PCBs, 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, Oil & Grease, PCBs, and hexavalent chromium
- Field Blank and Equipment Blank – at a rate of one per twenty samples
  - Soil – VOCs, SVOCs, Metals, TPH-DRO, TPH-GRO, Oil & Grease, hexavalent chromium, and cyanide

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

### 5.1. DATA VERIFICATION

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

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). The DVRs provided by EDQI have been included as electronic attachments.

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

The PACE-Greensburg (PA) laboratory facility implements quality assurance and reporting requirements through the TNI certification program with the State of Pennsylvania; which is accepted by Maryland. Since late-January 2017, these requirements include the flagging of contaminants with a “B” qualifier when an analyte is detected in an associated laboratory method blank, regardless of the level of the contaminant detected in the sample. A method blank is analyzed at a rate of one blank for each 20 sample analytical batch. The USEPA has previously specified that results flagged with the “B” qualifier do not represent legitimate detections. They have also specified that results flagged with a “JB” qualifier are invalid, and any such results should be revised to display the “B” qualifier only.

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

qualifier can be eliminated, but would be reported as a “B” qualified non-detect result if the original “B” qualifier is legitimate.

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

RL = Reporting Limit

As directed by EDQI, ARM has reviewed all non-validated laboratory reports (those which were not designated to be reviewed by EDQI) to apply validation corrections to any relevant “B” or “JB” qualified results. For laboratory certificates generated since the implementation of the new TNI guidance in late-January 2017, ARM has reviewed the method blank results and applied the same validation corrections as specified by EDQI in the table above. This review of the non-validated data ensures that any elevated detections of parameters, including those which may exceed the PALs, are not mistakenly reported as non-detect values simply because they did not undergo the formal validation procedure by EDQI. For laboratory certificates generated prior to implementation of the updated TNI guidance, “B” qualifiers were not broadly assigned irrespective of elevated sample detections. For these older reports, 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 also revised all of 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 9**. A discussion of data completeness (the proportion of validated 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 008, 009, 010, 011, 017, and 024**. Review of the field notes and laboratory sample receipt records indicated that collection of soil 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 data set.

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

A total of 15 analytes did not meet the completeness goal of 90% for soils in Parcel B19. Of these 15 analytes, 11 acid extractable SVOCs (2,3,4,6-tetrachlorophenol, 2,4,5-trichlorophenol, 2,4,6-trichlorophenol, 2,4-dichlorophenol, 2,4-dimethylphenol, 2,4-dinitrophenol, 2-chlorophenol, 2-methylphenol, 3&4-methylphenol (m&p Cresol), pentachlorophenol, and phenol) had soil completeness values of  $\geq 77.6\%$ . Some of the results for these compounds were rejected due to poor recoveries, which are believed to be due to the highly alkaline conditions typical of slag fill. These compounds had completeness ratios which were fairly close to the 90% goal, and since these compounds either were not detected across the Site or were detected at

very low concentrations, the rejected results for the acid extractable SVOCs are not considered to be significant data gaps. Of the remaining four compounds with completeness values less than 90% (1,4-dioxane, methyl acetate, benzaldehyde, and bromomethane), only benzaldehyde was detected in soil. The maximum benzaldehyde detection (0.11 mg/kg) was well below the established PAL (120,000 mg/kg). Based on the infrequency and low magnitude of soil detections for these compounds, these are not considered to be significant data gaps. The rejection of the soil results for these compounds has not been uncommon for data obtained from the Tradepoint Atlantic property.

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

## 6.0 HUMAN HEALTH SCREENING LEVEL RISK ASSESSMENT (SLRA)

### 6.1. ANALYSIS PROCESS

A human health SLRA has been conducted for soils to further evaluate the Site conditions in support of the design of necessary response measures. The SLRA included the following evaluation process:

**Identification of Exposure Units (EUs):** Two EUs were identified for Parcel B19, as indicated on **Figure 4**. The two EUs (EU1 and EU2) are comprised of 40.8 acres and 44.8 acres, respectively.

**Identification of Constituents of Potential Concern (COPCs):** Compounds that are present at concentrations at or above the USEPA RSLs set at a target cancer risk of  $1E-6$  or target non-cancer Hazard Quotient (HQ) of 0.1 were identified as COPCs to be included in the SLRA. A COPC screening analysis is provided in **Table 10** to identify compounds above the relevant screening levels in Parcel B19.

**Exposure Point Concentrations (EPCs):** The COPC soil data for each EU were divided into surface (0 to 1 foot) and subsurface (>1 foot) depths for estimation of potential EPCs. An evaluation of pooled surface and subsurface soil data was also performed. Thus, for Parcel B19 there are three soil datasets associated with each EU. A statistical analysis was performed for each COPC dataset using the ProUCL software (version 5.0) developed by the USEPA to determine representative reasonable maximum exposure (RME) values for the EPC for each constituent. The RME value is typically the 95% Upper Confidence Limit (UCL) of the mean. For lead, the arithmetic mean for each depth was calculated for comparison to the Adult Lead Model (ALM)-based values, and any individual results exceeding 10,000 mg/kg would be delineated for possible excavation and removal (if applicable). For PCBs, all results equaling or exceeding 50 mg/kg would be delineated for excavation and removal (if applicable).

**Risk Ratios:** The surface soil EPCs, subsurface soil EPCs, and pooled soil EPCs were compared to the USEPA RSLs for the Composite Industrial Worker. The risk ratios were calculated with a cancer risk of  $1E-6$  and a non-cancer HQ of 1. The risk ratios for the carcinogens were summed to develop a screening level estimate of the baseline cumulative cancer risk. The risk ratios for the non-carcinogens were segregated and summed by target organ to develop a screening level estimate of the baseline cumulative non-cancer hazard. There is no potential for human exposure to groundwater for a Composite Worker since groundwater is not used on the Tradepoint Atlantic property (and is not proposed to be utilized).

**Assessment of Lead:** For lead, the arithmetic mean concentrations for surface soils, subsurface soils, and pooled soils for each EU were compared to the applicable RSL (800 mg/kg) as an initial screening. If the mean concentrations for the EU were below the applicable RSL, the EU was identified as requiring no further action for lead. If a mean concentration exceeded the RSL, the mean values were compared to calculated ALM values (ALM Version dated 6/21/2009 updated with the 5/17/2017 OLEM Directive) with inputs of 1.8 for the geometric standard deviation and a blood baseline lead level of 0.6 ug/dL. The ALM calculation generates a soil lead concentration of 2,518 mg/kg, which is the most conservative (i.e., lowest) concentration which would yield a probability of 5% of a blood lead concentration of 10 ug/dL. If the arithmetic mean concentrations for the EU were below 2,518 mg/kg, the EU was identified as requiring no further action for lead. The lead averages and ALM screening levels are presented for surface, subsurface, and pooled soils in **Table 11**. For lead, any results equaling or exceeding 10,000 mg/kg would warrant additional delineation for possible excavation and removal (if applicable).

**Assessment of TPH-DRO/GRO and Oil & Grease:** EPCs were not calculated for TPH-DRO/GRO or Oil & Grease. Instead, the individual results were compared to the PAL set to a HQ of 1 (6,200 mg/kg). Three samples exceeded the PAL for Oil & Grease (B19-010-SB-1.5 with a detection of 7,950 mg/kg, B19-034-SB-1 with a detection of 23,600 mg/kg, and B19-035-SB-1 with a detection of 8,510 mg/kg). One boring (B19-010-SB) also had physical evidence of possible NAPL observed in the soil core. An evaluation of the potential for product mobility based on these analytical exceedances and soil core observations is presented following the SLRA in Section 7.2.

**Risk Characterization Approach:** For each EU, if the baseline risk ratio for each non-carcinogenic COPC or cumulative target organ does not exceed 1 (with the exception of lead), and the sum of the risk ratios for the carcinogenic COPCs does not exceed a cumulative cancer risk of 1E-5, then a no further action determination will be recommended. The primary EPC comparison to determine the need for possible remedial action will be the Composite Worker comparison to the surface soil EPCs. However, no further action will only be approvable if subsurface soil EPCs are also compared to the Composite Worker RSLs, and the cancer and non-cancer risk estimates are equal to or less than 1E-5 and 1, respectively. Pooled soil data have also been evaluated and included for discussion.

If the baseline estimate of cumulative cancer risk exceeds 1E-5, but is less than or equal to 1E-4, then capping of the EU will be considered to be an acceptable remedy for the Composite Worker. The efficacy of capping for elevated non-cancer hazard will be evaluated in terms of the magnitude of exceedance and other factors such as bioavailability of the COPC. Similarly, for lead, if the ALM results indicate that the



mean concentrations would present a 5% to 10% probability of a blood concentration of 10 ug/dL for the EU, then capping of the EU would be an acceptable presumptive remedy. The mean soil lead concentrations corresponding to ALM probabilities of 5% and 10% are 2,518 mg/kg and 3,216 mg/kg, respectively. If capping of the identified area is not proposed, additional more detailed quantitative evaluation of risk will be required for the EU. This supplemental risk evaluation may include a selective removal (excavation) remedy to reduce site-wide risks/hazards to acceptable levels.

The USEPA's acceptable risk range is between 1E-6 and 1E-4. If the sum of the risk ratios for carcinogens exceeds a cumulative cancer risk of 1E-4, further analysis of site conditions will be required including the consideration of toxicity reduction in any proposal for a remedy. The magnitude of non-carcinogen hazard exceedances and bioavailability of the COPC will also dictate further analysis of site conditions including consideration of toxicity reduction in any proposal for a remedy. In addition, if the ALM indicates that the mean concentrations would present a >10% probability of a blood concentration of 10 ug/dL for the EU, further analysis of site conditions including toxicity reduction will be completed such that the probability would be reduced to less than 10% after toxicity reduction, but before capping.

## 6.2. PARCEL B19 SLRA RESULTS AND RISK CHARACTERIZATION

The soil data were divided into three datasets (surface, subsurface, and pooled) for each EU in Parcel B19 to evaluate potential current and future exposure scenarios. The current Composite Worker will be exposed only to surface soils. However, if construction activities were to result in the placement of subsurface material over existing surface soils, a future Composite Worker could be exposed to a mixture of surface and subsurface soils.

If the detection frequency of an analyte is less than 5% in a dataset with a minimum of 20 samples, the COPC can be eliminated from the risk assessment assuming the detections are not extremely high (based on agency discretion). A single detection that is extremely high could require delineation rather than elimination. No analyte designated as a COPC in Parcel B19 had a detection frequency less than 5%; thus, no COPCs were removed due to low detection frequencies. All COPCs identified in **Table 10** have been retained for the risk assessment.

EPCs were calculated for each soil dataset (i.e., surface, subsurface, and pooled surface/subsurface) in each EU. ProUCL output tables (with computed UCLs) derived from the data for each COPC in soils are provided as electronic attachments, with computations presented and EPCs calculated for COPCs within each of the datasets. The ProUCL input tables are also included as electronic attachments. The results were evaluated to identify any samples that may require additional assessment or special management based on the risk characterization approach. The calculated EPCs for the surface and subsurface exposure scenarios are provided

in **Table 12**. The supplemental EPCs generated from the pooled surface and subsurface soils are also included in the EPC table.

As indicated above, the EPCs for lead are the average (i.e., arithmetic mean) values for each dataset. A lead evaluation spreadsheet, providing the computations used to determine lead averages for each dataset in each EU, is also included as an electronic attachment. The average lead concentrations are presented for each dataset in **Table 11**, which indicates that neither surface, subsurface, nor pooled soils exceeded an average lead value of 800 mg/kg. The screening criterion for lead was set at an EU arithmetic mean of 800 mg/kg based on the RSL, with a secondary limit of 2,518 mg/kg based on the May 2017 updated ALM developed by the USEPA (corresponding to a 5% probability of a blood lead level of 10 ug/dL). There were no locations where detections of lead exceeded 10,000 mg/kg, the designated threshold at which delineation would be required.

None of the detections of PCBs exceeded the mandatory excavation criterion of 50 mg/kg.

**Composite Worker Assessment:**

Risk ratios for the estimates of potential EPCs for the Composite Worker scenario are shown in **Table 13** (surface), **Table 14** (subsurface), and **Table 15** (pooled surface and subsurface soils). The results are summarized as follows:

| Worker Scenario  | EU                | Medium                    | Hazard Index (>1) | Total Cancer Risk |
|------------------|-------------------|---------------------------|-------------------|-------------------|
| Composite Worker | EU1<br>(40.8 ac.) | Surface Soil              | none              | 6E-6              |
|                  |                   | Subsurface Soil           | none              | 4E-6              |
|                  |                   | Surface & Subsurface Soil | none              | 4E-6              |
|                  | EU2<br>(44.8 ac.) | Surface Soil              | none              | 4E-6              |
|                  |                   | Subsurface Soil           | none              | 6E-6              |
|                  |                   | Surface & Subsurface Soil | none              | 4E-6              |

The current Composite Worker will be exposed only to surface soils. The risk ratios indicated that the cumulative cancer risks for potential Composite Worker exposures to surface soils were less than the acceptable limit for no further action (1E-5) in each EU. When the non-cancer risks were segregated and summed by target organ for cumulative Hazard Index (HI) no target organs exceeded a cumulative HI of 1 in surface soils in either EU.

Future construction activities were assumed to result in the placement of subsurface material over existing surface soils exposing a future Composite Worker to a mixture of surface and subsurface soils. This exposure scenario is dependent on any future development proposed for the parcel. The risk ratios indicated that the cumulative cancer risks for potential Composite Worker exposures to subsurface and pooled soils were less than the acceptable limit for no

further action (1E-5) in each EU. When the non-cancer risks were segregated and summed by target organ for cumulative hazard, no target organs exceeded a cumulative HI of 1 in subsurface or pooled soils in either EU.

The calculated total cancer risk and cumulative non-cancer hazards for a Composite Worker exposed to surface, subsurface, and pooled soils did not exceed the regulatory standards identified in the SLRA Risk Characterization Approach. Based on this assessment, the potential current and future risks to a Composite Worker are acceptable with no further action. The Site is suitable for occupancy and use by a Composite Worker without special land-use considerations or corrective remedies to be implemented in a Response and Development Work Plan.

## 7.0 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 90 soil samples (all locations/depths) were collected and analyzed to define the nature and extent of contamination in Parcel B19. 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, Oil & Grease, TPH-DRO/GRO, TAL-Metals, hexavalent chromium, and cyanide. Shallow soil samples from across the Site (0 to 1 foot bgs) were analyzed for PCBs.

### 7.1. 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. The average lead concentrations in each EU in the surface, subsurface, and pooled (surface and subsurface) soils are below the 800 mg/kg RSL, indicating that further action is not needed with respect to lead. In addition, 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 in Parcel B19 above the mandatory delineation criterion of 50 mg/kg, indicating that further action is not needed.

There were no soil PAL exceedances for VOCs, SVOCs, or PCBs among any samples, indicating that these compounds are not significant contaminants in soil at the Site. Exceedances of the PALs in soil within Parcel B19 consisted of four inorganics (arsenic, hexavalent chromium, manganese, and thallium) and Oil & Grease. Arsenic exceeded its PAL in the largest proportion of the samples analyzed site-wide. Arsenic was detected in 83% of the soil samples analyzed for this compound (with 65 total PAL exceedances), with a maximum detection of 47.9 mg/kg in sample B19-005-SB-6. The remaining inorganic exceedances were less common in comparison. Manganese, hexavalent chromium, and thallium exceeded their respective PALs in 14 samples (maximum detection of manganese at 43,100 mg/kg in B19-022-SB-4), four samples (maximum detection of hexavalent chromium at 13.5 mg/kg in B19-032-SB-1), and one sample (15.4 mg/kg of thallium in B19-027-SB-1), respectively. Oil & Grease exceeded its PAL in three soil samples with a maximum detection of 23,600 mg/kg in sample B19-034-SB-1. Petroleum impacts, including a discussion of the analytical exceedance of the TPH/Oil & Grease PAL as well as borings with physical evidence of NAPL in the soil cores (B19-010-SB), are further discussed below in Section 7.2.

## 7.2. NON-AQUEOUS PHASE LIQUID

Elevated detections of TPH/Oil & Grease represent locations which may possibly be impacted by free-phase NAPL that could potentially be mobile, particularly along utility corridors. Soil cores were also screened for evidence of possible NAPL contamination during the completion of the Phase II soil borings in Parcel B19. Trace amounts of a black viscous product were observed at 0.5 feet bgs in the soil core of boring B19-010-SB. A NAPL screening piezometer (B19-010-PZ) was installed and gauged at this location as described in Section 4.2. Based on the 0-hour, 48-hour, and 30-day gauging measurements, NAPL was not detected and it was determined that free petroleum product is not present at quantities that are likely to migrate. No other soil borings had visual observations of potential NAPL impacts within Parcel B19.

Elevated detections of Oil & Grease were identified above the PAL (6,200 mg/kg) in three soil samples (B19-010-SB-1.5 with a detection of 7,950 mg/kg, B19-034-SB-1 with a detection of 23,600 mg/kg, and B19-035-SB-1 with a detection of 8,510 mg/kg). DRO was detected below the PAL and GRO was not detected in any of these three samples. The TPH-DRO/GRO analyses confirmed that petroleum was not present above the action limit of 6,200 mg/kg at these locations. The elevated Oil & Grease detection at B19-010-SB was co-located with observations of NAPL in the soil core, and has been investigated via the installation of a NAPL screening piezometer as described above. The two remaining Oil & Grease soil PAL exceedances at B19-034-SB and B19-035-SB were reviewed and it was determined that these locations did not warrant the installation of a screening piezometer. A detailed discussion of these locations is provided in Section 4.2. No additional action is recommended with regard to the PAL exceedances at B19-034-SB and B19-035-SB.

None of the permanent monitoring groundwater wells installed in Parcel B19 for groundwater sampling (as indicated in the Area B Groundwater Phase II Investigation Report dated September 30, 2016) showed any evidence of NAPL. Since NAPL was not detected in any groundwater location (permanent monitoring wells and temporary piezometer B19-010-PZ) and soil PAL exceedances were only identified in shallow soil samples, no additional action is recommended at this time with respect to NAPL within Parcel B19. The screening piezometer B19-010-PZ will be abandoned in accordance with the Maryland abandonment standards as stated in COMAR 26.04.04.34 through 36. The piezometer will be gauged a final time on the abandonment date in accordance with current MDE guidance.

Although no additional action is recommended at this time with respect to NAPL, the proximity of proposed utilities to B19-010-SB, B19-034-SB, and B19-035-SB should be evaluated in any future development planning for Parcel B19. 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 borings.

### 7.3. HUMAN HEALTH SCREENING LEVEL RISK ASSESSMENT

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. Findings from the Area B Groundwater Phase II Investigation which include the groundwater data obtained from permanent monitoring wells within and surrounding Parcel B19 are presented in the Area B Groundwater Phase II Investigation Report (Revision 0) dated September 30, 2016, which was submitted to the agencies for review. An aqueous PAL exceedance figure is provided in **Appendix E** to indicate the locations of any groundwater exceedances within, or in close proximity to, Parcel B19. The separate Area B Groundwater Phase II Investigation Report also included a screening level VI evaluation to determine whether any cumulative (or individual) sample results exceeded the USEPA VI TCR (carcinogen) or THQ (non-carcinogen) Screening Levels. There were no potential VI risks/hazards identified from the permanent monitoring wells located in the vicinity of Parcel B19.

The current Composite Worker could potentially be exposed to surface soils at the Site. Future development of the Site could potentially lead to Composite Worker exposures to subsurface soils. The risk ratios indicated that the cumulative cancer risks for the Composite Worker scenario were less than 1E-5 (the target benchmark) for both surface and subsurface soils in each EU. A non-cancer cumulative HI of 1 was not exceeded for any target organ system evaluated for Composite Worker exposures to surface and subsurface soils in each EU. Since the cumulative HI values did not exceed 1 for any target organ and the estimates of cumulative cancer risk did not exceed 1E-5 for surface or subsurface soils in the parcel, no additional action is required to address potential risks to a Composite Worker. The Site is suitable for occupancy and use by a Composite Worker without special land-use considerations or corrective measures.

### 7.4. RECOMMENDATIONS

Sufficient remedial investigation data has been collected to present this evaluation of the nature and extent of possible constituents of concern in Parcel B19. The presence and absence of soil impacts within Parcel B19 have been adequately described and further investigation is not warranted. Based on the evaluation of risk presented in the SLRA, the Site is suitable for use by Composite Workers; remedial action is not required to support occupancy and use of the parcel in its current condition. Recommendations for the parcel are as follows:

- The SLRA presented in this Phase II Investigation Report evaluated the baseline risks for potential Composite Workers for an industrial use scenario. Therefore, unless additional assessment of risk to other potential receptors is conducted as part of a Response and Development Work Plan, the future use of the parcel should be restricted as follows:
  - Deed restriction for industrial Site use only; no portion of the Site should be used for commercial/recreational or residential purposes. A supplemental SLRA in a

project-specific Response and Development Work Plan would be required prior to non-industrial use of any portion of the Site.

- Deed restriction on groundwater use; no subsurface water or groundwater should be extracted from aquifers for any purpose.
- Although the SLRA did not indicate any unacceptable risks for future Composite Workers, institutional controls should be implemented for the protection of Construction Workers to ensure proper oversight and management of any future construction activity that includes disturbances of the existing soil. These institutional controls will necessarily include a written notice to the MDE of any future soil disturbance activities, proper management and characterization of any material disturbed at the Site, and may require health and safety requirements for any excavations of substantial time periods. Construction Worker risks will be evaluated in site-specific Response and Development Work Plans.
- Soil borings with physical evidence of NAPL and/or elevated Oil & Grease detections (B19-010-SB, B19-034-SB, and B19-035-SB) should be considered for proximity to proposed utilities in any future development plans. If future utilities are proposed in the vicinity of these borings, appropriate protocols for the mitigation of potential product mobility should be specified in a Response and Development Work Plan.

## 8.0 REFERENCES

- ARM Group Inc. (2016). *Area B Groundwater Phase II Investigation Report*. Revision 0. September 30, 2016.
- ARM Group, Inc. (2017). *Parcel B19 Phase II Investigation Work Plan (Revision 1) Approval: Responses to Agency Comments*. March 7, 2017.
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- ARM Group, Inc. (2017). *Response and Development Work Plan: Sub-Parcel B19-1 (Revision 0): Response to Agency Comments*. May 15, 2017.
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- ARM Group, Inc. (2017). *Stormwater Pollution Prevention Plan (SWPPP)*. Revision 5. June 1, 2017.
- Rust Environment & 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.



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## **FIGURES**

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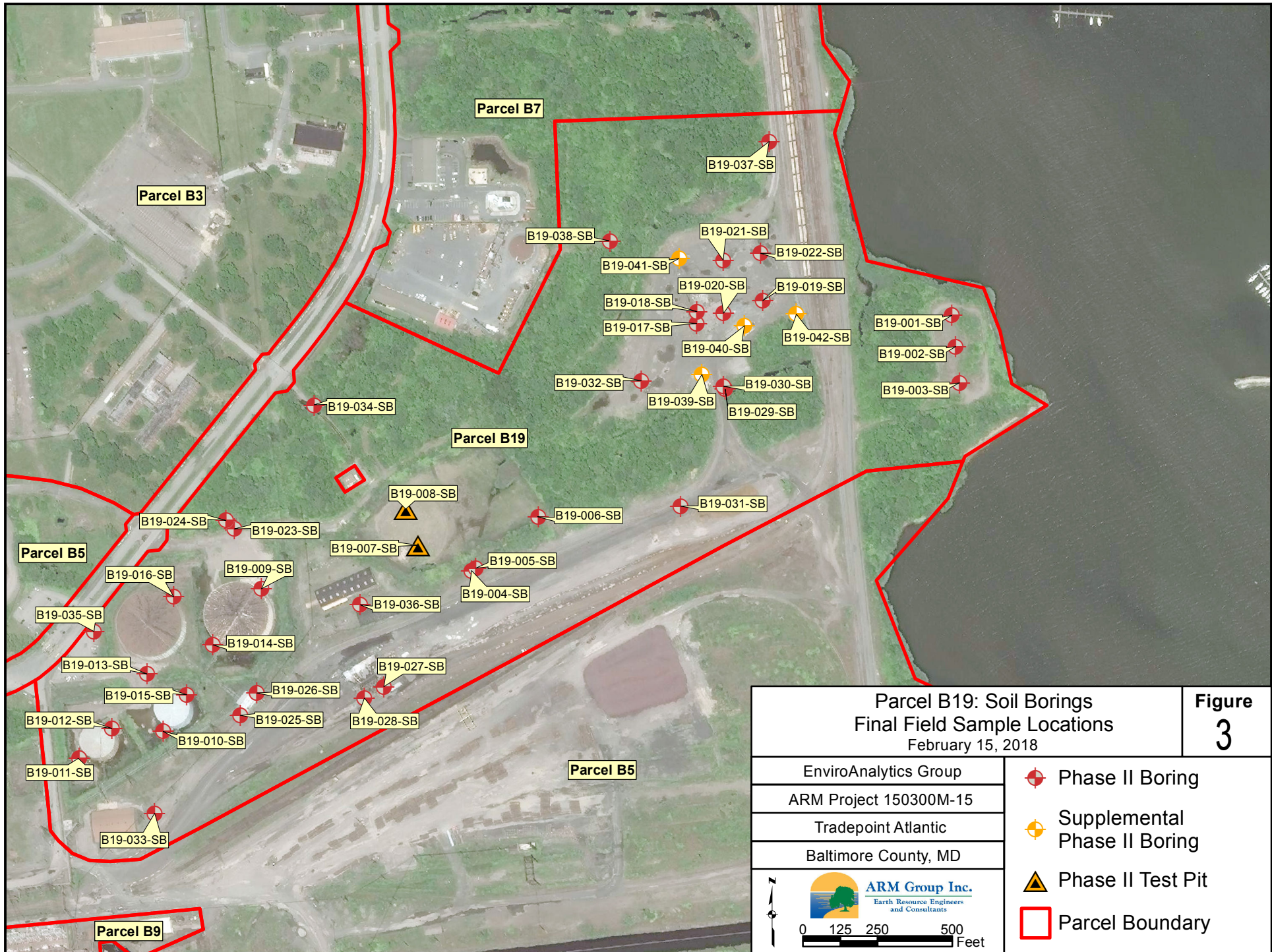
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Site Boundary  
 Parcel Boundaries  
 Private Property



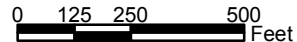
|   |  |  |
|---|--|--|
| <b>Tradepoint Atlantic</b><br><b>Area A and Area B Parcels</b><br>March 1, 2018 |  | <b>Figure</b><br><span style="font-size: 2em; font-weight: bold;">1</span> |
| <br>  | <br><b>ARM Group Inc.</b><br>Earth Resource Engineers<br>and Consultants           | Tradepoint Atlantic<br>Baltimore County, MD<br>EnviroAnalytics Group       |
|   | Area A: Project 150298M<br>Area B: Project 150300M<br>Development: Project 160443M |  |







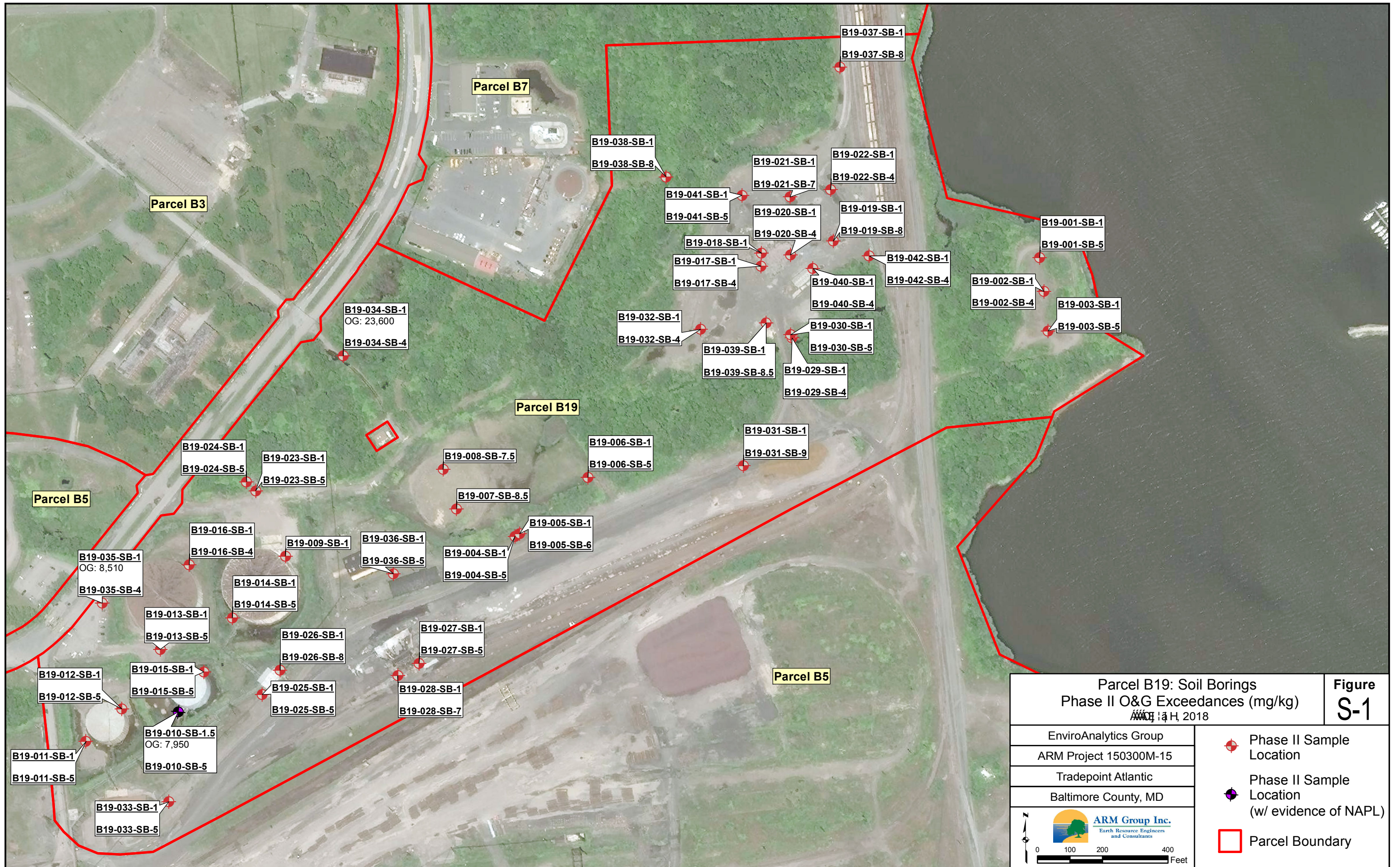







Parcel B19: Soil Borings  
 Final Field Sample Locations  
 February 15, 2018

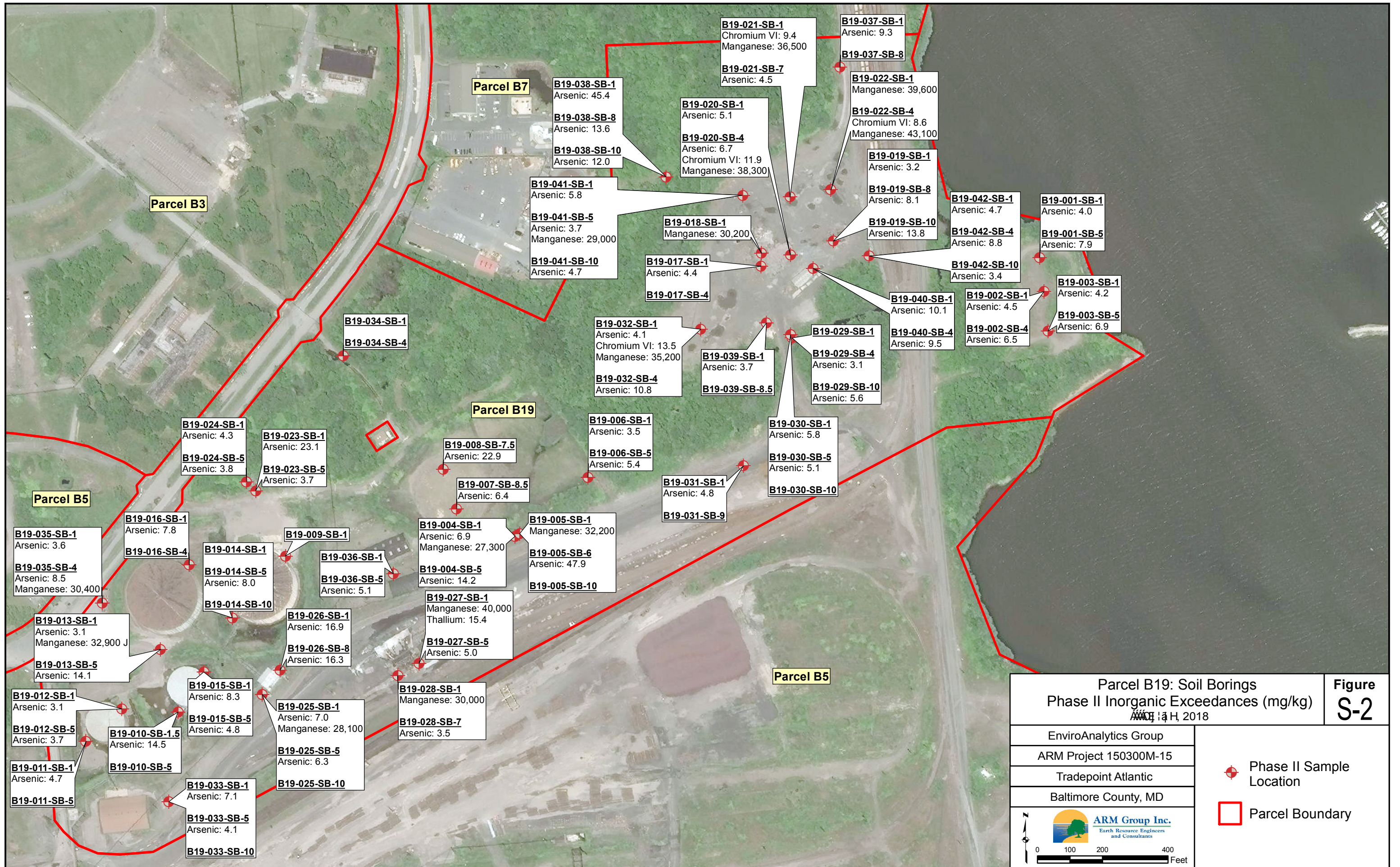
Figure  
 3

|   |
|---|
| EnviroAnalytics Group   |
| ARM Project 150300M-15  |
| Tradepoint Atlantic   |
| Baltimore County, MD  |
|  <b>ARM Group Inc.</b><br>Earth Resource Engineers<br>and Consultants                  |
|   |

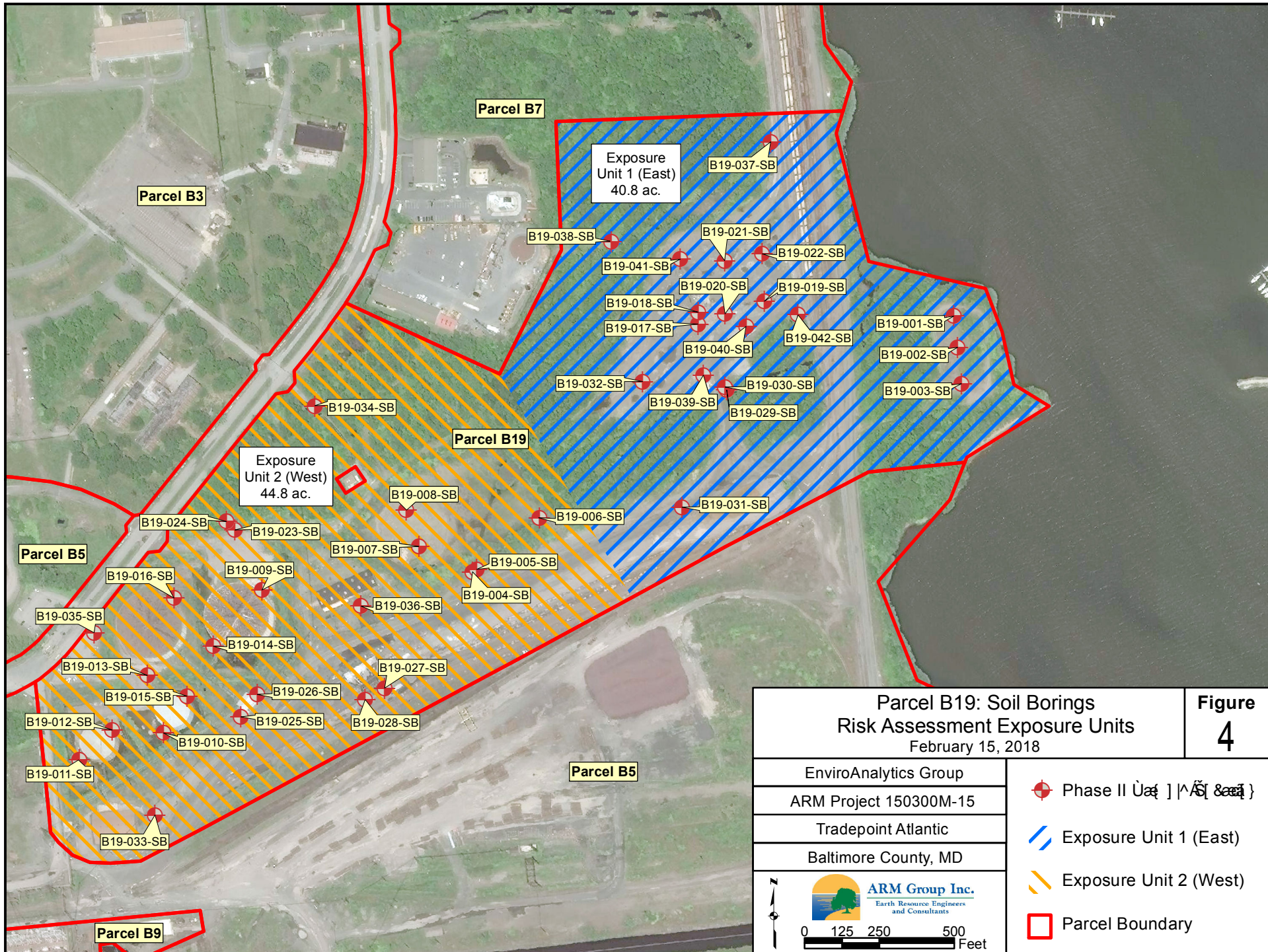
-  Phase II Boring
-  Supplemental Phase II Boring
-  Phase II Test Pit
-  Parcel Boundary



|  |   |                             |
|--|---|-----------------------------|
| <b>Parcel B19: Soil Borings</b><br><b>Phase II O&amp;G Exceedances (mg/kg)</b><br><small>AWC 14 H, 2018</small>  |   | <b>Figure</b><br><b>S-1</b> |
| EnviroAnalytics Group<br>ARM Project 150300M-15<br>Tradepoint Atlantic<br>Baltimore County, MD   |   |                             |
| <br> | <ul style="list-style-type: none"> <li> Phase II Sample Location</li> <li> Phase II Sample Location (w/ evidence of NAPL)</li> <li> Parcel Boundary</li> </ul> |                             |



**Figure S-2**



**Parcel B19: Soil Borings  
Risk Assessment Exposure Units**  
February 15, 2018

**Figure  
4**

|                        |   |
|------------------------|---|
| EnviroAnalytics Group  | Phase II Soil Boring<br>Exposure Unit 1 (East)<br>Exposure Unit 2 (West)<br>Parcel Boundary |
| ARM Project 150300M-15 |   |
| Tradepoint Atlantic    |   |
| Baltimore County, MD   |   |
|                        |   |

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## TABLES

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**TABLE 1**  
**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.) | 5017                  | 7/7/1958                   | 3/12/1982                   |
|                   |  | 5023                  | 9/8/1958                   | 3/11/1982                   |
|                   |  | 5024                  | 9/1/1958                   | 3/11/1982                   |
|                   |  | 5029                  | 8/25/1959                  | 3/11/1982                   |
|                   |  | 5030                  | 8/2/1958                   | 3/11/1982                   |
| Plant Index       | Roads, water bodies, demolished buildings/structures, electric lines, above-ground pipelines                             | 5117                  | <i>Unknown</i>             | 8/14/2008                   |
|                   |  | 5123                  | <i>Unknown</i>             | 11/7/2008                   |
|                   |  | 5124                  | <i>Unknown</i>             | 5/3/2007                    |
|                   |  | 5129                  | <i>Unknown</i>             | 9/10/2009                   |
| Plant Sewer Lines | Same as above plus trenches, sumps, underground piping (includes pipe materials)   | 5130                  | <i>Unknown</i>             | 6/26/2008                   |
|                   |  | 5517                  | 8/21/1959                  | 2/9/1982                    |
|                   |  | 5523                  | <i>Unknown</i>             | 2/24/1982                   |
|                   |  | 5524                  | <i>Unknown</i>             | 2/24/1982                   |
| Drip Legs         | Coke Oven Gas Drip Legs Locations  | 5529                  | 8/26/1959                  | 7/14/1992                   |
|                   |  | 5530                  | 8/15/1959                  | 3/29/1976                   |
|                   |  | 5886B                 | <i>Unknown</i>             | Sept. 1988                  |

**TABLE 2  
FIELD SHIFTED BORING LOCATIONS**

| <u>Location ID</u> | <u>Sample Target</u>            | <u>Proposed Location</u> <sup>‡</sup> |                | <u>Final Location</u> <sup>‡</sup> |                | <u>Relocation Distance &amp; Direction</u> |    |
|--------------------|---------------------------------|---------------------------------------|----------------|------------------------------------|----------------|--|----|
|                    |                                 | <u>Northing</u>                       | <u>Easting</u> | <u>Northing</u>                    | <u>Easting</u> |  |    |
| B19-011-SB         | Pennwood Storage Tank Farm ASTs | 564,861                               | 1,461,812      | 564,868                            | 1,461,799      | 15   | NW |
| B19-025-SB         | Pump Houses                     | 565,011                               | 1,462,339      | 565,012                            | 1,462,338      | 1  | W  |
| B19-034-SB         | Parcel B19 Coverage             | 566,044                               | 1,462,604      | 566,048                            | 1,462,586      | 18   | NW |
| B19-038-SB         | Parcel B19 Coverage             | 566,597                               | 1,463,567      | 566,596                            | 1,463,574      | 7  | SE |

<sup>‡</sup>Reported northings and eastings are not survey accurate.  
Coordinates are reported in NAD 1983 Maryland State Plane (US feet).

**TABLE 3  
CHARACTERIZATION RESULTS FOR SOLID IDW**

| <u>Sample ID</u>                  | <u>Parameter</u>             | <u>Result</u><br>(mg/L) | <u>Flag</u> | <u>TCLP</u><br><u>Limit</u><br>(mg/L) | <u>TCLP</u><br><u>Exceedance</u> | <u>Laboratory</u><br><u>LOQ (mg/L)</u> |
|-----------------------------------|------------------------------|-------------------------|-------------|---------------------------------------|----------------------------------|--|
| B19 Waste<br>Disposal<br>(2/2/17) | 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                       | 0.35                    | J           | 100                                   | no                               | 1                                      |
|                                   | Benzene                      | 0.05                    | U           | 0.5                                   | no                               | 0.05                                   |
|                                   | Cadmium                      | 0.0021                  | 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                     | 0.0016                  | B           | 5                                     | no                               | 0.05                                   |
|                                   | Hexachlorobenzene            | 0.1                     | U           | 0.13                                  | no                               | 0.1                                    |
|                                   | Hexachloroethane             | 0.5                     | U           | 3                                     | no                               | 0.5                                    |
|                                   | Lead                         | 0.015                   | J           | 5                                     | no                               | 0.1                                    |
|                                   | Mercury                      | 0.001                   | U           | 0.2                                   | no                               | 0.001                                  |
|                                   | Nitrobenzene                 | 0.1                     | U           | 2                                     | no                               | 0.1                                    |
|                                   | Pentachlorophenol            | 5                       | U           | 100                                   | no                               | 5                                      |
|                                   | Selenium                     | 0.1                     | U           | 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                                   |

**TABLE 3  
CHARACTERIZATION RESULTS FOR SOLID IDW**

| <u>Sample ID</u>             | <u>Parameter</u>             | <u>Result</u><br>(mg/L) | <u>Flag</u> | <u>TCLP</u><br><u>Limit</u><br>(mg/L) | <u>TCLP</u><br><u>Exceedance</u> | <u>Laboratory</u><br><u>LOQ (mg/L)</u> |
|------------------------------|------------------------------|-------------------------|-------------|---------------------------------------|----------------------------------|--|
| B19 Waste Disposal (6/14/17) | 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                       | 0.063                   | J           | 100                                   | no                               | 1                                      |
|                              | Benzene                      | 0.05                    | U           | 0.5                                   | no                               | 0.05                                   |
|                              | Cadmium                      | 0.00042                 | 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                     | 0.0027                  | B           | 5                                     | no                               | 0.05                                   |
|                              | Hexachlorobenzene            | 0.1                     | U           | 0.13                                  | no                               | 0.1                                    |
|                              | Hexachloroethane             | 0.5                     | U           | 3                                     | no                               | 0.5                                    |
|                              | Lead                         | 0.0061                  | 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                     | 0.006                   | 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: The compound/analyte was not detected substantially above the level of the associated method blank/preparation or field blank.

TCLP = Toxicity Characteristic Leaching Procedure

LOQ = Limit of Quantitation

**TABLE 4  
CHARACTERIZATION RESULTS FOR LIQUID IDW**

| <u>Sample ID</u>               | <u>Parameter</u>     | <u>Result<br/>(mg/L)</u> | <u>Laboratory<br/>Flag</u> | <u>TCLP<br/>Limit<br/>(mg/L)</u> | <u>TCLP<br/>Exceedance</u> | <u>Laboratory<br/>LOQ (mg/L)</u> |
|--------------------------------|----------------------|--------------------------|----------------------------|----------------------------------|----------------------------|----------------------------------|
| Water<br>Disposal<br>(2/2/17)  | 1,1-Dichloroethene   | 0.001                    | U                          | 0.7                              | no                         | 0.001                            |
|                                | 1,2-Dichloroethane   | 0.001                    | U                          | 0.5                              | no                         | 0.001                            |
|                                | 1,4-Dichlorobenzene  | 0.001                    | U                          | 7.5                              | no                         | 0.001                            |
|                                | 2-Butanone (MEK)     | 0.01                     | U                          | 200                              | no                         | 0.01                             |
|                                | Arsenic              | 0.005                    | U                          | 5                                | no                         | 0.005                            |
|                                | Barium               | 0.0564                   |                            | 100                              | no                         | 0.01                             |
|                                | Benzene              | 0.0019                   |                            | 0.5                              | no                         | 0.001                            |
|                                | Cadmium              | 0.003                    | U                          | 1                                | no                         | 0.003                            |
|                                | Carbon tetrachloride | 0.001                    | U                          | 0.5                              | no                         | 0.001                            |
|                                | Chlorobenzene        | 0.001                    | U                          | 100                              | no                         | 0.001                            |
|                                | Chloroform           | 0.00092                  | J                          | 6                                | no                         | 0.001                            |
|                                | Chromium             | 0.0021                   | J                          | 5                                | no                         | 0.005                            |
|                                | Lead                 | 0.005                    | U                          | 5                                | no                         | 0.005                            |
|                                | Mercury              | 0.0002                   | U                          | 0.2                              | no                         | 0.0002                           |
|                                | Selenium             | 0.008                    | U                          | 1                                | no                         | 0.008                            |
|                                | Silver               | 0.006                    | U                          | 5                                | no                         | 0.006                            |
|                                | Tetrachloroethene    | 0.001                    | U                          | 0.7                              | no                         | 0.001                            |
| Trichloroethene                | 0.001                | U                        | 0.5                        | no                               | 0.001                      |                                  |
| Vinyl chloride                 | 0.001                | U                        | 0.2                        | no                               | 0.001                      |                                  |
| Water<br>Disposal<br>(4/12/17) | 1,1-Dichloroethene   | 0.001                    | U                          | 0.7                              | no                         | 0.001                            |
|                                | 1,2-Dichloroethane   | 0.001                    | U                          | 0.5                              | no                         | 0.001                            |
|                                | 1,4-Dichlorobenzene  | 0.001                    | U                          | 7.5                              | no                         | 0.001                            |
|                                | 2-Butanone (MEK)     | 0.01                     | U                          | 200                              | no                         | 0.01                             |
|                                | Arsenic              | 0.0155                   |                            | 5                                | no                         | 0.005                            |
|                                | Barium               | 0.0656                   |                            | 100                              | no                         | 0.01                             |
|                                | Benzene              | 0.0135                   |                            | 0.5                              | no                         | 0.001                            |
|                                | Cadmium              | 0.11                     |                            | 1                                | no                         | 0.003                            |
|                                | Carbon tetrachloride | 0.001                    | U                          | 0.5                              | no                         | 0.001                            |
|                                | Chlorobenzene        | 0.001                    | U                          | 100                              | no                         | 0.001                            |
|                                | Chloroform           | 0.0021                   |                            | 6                                | no                         | 0.001                            |
|                                | Chromium             | 0.0297                   |                            | 5                                | no                         | 0.005                            |
|                                | Lead                 | 0.162                    |                            | 5                                | no                         | 0.005                            |
|                                | Mercury              | 0.00003                  | J                          | 0.2                              | no                         | 0.0002                           |
|                                | Selenium             | 0.008                    | U                          | 1                                | no                         | 0.008                            |
|                                | Silver               | 0.0021                   | J                          | 5                                | no                         | 0.006                            |
|                                | Tetrachloroethene    | 0.001                    | U                          | 0.7                              | no                         | 0.001                            |
| Trichloroethene                | 0.001                | U                        | 0.5                        | no                               | 0.001                      |                                  |
| Vinyl chloride                 | 0.001                | U                        | 0.2                        | no                               | 0.001                      |                                  |

**TABLE 4  
CHARACTERIZATION RESULTS FOR LIQUID IDW**

| <u>Sample ID</u>               | <u>Parameter</u>             | <u>Result<br/>(mg/L)</u> | <u>Laboratory<br/>Flag</u> | <u>TCLP<br/>Limit<br/>(mg/L)</u> | <u>TCLP<br/>Exceedance</u> | <u>Laboratory<br/>LOQ (mg/L)</u> |
|--------------------------------|------------------------------|--------------------------|----------------------------|----------------------------------|----------------------------|----------------------------------|
| Water<br>Disposal<br>(6/14/17) | 1,1-Dichloroethene           | 0.005                    | U                          | 0.7                              | no                         | 0.005                            |
|                                | 1,2-Dichloroethane           | 0.005                    | U                          | 0.5                              | no                         | 0.005                            |
|                                | 1,4-Dichlorobenzene          | 0.005                    | U                          | 7.5                              | no                         | 0.005                            |
|                                | 2,4,5-Trichlorophenol        | 0.0026                   | U                          | 400                              | no                         | 0.0026                           |
|                                | 2,4,6-Trichlorophenol        | 0.001                    | U                          | 2                                | no                         | 0.001                            |
|                                | 2,4-Dinitrotoluene           | 0.001                    | U                          | 0.13                             | no                         | 0.001                            |
|                                | 2-Butanone (MEK)             | 0.05                     | U                          | 200                              | no                         | 0.05                             |
|                                | 2-Methylphenol               | 0.001                    | U                          | 200                              | no                         | 0.001                            |
|                                | 3&4-Methylphenol(m&p Cresol) | 0.0021                   | U                          | 200                              | no                         | 0.0021                           |
|                                | Arsenic                      | 0.005                    | U                          | 5                                | no                         | 0.005                            |
|                                | Barium                       | 0.0261                   |                            | 100                              | no                         | 0.01                             |
|                                | Benzene                      | 0.005                    | U                          | 0.5                              | no                         | 0.005                            |
|                                | Cadmium                      | 0.0803                   |                            | 1                                | no                         | 0.003                            |
|                                | Carbon tetrachloride         | 0.005                    | U                          | 0.5                              | no                         | 0.005                            |
|                                | Chlorobenzene                | 0.005                    | U                          | 100                              | no                         | 0.005                            |
|                                | Chloroform                   | 0.005                    | U                          | 6                                | no                         | 0.005                            |
|                                | Chromium                     | 0.0039                   | J                          | 5                                | no                         | 0.005                            |
|                                | Hexachlorobenzene            | 0.001                    | U                          | 0.13                             | no                         | 0.001                            |
|                                | Hexachloroethane             | 0.001                    | U                          | 3                                | no                         | 0.001                            |
|                                | Lead                         | 0.0058                   |                            | 5                                | no                         | 0.005                            |
|                                | Mercury                      | 0.0002                   | U                          | 0.2                              | no                         | 0.0002                           |
|                                | Nitrobenzene                 | 0.001                    | U                          | 2                                | no                         | 0.001                            |
|                                | Pentachlorophenol            | 0.0026                   | U                          | 100                              | no                         | 0.0026                           |
|                                | Selenium                     | 0.008                    | U                          | 1                                | no                         | 0.008                            |
|                                | Silver                       | 0.006                    | U                          | 5                                | no                         | 0.006                            |
|                                | Tetrachloroethene            | 0.005                    | U                          | 0.7                              | no                         | 0.005                            |
|                                | Trichloroethene              | 0.005                    | U                          | 0.5                              | no                         | 0.005                            |
|                                | Vinyl chloride               | 0.005                    | U                          | 0.2                              | no                         | 0.005                            |

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 Characteristic Leaching Procedure

LOQ = Limit of Quantitation













**Table 6**  
**Summary of Inorganics Detected in Soil**  
**Parcel B19**  
**Tradepoint Atlantic**  
**Sparrows Point, Maryland**

| Parameter     | Units | PAL       | B19-001-SB-1  | B19-001-SB-5    | B19-002-SB-1  | B19-002-SB-4    | B19-003-SB-1   | B19-003-SB-5   | B19-004-SB-1   | B19-004-SB-5   |
|---------------|-------|-----------|---------------|-----------------|---------------|-----------------|----------------|----------------|----------------|----------------|
| <b>Metals</b> |       |           |               |                 |               |                 |                |                |                |                |
| Aluminum      | mg/kg | 1,100,000 | <b>40,500</b> | <b>16,600</b>   | <b>39,500</b> | <b>20,200</b>   | <b>41,200</b>  | <b>14,300</b>  | <b>10,500</b>  | <b>16,100</b>  |
| Antimony      | mg/kg | 470       | 2.2 UJ        | 2.7 UJ          | 2.5 UJ        | 2.9 UJ          | 2.4 UJ         | 2.9 UJ         | 2.5 UJ         | 2.7 UJ         |
| Arsenic       | mg/kg | 3         | <b>4</b>      | <b>7.9</b>      | <b>4.5</b>    | <b>6.5</b>      | <b>4.2</b>     | <b>6.9</b>     | <b>6.9</b>     | <b>14.2</b>    |
| Barium        | mg/kg | 220,000   | <b>503 J</b>  | <b>67.6 J</b>   | <b>720</b>    | <b>74.7</b>     | <b>641</b>     | <b>87.9</b>    | <b>146</b>     | <b>136</b>     |
| Beryllium     | mg/kg | 2,300     | <b>8.2</b>    | <b>0.71 J</b>   | <b>5.2</b>    | <b>0.86 J</b>   | <b>4.7</b>     | <b>1</b>       | <b>0.74 J</b>  | <b>1.4</b>     |
| Cadmium       | mg/kg | 980       | <b>0.6 J</b>  | 1.3 U           | 0.85 B        | 1.5 U           | 0.49 B         | 0.53 B         | 0.77 B         | 0.69 B         |
| Chromium      | mg/kg | 120,000   | <b>23.5</b>   | <b>27.8</b>     | <b>154</b>    | <b>36.6</b>     | <b>79.3</b>    | <b>33.4</b>    | <b>881</b>     | <b>36.9</b>    |
| Chromium VI   | mg/kg | 6.3       | 0.47 B        | 0.39 B          | 0.26 B        | 0.75 B          | 0.51 B         | 0.89 B         | 0.99 B         | 0.45 B         |
| Cobalt        | mg/kg | 350       | <b>1.2 J</b>  | <b>5.7</b>      | <b>4.4</b>    | <b>7.4</b>      | <b>3.1 J</b>   | <b>17.7</b>    | <b>0.29 J</b>  | <b>4.5 J</b>   |
| Copper        | mg/kg | 47,000    | <b>9.2 J</b>  | <b>9.6 J</b>    | <b>32.4 J</b> | <b>11.7 J</b>   | <b>16 J</b>    | <b>25.5 J</b>  | <b>27.9 J+</b> | <b>26.9 J+</b> |
| Iron          | mg/kg | 820,000   | <b>14,300</b> | <b>25,700</b>   | <b>73,000</b> | <b>31,900</b>   | <b>51,300</b>  | <b>17,700</b>  | <b>182,000</b> | <b>24,500</b>  |
| Lead          | mg/kg | 800       | <b>21.7 J</b> | <b>11.2 J</b>   | <b>26.5 J</b> | <b>13.8 J</b>   | <b>24.1 J</b>  | <b>65.2 J</b>  | <b>32.5</b>    | <b>87.5</b>    |
| Manganese     | mg/kg | 26,000    | <b>3,520</b>  | <b>122</b>      | <b>7,970</b>  | <b>141</b>      | <b>7,490</b>   | <b>578</b>     | <b>27,300</b>  | <b>825</b>     |
| Mercury       | mg/kg | 350       | 0.11 U        | <b>0.0026 J</b> | 0.1 U         | <b>0.0023 J</b> | <b>0.054 J</b> | <b>0.047 J</b> | <b>0.04 J</b>  | 0.12 U         |
| Nickel        | mg/kg | 22,000    | 4.6 B         | <b>11.8</b>     | <b>12.4 J</b> | <b>16.5 J</b>   | <b>8.5 J</b>   | <b>20.3 J</b>  | <b>17.9</b>    | <b>10.9</b>    |
| Selenium      | mg/kg | 5,800     | 3 U           | 3.6 U           | 3.3 U         | 3.9 U           | <b>2.4 J</b>   | 3.9 U          | 3.3 U          | 3.6 U          |
| Silver        | mg/kg | 5,800     | 2.2 U         | 2.7 U           | 2.5 U         | 2.9 U           | 2.4 U          | 2.9 U          | 2.5 U          | 2.7 U          |
| Thallium      | mg/kg | 12        | 7.5 U         | 8.9 U           | 8.3 U         | 9.7 U           | 8 U            | 9.7 U          | <b>10.2</b>    | 9.1 U          |
| Vanadium      | mg/kg | 5,800     | <b>33.5</b>   | <b>44.7</b>     | <b>446</b>    | <b>42.6</b>     | <b>213</b>     | <b>80.7</b>    | <b>577</b>     | <b>85.9</b>    |
| Zinc          | mg/kg | 350,000   | <b>111 J</b>  | <b>33.9 J</b>   | <b>93.7 J</b> | <b>43.8 J</b>   | <b>57.1 J</b>  | <b>172 J</b>   | <b>263</b>     | <b>190</b>     |
| <b>Other</b>  |       |           |               |                 |               |                 |                |                |                |                |
| Cyanide       | mg/kg | 150       | <b>0.28 J</b> | 0.75 U          | <b>0.47 J</b> | 0.72 U          | <b>0.25 J</b>  | <b>0.1 J</b>   | <b>0.32 J-</b> | <b>0.19 J-</b> |

**Bold indicates detection**      **Values in red indicate and exceedance of the Project Action Limit (PAL)**

\* indicates non-validated data result

N/A indicates the analyte was not analyzed for this sample

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 high.

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

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

**Table 6**  
**Summary of Inorganics Detected in Soil**  
**Parcel B19**  
**Tradepoint Atlantic**  
**Sparrows Point, Maryland**

| Parameter     | Units | PAL       | B19-005-SB-1   | B19-005-SB-6   | B19-005-SB-10* | B19-006-SB-1*  | B19-006-SB-5*   | B19-007-SB-8.5* | B19-008-SB-7.5* |
|---------------|-------|-----------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|
| <b>Metals</b> |       |           |                |                |                |                |                 |                 |                 |
| Aluminum      | mg/kg | 1,100,000 | <b>13,500</b>  | <b>12,400</b>  | N/A            | <b>16,200</b>  | <b>18,100</b>   | <b>10,300</b>   | <b>19,100</b>   |
| Antimony      | mg/kg | 470       | <b>14.9 J</b>  | 2.9 UJ         | N/A            | 2.8 U          | 2.6 U           | 2.6 U           | 2.8 U           |
| Arsenic       | mg/kg | 3         | 2 U            | <b>47.9</b>    | 2.4 U          | <b>3.5</b>     | <b>5.4</b>      | <b>6.4</b>      | <b>22.9</b>     |
| Barium        | mg/kg | 220,000   | <b>120</b>     | <b>129</b>     | N/A            | <b>152</b>     | <b>17.2</b>     | <b>37.2</b>     | <b>34.4</b>     |
| Beryllium     | mg/kg | 2,300     | <b>1.3</b>     | <b>0.67 J</b>  | N/A            | <b>1.6</b>     | <b>0.69 J</b>   | <b>0.52 J</b>   | <b>0.85 J</b>   |
| Cadmium       | mg/kg | 980       | 0.86 B         | 1.1 B          | N/A            | <b>0.39 J</b>  | 1.3 U           | 1.3 U           | 1.4 U           |
| Chromium      | mg/kg | 120,000   | <b>981</b>     | <b>74.7</b>    | N/A            | <b>513</b>     | <b>18.4</b>     | <b>17.5</b>     | <b>49.4</b>     |
| Chromium VI   | mg/kg | 6.3       | 0.28 B         | 0.37 B         | N/A            | 0.35 B         | 1.1 B           | 0.49 B          | 1.2 B           |
| Cobalt        | mg/kg | 350       | <b>4 J</b>     | <b>5.9</b>     | N/A            | <b>2.7 J</b>   | <b>3 J</b>      | <b>2.3 J</b>    | <b>2.9 J</b>    |
| Copper        | mg/kg | 47,000    | <b>20.6 J+</b> | <b>43.4 J+</b> | N/A            | <b>12.5</b>    | <b>8.4</b>      | <b>4.8</b>      | <b>15.2</b>     |
| Iron          | mg/kg | 820,000   | <b>170,000</b> | <b>30,200</b>  | N/A            | <b>96,200</b>  | <b>11,900</b>   | <b>11,800</b>   | <b>64,200</b>   |
| Lead          | mg/kg | 800       | <b>30.2</b>    | <b>143</b>     | N/A            | <b>17.2</b>    | <b>13.2</b>     | <b>8.5</b>      | <b>16.6</b>     |
| Manganese     | mg/kg | 26,000    | <b>32,200</b>  | <b>1,370</b>   | N/A            | <b>14,100</b>  | <b>25.9</b>     | <b>25.8</b>     | <b>60.8</b>     |
| Mercury       | mg/kg | 350       | 0.098 U        | <b>0.2</b>     | N/A            | <b>0.018 J</b> | <b>0.0047 J</b> | 0.11 U          | <b>0.024 J</b>  |
| Nickel        | mg/kg | 22,000    | <b>15.2</b>    | <b>16.5</b>    | N/A            | <b>7.1 J</b>   | <b>7.7 J</b>    | <b>7.4 J</b>    | <b>11.6</b>     |
| Selenium      | mg/kg | 5,800     | <b>2.4 J</b>   | 3.9 U          | N/A            | 3.8 U          | 3.4 U           | 3.5 U           | 3.7 U           |
| Silver        | mg/kg | 5,800     | 2.5 U          | 2.9 U          | N/A            | 2.8 U          | 2.6 U           | 2.6 U           | <b>0.41 J</b>   |
| Thallium      | mg/kg | 12        | 8.2 U          | 9.8 U          | N/A            | 9.4 U          | 8.5 U           | 8.7 U           | 9.3 U           |
| Vanadium      | mg/kg | 5,800     | <b>546</b>     | <b>185</b>     | N/A            | <b>543</b>     | <b>27.9</b>     | <b>19</b>       | <b>61.1</b>     |
| Zinc          | mg/kg | 350,000   | <b>209</b>     | <b>348</b>     | N/A            | <b>103</b>     | <b>13.2</b>     | <b>21.6</b>     | <b>43.6</b>     |
| <b>Other</b>  |       |           |                |                |                |                |                 |                 |                 |
| Cyanide       | mg/kg | 150       | <b>0.2 J-</b>  | <b>0.33 J-</b> | N/A            | <b>0.48 J</b>  | 1.2 U           | 0.92 U          | 1 U             |

**Bold indicates detection**      **Values in red indicate and exceedance of the Project Action Limit (PAL)**

\* indicates non-validated data result

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**Table 6**  
**Summary of Inorganics Detected in Soil**  
**Parcel B19**  
**Tradepoint Atlantic**  
**Sparrows Point, Maryland**

| Parameter     | Units | PAL       | B19-009-SB-1   | B19-010-SB-1.5  | B19-010-SB-5  | B19-011-SB-1    | B19-011-SB-5  | B19-012-SB-1    | B19-012-SB-5  | B19-013-SB-1    |
|---------------|-------|-----------|----------------|-----------------|---------------|-----------------|---------------|-----------------|---------------|-----------------|
| <b>Metals</b> |       |           |                |                 |               |                 |               |                 |               |                 |
| Aluminum      | mg/kg | 1,100,000 | <b>32,100</b>  | <b>9,810</b>    | <b>19,100</b> | <b>18,600</b>   | <b>16,600</b> | <b>26,300</b>   | <b>14,600</b> | <b>24,200</b>   |
| Antimony      | mg/kg | 470       | 2.6 UJ         | 2.5 UJ          | 2.6 UJ        | 2.4 UJ          | 2.4 UJ        | 2.6 UJ          | 2.5 UJ        | 2.2 UJ          |
| Arsenic       | mg/kg | 3         | <b>2.3</b>     | <b>14.5</b>     | 2.2 U         | <b>4.7</b>      | <b>2.3</b>    | <b>3.1</b>      | <b>3.7</b>    | <b>3.1</b>      |
| Barium        | mg/kg | 220,000   | <b>423 J</b>   | <b>145 J</b>    | <b>71.4 J</b> | <b>119 J</b>    | <b>58.2 J</b> | <b>287 J</b>    | <b>19.4 J</b> | <b>75 J</b>     |
| Beryllium     | mg/kg | 2,300     | <b>5.5</b>     | <b>0.6 J</b>    | <b>0.77 J</b> | <b>0.79 J</b>   | <b>0.55 J</b> | <b>4.2</b>      | <b>0.75 J</b> | 0.74 U          |
| Cadmium       | mg/kg | 980       | 0.48 B         | 0.94 B          | 1.3 U         | 0.58 B          | 1.2 U         | 0.47 B          | 1.3 U         | 0.64 B          |
| Chromium      | mg/kg | 120,000   | <b>160 J</b>   | <b>522 J</b>    | <b>23.6 J</b> | <b>910 J</b>    | <b>20.4 J</b> | <b>503 J</b>    | <b>21 J</b>   | <b>904 J</b>    |
| Chromium VI   | mg/kg | 6.3       | 0.31 B         | 0.42 B          | 0.61 B        | 0.62 B          | <b>1.3 J-</b> | 0.71 B          | <b>1.9 J-</b> | <b>3.4 J-</b>   |
| Cobalt        | mg/kg | 350       | <b>7.2</b>     | <b>6.5</b>      | <b>2 J</b>    | <b>0.87 J</b>   | <b>2.1 J</b>  | <b>0.67 J</b>   | <b>2.3 J</b>  | 3.7 U           |
| Copper        | mg/kg | 47,000    | <b>127</b>     | <b>62.9</b>     | <b>11.8</b>   | <b>31.3</b>     | <b>9.1</b>    | <b>9.8</b>      | <b>6.7</b>    | <b>21.1</b>     |
| Iron          | mg/kg | 820,000   | <b>51,600</b>  | <b>128,000</b>  | <b>11,500</b> | <b>153,000</b>  | <b>9,200</b>  | <b>82,900</b>   | <b>15,800</b> | <b>192,000</b>  |
| Lead          | mg/kg | 800       | <b>153 J</b>   | <b>118 J</b>    | <b>17.2 J</b> | <b>42.6 J</b>   | <b>15 J</b>   | <b>16.5 J</b>   | <b>10.1 J</b> | <b>27.2 J</b>   |
| Manganese     | mg/kg | 26,000    | <b>6,090 J</b> | <b>14,000 J</b> | <b>128 J</b>  | <b>17,800 J</b> | <b>135 J</b>  | <b>13,500 J</b> | <b>86.3 J</b> | <b>32,900 J</b> |
| Mercury       | mg/kg | 350       | 0.012 B        | 0.061 B         | 0.0066 B      | 0.009 B         | 0.0044 B      | 0.0086 B        | 0.0039 B      | 0.049 B         |
| Nickel        | mg/kg | 22,000    | <b>62.9</b>    | <b>36.2</b>     | <b>7.6 J</b>  | <b>16.5</b>     | <b>7.2 J</b>  | <b>8.8</b>      | <b>9.6</b>    | <b>21.2</b>     |
| Selenium      | mg/kg | 5,800     | <b>2.3 J</b>   | 3.4 U           | 3.5 U         | 3.3 U           | 3.2 U         | 3.5 U           | 3.3 U         | 3 U             |
| Silver        | mg/kg | 5,800     | 2.6 U          | <b>0.85 J</b>   | 2.6 U         | <b>0.75 J</b>   | 2.4 U         | 2.6 U           | 2.5 U         | <b>1.4 J</b>    |
| Thallium      | mg/kg | 12        | 8.5 U          | 8.5 U           | 8.8 U         | 8.1 U           | 8 U           | 8.7 U           | 8.4 U         | 7.4 U           |
| Vanadium      | mg/kg | 5,800     | <b>114 J</b>   | <b>1,530 J</b>  | <b>25.7 J</b> | <b>414 J</b>    | <b>22.8 J</b> | <b>275 J</b>    | <b>28.9 J</b> | <b>861 J</b>    |
| Zinc          | mg/kg | 350,000   | <b>536 J</b>   | <b>225 J</b>    | <b>22 J</b>   | <b>168 J</b>    | <b>15.7 J</b> | <b>83.1 J</b>   | <b>20.3 J</b> | <b>304 J</b>    |
| <b>Other</b>  |       |           |                |                 |               |                 |               |                 |               |                 |
| Cyanide       | mg/kg | 150       | <b>0.44 J</b>  | <b>0.56 J</b>   | 0.72 U        | <b>0.38 J</b>   | 0.72 U        | <b>0.51 J</b>   | 0.66 U        | <b>0.15 J</b>   |

**Bold indicates detection**      **Values in red indicate and exceedance of the Project Action Limit (PAL)**

\* indicates non-validated data result

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**Table 6**  
**Summary of Inorganics Detected in Soil**  
**Parcel B19**  
**Tradepoint Atlantic**  
**Sparrows Point, Maryland**

| Parameter     | Units | PAL       | B19-013-SB-5   | B19-014-SB-1   | B19-014-SB-5  | B19-014-SB-10* | B19-015-SB-1    | B19-015-SB-5  | B19-016-SB-1    | B19-016-SB-4   |
|---------------|-------|-----------|----------------|----------------|---------------|----------------|-----------------|---------------|-----------------|----------------|
| <b>Metals</b> |       |           |                |                |               |                |                 |               |                 |                |
| Aluminum      | mg/kg | 1,100,000 | <b>16,200</b>  | <b>39,500</b>  | <b>20,200</b> | N/A            | <b>11,300</b>   | <b>10,700</b> | <b>22,700</b>   | <b>45,800</b>  |
| Antimony      | mg/kg | 470       | 3 UJ           | 2.3 UJ         | 2.8 UJ        | N/A            | 2.9 UJ          | 2.9 UJ        | 2.4 UJ          | 3.1 UJ         |
| Arsenic       | mg/kg | 3         | <b>14.1</b>    | 1.9 U          | <b>8</b>      | <b>2.4</b>     | <b>8.3</b>      | <b>4.8</b>    | <b>7.8</b>      | <b>2.8</b>     |
| Barium        | mg/kg | 220,000   | <b>232 J</b>   | <b>538 J</b>   | <b>74.9 J</b> | N/A            | <b>54.2 J</b>   | <b>33.5 J</b> | <b>368 J</b>    | <b>590 J</b>   |
| Beryllium     | mg/kg | 2,300     | <b>0.9 J</b>   | <b>5.8</b>     | <b>0.66 J</b> | N/A            | <b>0.26 J</b>   | <b>0.37 J</b> | <b>2.9</b>      | <b>5.9</b>     |
| Cadmium       | mg/kg | 980       | <b>1.6</b>     | 0.45 B         | 1.4 U         | N/A            | 0.57 B          | 1.4 U         | 0.51 B          | 0.19 B         |
| Chromium      | mg/kg | 120,000   | <b>235 J</b>   | <b>89.3 J</b>  | <b>25.5 J</b> | N/A            | <b>805 J</b>    | <b>16.5 J</b> | <b>181 J</b>    | <b>29.1 J</b>  |
| Chromium VI   | mg/kg | 6.3       | 0.3 B          | 0.32 B         | 0.3 B         | N/A            | <b>3.3 J-</b>   | 0.84 B        | 0.4 B           | 0.36 B         |
| Cobalt        | mg/kg | 350       | <b>9.2</b>     | <b>6</b>       | <b>5</b>      | N/A            | <b>2 J</b>      | <b>2.8 J</b>  | <b>7.7</b>      | <b>0.98 J</b>  |
| Copper        | mg/kg | 47,000    | <b>159</b>     | <b>98.2</b>    | <b>9</b>      | N/A            | <b>16.1</b>     | <b>5.9</b>    | <b>56</b>       | <b>2.8 J</b>   |
| Iron          | mg/kg | 820,000   | <b>102,000</b> | <b>36,200</b>  | <b>26,100</b> | N/A            | <b>123,000</b>  | <b>14,900</b> | <b>110,000</b>  | <b>6,300</b>   |
| Lead          | mg/kg | 800       | <b>698 J</b>   | <b>120 J</b>   | <b>11.5 J</b> | N/A            | <b>37.5 J</b>   | <b>10.1 J</b> | <b>74.1 J</b>   | <b>9.2 J</b>   |
| Manganese     | mg/kg | 26,000    | <b>6,490 J</b> | <b>3,920 J</b> | <b>390 J</b>  | N/A            | <b>18,500 J</b> | <b>112 J</b>  | <b>16,700 J</b> | <b>2,270 J</b> |
| Mercury       | mg/kg | 350       | 0.018 B        | 0.0049 B       | 0.044 B       | N/A            | 0.013 B         | 0.0029 B      | 0.0028 B        | 0.0053 B       |
| Nickel        | mg/kg | 22,000    | <b>14.4</b>    | <b>53.3</b>    | <b>11.6</b>   | N/A            | <b>15.2</b>     | <b>9.1 J</b>  | <b>28.6</b>     | <b>4.8 J</b>   |
| Selenium      | mg/kg | 5,800     | 4 U            | <b>2.1 J</b>   | 3.7 U         | N/A            | 3.9 U           | 3.8 U         | 3.1 U           | <b>2.7 J</b>   |
| Silver        | mg/kg | 5,800     | <b>2.5 J</b>   | 2.3 U          | 2.8 U         | N/A            | 2.9 U           | 2.9 U         | 2.4 U           | 3.1 U          |
| Thallium      | mg/kg | 12        | 10 U           | 7.5 U          | 9.3 U         | N/A            | 9.6 U           | 9.5 U         | 7.9 U           | 10.2 U         |
| Vanadium      | mg/kg | 5,800     | <b>156 J</b>   | <b>45.9 J</b>  | <b>46.3 J</b> | N/A            | <b>484 J</b>    | <b>22.7 J</b> | <b>1,370 J</b>  | <b>143 J</b>   |
| Zinc          | mg/kg | 350,000   | <b>953 J</b>   | <b>379 J</b>   | <b>48.7 J</b> | N/A            | <b>131 J</b>    | <b>25.7 J</b> | <b>244 J</b>    | <b>15.9 J</b>  |
| <b>Other</b>  |       |           |                |                |               |                |                 |               |                 |                |
| Cyanide       | mg/kg | 150       | <b>2.8</b>     | <b>0.88</b>    | 0.76 U        | N/A            | <b>0.6 J</b>    | 0.72 U        | <b>0.61</b>     | <b>0.85</b>    |

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**Table 6**  
**Summary of Inorganics Detected in Soil**  
**Parcel B19**  
**Tradepoint Atlantic**  
**Sparrows Point, Maryland**

| Parameter     | Units | PAL       | B19-017-SB-1*  | B19-017-SB-4* | B19-018-SB-1*   | B19-019-SB-1*  | B19-019-SB-8*  | B19-019-SB-10* | B19-020-SB-1*  |
|---------------|-------|-----------|----------------|---------------|-----------------|----------------|----------------|----------------|----------------|
| <b>Metals</b> |       |           |                |               |                 |                |                |                |                |
| Aluminum      | mg/kg | 1,100,000 | <b>7,110</b>   | <b>45,500</b> | <b>14,000</b>   | <b>5,490</b>   | <b>22,200</b>  | N/A            | <b>11,200</b>  |
| Antimony      | mg/kg | 470       | 2.5 U          | 2.2 U         | 2.4 U           | 2.2 U          | 2.8 U          | N/A            | 2.4 U          |
| Arsenic       | mg/kg | 3         | <b>4.4</b>     | 1.8 U         | <b>2.1</b>      | <b>3.2</b>     | <b>8.1</b>     | <b>13.8</b>    | <b>5.1</b>     |
| Barium        | mg/kg | 220,000   | <b>55</b>      | <b>390</b>    | <b>93.7</b>     | <b>45.6</b>    | <b>183</b>     | N/A            | <b>117</b>     |
| Beryllium     | mg/kg | 2,300     | <b>0.37 J</b>  | <b>7.8</b>    | <b>0.21 J</b>   | <b>0.3 J</b>   | <b>1.5</b>     | N/A            | <b>0.69 J</b>  |
| Cadmium       | mg/kg | 980       | 0.63 B         | 0.32 B        | 0.7 B           | 0.45 B         | 0.58 B         | N/A            | 0.43 B         |
| Chromium      | mg/kg | 120,000   | <b>344</b>     | <b>18.1</b>   | <b>1,140</b>    | <b>437</b>     | <b>60.2</b>    | N/A            | <b>1,100</b>   |
| Chromium VI   | mg/kg | 6.3       | 0.4 B          | 0.38 B        | <b>5.1</b>      | 0.34 B         | 0.43 B         | N/A            | 1.9 B          |
| Cobalt        | mg/kg | 350       | <b>3.2 J</b>   | <b>0.25 J</b> | 7.8 U           | <b>1.2 J</b>   | <b>20.4</b>    | N/A            | <b>1.8 J</b>   |
| Copper        | mg/kg | 47,000    | <b>23.4</b>    | <b>2.8 J</b>  | <b>23.2</b>     | <b>16.8</b>    | <b>308</b>     | N/A            | <b>29.9</b>    |
| Iron          | mg/kg | 820,000   | <b>211,000</b> | <b>10,400</b> | <b>199,000</b>  | <b>230,000</b> | <b>46,900</b>  | N/A            | <b>216,000</b> |
| Lead          | mg/kg | 800       | <b>17.2</b>    | <b>2.7</b>    | <b>10.5</b>     | <b>3</b>       | <b>88.6</b>    | N/A            | <b>72.4</b>    |
| Manganese     | mg/kg | 26,000    | <b>8,480</b>   | <b>3,190</b>  | <b>30,200</b>   | <b>10,700</b>  | <b>3,140</b>   | N/A            | <b>25,900</b>  |
| Mercury       | mg/kg | 350       | <b>0.012 J</b> | 0.11 U        | <b>0.0065 J</b> | <b>0.003 J</b> | <b>0.021 J</b> | N/A            | <b>0.011 J</b> |
| Nickel        | mg/kg | 22,000    | <b>32.6</b>    | 2.8 B         | <b>16</b>       | <b>22.9</b>    | <b>36.7</b>    | N/A            | <b>28.1</b>    |
| Selenium      | mg/kg | 5,800     | 3.4 U          | <b>2 J</b>    | 3.1 U           | 2.9 U          | 3.7 U          | N/A            | 3.2 U          |
| Silver        | mg/kg | 5,800     | <b>2 J</b>     | 2.2 U         | <b>1.1 J</b>    | <b>2.2</b>     | 2.8 U          | N/A            | <b>1.4 J</b>   |
| Thallium      | mg/kg | 12        | 8.4 U          | 7.2 U         | 11 U            | 7.2 U          | 9.3 U          | N/A            | 8.1 U          |
| Vanadium      | mg/kg | 5,800     | <b>228</b>     | <b>13.4</b>   | <b>696</b>      | <b>270</b>     | <b>93.2</b>    | N/A            | <b>861</b>     |
| Zinc          | mg/kg | 350,000   | <b>81.3</b>    | <b>6.3</b>    | <b>207</b>      | <b>41.3</b>    | <b>205</b>     | N/A            | <b>47</b>      |
| <b>Other</b>  |       |           |                |               |                 |                |                |                |                |
| Cyanide       | mg/kg | 150       | <b>0.43 J</b>  | <b>0.78</b>   | <b>0.13 J</b>   | <b>0.25 J</b>  | <b>0.34 J</b>  | N/A            | <b>0.57 J</b>  |

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**Table 6**  
**Summary of Inorganics Detected in Soil**  
**Parcel B19**  
**Tradepoint Atlantic**  
**Sparrows Point, Maryland**

| Parameter     | Units | PAL       | B19-020-SB-4*  | B19-021-SB-1   | B19-021-SB-7  | B19-022-SB-1   | B19-022-SB-4   | B19-023-SB-1    | B19-023-SB-5  | B19-024-SB-1  |
|---------------|-------|-----------|----------------|----------------|---------------|----------------|----------------|-----------------|---------------|---------------|
| <b>Metals</b> |       |           |                |                |               |                |                |                 |               |               |
| Aluminum      | mg/kg | 1,100,000 | <b>11,300</b>  | <b>9,990</b>   | <b>11,600</b> | <b>12,400</b>  | <b>6,630</b>   | <b>12,300</b>   | <b>10,600</b> | <b>16,200</b> |
| Antimony      | mg/kg | 470       | 2.4 U          | 2.7 UJ         | 3.1 UJ        | 2.6 UJ         | 2.8 UJ         | 2.4 UJ          | 2.9 UJ        | 2.6 UJ        |
| Arsenic       | mg/kg | 3         | <b>6.7</b>     | 2.2 U          | <b>4.5</b>    | 2.2 U          | 2.3 U          | <b>23.1</b>     | <b>3.7</b>    | <b>4.3</b>    |
| Barium        | mg/kg | 220,000   | <b>64.9</b>    | <b>83.6</b>    | <b>88.6</b>   | <b>83.8</b>    | <b>30</b>      | <b>186 J</b>    | <b>49.4 J</b> | <b>65.4 J</b> |
| Beryllium     | mg/kg | 2,300     | 0.8 U          | <b>0.46 J</b>  | <b>0.6 J</b>  | <b>0.78 J</b>  | 0.93 U         | <b>1</b>        | <b>0.42 J</b> | <b>0.45 J</b> |
| Cadmium       | mg/kg | 980       | 0.5 B          | 0.63 B         | 0.57 B        | 0.86 B         | 0.82 B         | 0.68 B          | 0.37 B        | 0.15 B        |
| Chromium      | mg/kg | 120,000   | <b>1,380</b>   | <b>1,590</b>   | <b>61.4</b>   | <b>1,890</b>   | <b>2,190</b>   | <b>520 J</b>    | <b>19.9 J</b> | <b>22.9 J</b> |
| Chromium VI   | mg/kg | 6.3       | <b>11.9</b>    | <b>9.4</b>     | 0.68 B        | 0.56 B         | <b>8.6</b>     | 0.3 B           | 0.32 B        | 0.76 B        |
| Cobalt        | mg/kg | 350       | <b>1.6 J</b>   | 4.5 U          | <b>6.8</b>    | 4.3 U          | 4.6 U          | <b>3.8 J</b>    | <b>5.4</b>    | <b>6.8</b>    |
| Copper        | mg/kg | 47,000    | <b>30.2</b>    | <b>16.8 J</b>  | <b>20.9 J</b> | <b>15.3 J</b>  | <b>22.3 J</b>  | <b>66.1</b>     | <b>11.4</b>   | <b>12.8</b>   |
| Iron          | mg/kg | 820,000   | <b>210,000</b> | <b>140,000</b> | <b>29,000</b> | <b>141,000</b> | <b>162,000</b> | <b>153,000</b>  | <b>13,300</b> | <b>14,000</b> |
| Lead          | mg/kg | 800       | <b>11.8</b>    | <b>10.8 J</b>  | <b>46.8 J</b> | <b>9.4 J</b>   | <b>6.8 J</b>   | <b>169 J</b>    | <b>28.9 J</b> | <b>19.8 J</b> |
| Manganese     | mg/kg | 26,000    | <b>38,300</b>  | <b>36,500</b>  | <b>8,020</b>  | <b>39,600</b>  | <b>43,100</b>  | <b>13,500 J</b> | <b>200 J</b>  | <b>129 J</b>  |
| Mercury       | mg/kg | 350       | <b>0.017 J</b> | <b>0.006 J</b> | <b>0.11 J</b> | 0.1 U          | 0.11 U         | 0.017 B         | 0.032 B       | 0.015 B       |
| Nickel        | mg/kg | 22,000    | <b>46.8</b>    | <b>12.9 J</b>  | <b>15.2 J</b> | <b>10.5 J</b>  | <b>16.9 J</b>  | <b>18.5</b>     | <b>9.1 J</b>  | <b>8.4 J</b>  |
| Selenium      | mg/kg | 5,800     | 3.2 U          | 3.6 U          | 4.1 U         | 3.5 U          | 3.7 U          | 3.2 U           | 3.8 U         | 3.4 U         |
| Silver        | mg/kg | 5,800     | <b>1.7 J</b>   | 2.7 U          | 3.1 U         | 2.6 U          | 2.8 U          | 2.4 U           | 2.9 U         | 2.6 U         |
| Thallium      | mg/kg | 12        | 8 U            | 9 U            | 10.3 U        | 8.7 U          | 9.3 U          | 8.1 U           | 9.6 U         | 8.6 U         |
| Vanadium      | mg/kg | 5,800     | <b>772</b>     | <b>959</b>     | <b>182</b>    | <b>865</b>     | <b>876</b>     | <b>406 J</b>    | <b>36.6 J</b> | <b>38.5 J</b> |
| Zinc          | mg/kg | 350,000   | <b>31.5</b>    | <b>27.3 J</b>  | <b>163 J</b>  | <b>9.9 J</b>   | 3 B            | <b>229 J</b>    | <b>116 J</b>  | <b>53.7 J</b> |
| <b>Other</b>  |       |           |                |                |               |                |                |                 |               |               |
| Cyanide       | mg/kg | 150       | <b>0.41 J</b>  | <b>0.29 J</b>  | <b>0.33 J</b> | <b>0.84</b>    | <b>0.086 J</b> | <b>0.53 J</b>   | <b>0.2 J</b>  | 0.71 U        |

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**Parcel B19**  
**Tradepoint Atlantic**  
**Sparrows Point, Maryland**

| Parameter     | Units | PAL       | B19-024-SB-5  | B19-025-SB-1    | B19-025-SB-5    | B19-025-SB-10 | B19-026-SB-1   | B19-026-SB-8    | B19-027-SB-1   | B19-027-SB-5   |
|---------------|-------|-----------|---------------|-----------------|-----------------|---------------|----------------|-----------------|----------------|----------------|
| <b>Metals</b> |       |           |               |                 |                 |               |                |                 |                |                |
| Aluminum      | mg/kg | 1,100,000 | <b>14,900</b> | <b>18,300</b>   | <b>12,600</b>   | <b>5,980</b>  | <b>2,380</b>   | <b>14,100</b>   | <b>11,100</b>  | <b>28,900</b>  |
| Antimony      | mg/kg | 470       | 2.8 UJ        | 2.9 U           | 3.1 U           | 2.7 U         | <b>5.2 J</b>   | 2.4 UJ          | 2.5 UJ         | 2.5 UJ         |
| Arsenic       | mg/kg | 3         | <b>3.8</b>    | <b>7</b>        | <b>6.3</b>      | 2.2 U         | <b>16.9</b>    | <b>16.3</b>     | 2.1 U          | <b>5</b>       |
| Barium        | mg/kg | 220,000   | <b>120 J</b>  | <b>142</b>      | <b>289</b>      | <b>14.8</b>   | <b>18.4</b>    | <b>67.4</b>     | <b>42.1</b>    | <b>410</b>     |
| Beryllium     | mg/kg | 2,300     | <b>0.83 J</b> | <b>1.1</b>      | <b>0.64 J</b>   | 0.9 U         | <b>0.24 J</b>  | <b>0.54 J</b>   | <b>0.36 J</b>  | <b>2.2</b>     |
| Cadmium       | mg/kg | 980       | 1.4 U         | 0.72 B          | 0.33 B          | 1.3 U         | 0.2 B          | 0.43 B          | 0.44 B         | 0.74 B         |
| Chromium      | mg/kg | 120,000   | <b>20.5 J</b> | <b>822</b>      | <b>31.4</b>     | <b>9.3</b>    | <b>9.2</b>     | <b>40.3</b>     | <b>1,840</b>   | <b>311</b>     |
| Chromium VI   | mg/kg | 6.3       | <b>1.1 J-</b> | 0.37 B          | 0.42 B          | N/A           | 0.29 B         | 0.37 B          | <b>3.5 J-</b>  | 0.41 B         |
| Cobalt        | mg/kg | 350       | <b>5.2</b>    | <b>4.1 J</b>    | <b>4.7 J</b>    | <b>1.2 J</b>  | <b>27.6</b>    | <b>5.6</b>      | 4.2 U          | <b>8.8</b>     |
| Copper        | mg/kg | 47,000    | <b>9.2</b>    | <b>60.4</b>     | <b>26.8</b>     | <b>3.1 J</b>  | <b>608 J+</b>  | <b>37.5 J+</b>  | <b>20.8 J+</b> | <b>37.2 J+</b> |
| Iron          | mg/kg | 820,000   | <b>13,300</b> | <b>97,400</b>   | <b>52,100</b>   | <b>6,540</b>  | <b>175,000</b> | <b>28,800</b>   | <b>195,000</b> | <b>107,000</b> |
| Lead          | mg/kg | 800       | <b>10.7 J</b> | <b>37.7</b>     | <b>45.2</b>     | <b>5.2</b>    | <b>3.4</b>     | <b>41.2</b>     | <b>3.4</b>     | <b>42.4</b>    |
| Manganese     | mg/kg | 26,000    | <b>67.1 J</b> | <b>28,100</b>   | <b>816</b>      | <b>17.2</b>   | <b>876</b>     | <b>512</b>      | <b>40,000</b>  | <b>9,930</b>   |
| Mercury       | mg/kg | 350       | 0.0042 B      | <b>0.025 J-</b> | <b>0.052 J-</b> | N/A           | <b>0.064 J</b> | <b>0.023 J</b>  | 0.11 U         | 0.11 U         |
| Nickel        | mg/kg | 22,000    | <b>11.2</b>   | <b>27.1</b>     | <b>10.8</b>     | <b>4.2 J</b>  | <b>43</b>      | <b>11.6</b>     | <b>15</b>      | <b>23.7</b>    |
| Selenium      | mg/kg | 5,800     | 3.7 U         | 3.9 U           | 4.1 U           | 3.6 U         | 2.7 U          | 3.2 U           | 3.4 U          | <b>2.6 J</b>   |
| Silver        | mg/kg | 5,800     | 2.8 U         | <b>0.74 J</b>   | 3.1 U           | 2.7 U         | <b>1.7 J</b>   | 2.4 U           | 2.5 U          | 2.5 U          |
| Thallium      | mg/kg | 12        | 9.3 U         | 9.8 U           | 10.2 U          | 9 U           | 6.7 U          | 8.1 U           | <b>15.4</b>    | <b>8.3 J</b>   |
| Vanadium      | mg/kg | 5,800     | <b>27.8 J</b> | <b>1,090</b>    | <b>38.8</b>     | <b>9.5</b>    | <b>263</b>     | <b>137</b>      | <b>936</b>     | <b>669</b>     |
| Zinc          | mg/kg | 350,000   | <b>32.3 J</b> | <b>128</b>      | <b>91.5</b>     | <b>13.6</b>   | <b>18.8</b>    | <b>121</b>      | <b>11</b>      | <b>118</b>     |
| <b>Other</b>  |       |           |               |                 |                 |               |                |                 |                |                |
| Cyanide       | mg/kg | 150       | 0.7 U         | <b>0.92</b>     | <b>0.13 J</b>   | N/A           | 0.62 UJ        | <b>0.078 J-</b> | <b>0.18 J-</b> | <b>0.38 J-</b> |

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**Table 6**  
**Summary of Inorganics Detected in Soil**  
**Parcel B19**  
**Tradepoint Atlantic**  
**Sparrows Point, Maryland**

| Parameter     | Units | PAL       | B19-028-SB-1   | B19-028-SB-7   | B19-029-SB-1*   | B19-029-SB-4* | B19-029-SB-10* | B19-030-SB-1*  | B19-030-SB-5*   |
|---------------|-------|-----------|----------------|----------------|-----------------|---------------|----------------|----------------|-----------------|
| <b>Metals</b> |       |           |                |                |                 |               |                |                |                 |
| Aluminum      | mg/kg | 1,100,000 | <b>6,250</b>   | <b>14,900</b>  | <b>46,500</b>   | <b>40,500</b> | N/A            | <b>16,800</b>  | <b>51,200</b>   |
| Antimony      | mg/kg | 470       | 2.8 UJ         | 2.2 UJ         | 2.7 U           | 2.4 U         | N/A            | 2.7 U          | 2.4 U           |
| Arsenic       | mg/kg | 3         | 2.3 U          | <b>3.5</b>     | 2.2 U           | <b>3.1</b>    | <b>5.6</b>     | <b>5.8</b>     | <b>5.1</b>      |
| Barium        | mg/kg | 220,000   | <b>22.7</b>    | <b>98.4</b>    | <b>446</b>      | <b>356</b>    | N/A            | <b>136</b>     | <b>378</b>      |
| Beryllium     | mg/kg | 2,300     | 0.92 U         | <b>0.99</b>    | <b>8.2</b>      | <b>5.7</b>    | N/A            | <b>1.3</b>     | <b>6.6</b>      |
| Cadmium       | mg/kg | 980       | 0.5 B          | 0.24 B         | 0.33 B          | 0.41 B        | N/A            | 0.48 B         | 0.3 B           |
| Chromium      | mg/kg | 120,000   | <b>1,390</b>   | <b>66.8</b>    | <b>63</b>       | <b>138</b>    | N/A            | <b>617</b>     | <b>29.1</b>     |
| Chromium VI   | mg/kg | 6.3       | <b>4.2 J-</b>  | 0.26 B         | 0.29 B          | 0.39 B        | N/A            | 0.42 B         | 0.26 B          |
| Cobalt        | mg/kg | 350       | 4.6 U          | <b>3.3 J</b>   | <b>0.65 J</b>   | <b>1.4 J</b>  | N/A            | <b>3.5 J</b>   | <b>0.99 J</b>   |
| Copper        | mg/kg | 47,000    | <b>23.4 J+</b> | <b>15.6 J+</b> | <b>3.6 J</b>    | <b>8.9</b>    | N/A            | <b>31.8</b>    | <b>4.5</b>      |
| Iron          | mg/kg | 820,000   | <b>227,000</b> | <b>32,700</b>  | <b>20,400</b>   | <b>41,600</b> | N/A            | <b>105,000</b> | <b>22,900</b>   |
| Lead          | mg/kg | 800       | 2.3 U          | <b>17</b>      | <b>13.3</b>     | <b>15.4</b>   | N/A            | <b>34.4</b>    | <b>9.9</b>      |
| Manganese     | mg/kg | 26,000    | <b>30,000</b>  | <b>2,120</b>   | <b>4,300</b>    | <b>6,290</b>  | N/A            | <b>15,300</b>  | <b>3,420</b>    |
| Mercury       | mg/kg | 350       | 0.11 U         | 0.1 U          | <b>0.0026 J</b> | 0.1 U         | N/A            | <b>0.022 J</b> | <b>0.0046 J</b> |
| Nickel        | mg/kg | 22,000    | <b>24.2</b>    | <b>9.3</b>     | <b>3.7 J</b>    | <b>5.7 J</b>  | N/A            | <b>21.9</b>    | <b>2.6 J</b>    |
| Selenium      | mg/kg | 5,800     | 3.7 U          | 2.9 U          | 3.6 U           | 3.2 U         | N/A            | 3.6 U          | <b>2.9 J</b>    |
| Silver        | mg/kg | 5,800     | <b>0.93 J</b>  | 2.2 U          | 2.7 U           | 2.4 U         | N/A            | 2.7 U          | 2.4 U           |
| Thallium      | mg/kg | 12        | <b>11</b>      | 7.2 U          | 8.9 U           | 8.1 U         | N/A            | 9.1 U          | 8 U             |
| Vanadium      | mg/kg | 5,800     | <b>623</b>     | <b>204</b>     | <b>50.4</b>     | <b>126</b>    | N/A            | <b>401</b>     | <b>62.1</b>     |
| Zinc          | mg/kg | 350,000   | <b>10.4</b>    | <b>48</b>      | <b>10.3</b>     | <b>36.9</b>   | N/A            | <b>119</b>     | <b>28.8</b>     |
| <b>Other</b>  |       |           |                |                |                 |               |                |                |                 |
| Cyanide       | mg/kg | 150       | <b>0.17 J-</b> | <b>0.29 J-</b> | <b>0.64</b>     | <b>0.56 J</b> | N/A            | <b>0.67 J</b>  | <b>0.56 J</b>   |

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**Table 6**  
**Summary of Inorganics Detected in Soil**  
**Parcel B19**  
**Tradepoint Atlantic**  
**Sparrows Point, Maryland**

| Parameter     | Units | PAL       | B19-030-SB-10* | B19-031-SB-1*  | B19-031-SB-9*  | B19-032-SB-1*  | B19-032-SB-4*  | B19-033-SB-1     | B19-033-SB-5    |
|---------------|-------|-----------|----------------|----------------|----------------|----------------|----------------|------------------|-----------------|
| <b>Metals</b> |       |           |                |                |                |                |                |                  |                 |
| Aluminum      | mg/kg | 1,100,000 | N/A            | <b>11,900</b>  | <b>16,100</b>  | <b>8,090</b>   | <b>17,100</b>  | <b>16,000</b>    | <b>20,700</b>   |
| Antimony      | mg/kg | 470       | N/A            | 2.5 U          | 3.1 U          | 2.4 U          | 2.7 U          | 2.8 U            | 2.8 U           |
| Arsenic       | mg/kg | 3         | <b>2.6</b>     | <b>4.8</b>     | <b>2.3 J</b>   | <b>4.1</b>     | <b>10.8</b>    | <b>7.1</b>       | <b>4.1</b>      |
| Barium        | mg/kg | 220,000   | N/A            | <b>107</b>     | <b>29.9</b>    | <b>36.1</b>    | <b>148</b>     | <b>110</b>       | <b>74.7</b>     |
| Beryllium     | mg/kg | 2,300     | N/A            | <b>0.87</b>    | <b>0.57 J</b>  | 0.81 U         | <b>1.8</b>     | <b>0.75 J</b>    | <b>0.61 J</b>   |
| Cadmium       | mg/kg | 980       | N/A            | 0.95 B         | 1.5 U          | 0.53 B         | 0.7 B          | 0.64 B           | 1.4 U           |
| Chromium      | mg/kg | 120,000   | N/A            | <b>1,090</b>   | <b>18</b>      | <b>1,750</b>   | <b>128</b>     | <b>1,050</b>     | <b>24.3</b>     |
| Chromium VI   | mg/kg | 6.3       | N/A            | 0.62 B         | 0.91 B         | <b>13.5</b>    | 0.4 B          | <b>2</b>         | 0.38 B          |
| Cobalt        | mg/kg | 350       | N/A            | <b>1.7 J</b>   | <b>3.9 J</b>   | 4.1 U          | <b>5.5</b>     | <b>1.6 J</b>     | <b>4.2 J</b>    |
| Copper        | mg/kg | 47,000    | N/A            | <b>47.7</b>    | <b>11.1</b>    | <b>20</b>      | <b>38.3</b>    | <b>45.4</b>      | <b>9.9</b>      |
| Iron          | mg/kg | 820,000   | N/A            | <b>154,000</b> | <b>7,650</b>   | <b>189,000</b> | <b>56,300</b>  | <b>187,000</b>   | <b>21,000</b>   |
| Lead          | mg/kg | 800       | N/A            | <b>104</b>     | <b>10.2</b>    | <b>5</b>       | <b>131</b>     | <b>31.4</b>      | <b>12.5</b>     |
| Manganese     | mg/kg | 26,000    | N/A            | <b>20,600</b>  | <b>37.7</b>    | <b>35,200</b>  | <b>3,340</b>   | <b>24,900</b>    | <b>68.5</b>     |
| Mercury       | mg/kg | 350       | N/A            | <b>0.082 J</b> | <b>0.004 J</b> | <b>0.004 J</b> | <b>0.053 J</b> | <b>0.0096 J-</b> | <b>0.037 J-</b> |
| Nickel        | mg/kg | 22,000    | N/A            | <b>26.8</b>    | <b>10.1 J</b>  | <b>25.5</b>    | <b>16.5</b>    | <b>33.3</b>      | <b>10</b>       |
| Selenium      | mg/kg | 5,800     | N/A            | 3.4 U          | 4.1 U          | 3.2 U          | 3.7 U          | 3.7 U            | 3.7 U           |
| Silver        | mg/kg | 5,800     | N/A            | 2.5 U          | 3.1 U          | <b>2 J</b>     | 2.7 U          | <b>0.98 J</b>    | 2.8 U           |
| Thallium      | mg/kg | 12        | N/A            | 8.5 U          | 10.3 U         | 8.1 U          | 9.2 U          | 9.3 U            | 9.3 U           |
| Vanadium      | mg/kg | 5,800     | N/A            | <b>444</b>     | <b>18.2</b>    | <b>1,380</b>   | <b>329</b>     | <b>465</b>       | <b>41.8</b>     |
| Zinc          | mg/kg | 350,000   | N/A            | <b>213</b>     | <b>25.7</b>    | <b>19.3</b>    | <b>195</b>     | <b>113</b>       | <b>35.6</b>     |
| <b>Other</b>  |       |           |                |                |                |                |                |                  |                 |
| Cyanide       | mg/kg | 150       | N/A            | <b>0.78</b>    | <b>0.037 J</b> | <b>0.17 J</b>  | <b>0.18 J</b>  | <b>0.64</b>      | 0.72 U          |

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**Parcel B19**  
**Tradepoint Atlantic**  
**Sparrows Point, Maryland**

| Parameter     | Units | PAL       | B19-033-SB-10 | B19-034-SB-1  | B19-034-SB-4   | B19-035-SB-1  | B19-035-SB-4  | B19-036-SB-1*   | B19-036-SB-5*  | B19-037-SB-1  |
|---------------|-------|-----------|---------------|---------------|----------------|---------------|---------------|-----------------|----------------|---------------|
| <b>Metals</b> |       |           |               |               |                |               |               |                 |                |               |
| Aluminum      | mg/kg | 1,100,000 | <b>12,000</b> | <b>26,200</b> | <b>15,900</b>  | <b>39,000</b> | <b>26,300</b> | <b>48,500</b>   | <b>19,600</b>  | <b>30,300</b> |
| Antimony      | mg/kg | 470       | 2.6 U         | 2.2 UJ        | 2.6 UJ         | 2.6 UJ        | 3.2 UJ        | 2.8 U           | 2.6 U          | 2.9 UJ        |
| Arsenic       | mg/kg | 3         | 2.1 U         | <b>2.4</b>    | <b>2.9</b>     | <b>3.6</b>    | <b>8.5</b>    | 2.3 U           | <b>5.1</b>     | <b>9.3</b>    |
| Barium        | mg/kg | 220,000   | <b>45.3</b>   | <b>334 J</b>  | <b>70.8 J</b>  | <b>898 J</b>  | <b>385 J</b>  | <b>428</b>      | <b>79.8</b>    | <b>380</b>    |
| Beryllium     | mg/kg | 2,300     | <b>0.35 J</b> | <b>2.7</b>    | <b>0.58 J</b>  | <b>6.3</b>    | <b>3</b>      | <b>5</b>        | <b>0.84 J</b>  | <b>3.3</b>    |
| Cadmium       | mg/kg | 980       | 1.3 U         | <b>0.51 J</b> | 1.3 U          | <b>0.34 J</b> | <b>0.81 J</b> | 0.56 B          | 1.3 U          | 0.91 B        |
| Chromium      | mg/kg | 120,000   | <b>12.6</b>   | <b>19.2</b>   | <b>57.4</b>    | <b>11.7</b>   | <b>19.6</b>   | <b>26.4</b>     | <b>23.8</b>    | <b>225</b>    |
| Chromium VI   | mg/kg | 6.3       | N/A           | 0.32 B        | 0.39 B         | 0.64 B        | 0.39 B        | 0.27 B          | 0.39 B         | 0.27 B        |
| Cobalt        | mg/kg | 350       | <b>2.4 J</b>  | <b>1.5 J</b>  | <b>6.8</b>     | <b>2 J</b>    | <b>6.2</b>    | <b>1.3 J</b>    | <b>3.2 J</b>   | <b>20.8</b>   |
| Copper        | mg/kg | 47,000    | <b>5.4</b>    | <b>8.4 J</b>  | <b>10.7 J</b>  | <b>7.4 J</b>  | <b>58.5 J</b> | <b>8.7</b>      | <b>18.2</b>    | <b>787 J</b>  |
| Iron          | mg/kg | 820,000   | <b>4,170</b>  | <b>8,070</b>  | <b>10,900</b>  | <b>10,500</b> | <b>22,200</b> | <b>30,600</b>   | <b>17,400</b>  | <b>90,900</b> |
| Lead          | mg/kg | 800       | <b>9.4</b>    | <b>22.7 J</b> | <b>10.4 J</b>  | <b>273 J</b>  | <b>190 J</b>  | <b>8.4</b>      | <b>12</b>      | <b>116 J</b>  |
| Manganese     | mg/kg | 26,000    | <b>17.1</b>   | <b>3,530</b>  | <b>137</b>     | <b>9,400</b>  | <b>30,400</b> | <b>5,680</b>    | <b>95.5</b>    | <b>6,700</b>  |
| Mercury       | mg/kg | 350       | N/A           | 0.11 U        | <b>0.035 J</b> | 0.11 U        | 0.12 U        | <b>0.0028 J</b> | <b>0.011 J</b> | <b>0.21</b>   |
| Nickel        | mg/kg | 22,000    | <b>6.9 J</b>  | <b>7.7</b>    | <b>27.8</b>    | <b>1.5 J</b>  | <b>9.4 J</b>  | <b>3.5 J</b>    | <b>12</b>      | <b>120 J</b>  |
| Selenium      | mg/kg | 5,800     | 3.4 U         | 2.9 U         | 3.4 U          | <b>3.3 J</b>  | 4.3 U         | <b>5.5</b>      | 3.5 U          | 3.9 U         |
| Silver        | mg/kg | 5,800     | 2.6 U         | 2.2 U         | 2.6 U          | 2.6 U         | 3.2 U         | 2.8 U           | 2.6 U          | 2.9 U         |
| Thallium      | mg/kg | 12        | 8.5 U         | 7.2 U         | 8.5 U          | 8.8 U         | <b>5 J</b>    | 9.2 U           | 8.8 U          | 9.6 U         |
| Vanadium      | mg/kg | 5,800     | <b>8.7</b>    | <b>161</b>    | <b>23.9</b>    | <b>41.9</b>   | <b>58.6</b>   | <b>41.4</b>     | <b>28.5</b>    | <b>371</b>    |
| Zinc          | mg/kg | 350,000   | <b>17.3</b>   | <b>57.1 J</b> | <b>27.7 J</b>  | <b>30.5 J</b> | <b>199 J</b>  | <b>34.8</b>     | <b>32.5</b>    | <b>174 J</b>  |
| <b>Other</b>  |       |           |               |               |                |               |               |                 |                |               |
| Cyanide       | mg/kg | 150       | N/A           | <b>0.46 J</b> | <b>0.12 J</b>  | <b>0.56 J</b> | <b>0.63 J</b> | <b>0.36 J</b>   | 0.75 U         | <b>0.98</b>   |

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**Tradepoint Atlantic**  
**Sparrows Point, Maryland**

| Parameter     | Units | PAL       | B19-037-SB-8  | B19-038-SB-1* | B19-038-SB-8*  | B19-038-SB-10 | B19-039-SB-1*  | B19-039-SB-8.5* | B19-040-SB-1*  |
|---------------|-------|-----------|---------------|---------------|----------------|---------------|----------------|-----------------|----------------|
| <b>Metals</b> |       |           |               |               |                |               |                |                 |                |
| Aluminum      | mg/kg | 1,100,000 | <b>12,000</b> | <b>26,200</b> | <b>15,700</b>  | N/A           | <b>19,800</b>  | <b>49,500</b>   | <b>4,990</b>   |
| Antimony      | mg/kg | 470       | 2.7 UJ        | <b>7.9</b>    | 3 U            | N/A           | 2.5 U          | 2.9 U           | 2.4 U          |
| Arsenic       | mg/kg | 3         | <b>2.7</b>    | <b>45.4</b>   | <b>13.6</b>    | <b>12</b>     | <b>3.7</b>     | 2.4 U           | <b>10.1</b>    |
| Barium        | mg/kg | 220,000   | <b>53.9 J</b> | <b>224</b>    | <b>40.1</b>    | N/A           | <b>152</b>     | <b>401</b>      | <b>27.5</b>    |
| Beryllium     | mg/kg | 2,300     | <b>0.69 J</b> | <b>1.3</b>    | <b>0.7 J</b>   | N/A           | <b>1.9</b>     | <b>6.1</b>      | 0.8 U          |
| Cadmium       | mg/kg | 980       | 1.4 U         | <b>0.79 J</b> | 1.5 U          | N/A           | <b>0.53 J</b>  | 1.5 U           | <b>0.67 J</b>  |
| Chromium      | mg/kg | 120,000   | <b>20</b>     | <b>80.9</b>   | <b>38.4</b>    | N/A           | <b>676</b>     | <b>13.9</b>     | <b>1,320</b>   |
| Chromium VI   | mg/kg | 6.3       | 0.67 B        | 0.64 B        | 2.5 B          | N/A           | 0.67 B         | 0.48 B          | <b>3.5</b>     |
| Cobalt        | mg/kg | 350       | <b>5.8</b>    | <b>9</b>      | <b>2.8 J</b>   | N/A           | <b>3 J</b>     | <b>0.85 J</b>   | <b>9.7</b>     |
| Copper        | mg/kg | 47,000    | <b>8.5 J</b>  | <b>35.5</b>   | <b>14.3</b>    | N/A           | <b>19.2</b>    | <b>3.6 J</b>    | <b>28.7</b>    |
| Iron          | mg/kg | 820,000   | <b>12,400</b> | <b>21,100</b> | <b>42,200</b>  | N/A           | <b>106,000</b> | <b>13,400</b>   | <b>393,000</b> |
| Lead          | mg/kg | 800       | <b>7.8 J</b>  | <b>87.1</b>   | <b>12.3</b>    | N/A           | <b>31.4</b>    | 2.4 U           | <b>4.8</b>     |
| Manganese     | mg/kg | 26,000    | <b>99.6</b>   | <b>1,120</b>  | <b>49.3</b>    | N/A           | <b>16,800</b>  | <b>3,130</b>    | <b>24,000</b>  |
| Mercury       | mg/kg | 350       | 0.12 U        | <b>0.9</b>    | <b>0.015 J</b> | N/A           | <b>0.016 J</b> | 0.11 U          | 0.1 U          |
| Nickel        | mg/kg | 22,000    | <b>12.4</b>   | <b>20.7</b>   | <b>9.5 J</b>   | N/A           | <b>13.7</b>    | <b>1.4 J</b>    | <b>59.2</b>    |
| Selenium      | mg/kg | 5,800     | 3.6 U         | 3.7 U         | 4 U            | N/A           | 3.3 U          | <b>5.9</b>      | 3.2 U          |
| Silver        | mg/kg | 5,800     | 2.7 U         | 2.8 U         | 3 U            | N/A           | <b>14.1</b>    | <b>34</b>       | <b>18.4</b>    |
| Thallium      | mg/kg | 12        | 9 U           | 9.3 U         | 10.1 U         | N/A           | 8.3 U          | 9.7 U           | 8 U            |
| Vanadium      | mg/kg | 5,800     | <b>29.2</b>   | <b>83.3</b>   | <b>43.2</b>    | N/A           | <b>346</b>     | <b>94.5</b>     | <b>554</b>     |
| Zinc          | mg/kg | 350,000   | <b>36.4 J</b> | <b>209</b>    | <b>35.3</b>    | N/A           | <b>84.4</b>    | 4.9 U           | <b>8.5</b>     |
| <b>Other</b>  |       |           |               |               |                |               |                |                 |                |
| Cyanide       | mg/kg | 150       | 0.72 U        | <b>0.2 J</b>  | 1.3 U          | N/A           | <b>0.53 J</b>  | <b>0.86 J</b>   | <b>0.93</b>    |

**Bold indicates detection**      **Values in red indicate and exceedance of the Project Action Limit (PAL)**

\* indicates non-validated data result

N/A indicates the analyte was not analyzed for this sample

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 high.

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

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

**Table 6**  
**Summary of Inorganics Detected in Soil**  
**Parcel B19**  
**Tradepoint Atlantic**  
**Sparrows Point, Maryland**

| Parameter     | Units | PAL       | B19-040-SB-4*  | B19-041-SB-1*  | B19-041-SB-5*  | B19-041-SB-10* | B19-042-SB-1*  | B19-042-SB-4* | B19-042-SB-10* |
|---------------|-------|-----------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|
| <b>Metals</b> |       |           |                |                |                |                |                |               |                |
| Aluminum      | mg/kg | 1,100,000 | <b>15,300</b>  | <b>15,100</b>  | <b>6,030</b>   | N/A            | <b>14,000</b>  | <b>25,600</b> | N/A            |
| Antimony      | mg/kg | 470       | 2.9 U          | 2.6 U          | 2.7 U          | N/A            | 2.4 U          | 2.4 U         | N/A            |
| Arsenic       | mg/kg | 3         | <b>9.5</b>     | <b>5.8</b>     | <b>3.7</b>     | <b>4.7</b>     | <b>4.7</b>     | <b>8.8</b>    | <b>3.4</b>     |
| Barium        | mg/kg | 220,000   | <b>135</b>     | <b>71.1</b>    | <b>33.4</b>    | N/A            | <b>90.2</b>    | <b>254</b>    | N/A            |
| Beryllium     | mg/kg | 2,300     | <b>0.68 J</b>  | <b>0.86 J</b>  | 0.89 U         | N/A            | <b>1.1</b>     | <b>3.1</b>    | N/A            |
| Cadmium       | mg/kg | 980       | <b>3.1</b>     | <b>0.43 J</b>  | 1.3 U          | N/A            | <b>0.6 J</b>   | <b>1.3</b>    | N/A            |
| Chromium      | mg/kg | 120,000   | <b>607</b>     | <b>1,160</b>   | <b>1,490</b>   | N/A            | <b>671</b>     | <b>137</b>    | N/A            |
| Chromium VI   | mg/kg | 6.3       | 0.85 B         | <b>2</b>       | <b>2.1</b>     | N/A            | 0.62 B         | 0.63 B        | N/A            |
| Cobalt        | mg/kg | 350       | <b>10.4</b>    | <b>3.6 J</b>   | <b>1.7 J</b>   | N/A            | <b>5.2</b>     | <b>18.3</b>   | N/A            |
| Copper        | mg/kg | 47,000    | <b>58.7</b>    | <b>28.1</b>    | <b>28.9</b>    | N/A            | <b>34.7</b>    | <b>73.5</b>   | N/A            |
| Iron          | mg/kg | 820,000   | <b>78,000</b>  | <b>234,000</b> | <b>179,000</b> | N/A            | <b>144,000</b> | <b>67,800</b> | N/A            |
| Lead          | mg/kg | 800       | <b>266</b>     | <b>5.5</b>     | <b>17.7</b>    | N/A            | <b>24.4</b>    | <b>95.5</b>   | N/A            |
| Manganese     | mg/kg | 26,000    | <b>16,900</b>  | <b>25,500</b>  | <b>29,000</b>  | <b>1,090</b>   | <b>16,000</b>  | <b>4,920</b>  | N/A            |
| Mercury       | mg/kg | 350       | <b>0.071 J</b> | 0.14 U         | <b>0.044 J</b> | N/A            | <b>0.013 J</b> | <b>0.04 J</b> | N/A            |
| Nickel        | mg/kg | 22,000    | <b>28.2</b>    | <b>35.1</b>    | <b>34.7</b>    | N/A            | <b>25.6</b>    | <b>32.8</b>   | N/A            |
| Selenium      | mg/kg | 5,800     | 3.8 U          | 3.5 U          | 3.6 U          | N/A            | 3.3 U          | 3.2 U         | N/A            |
| Silver        | mg/kg | 5,800     | <b>12.6</b>    | <b>21</b>      | <b>22.3</b>    | N/A            | <b>16.4</b>    | <b>15.2</b>   | N/A            |
| Thallium      | mg/kg | 12        | 9.6 U          | 8.7 U          | 8.9 U          | N/A            | 8.1 U          | 8 U           | N/A            |
| Vanadium      | mg/kg | 5,800     | <b>730</b>     | <b>688</b>     | <b>636</b>     | N/A            | <b>501</b>     | <b>174</b>    | N/A            |
| Zinc          | mg/kg | 350,000   | <b>888</b>     | <b>20.2</b>    | <b>14.5</b>    | N/A            | <b>86</b>      | <b>290</b>    | N/A            |
| <b>Other</b>  |       |           |                |                |                |                |                |               |                |
| Cyanide       | mg/kg | 150       | <b>0.29 J</b>  | <b>1.8</b>     | <b>0.64 J</b>  | N/A            | <b>0.23 J</b>  | <b>1</b>      | N/A            |

**Bold indicates detection**      **Values in red indicate and exceedance of the Project Action Limit (PAL)**

\* indicates non-validated data result

N/A indicates the analyte was not analyzed for this sample

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 high.

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 SOIL PAL EXCEEDANCES**

| <u>Parameter</u> | <u>CAS#</u> | <u>Frequency of<br/>Detections (%)</u> | <u>Sample ID of<br/>Max Result</u> | <u>Max Result</u> | <u>PAL Solid</u> | <u>Units</u> |
|------------------|-------------|--|------------------------------------|-------------------|------------------|--------------|
| Arsenic          | 7440-38-2   | 83                                     | B19-005-SB-6                       | 47.9              | 3                | mg/kg        |
| Chromium VI      | 18540-29-9  | 20                                     | B19-032-SB-1                       | 13.5              | 6.3              | mg/kg        |
| Manganese        | 7439-96-5   | 100                                    | B19-022-SB-4                       | 43,100            | 26,000           | mg/kg        |
| Oil & Grease     | O&G         | 100                                    | B19-034-SB-1                       | 23,600            | 6,200            | mg/kg        |
| Thallium         | 7440-28-0   | 6                                      | B19-027-SB-1                       | 15.4              | 12               | mg/kg        |



**TABLE 8  
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> |
|--|------------------|---------------------|------------------|--------------------|-----------------------|-------------------|
| Fire Training Area                                 | B19-001-SB       | 1                   | Arsenic          | 3                  | 4                     |                   |
|  |                  | 5                   | Arsenic          | 3                  | 7.9                   |                   |
|  | B19-002-SB       | 1                   | Arsenic          | 3                  | 4.5                   |                   |
|  |                  | 4                   | Arsenic          | 3                  | 6.5                   |                   |
|  | B19-003-SB       | 1                   | Arsenic          | 3                  | 4.2                   |                   |
|  |                  | 5                   | Arsenic          | 3                  | 6.9                   |                   |
| Oil Trap<br>(sanitary line)                        | B19-004-SB       | 1                   | Arsenic          | 3                  | 6.9                   |                   |
|  |                  | 1                   | Manganese        | 26,000             | 27,300                |                   |
|  |                  | 5                   | Arsenic          | 3                  | 14.2                  |                   |
|  | B19-005-SB       | 1                   | Manganese        | 26,000             | 32,200                |                   |
|  |                  | 6                   | Arsenic          | 3                  | 47.9                  |                   |
| Former Fuel Oil<br>Storage Tank<br>and Bermed Area | B19-006-SB       | 1                   | Arsenic          | 3                  | 3.5                   |                   |
|  |                  | 5                   | Arsenic          | 3                  | 5.4                   |                   |
|  | B19-007-SB       | 8.5                 | Arsenic          | 3                  | 6.4                   |                   |
|  | B19-008-SB       | 7.5                 | Arsenic          | 3                  | 22.9                  |                   |
| Pennwood<br>Storage Tank<br>Farm ASTs              | B19-010-SB       | 1.5                 | Arsenic          | 3                  | 14.5                  |                   |
|  |                  | 1.5                 | Oil & Grease     | 6,200              | 7,950                 |                   |
|  | B19-011-SB       | 1                   | Arsenic          | 3                  | 4.7                   |                   |
|  | B19-012-SB       | 1                   | Arsenic          | 3                  | 3.1                   |                   |
|  |                  | 5                   | Arsenic          | 3                  | 3.7                   |                   |
|  | B19-013-SB       | 1                   | Arsenic          | 3                  | 3.1                   |                   |
|  |                  | 1                   | Manganese        | 26,000             | 32,900                | J                 |
|  |                  | 5                   | Arsenic          | 3                  | 14.1                  |                   |
|  | B19-014-SB       | 5                   | Arsenic          | 3                  | 8                     |                   |
|  | B19-015-SB       | 1                   | Arsenic          | 3                  | 8.3                   |                   |
| 5  |                  | Arsenic             | 3                | 4.8                |                       |                   |
| B19-016-SB   | 1                | Arsenic             | 3                | 7.8                |                       |                   |
| Pig Plant Caster<br>Building                       | B19-017-SB       | 1                   | Arsenic          | 3                  | 4.4                   |                   |
|  | B19-018-SB       | 1                   | Manganese        | 26,000             | 30,200                |                   |
| Pig Plant Caster<br>Machine                        | B19-019-SB       | 1                   | Arsenic          | 3                  | 3.2                   |                   |
|  |                  | 8                   | Arsenic          | 3                  | 8.1                   |                   |
|  |                  | 10                  | Arsenic          | 3                  | 13.8                  |                   |
|  | B19-020-SB       | 1                   | Arsenic          | 3                  | 5.1                   |                   |
|  |                  | 4                   | Arsenic          | 3                  | 6.7                   |                   |
|  |                  | 4                   | Chromium VI      | 6.3                | 11.9                  |                   |
|  | 4                | Manganese           | 26,000           | 38,300             |                       |                   |

**TABLE 8  
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> |
|------------------------|------------------|---------------------|------------------|--------------------|-----------------------|-------------------|
| Pig Plant Storage Area | B19-021-SB       | 1                   | Chromium VI      | 6.3                | 9.4                   |                   |
|                        |                  | 1                   | Manganese        | 26,000             | 36,500                |                   |
|                        |                  | 7                   | Arsenic          | 3                  | 4.5                   |                   |
|                        | B19-022-SB       | 1                   | Manganese        | 26,000             | 39,600                |                   |
|                        |                  | 4                   | Chromium VI      | 6.3                | 8.6                   |                   |
|                        |                  | 4                   | Manganese        | 26,000             | 43,100                |                   |
| Pump Houses            | B19-023-SB       | 1                   | Arsenic          | 3                  | 23.1                  |                   |
|                        |                  | 5                   | Arsenic          | 3                  | 3.7                   |                   |
|                        | B19-024-SB       | 1                   | Arsenic          | 3                  | 4.3                   |                   |
|                        |                  | 5                   | Arsenic          | 3                  | 3.8                   |                   |
|                        | B19-025-SB       | 1                   | Arsenic          | 3                  | 7                     |                   |
|                        |                  | 1                   | Manganese        | 26,000             | 28,100                |                   |
|                        | B19-026-SB       | 5                   | Arsenic          | 3                  | 6.3                   |                   |
|                        |                  | 1                   | Arsenic          | 3                  | 16.9                  |                   |
| Rail Car Dumper        | B19-027-SB       | 8                   | Arsenic          | 3                  | 16.3                  |                   |
|                        |                  | 1                   | Manganese        | 26,000             | 40,000                |                   |
|                        |                  | 1                   | Thallium         | 12                 | 15.4                  |                   |
|                        | B19-028-SB       | 5                   | Arsenic          | 3                  | 5                     |                   |
|                        |                  | 1                   | Manganese        | 26,000             | 30,000                |                   |
| Weir and Oil Barrier   | B19-029-SB       | 7                   | Arsenic          | 3                  | 3.5                   |                   |
|                        |                  | 4                   | Arsenic          | 3                  | 3.1                   |                   |
|                        | B19-030-SB       | 10                  | Arsenic          | 3                  | 5.6                   |                   |
|                        |                  | 1                   | Arsenic          | 3                  | 5.8                   |                   |
|                        |                  | 5                   | Arsenic          | 3                  | 5.1                   |                   |

J: The positive result is a quantitative estimate



## Parcel B19 - Table 9

### Rejected Results for Soil

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

**Sample:** *B19-003-SB-5*

|              |        |       |    |    |   |
|--------------|--------|-------|----|----|---|
| 1,4-Dioxane  | 0.096  | mg/kg | 24 | no | R |
| Bromomethane | 0.0048 | mg/kg | 30 | no | R |

**Sample:** *B19-004-SB-1*

|              |       |       |         |    |   |
|--------------|-------|-------|---------|----|---|
| Benzaldehyde | 0.072 | mg/kg | 120,000 | no | R |
|--------------|-------|-------|---------|----|---|

**Sample:** *B19-004-SB-5*

|              |       |       |         |    |   |
|--------------|-------|-------|---------|----|---|
| Benzaldehyde | 0.082 | mg/kg | 120,000 | no | R |
|--------------|-------|-------|---------|----|---|

**Sample:** *B19-009-SB-1*

|                              |       |       |         |    |   |
|------------------------------|-------|-------|---------|----|---|
| 2,3,4,6-Tetrachlorophenol    | 0.077 | mg/kg | 25,000  | no | R |
| 2,4,5-Trichlorophenol        | 0.19  | mg/kg | 82,000  | no | R |
| 2,4,6-Trichlorophenol        | 0.077 | mg/kg | 210     | no | R |
| 2,4-Dichlorophenol           | 0.077 | mg/kg | 2,500   | no | R |
| 2,4-Dimethylphenol           | 0.077 | mg/kg | 16,000  | no | R |
| 2,4-Dinitrophenol            | 0.19  | mg/kg | 1,600   | no | R |
| 2-Chlorophenol               | 0.077 | mg/kg | 5,800   | no | R |
| 2-Methylphenol               | 0.077 | mg/kg | 41,000  | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.15  | mg/kg | 41,000  | no | R |
| Benzaldehyde                 | 0.077 | mg/kg | 120,000 | no | R |
| Pentachlorophenol            | 0.19  | mg/kg | 4       | no | R |
| Phenol                       | 0.077 | mg/kg | 250,000 | no | R |

**Sample:** *B19-010-SB-5*

|              |      |       |         |    |   |
|--------------|------|-------|---------|----|---|
| Benzaldehyde | 0.08 | mg/kg | 120,000 | no | R |
|--------------|------|-------|---------|----|---|

**Sample:** *B19-011-SB-1*

|              |       |       |         |    |   |
|--------------|-------|-------|---------|----|---|
| Benzaldehyde | 0.076 | mg/kg | 120,000 | no | R |
|--------------|-------|-------|---------|----|---|

Rejected Results for Soil

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

Sample: **B19-011-SB-5**

|              |       |       |         |    |   |
|--------------|-------|-------|---------|----|---|
| Benzaldehyde | 0.079 | mg/kg | 120,000 | no | R |
|--------------|-------|-------|---------|----|---|

Sample: **B19-012-SB-1**

|                              |       |       |         |    |   |
|------------------------------|-------|-------|---------|----|---|
| 2,3,4,6-Tetrachlorophenol    | 0.075 | mg/kg | 25,000  | no | R |
| 2,4,5-Trichlorophenol        | 0.19  | mg/kg | 82,000  | no | R |
| 2,4,6-Trichlorophenol        | 0.075 | mg/kg | 210     | no | R |
| 2,4-Dichlorophenol           | 0.075 | mg/kg | 2,500   | no | R |
| 2,4-Dimethylphenol           | 0.075 | mg/kg | 16,000  | no | R |
| 2-Chlorophenol               | 0.075 | mg/kg | 5,800   | no | R |
| 2-Methylphenol               | 0.075 | mg/kg | 41,000  | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.15  | mg/kg | 41,000  | no | R |
| Pentachlorophenol            | 0.19  | mg/kg | 4       | no | R |
| Phenol                       | 0.075 | mg/kg | 250,000 | no | R |

Sample: **B19-012-SB-5**

|              |       |       |         |    |   |
|--------------|-------|-------|---------|----|---|
| Benzaldehyde | 0.079 | mg/kg | 120,000 | no | R |
|--------------|-------|-------|---------|----|---|

Sample: **B19-013-SB-1**

|                              |       |       |         |    |   |
|------------------------------|-------|-------|---------|----|---|
| 2,3,4,6-Tetrachlorophenol    | 0.075 | mg/kg | 25,000  | no | R |
| 2,4,5-Trichlorophenol        | 0.19  | mg/kg | 82,000  | no | R |
| 2,4,6-Trichlorophenol        | 0.075 | mg/kg | 210     | no | R |
| 2,4-Dichlorophenol           | 0.075 | mg/kg | 2,500   | no | R |
| 2,4-Dimethylphenol           | 0.075 | mg/kg | 16,000  | no | R |
| 2,4-Dinitrophenol            | 0.19  | mg/kg | 1,600   | no | R |
| 2-Chlorophenol               | 0.075 | mg/kg | 5,800   | no | R |
| 2-Methylphenol               | 0.075 | mg/kg | 41,000  | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.15  | mg/kg | 41,000  | no | R |
| Benzaldehyde                 | 0.075 | mg/kg | 120,000 | no | R |
| Pentachlorophenol            | 0.19  | mg/kg | 4       | no | R |
| Phenol                       | 0.075 | mg/kg | 250,000 | no | R |

Sample: **B19-013-SB-5**

|                           |       |       |        |    |   |
|---------------------------|-------|-------|--------|----|---|
| 2,3,4,6-Tetrachlorophenol | 0.083 | mg/kg | 25,000 | no | R |
| 2,4,5-Trichlorophenol     | 0.21  | mg/kg | 82,000 | no | R |

Rejected Results for Soil

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

Sample: **B19-013-SB-5**

|                              |       |       |         |    |   |
|------------------------------|-------|-------|---------|----|---|
| 2,4,6-Trichlorophenol        | 0.083 | mg/kg | 210     | no | R |
| 2,4-Dichlorophenol           | 0.083 | mg/kg | 2,500   | no | R |
| 2,4-Dimethylphenol           | 0.083 | mg/kg | 16,000  | no | R |
| 2,4-Dinitrophenol            | 0.21  | mg/kg | 1,600   | no | R |
| 2-Chlorophenol               | 0.083 | mg/kg | 5,800   | no | R |
| 2-Methylphenol               | 0.083 | mg/kg | 41,000  | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.16  | mg/kg | 41,000  | no | R |
| Pentachlorophenol            | 0.21  | mg/kg | 4       | no | R |
| Phenol                       | 0.083 | mg/kg | 250,000 | no | R |

Sample: **B19-014-SB-1**

|              |       |       |         |    |   |
|--------------|-------|-------|---------|----|---|
| Benzaldehyde | 0.076 | mg/kg | 120,000 | no | R |
|--------------|-------|-------|---------|----|---|

Sample: **B19-014-SB-5**

|              |       |       |         |    |   |
|--------------|-------|-------|---------|----|---|
| Benzaldehyde | 0.083 | mg/kg | 120,000 | no | R |
|--------------|-------|-------|---------|----|---|

Sample: **B19-015-SB-1**

|                              |       |       |         |    |   |
|------------------------------|-------|-------|---------|----|---|
| 2,3,4,6-Tetrachlorophenol    | 0.078 | mg/kg | 25,000  | no | R |
| 2,4,5-Trichlorophenol        | 0.2   | mg/kg | 82,000  | no | R |
| 2,4,6-Trichlorophenol        | 0.078 | mg/kg | 210     | no | R |
| 2,4-Dichlorophenol           | 0.078 | mg/kg | 2,500   | no | R |
| 2,4-Dimethylphenol           | 0.078 | mg/kg | 16,000  | no | R |
| 2,4-Dinitrophenol            | 0.2   | mg/kg | 1,600   | no | R |
| 2-Chlorophenol               | 0.078 | mg/kg | 5,800   | no | R |
| 2-Methylphenol               | 0.078 | mg/kg | 41,000  | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.16  | mg/kg | 41,000  | no | R |
| Benzaldehyde                 | 0.078 | mg/kg | 120,000 | no | R |
| Pentachlorophenol            | 0.2   | mg/kg | 4       | no | R |
| Phenol                       | 0.078 | mg/kg | 250,000 | no | R |

Sample: **B19-015-SB-5**

|              |       |       |         |    |   |
|--------------|-------|-------|---------|----|---|
| Benzaldehyde | 0.079 | mg/kg | 120,000 | no | R |
|--------------|-------|-------|---------|----|---|

Rejected Results for Soil

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

Sample: **B19-016-SB-1**

|              |       |       |         |    |   |
|--------------|-------|-------|---------|----|---|
| Benzaldehyde | 0.072 | mg/kg | 120,000 | no | R |
|--------------|-------|-------|---------|----|---|

Sample: **B19-016-SB-4**

|              |       |       |         |    |   |
|--------------|-------|-------|---------|----|---|
| Benzaldehyde | 0.077 | mg/kg | 120,000 | no | R |
|--------------|-------|-------|---------|----|---|

Sample: **B19-021-SB-1**

|                              |       |       |         |    |   |
|------------------------------|-------|-------|---------|----|---|
| 2,3,4,6-Tetrachlorophenol    | 0.071 | mg/kg | 25,000  | no | R |
| 2,4,5-Trichlorophenol        | 0.18  | mg/kg | 82,000  | no | R |
| 2,4,6-Trichlorophenol        | 0.071 | mg/kg | 210     | no | R |
| 2,4-Dichlorophenol           | 0.071 | mg/kg | 2,500   | no | R |
| 2,4-Dimethylphenol           | 0.071 | mg/kg | 16,000  | no | R |
| 2,4-Dinitrophenol            | 0.18  | mg/kg | 1,600   | no | R |
| 2-Chlorophenol               | 0.071 | mg/kg | 5,800   | no | R |
| 2-Methylphenol               | 0.071 | mg/kg | 41,000  | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.14  | mg/kg | 41,000  | no | R |
| Benzaldehyde                 | 0.071 | mg/kg | 120,000 | no | R |
| Pentachlorophenol            | 0.18  | mg/kg | 4       | no | R |
| Phenol                       | 0.071 | mg/kg | 250,000 | no | R |

Sample: **B19-021-SB-7**

|              |        |       |    |    |   |
|--------------|--------|-------|----|----|---|
| 1,4-Dioxane  | 0.097  | mg/kg | 24 | no | R |
| Bromomethane | 0.0049 | mg/kg | 30 | no | R |

Sample: **B19-022-SB-1**

|                              |       |       |        |    |   |
|------------------------------|-------|-------|--------|----|---|
| 1,4-Dioxane                  | 0.11  | mg/kg | 24     | no | R |
| 2,3,4,6-Tetrachlorophenol    | 0.072 | mg/kg | 25,000 | no | R |
| 2,4,5-Trichlorophenol        | 0.18  | mg/kg | 82,000 | no | R |
| 2,4,6-Trichlorophenol        | 0.072 | mg/kg | 210    | no | R |
| 2,4-Dichlorophenol           | 0.072 | mg/kg | 2,500  | no | R |
| 2,4-Dimethylphenol           | 0.072 | mg/kg | 16,000 | no | R |
| 2,4-Dinitrophenol            | 0.18  | mg/kg | 1,600  | no | R |
| 2-Chlorophenol               | 0.072 | mg/kg | 5,800  | no | R |
| 2-Methylphenol               | 0.072 | mg/kg | 41,000 | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.14  | mg/kg | 41,000 | no | R |

Rejected Results for Soil

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

Sample: **B19-022-SB-1**

|                   |        |       |         |    |   |
|-------------------|--------|-------|---------|----|---|
| Bromomethane      | 0.0053 | mg/kg | 30      | no | R |
| Pentachlorophenol | 0.18   | mg/kg | 4       | no | R |
| Phenol            | 0.072  | mg/kg | 250,000 | no | R |

Sample: **B19-022-SB-4**

|                              |        |       |         |    |   |
|------------------------------|--------|-------|---------|----|---|
| 1,4-Dioxane                  | 0.11   | mg/kg | 24      | no | R |
| 2,3,4,6-Tetrachlorophenol    | 0.074  | mg/kg | 25,000  | no | R |
| 2,4,5-Trichlorophenol        | 0.18   | mg/kg | 82,000  | no | R |
| 2,4,6-Trichlorophenol        | 0.074  | mg/kg | 210     | no | R |
| 2,4-Dichlorophenol           | 0.074  | mg/kg | 2,500   | no | R |
| 2,4-Dimethylphenol           | 0.074  | mg/kg | 16,000  | no | R |
| 2,4-Dinitrophenol            | 0.18   | mg/kg | 1,600   | no | R |
| 2-Chlorophenol               | 0.074  | mg/kg | 5,800   | no | R |
| 2-Methylphenol               | 0.074  | mg/kg | 41,000  | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.15   | mg/kg | 41,000  | no | R |
| Bromomethane                 | 0.0054 | mg/kg | 30      | no | R |
| Pentachlorophenol            | 0.18   | mg/kg | 4       | no | R |
| Phenol                       | 0.074  | mg/kg | 250,000 | no | R |

Sample: **B19-023-SB-5**

|              |       |       |         |    |   |
|--------------|-------|-------|---------|----|---|
| Benzaldehyde | 0.079 | mg/kg | 120,000 | no | R |
|--------------|-------|-------|---------|----|---|

Sample: **B19-024-SB-5**

|              |       |       |         |    |   |
|--------------|-------|-------|---------|----|---|
| Benzaldehyde | 0.076 | mg/kg | 120,000 | no | R |
|--------------|-------|-------|---------|----|---|

Sample: **B19-025-SB-1**

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

Sample: **B19-025-SB-5**

|                |       |       |           |    |   |
|----------------|-------|-------|-----------|----|---|
| 1,4-Dioxane    | 0.089 | mg/kg | 24        | no | R |
| Benzaldehyde   | 0.079 | mg/kg | 120,000   | no | R |
| Methyl Acetate | 0.044 | mg/kg | 1,200,000 | no | R |

Rejected Results for Soil

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

Sample: **B19-026-SB-1**

|              |        |       |         |    |   |
|--------------|--------|-------|---------|----|---|
| 1,4-Dioxane  | 0.087  | mg/kg | 24      | no | R |
| Benzaldehyde | 0.069  | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0043 | mg/kg | 30      | no | R |

Sample: **B19-026-SB-8**

|              |       |       |         |    |   |
|--------------|-------|-------|---------|----|---|
| Benzaldehyde | 0.078 | mg/kg | 120,000 | no | R |
|--------------|-------|-------|---------|----|---|

Sample: **B19-027-SB-1**

|                              |        |       |         |    |   |
|------------------------------|--------|-------|---------|----|---|
| 1,4-Dioxane                  | 0.1    | mg/kg | 24      | no | R |
| 2,3,4,6-Tetrachlorophenol    | 0.077  | mg/kg | 25,000  | no | R |
| 2,4,5-Trichlorophenol        | 0.19   | mg/kg | 82,000  | no | R |
| 2,4,6-Trichlorophenol        | 0.077  | mg/kg | 210     | no | R |
| 2,4-Dichlorophenol           | 0.077  | mg/kg | 2,500   | no | R |
| 2,4-Dimethylphenol           | 0.077  | mg/kg | 16,000  | no | R |
| 2,4-Dinitrophenol            | 0.19   | mg/kg | 1,600   | no | R |
| 2-Chlorophenol               | 0.077  | mg/kg | 5,800   | no | R |
| 2-Methylphenol               | 0.077  | mg/kg | 41,000  | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.15   | mg/kg | 41,000  | no | R |
| Benzaldehyde                 | 0.077  | mg/kg | 120,000 | no | R |
| Bromomethane                 | 0.0052 | mg/kg | 30      | no | R |
| Pentachlorophenol            | 0.19   | mg/kg | 4       | no | R |
| Phenol                       | 0.077  | mg/kg | 250,000 | no | R |

Sample: **B19-027-SB-5**

|              |        |       |         |    |   |
|--------------|--------|-------|---------|----|---|
| 1,4-Dioxane  | 0.1    | mg/kg | 24      | no | R |
| Benzaldehyde | 0.075  | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0052 | mg/kg | 30      | no | R |

Sample: **B19-028-SB-1**

|                           |       |       |        |    |   |
|---------------------------|-------|-------|--------|----|---|
| 1,4-Dioxane               | 0.091 | mg/kg | 24     | no | R |
| 2,3,4,6-Tetrachlorophenol | 0.073 | mg/kg | 25,000 | no | R |
| 2,4,5-Trichlorophenol     | 0.18  | mg/kg | 82,000 | no | R |
| 2,4,6-Trichlorophenol     | 0.073 | mg/kg | 210    | no | R |
| 2,4-Dichlorophenol        | 0.073 | mg/kg | 2,500  | no | R |



Rejected Results for Soil

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

Sample: **B19-028-SB-1**

|                              |        |       |         |    |   |
|------------------------------|--------|-------|---------|----|---|
| 2,4-Dimethylphenol           | 0.073  | mg/kg | 16,000  | no | R |
| 2,4-Dinitrophenol            | 0.18   | mg/kg | 1,600   | no | R |
| 2-Chlorophenol               | 0.073  | mg/kg | 5,800   | no | R |
| 2-Methylphenol               | 0.073  | mg/kg | 41,000  | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.14   | mg/kg | 41,000  | no | R |
| Benzaldehyde                 | 0.073  | mg/kg | 120,000 | no | R |
| Bromomethane                 | 0.0046 | mg/kg | 30      | no | R |
| Pentachlorophenol            | 0.18   | mg/kg | 4       | no | R |
| Phenol                       | 0.073  | mg/kg | 250,000 | no | R |

Sample: **B19-028-SB-7**

|              |        |       |         |    |   |
|--------------|--------|-------|---------|----|---|
| 1,4-Dioxane  | 0.094  | mg/kg | 24      | no | R |
| Benzaldehyde | 0.07   | mg/kg | 120,000 | no | R |
| Bromomethane | 0.0047 | mg/kg | 30      | no | R |

Sample: **B19-033-SB-1**

|                              |       |       |           |    |   |
|------------------------------|-------|-------|-----------|----|---|
| 1,4-Dioxane                  | 0.09  | mg/kg | 24        | no | R |
| 2,3,4,6-Tetrachlorophenol    | 0.071 | mg/kg | 25,000    | no | R |
| 2,4,5-Trichlorophenol        | 0.18  | mg/kg | 82,000    | no | R |
| 2,4,6-Trichlorophenol        | 0.071 | mg/kg | 210       | no | R |
| 2,4-Dichlorophenol           | 0.071 | mg/kg | 2,500     | no | R |
| 2,4-Dimethylphenol           | 0.071 | mg/kg | 16,000    | no | R |
| 2,4-Dinitrophenol            | 0.18  | mg/kg | 1,600     | no | R |
| 2-Chlorophenol               | 0.071 | mg/kg | 5,800     | no | R |
| 2-Methylphenol               | 0.071 | mg/kg | 41,000    | no | R |
| 3&4-Methylphenol(m&p Cresol) | 0.14  | mg/kg | 41,000    | no | R |
| Methyl Acetate               | 0.045 | mg/kg | 1,200,000 | no | R |
| Pentachlorophenol            | 0.18  | mg/kg | 4         | no | R |
| Phenol                       | 0.071 | mg/kg | 250,000   | no | R |

Sample: **B19-033-SB-5**

|                |       |       |           |    |   |
|----------------|-------|-------|-----------|----|---|
| 1,4-Dioxane    | 0.098 | mg/kg | 24        | no | R |
| Benzaldehyde   | 0.078 | mg/kg | 120,000   | no | R |
| Methyl Acetate | 0.049 | mg/kg | 1,200,000 | no | R |

Rejected Results for Soil

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

Sample: **B19-034-SB-4**

|              |        |       |    |    |   |
|--------------|--------|-------|----|----|---|
| 1,4-Dioxane  | 0.097  | mg/kg | 24 | no | R |
| Bromomethane | 0.0049 | mg/kg | 30 | no | R |

Sample: **B19-035-SB-4**

|              |        |       |    |    |   |
|--------------|--------|-------|----|----|---|
| 1,4-Dioxane  | 0.11   | mg/kg | 24 | no | R |
| Bromomethane | 0.0055 | mg/kg | 30 | no | R |

Sample: **B19-037-SB-1**

|              |        |       |    |    |   |
|--------------|--------|-------|----|----|---|
| 1,4-Dioxane  | 0.12   | mg/kg | 24 | no | R |
| Bromomethane | 0.0062 | mg/kg | 30 | no | R |

Sample: **B19-037-SB-8**

|              |        |       |    |    |   |
|--------------|--------|-------|----|----|---|
| 1,4-Dioxane  | 0.084  | mg/kg | 24 | no | R |
| Bromomethane | 0.0042 | mg/kg | 30 | no | R |

**Table 10 - Parcel B19  
COPC Screening Analysis**

| Parameter                  | CAS#       | Location of Max Result      | Max Detection (mg/kg) | Final Flag | Min Detection (mg/kg) | Average Detection (mg/kg) | Total Samples | Frequency of Detection (%) | Cancer TR=1E-06 (mg/kg) | Non-Cancer HQ=0.1 (mg/kg) | COPC?   |
|----------------------------|------------|-----------------------------|-----------------------|------------|-----------------------|---------------------------|---------------|----------------------------|-------------------------|---------------------------|---------|
| 1,1-Biphenyl               | 92-52-4    | B19-037-SB-1                | 0.075                 |            | 0.02                  | 0.05                      | 80            | 6.25                       | 410                     | 20                        | no      |
| 2,4-Dimethylphenol         | 105-67-9   | B19-008-SB-7.5              | 0.022                 | J          | 0.021                 | 0.02                      | 69            | 2.90                       |                         | 1,600                     | no      |
| 2,4-Dinitrophenol          | 51-28-5    | B19-025-SB-1                | 0.051                 | J          | 0.051                 | 0.05                      | 70            | 1.43                       |                         | 160                       | no      |
| 2,4-Dinitrotoluene         | 121-14-2   | B19-022-SB-1                | 0.092                 |            | 0.092                 | 0.09                      | 80            | 1.25                       | 7.4                     | 160                       | no      |
| 2,6-Dinitrotoluene         | 606-20-2   | B19-005-SB-6                | 0.13                  |            | 0.067                 | 0.10                      | 80            | 2.50                       | 1.5                     | 25                        | no      |
| 2-Butanone (MEK)           | 78-93-3    | B19-003-SB-5                | 0.014                 |            | 0.0027                | 0.006                     | 28            | 28.57                      |                         | 19,000                    | no      |
| 2-Chloronaphthalene        | 91-58-7    | B19-031-SB-1                | 0.089                 |            | 0.089                 | 0.09                      | 80            | 1.25                       |                         | 6,000                     | no      |
| 2-Methylnaphthalene        | 91-57-6    | B19-012-SB-1                | 0.65                  |            | 0.00079               | 0.05                      | 80            | 65.00                      |                         | 300                       | no      |
| 4-Chloroaniline            | 106-47-8   | B19-013-SB-5                | 0.04                  | J          | 0.04                  | 0.04                      | 80            | 1.25                       | 11                      | 330                       | no      |
| 4-Nitroaniline             | 100-01-6   | B19-037-SB-1                | 0.29                  | J          | 0.29                  | 0.29                      | 80            | 1.25                       | 110                     | 330                       | no      |
| Acenaphthene               | 83-32-9    | B19-019-SB-8                | 0.14                  |            | 0.0005                | 0.008                     | 80            | 62.50                      |                         | 4,500                     | no      |
| Acenaphthylene             | 208-96-8   | B19-037-SB-1 & B19-037-SB-4 | 0.36                  |            | 0.00065               | 0.03                      | 80            | 72.50                      |                         |                           | no      |
| Acetone                    | 67-64-1    | B19-003-SB-5                | 0.076                 |            | 0.0056                | 0.02                      | 28            | 64.29                      |                         | 67,000                    | no      |
| Acetophenone               | 98-86-2    | B19-033-SB-1                | 0.063                 | J          | 0.02                  | 0.03                      | 80            | 7.50                       |                         | 12,000                    | no      |
| Aluminum                   | 7429-90-5  | B19-030-SB-5                | 51,200                |            | 2,380                 | 19,623                    | 82            | 100.00                     |                         | 110,000                   | no      |
| Anthracene                 | 120-12-7   | B19-037-SB-1                | 0.34                  |            | 0.00066               | 0.03                      | 80            | 76.25                      |                         | 23,000                    | no      |
| Antimony                   | 7440-36-0  | B19-005-SB-1                | 14.9                  | J          | 5.2                   | 9.33                      | 82            | 3.66                       |                         | 47                        | no      |
| Aroclor 1254               | 11097-69-1 | B19-005-SB-1                | 0.19                  |            | 0.035                 | 0.11                      | 40            | 10.00                      | 0.97                    | 1.5                       | no      |
| Aroclor 1260               | 11096-82-5 | B19-037-SB-1                | 0.0966                |            | 0.0079                | 0.05                      | 40            | 17.50                      | 0.99                    |                           | no      |
| Arsenic                    | 7440-38-2  | B19-005-SB-6                | 47.9                  |            | 2.1                   | 7.68                      | 90            | 83.33                      | 3                       | 48                        | YES (C) |
| Barium                     | 7440-39-3  | B19-035-SB-1                | 898                   | J          | 14.8                  | 179                       | 82            | 100.00                     |                         | 22,000                    | no      |
| Benz[a]anthracene          | 56-55-3    | B19-042-SB-4                | 0.83                  |            | 0.0013                | 0.10                      | 80            | 80.00                      | 21                      |                           | no      |
| Benzaldehyde               | 100-52-7   | B19-033-SB-1                | 0.11                  | J          | 0.019                 | 0.04                      | 55            | 41.82                      | 820                     | 12,000                    | no      |
| Benzene                    | 71-43-2    | B19-017-SB-1                | 0.012                 |            | 0.0017                | 0.005                     | 28            | 10.71                      | 5.1                     | 42                        | no      |
| Benzo[a]pyrene             | 50-32-8    | B19-042-SB-4                | 0.87                  |            | 0.0013                | 0.11                      | 82            | 70.73                      | 2.1                     | 22                        | no      |
| Benzo[b]fluoranthene       | 205-99-2   | B19-042-SB-4                | 2.6                   |            | 0.00069               | 0.22                      | 80            | 78.75                      | 21                      |                           | no      |
| Benzo[g,h,i]perylene       | 191-24-2   | B19-042-SB-4                | 0.54                  |            | 0.0018                | 0.08                      | 80            | 72.50                      |                         |                           | no      |
| Benzo[k]fluoranthene       | 207-08-9   | B19-042-SB-4                | 2.3                   |            | 0.0014                | 0.18                      | 80            | 78.75                      | 210                     |                           | no      |
| Beryllium                  | 7440-41-7  | B19-029-SB-1 & B19-001-SB-1 | 8.2                   |            | 0.21                  | 1.96                      | 82            | 90.24                      | 6,900                   | 230                       | no      |
| bis(2-Ethylhexyl)phthalate | 117-81-7   | B19-017-SB-1                | 0.16                  |            | 0.018                 | 0.06                      | 80            | 11.25                      | 160                     | 1,600                     | no      |

**Table 10 - Parcel B19  
COPC Screening Analysis**

| Parameter                  | CAS#       | Location of Max Result | Max Detection (mg/kg) | Final Flag | Min Detection (mg/kg) | Average Detection (mg/kg) | Total Samples | Frequency of Detection (%) | Cancer TR=1E-06 (mg/kg) | Non-Cancer HQ=0.1 (mg/kg) | COPC?    |
|----------------------------|------------|------------------------|-----------------------|------------|-----------------------|---------------------------|---------------|----------------------------|-------------------------|---------------------------|----------|
| Cadmium                    | 7440-43-9  | B19-040-SB-4           | 3.1                   |            | 0.34                  | 0.90                      | 82            | 15.85                      | 9,300                   | 98                        | no       |
| Caprolactam                | 105-60-2   | B19-037-SB-1           | 0.19                  |            | 0.034                 | 0.09                      | 80            | 7.50                       |                         | 40,000                    | no       |
| Carbazole                  | 86-74-8    | B19-019-SB-8           | 0.071                 | J          | 0.022                 | 0.04                      | 80            | 11.25                      |                         |                           | no       |
| Chromium                   | 7440-47-3  | B19-022-SB-4           | 2,190                 |            | 9.2                   | 417                       | 82            | 100.00                     |                         | 180,000                   | no       |
| Chromium VI                | 18540-29-9 | B19-032-SB-1           | 13.5                  |            | 1.1                   | 4.80                      | 80            | 20.00                      | 6.3                     | 350                       | YES (C)  |
| Chrysene                   | 218-01-9   | B19-042-SB-4           | 0.86                  |            | 0.0007                | 0.12                      | 80            | 73.75                      | 2,100                   |                           | no       |
| Cobalt                     | 7440-48-4  | B19-026-SB-1           | 27.6                  |            | 0.25                  | 5.00                      | 82            | 90.24                      | 1,900                   | 35                        | no       |
| Copper                     | 7440-50-8  | B19-037-SB-1           | 787                   | J          | 2.8                   | 46.2                      | 82            | 100.00                     |                         | 4,700                     | no       |
| Cyanide                    | 57-12-5    | B19-013-SB-5           | 2.8                   |            | 0.037                 | 0.50                      | 80            | 78.75                      |                         | 120                       | no       |
| Dibenz[a,h]anthracene      | 53-70-3    | B19-042-SB-4           | 0.23                  |            | 0.0012                | 0.03                      | 80            | 56.25                      | 2.1                     |                           | no       |
| Diethylphthalate           | 84-66-2    | B19-008-SB-7.5         | 0.2                   |            | 0.075                 | 0.14                      | 80            | 2.50                       |                         | 66,000                    | no       |
| Di-n-butylphthalate        | 84-74-2    | B19-041-SB-1           | 0.18                  |            | 0.075                 | 0.14                      | 80            | 6.25                       |                         | 8,200                     | no       |
| Di-n-ocetylphthalate       | 117-84-0   | B19-035-SB-1           | 0.45                  | J          | 0.028                 | 0.18                      | 80            | 6.25                       |                         | 820                       | no       |
| Ethylbenzene               | 100-41-4   | B19-031-SB-1           | 0.13                  |            | 0.0021                | 0.03                      | 28            | 17.86                      | 25                      | 2,000                     | no       |
| Fluoranthene               | 206-44-0   | B19-013-SB-5           | 1.3                   |            | 0.00075               | 0.14                      | 80            | 80.00                      |                         | 3,000                     | no       |
| Fluorene                   | 86-73-7    | B19-019-SB-8           | 0.1                   |            | 0.00078               | 0.009                     | 80            | 55.00                      |                         | 3,000                     | no       |
| Hexachlorobenzene          | 118-74-1   | B19-037-SB-1           | 0.075                 |            | 0.075                 | 0.08                      | 80            | 1.25                       | 0.96                    | 93                        | no       |
| Hexachlorobutadiene        | 87-68-3    | B19-037-SB-1           | 0.075                 |            | 0.075                 | 0.08                      | 80            | 1.25                       | 5.3                     | 120                       | no       |
| Hexachlorocyclopentadiene  | 77-47-4    | B19-037-SB-1           | 0.075                 |            | 0.075                 | 0.08                      | 80            | 1.25                       |                         | 0.75                      | no       |
| Hexachloroethane           | 67-72-1    | B19-037-SB-1           | 0.075                 |            | 0.018                 | 0.05                      | 80            | 2.50                       | 8                       | 46                        | no       |
| Indeno[1,2,3-c,d]pyrene    | 193-39-5   | B19-042-SB-4           | 0.55                  |            | 0.0012                | 0.06                      | 80            | 71.25                      | 21                      |                           | no       |
| Iron                       | 7439-89-6  | B19-040-SB-1           | 393,000               |            | 4,170                 | 83,758                    | 82            | 100.00                     |                         | 82,000                    | YES (NC) |
| Isopropylbenzene           | 98-82-8    | B19-031-SB-1           | 0.0028                | J          | 0.0028                | 0.003                     | 28            | 3.57                       |                         | 990                       | no       |
| Lead^                      | 7439-92-1  | B19-013-SB-5           | 698                   | J          | 2.7                   | 51.7                      | 82            | 97.56                      |                         | 800                       | no       |
| Manganese                  | 7439-96-5  | B19-022-SB-4           | 43,100                |            | 17.1                  | 10,966                    | 83            | 100.00                     |                         | 2,600                     | YES (NC) |
| Mercury                    | 7439-97-6  | B19-038-SB-1           | 0.9                   |            | 0.0023                | 0.06                      | 80            | 51.25                      |                         | 35                        | no       |
| Naphthalene                | 91-20-3    | B19-012-SB-1           | 0.45                  |            | 0.0027                | 0.05                      | 80            | 58.75                      | 17                      | 59                        | no       |
| Nickel                     | 7440-02-0  | B19-037-SB-1           | 120                   | J          | 1.4                   | 19.3                      | 82            | 97.56                      | 64,000                  | 2,200                     | no       |
| N-Nitroso-di-n-propylamine | 621-64-7   | B19-033-SB-1           | 0.08                  |            | 0.068                 | 0.07                      | 80            | 2.50                       | 0.33                    |                           | no       |
| N-Nitrosodiphenylamine     | 86-30-6    | B19-019-SB-1           | 0.028                 | J          | 0.028                 | 0.03                      | 80            | 1.25                       | 470                     |                           | no       |
| PCBs (total)*              | 1336-36-3  | B19-005-SB-1           | 0.2527                |            | 0.035                 | 0.11                      | 40            | 17.50                      | 0.94                    |                           | no       |
| Phenanthrene               | 85-01-8    | B19-019-SB-8           | 0.78                  |            | 0.00063               | 0.08                      | 80            | 85.00                      |                         |                           | no       |

**Table 10 - Parcel B19  
COPC Screening Analysis**

| Parameter | CAS#      | Location of Max Result | Max Detection (mg/kg) | Final Flag | Min Detection (mg/kg) | Average Detection (mg/kg) | Total Samples | Frequency of Detection (%) | Cancer TR=1E-06 (mg/kg) | Non-Cancer HQ=0.1 (mg/kg) | COPC?    |
|-----------|-----------|------------------------|-----------------------|------------|-----------------------|---------------------------|---------------|----------------------------|-------------------------|---------------------------|----------|
| Phenol    | 108-95-2  | B19-010-SB-1.5         | 0.02                  | J          | 0.02                  | 0.02                      | 69            | 1.45                       |                         | 25,000                    | no       |
| Pyrene    | 129-00-0  | B19-042-SB-4           | 1.1                   |            | 0.00091               | 0.13                      | 80            | 85.00                      |                         | 2,300                     | no       |
| Selenium  | 7782-49-2 | B19-039-SB-8.5         | 5.9                   |            | 2                     | 3.10                      | 82            | 13.41                      |                         | 580                       | no       |
| Silver    | 7440-22-4 | B19-039-SB-8.5         | 34                    |            | 0.41                  | 7.59                      | 82            | 28.05                      |                         | 580                       | no       |
| Thallium  | 7440-28-0 | B19-027-SB-1           | 15.4                  |            | 5                     | 9.98                      | 82            | 6.10                       |                         | 1.2                       | YES (NC) |
| Toluene   | 108-88-3  | B19-017-SB-1           | 0.0061                |            | 0.0022                | 0.004                     | 28            | 7.14                       |                         | 4,700                     | no       |
| Vanadium  | 7440-62-2 | B19-010-SB-1.5         | 1,530                 | J          | 8.7                   | 325                       | 82            | 100.00                     |                         | 580                       | YES (NC) |
| Xylenes   | 1330-20-7 | B19-031-SB-1           | 1                     |            | 0.0063                | 0.26                      | 28            | 14.29                      |                         | 250                       | no       |
| Zinc      | 7440-66-6 | B19-013-SB-5           | 953                   | J          | 6.3                   | 122                       | 82            | 97.56                      |                         | 35,000                    | no       |

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

COPC = Constituent of Potential Concern

TR = Target Risk

C = Compound was identified as a cancer COPC

HQ = Hazard Quotient

NC = Compound was identified as a non-cancer COPC

\*PCBs (total) include the sum of all detected aroclor mixtures, including those without regional screening levels (e.g. Aroclor 1262, Aroclor 1268) which are not displayed.

^The COPC screening level for lead was not adjusted to the HQ=0.1 because lead is not assessed in the SLRA. The 800 mg/kg PAL is relevant to the Adult Lead Model procedure.

**Table 11 - Parcel B19  
Assessment of Lead**

| <b>Exposure Unit</b> | <b>Surface/Sub-Surface</b> | <b>Arithmetic Mean<br/>(mg/kg)</b> |
|----------------------|----------------------------|------------------------------------|
| EU 1<br>(40.8 ac.)   | Surface                    | 32.7                               |
|                      | Sub-Surface                | 45.3                               |
|                      | Pooled                     | 38.8                               |
| EU 2<br>(44.8 ac.)   | Surface                    | 56.1                               |
|                      | Sub-Surface                | 63.3                               |
|                      | Pooled                     | 60.1                               |

| <b>Adult Lead Model (ALM) Risk Levels</b> |   |
|---|---|
| <b>Soil Concentration<br/>(mg/kg)</b>     | <b>Probability of Blood<br/>Concentration of 10 ug/dL</b> |
| 2,518 mg/kg                               | 5%  |
| 3,216 mg/kg                               | 10%   |

**Table 12 - Parcel B19  
Exposure Point Concentrations**

|             |                                     |   | <b>EPCs - Surface Soils</b> |                  |                             |                  |
|-------------|-------------------------------------|---|-----------------------------|------------------|-----------------------------|------------------|
| Parameter   | Cancer COPC Screening Level (mg/kg) | Non-Cancer COPC Screening Level (mg/kg) | EPC Type EU 1               | EPC EU 1 (mg/kg) | EPC Type EU 2               | EPC EU 2 (mg/kg) |
| Arsenic     | 3.00                                | 48.0                                    | 95% KM (Chebyshev) UCL      | <b>16.4</b>      | 95% GROS Adjusted Gamma UCL | <b>11.1</b>      |
| Chromium VI | 6.30                                | 350                                     | 95% KM (t) UCL              | 3.54             | 95% KM (t) UCL              | 1.61             |
| Iron        |                                     | 82,000                                  | 95% Student's-t UCL         | <b>181,228</b>   | 95% Student's-t UCL         | <b>142,171</b>   |
| Manganese   |                                     | 2,600                                   | 95% Student's-t UCL         | <b>22,450</b>    | 95% Student's-t UCL         | <b>21,575</b>    |
| Thallium    |                                     | 1.20                                    | N/A                         | N/A              | Maximum Value               | <b>15.4</b>      |
| Vanadium    |                                     | 580                                     | 95% Student's-t UCL         | <b>633</b>       | 95% Student's-t UCL         | <b>609</b>       |

**Bold indicates EPC higher than lowest COPC SL**

N/A indicates no detections in the specified exposure unit

COPC = Constituent of Potential Concern

**Table 12 - Parcel B19  
Exposure Point Concentrations**

|             |                                     |   | <b>EPCs - Sub-Surface Soils</b>   |                  |                                |                  |
|-------------|-------------------------------------|---|-----------------------------------|------------------|--------------------------------|------------------|
| Parameter   | Cancer COPC Screening Level (mg/kg) | Non-Cancer COPC Screening Level (mg/kg) | EPC Type EU 1                     | EPC EU 1 (mg/kg) | EPC Type EU 2                  | EPC EU 2 (mg/kg) |
| Arsenic     | 3.00                                | 48.0                                    | 95% KM (Percentile Bootstrap) UCL | <b>7.48</b>      | 95% KM (Chebyshev) UCL         | <b>16.1</b>      |
| Chromium VI | 6.30                                | 350                                     | Maximum Value                     | <b>11.9</b>      | Maximum Value                  | 1.90             |
| Iron        |                                     | 82,000                                  | 95% Adjusted Gamma UCL            | <b>92,906</b>    | 95% Adjusted Gamma UCL         | 44,632           |
| Manganese   |                                     | 2,600                                   | 95% Adjusted Gamma UCL            | <b>19,208</b>    | 97.5% Chebyshev (Mean, Sd) UCL | <b>11,177</b>    |
| Thallium    |                                     | 1.20                                    | N/A                               | N/A              | Maximum Value                  | <b>8.30</b>      |
| Vanadium    |                                     | 580                                     | 95% Adjusted Gamma UCL            | 435              | 95% Chebyshev (Mean, Sd) UCL   | 423              |

**Bold indicates EPC higher than lowest COPC SL**

N/A indicates no detections in the specified exposure unit

COPC = Constituent of Potential Concern



**Table 12 - Parcel B19  
Exposure Point Concentrations**

|             |                                     |   | <b>EPCs - Pooled Soils</b>        |                  |                                   |                  |
|-------------|-------------------------------------|---|-----------------------------------|------------------|-----------------------------------|------------------|
| Parameter   | Cancer COPC Screening Level (mg/kg) | Non-Cancer COPC Screening Level (mg/kg) | EPC Type EU 1                     | EPC EU 1 (mg/kg) | EPC Type EU 2                     | EPC EU 2 (mg/kg) |
| Arsenic     | 3.00                                | 48.0                                    | 95% KM (Chebyshev) UCL            | <b>11.0</b>      | 95% KM (Chebyshev) UCL            | <b>12.2</b>      |
| Chromium VI | 6.30                                | 350                                     | 95% KM (Percentile Bootstrap) UCL | 2.78             | 95% KM (Percentile Bootstrap) UCL | 0.98             |
| Iron        |                                     | 82,000                                  | 95% Adjusted Gamma UCL            | <b>136,410</b>   | 95% Chebyshev (Mean, Sd) UCL      | <b>112,267</b>   |
| Manganese   |                                     | 2,600                                   | 95% Adjusted Gamma UCL            | <b>19,696</b>    | 97.5% Chebyshev (Mean, Sd) UCL    | <b>19,979</b>    |
| Thallium    |                                     | 1.20                                    | N/A                               | N/A              | 95% KM (Percentile Bootstrap) UCL | <b>7.76</b>      |
| Vanadium    |                                     | 580                                     | 95% Adjusted Gamma UCL            | 513              | 95% Chebyshev (Mean, Sd) UCL      | 532              |

**Bold indicates EPC higher than lowest COPC SL**

N/A indicates no detections in the specified exposure unit

COPC = Constituent of Potential Concern

**Table 13 - Parcel B19  
Composite Worker Surface Soils  
Risk Ratios**

| Parameter   | Target Organs             | EU 1<br>(40.8 ac.) |                  |            |              |       | EU 2<br>(44.8 ac.) |                  |            |              |        |
|-------------|---------------------------|--------------------|------------------|------------|--------------|-------|--------------------|------------------|------------|--------------|--------|
|             |                           | EPC<br>mg/kg       | Composite Worker |            |              |       | EPC<br>mg/kg       | Composite Worker |            |              |        |
|             |                           |                    | RSLs (mg/kg)     |            | Risk Ratios  |       |                    | RSLs (mg/kg)     |            | Risk Ratios  |        |
|             |                           |                    | Cancer           | Non-Cancer | Risk         | HQ    |                    | Cancer           | Non-Cancer | Risk         | HQ     |
| Arsenic     | Cardiovascular;<br>Dermal | 16.4               | 3.00             | 480        | 5.5E-06      | 0.03  | 11.1               | 3.00             | 480        | 3.7E-06      | 0.02   |
| Chromium VI | Respiratory               | 3.54               | 6.30             | 3,500      | 5.6E-07      | 0.001 | 1.61               | 6.30             | 3,500      | 2.6E-07      | 0.0005 |
| Iron        | Gastrointestinal          | 181,228            |                  | 820,000    |              | 0.2   | 142,171            |                  | 820,000    |              | 0.2    |
| Manganese   | Nervous                   | 22,450             |                  | 26,000     |              | 0.9   | 21,575             |                  | 26,000     |              | 0.8    |
| Thallium    | Dermal                    | N/A                |                  | 12.0       |              |       | <b>15.4</b>        |                  | 12.0       |              | 1      |
| Vanadium    | Dermal                    | 633                |                  | 5,800      |              | 0.1   | 609                |                  | 5,800      |              | 0.1    |
|             |                           |                    |                  |            | <b>6E-06</b> | ↓     |                    |                  |            | <b>4E-06</b> | ↓      |

**Bold indicates maximum value used**

N/A indicates no detections in specified exposure unit

RSLs were obtained from the EPA Regional  
Screening Levels at

[https://epa-prgs.oml.gov/cgi-bin/chemicals/csl\\_search](https://epa-prgs.oml.gov/cgi-bin/chemicals/csl_search)

|          |                  |   |
|----------|------------------|---|
| Total HI | Cardiovascular   | 0 |
|          | Dermal           | 0 |
|          | Respiratory      | 0 |
|          | Gastrointestinal | 0 |
|          | Nervous          | 1 |

|          |                  |   |
|----------|------------------|---|
| Total HI | Cardiovascular   | 0 |
|          | Dermal           | 1 |
|          | Respiratory      | 0 |
|          | Gastrointestinal | 0 |
|          | Nervous          | 1 |

**Table 14 - Parcel B19  
Composite Worker Sub-Surface Soils  
Risk Ratios**

| Parameter   | Target Organs             | EU 1<br>(40.8 ac.) |                  |            |              |          | EU 2<br>(44.8 ac.) |                  |            |              |          |
|-------------|---------------------------|--------------------|------------------|------------|--------------|----------|--------------------|------------------|------------|--------------|----------|
|             |                           | EPC<br>mg/kg       | Composite Worker |            |              |          | EPC<br>mg/kg       | Composite Worker |            |              |          |
|             |                           |                    | RSLs (mg/kg)     |            | Risk Ratios  |          |                    | RSLs (mg/kg)     |            | Risk Ratios  |          |
|             |                           |                    | Cancer           | Non-Cancer | Risk         | HQ       |                    | Cancer           | Non-Cancer | Risk         | HQ       |
| Arsenic     | Cardiovascular;<br>Dermal | 7.48               | 3.00             | 480        | 2.5E-06      | 0.02     | 16.1               | 3.00             | 480        | 5.4E-06      | 0.03     |
| Chromium VI | Respiratory               | <b>11.9</b>        | 6.30             | 3,500      | 1.9E-06      | 0.003    | <b>1.90</b>        | 6.30             | 3,500      | 3.0E-07      | 0.0005   |
| Iron        | Gastrointestinal          | 92,906             |                  | 820,000    |              | 0.1      | 44,632             |                  | 820,000    |              | 0.05     |
| Manganese   | Nervous                   | 19,208             |                  | 26,000     |              | 0.7      | 11,177             |                  | 26,000     |              | 0.4      |
| Thallium    | Dermal                    | N/A                |                  | 12.0       |              |          | <b>8.30</b>        |                  | 12.0       |              | 0.7      |
| Vanadium    | Dermal                    | 435                |                  | 5,800      |              | 0.08     | 423                |                  | 5,800      |              | 0.07     |
|             |                           |                    |                  |            | <b>4E-06</b> | <b>↓</b> |                    |                  |            | <b>6E-06</b> | <b>↓</b> |

**Bold indicates maximum value used**

N/A indicates no detections in specified exposure unit

RSLs were obtained from the EPA Regional  
Screening Levels at

[https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl\\_search](https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search)

|          |                  |   |
|----------|------------------|---|
| Total HI | Cardiovascular   | 0 |
|          | Dermal           | 0 |
|          | Respiratory      | 0 |
|          | Gastrointestinal | 0 |
|          | Nervous          | 1 |

|          |                  |   |
|----------|------------------|---|
| Total HI | Cardiovascular   | 0 |
|          | Dermal           | 1 |
|          | Respiratory      | 0 |
|          | Gastrointestinal | 0 |
|          | Nervous          | 0 |

**Table 15 - Parcel B19  
Composite Worker Pooled Soils  
Risk Ratios**

| Parameter   | Target Organs             | EU 1<br>(40.8 ac.) |                  |            |             |        | EU 2<br>(44.8 ac.) |                  |            |             |        |
|-------------|---------------------------|--------------------|------------------|------------|-------------|--------|--------------------|------------------|------------|-------------|--------|
|             |                           | EPC<br>mg/kg       | Composite Worker |            |             |        | EPC<br>mg/kg       | Composite Worker |            |             |        |
|             |                           |                    | RSLs (mg/kg)     |            | Risk Ratios |        |                    | RSLs (mg/kg)     |            | Risk Ratios |        |
|             |                           |                    | Cancer           | Non-Cancer | Risk        | HQ     |                    | Cancer           | Non-Cancer | Risk        | HQ     |
| Arsenic     | Cardiovascular;<br>Dermal | 11.0               | 3.00             | 480        | 3.7E-06     | 0.02   | 12.2               | 3.00             | 480        | 4.1E-06     | 0.03   |
| Chromium VI | Respiratory               | 2.78               | 6.30             | 3,500      | 4.4E-07     | 0.0008 | 0.98               | 6.30             | 3,500      | 1.6E-07     | 0.0003 |
| Iron        | Gastrointestinal          | 136,410            |                  | 820,000    |             | 0.2    | 112,267            |                  | 820,000    |             | 0.1    |
| Manganese   | Nervous                   | 19,696             |                  | 26,000     |             | 0.8    | 19,979             |                  | 26,000     |             | 0.8    |
| Thallium    | Dermal                    | N/A                |                  | 12.0       |             |        | 7.76               |                  | 12.0       |             | 0.6    |
| Vanadium    | Dermal                    | 513                |                  | 5,800      |             | 0.09   | 532                |                  | 5,800      |             | 0.09   |
|             |                           |                    |                  |            | 4E-06       | ↓      |                    |                  |            | 4E-06       | ↓      |

N/A indicates no detection in specified exposure unit

RSLs were obtained from the EPA Regional Screening Levels at [https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl\\_search](https://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search)

|          |                  |   |
|----------|------------------|---|
| Total HI | Cardiovascular   | 0 |
|          | Dermal           | 0 |
|          | Respiratory      | 0 |
|          | Gastrointestinal | 0 |
|          | Nervous          | 1 |

|          |                  |   |
|----------|------------------|---|
| Total HI | Cardiovascular   | 0 |
|          | Dermal           | 1 |
|          | Respiratory      | 0 |
|          | Gastrointestinal | 0 |
|          | Nervous          | 1 |

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## APPENDIX A

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**Parcel B19 Sampling Plan Summary  
Former Sparrows Point Steel Mill  
Sparrows Point, Maryland**

| Source Area/<br>Description                  | REC &<br>Finding/<br>SWMU/<br>AOC | Figure or<br>Drawing of<br>Reference | RATIONALE   | Number of<br>Locations | Sample<br>Locations     | Boring Depth                           | Sample Depth  | Analytical<br>Parameters: Soil<br>Samples     |
|--|-----------------------------------|--------------------------------------|---|------------------------|-------------------------|--|---|---|
| Fire Training Area                           |                                   | Drawings 5024 and 5030               | Investigate potential impacts related to the former fire training area (potential leaks or releases).   | 3                      | B19-001 through B19-003 | 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, O&G, PCBs (0-1') |
| Oil Trap (sanitary line)                     |                                   | Drawing 5523                         | Investigate potential impacts related to the sanitary line oil trap (potential leaks or releases).  | 2                      | B19-004 and B19-005     | 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, O&G, PCBs (0-1') |
| Former Fuel Oil Storage Tank and Bermed Area |                                   | Drawing 5023                         | Investigate potential impacts related to the former fuel oil storage tank and associated bermed area (potential leaks or releases).   | 3                      | B19-006 through B19-008 | 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, O&G, PCBs (0-1') |
| Pennwood Storage Tank Farm ASTs (4)          | REC 19/<br>Finding 266            | REC Location Map/<br>Drawing 5023    | Several large ASTs are located in the Pennwood Storage Tank Farm. The Phase I ESA indicates that these tanks formerly held fuel oil and recycled oil. At the time of Weaver Boos' site visit, there were no apparent leaks or staining, but the age of the tanks increases the risk that corrosion and releases may have occurred. The Phase I ESA indicated that residual oil/water (up to 2 feet) may have been present in the tanks at the time of reporting. Weaver Boos' review of aerial photographs from 1952 indicated a dark area inside a berm which may have indicated a past release. | 8                      | B19-009 through B19-016 | 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, O&G, PCBs (0-1') |

**Parcel B19 Sampling Plan Summary  
Former Sparrows Point Steel Mill  
Sparrows Point, Maryland**

| Source Area/<br>Description | REC &<br>Finding/<br>SWMU/<br>AOC | Figure or<br>Drawing of<br>Reference | RATIONALE  | Number of<br>Locations | Sample<br>Locations     | Boring Depth                           | Sample Depth  | Analytical<br>Parameters: Soil<br>Samples     |
|-----------------------------|-----------------------------------|--------------------------------------|--|------------------------|-------------------------|--|---|---|
| Pig Plant Caster Building   |                                   | Drawing 5130                         | Investigate potential impacts related to the pig plant caster building (potential leaks or releases).  | 2                      | B19-017 and B19-018     | 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, O&G, PCBs (0-1') |
| Pig Plant Caster Machine    |                                   | Drawing 5130                         | Investigate potential impacts related to the pig plant caster machine (potential leaks or releases).   | 2                      | B19-019 and B19-020     | 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, O&G, PCBs (0-1') |
| Pig Plant Storage Area      |                                   | Drawing 5130                         | Investigate potential impacts related to the pig plant storage area (potential leaks or releases).   | 2                      | B19-021 and B19-022     | 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, O&G, PCBs (0-1') |
| Pump Houses (2)             |                                   | Drawing 5023                         | Investigate potential impacts related to two pump houses present in the vicinity of the Pennwood Storage Tank Farm ASTs (potential leaks or releases). | 4                      | B19-023 through B19-026 | 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, O&G, PCBs (0-1') |
| Rail Car Dumper             |                                   | Drawing 5123                         | Investigate potential impacts related to the rail car dumper (potential leaks or releases).  | 2                      | B19-027 and B19-028     | 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, O&G, PCBs (0-1') |
| Weir and Oil Barrier        |                                   | Drawing 5130                         | Investigate potential impacts related to the drainage ditch weir and oil barrier (potential leaks or releases).  | 2                      | B19-029 and B19-030     | 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, O&G, PCBs (0-1') |

**Parcel B19 Sampling Plan Summary  
Former Sparrows Point Steel Mill  
Sparrows Point, Maryland**

| Source Area/<br>Description | REC &<br>Finding/<br>SWMU/<br>AOC | Figure or<br>Drawing of<br>Reference | RATIONALE   | Number of<br>Locations | Sample<br>Locations           | Boring Depth                                 | Sample Depth  | Analytical<br>Parameters: Soil<br>Samples                 |
|-----------------------------|-----------------------------------|--------------------------------------|---|------------------------|-------------------------------|--|---|---|
| Parcel B19<br>Coverage      |                                   |                                      | Investigate potential impacts related to any historical activities which may have occurred on the site (potential leaks or releases). | 12                     | B19-031<br>through<br>B19-042 | Total depth of<br>20 feet or<br>groundwater. | 0-1', 4-5', 9-10' bgs.<br>4-5' interval may be<br>adjusted in the field<br>based on observations<br>or field screening. | VOC*, SVOC,<br>Metals,<br>DRO/GRO,<br>O&G,<br>PCBs (0-1') |
|                             |                                   |                                      | <b>Total</b>  | 42                     |                               |  |   |   |

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

*No Engineered Barrier (71-100 acres): 1 boring per 2.5 acres with no less than 35.*

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

No Engineered Barrier (80.4 acres) = **35 borings required, 39 proposed**

Engineered Barrier (5.2 acres) = **3 borings required, 3 proposed**

Parking/Roads (1.73 acres)

Buildings (3.43 acres)

VOC - 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

O&G - Oil and Grease

\*VOCs are only collected if the PID reading exceeds 10 ppm

bgs - Below Ground Surface



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## APPENDIX B

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**ARM Group Inc.**  
Earth Resource Engineers  
and Consultants

Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Glumac  
 Checked by : S. Kabis, G.I.T.  
 Drilling Company : Green Services, Inc  
 Driller : Don Marchese  
 Drilling Equipment : Geoprobe 7822DT

Date : 10/14/2016  
 Weather : 50s, sunny  
 Northing (US ft) : 566348.8618  
 Easting (US ft) : 1464717.708

**Boring ID: B19-001-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION   | USCS | REMARKS        |
|-------------|------------|-------------------|--------------------|---|------|----------------|
| 0           |            | -                 | B19-001-SB-1       | (0-3') SLAG and fine grained SAND, very loose, black (SLAG) and brown (SAND), dry, no plasticity, no cohesion |      |                |
|             |            | 2.1               |                    |   | SW   |                |
|             | 80         | 4.3               |                    |   |      |                |
|             |            | 2.4               |                    | (3-4') SILTY SAND, loose, black, moist, medium plasticity, cohesive   | CL   | Organic matter |
|             |            | 1.6               | B19-001-SB-5       | (4-5') CLAY, soft, red-yellow and tan, dry, very high plasticity, cohesive                                    | CH   |                |
| 5           |            | 1.4               |                    | (5-7') CLAY with some SILT, hard, red-yellow, dry, high plasticity, cohesive                                  | CH   |                |
|             |            | 2.7               |                    |   |      |                |
|             | 100        | 1.8               |                    | (7-8') SAND, fine grained, loose, red-yellow, wet, no plasticity, no cohesion                                 | SP   |                |
|             |            | -                 |                    | (8-10') SAND, fine grained, dense, light gray, wet, no plasticity, no cohesion                                | SP   | Wet at 8' bgs  |
| 10          |            |                   |                    | End of boring   |      |                |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Glumac  
 Checked by : S. Kabis, G.I.T.  
 Drilling Company : Green Services, Inc  
 Driller : Don Marchese  
 Drilling Equipment : Geoprobe 7822DT

Date : 10/14/2016  
 Weather : 50s, sunny  
 Northing (US ft) : 566244.6084  
 Easting (US ft) : 1464730.729

**Boring ID: B19-002-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS | REMARKS       |
|-------------|------------|-------------------|--------------------|--|------|---------------|
| 0           |            | 2.0               | B19-002-SB-1       | (0-1') SAND with coarse GRAVEL, loose, dark brown, dry, no plasticity, no cohesion | SW   | Wet at 7' bgs |
|             |            | 4.9               |                    | (1-2') SLAG, hard, gray, dry, no plasticity, no cohesion                           | GW   |               |
|             | 92         | 10.6              |                    | (2-2.5') CLAY, soft, black, moist, high plasticity, cohesive                       | CH   |               |
|             |            | 8.7               | B19-002-SB-4       | (2.5-5') CLAY, hard, red-yellow, dry, high plasticity, cohesive                    | CH   |               |
|             |            | 7.7               |                    |  |      |               |
| 5           |            | 5.0               |                    | (5-6') SILTY CLAY, medium stiffness, red-yellow, dry, medium plasticity, cohesive  | CL   |               |
|             |            | 4.7               |                    | (6-7') SANDY SILT, soft, red-yellow, moist, no plasticity, cohesive                | ML   |               |
|             | 100        | 2.7               |                    | (7-10') SAND, very soft, red-yellow then gray from 8-10', wet, no plasticity       | SP   |               |
| 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. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Glumac  
 Checked by : S. Kabis, G.I.T.  
 Drilling Company : Green Services, Inc  
 Driller : Don Marchese  
 Drilling Equipment : Geoprobe 7822DT

Date : 10/14/2016  
 Weather : 50s, sunny  
 Northing (US ft) : 566123.6882  
 Easting (US ft) : 1464742.795

**Boring ID: B19-003-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS | REMARKS                          |
|-------------|------------|-------------------|--------------------|--|------|----------------------------------|
| 0           |            |                   | B19-003-SB-1       | (0-0.5') Topsoil SILT with ORGANICS  | OL   | Moderate petroleum odor (4-6.5') |
| 60          | 2.8        |                   |                    | (0.5-4') SLAG and GRAVEL with SAND, very loose, brown to gray, moist, no plasticity, no cohesion                                 | GW   |                                  |
|             |            | 27.3              |                    |  |      |                                  |
| 5           |            | 1.7               | B19-003-SB-5       | (4-6') CLAY with SILT, soft, black, dry, high plasticity, cohesive   | CH   |                                  |
|             |            | 11.1              |                    |  |      |                                  |
|             |            | 15.4              |                    | (6-9.5') SILT, trace CLAY, with some SAND, hard, brown, red-yellow, and gray, moist then wet at 9' bgs, low plasticity, cohesive | CL   | Wet at 9' bgs                    |
| 90          | 21.4       |                   |                    |  |      |                                  |
|             |            | 20.2              |                    |  |      |                                  |
|             |            | 12.2              |                    | (9.5-10') SAND, medium grained, loose, gray, wet, no plasticity, no cohesion   | SP   |                                  |
| 10          |            |                   |                    | End of boring  |      |                                  |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 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 : 10/13/2016  
 Weather : 60s, cloudy  
 Northing (US ft) : 565495.678  
 Easting (US ft) : 1463111.602

**Boring ID: B19-004-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS  | REMARKS                   |
|-------------|------------|-------------------|--------------------|--|-------|---------------------------|
| 0           |            | 0.0               | B19-004-SB-1       | (0-2') GRAVELLY SAND with SILT, medium dense, brown, dry, no plasticity, no cohesion           | SW/GW | Organic matter at surface |
|             |            | 0.1               |                    |  |       |                           |
|             | 84         | 0.0               |                    | (2-3') SANDY CLAY with GRAVEL SLAG, soft, pale brown, very moist, medium plasticity, cohesive  | CL    | Wet at 5' bgs             |
|             |            | 0.0               |                    | (3-4.5') SLAG GRAVEL, medium dense, gray, wet, no plasticity, no cohesion                      | GW    |                           |
|             |            | 0.0               | B19-004-SB-5       | (4-5.5') CLAY, hard, dark brown and gray, dry to moist, medium plasticity, cohesive            | CL    |                           |
| 5           |            | -                 |                    | (5-5.8') SLAG GRAVEL, medium dense, gray, wet, no plasticity, no cohesion                      | CL    |                           |
|             |            | -                 |                    | (5.8-6.5') SANDY GRAVEL with SILT, medium dense, dark brown, wet, no plasticity, no cohesion   | GW/SW |                           |
|             | 100        | -                 |                    | (6.5-9') CLAY, very soft, greenish gray to light greenish gray, wet, high plasticity, cohesive | CH    | Some oxidation present    |
|             |            | -                 |                    | (9-10') CLAY, hard, greenish gray and yellowish red, dry, high plasticity, cohesive            | CH    |                           |
| 10          |            |                   |                    | End of boring  |       |                           |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 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 : 10/13/2016  
 Weather : 60s, cloudy  
 Northing (US ft) : 565503.99  
 Easting (US ft) : 1463126.00

**Boring ID: B19-005-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION   | USCS  | REMARKS      |
|-------------|------------|-------------------|--------------------|---|-------|--------------|
| 0           |            | -                 | B19-005-SB-1       | (0-1.5') ORGANIC SILT, soft, brown, dry, no plasticity, no cohesion   | OL    |              |
|             | 82         | 0.0               |                    | (1.5-2.5') SILTY SAND with GRAVEL SLAG, loose, brown, dry, no plasticity, no cohesion   | SM    |              |
|             |            | 11.3              |                    | (2.5-5.5') SLAG, SAND and GRAVEL, some SILT at top, medium dense, brownish gray, wet, no plasticity, no cohesion                  | SW/GW |              |
|             |            | 14.3              |                    |   |       |              |
| 5           |            | 0.2               |                    |   |       |              |
|             |            | 0.0               | B19-005-SB-6       | (5.5-10.5') CLAY, very firm to firm (8-10'), light gray to pale brown and reddish yellow, moist to dry, high plasticity, cohesive | CL    |              |
|             | 100        | 0.0               |                    |   |       |              |
|             |            | 0.0               |                    |   |       |              |
|             |            | 0.0               | B19-005-SB-10      |   |       |              |
| 10          |            | -                 |                    | (10.5-12.7') SANDY CLAY, soft, pale brown, moist, medium plasticity, cohesive   | CL    |              |
|             | 66         | 0.0               |                    | (12.7-13.3') SAND, fine grained, dense, pale brown, wet, no plasticity, no cohesion   | SP    | Wet at 12.7' |
|             |            | -                 |                    | (13.3-15') CLAY, trace SAND, hard, pale brown and reddish yellow, moist, high plasticity, high cohesion                           | CL    |              |
| 15          |            | -                 |                    | End of boring   |       |              |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 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 : 1/9/2017  
 Weather : 20s, cloudy  
 Northing (US ft) : 565676.30  
 Easting (US ft) : 1463334.83

**Boring ID: B19-006-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS  | REMARKS   |
|-------------|------------|-------------------|--------------------|--|-------|---|
| 0           |            | 0.1               | B19-006-SB-1       | (0-1.1') SLAG GRAVEL, medium dense, gray and pale brown, moist, no plasticity, no cohesion                       | GW    |   |
|             |            | 0.4               |                    | (1.1-2.7') CLAYEY SILT, dense, black grading to reddish yellow, dry, low plasticity, cohesive                    | ML    |   |
| 100         |            | 0.4               |                    | (2.7-6') SLAG, SAND and GRAVEL, some SILT at top, medium dense, brownish gray, wet, no plasticity, no cohesion   | SW/GW |   |
|             |            | 0.7               |                    |  |       |   |
| 5           |            | 0.1               | B19-006-SB-5       |  |       |   |
|             |            | -                 |                    | (6-9.5') SAND, fine to medium grained, dense, yellowish red and gray mottling, moist, no plasticity, no cohesion | SW    |   |
| 60          |            | 0.1               |                    |  |       |   |
|             |            | 0.0               |                    |  |       |   |
|             |            | 0.0               |                    | (9.5-10') SAND, fine to medium grained, very pale brown, wet, no plasticity, no cohesion                         | SW    | Wet at 9.5' bgs<br>Very little recovery <5% (9.5-10') |
| 10          |            |                   |                    | End of boring  |       |   |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Perrin  
 Checked by : W. Mader P.G., CPSS  
 Drilling Company : ENRC  
 Driller : Dan Weigman  
 Drilling Equipment : CAT backhoe 415F2

Date : 1/18/2017  
 Weather : 50s. sunny  
 Northing (US ft) : 565580.12  
 Easting (US ft) : 1462932.60

**Boring ID: B19-007-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION   | USCS     | REMARKS   |
|-------------|------------|-------------------|--------------------|---|----------|---|
| 0           |            | -                 |                    | (0-7.5') SLAG GRAVEL with some COBBLES, gray, wet, no plasticity, no cohesion   |          | No sample at 0-1' depth due to large slag pieces.<br>Water in excavated hole at 1' bgs-Probable stormwater or water pumped in by construction; water is light gray and cloudy with no visible NAPL.<br>Excavated material appeared free of NAPL.<br>Wet at 1' bgs |
| 5           | N/A        | -                 |                    |   | GW       |   |
|             |            | 0.0               | B19-007-SB-8.5     | (7.5-9') SAND, dense, very pale brown with reddish yellow striations and mottling, moist, no plasticity, no cohesion-grades to CLAY, very firm, very pale brown with reddish yellow mottling, moist, low plasticity, cohesive | SW to CL | Moderate oxidation  |
| 10          |            |                   |                    | End of test pit excavation  |          |   |

Total Test Pit Excavation Depth: 9' bgs.  
 Test pit terminated at 9' bgs due to excavation method and native soil.

Measured test pit depths with O/W probe-are approximations due to water in hole.





Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Perrin  
 Checked by : W. Mader P.G., CPSS  
 Drilling Company : ENRC  
 Driller : Dan Weigman  
 Drilling Equipment : CAT backhoe 415F2

Date : 1/18/2017  
 Weather : 50s. sunny  
 Northing (US ft) : 565701.10  
 Easting (US ft) : 1462891.75

**Boring ID: B19-008-SB**

(page 1 of 1)

| Depth (ft.)                 | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION   | USCS | REMARKS   |
|-----------------------------|------------|-------------------|--------------------|---|------|---|
| 0                           |            | -                 |                    | (0-6.5') SLAG COBBLES with some SAND and some BOULDERS, gray, very moist to wet, no plasticity, no cohesion |      | No sample at 0-1' depth due to large slag pieces.<br>Water in excavated hole at 1' bgs-Probable stormwater or water pumped in by construction; water is light gray and cloudy with no visible NAPL.<br>Excavated material appeared free of NAPL; light organic odor noted.<br>Wet at 1' bgs |
|                             | N/A        | -                 |                    |   | GW   |   |
| 5                           |            | 2.9               | B19-008-SB-7.5     | (6.5-8') CLAY, very firm, very pale brown with yellowish red mottling, moist, low plasticity, cohesive      | CL   | Light oxidation and several sand lenses 6.-8' bgs   |
|                             |            | -                 |                    |   |      |   |
| End of test pit excavation. |            |                   |                    |   |      |   |
| 10                          |            |                   |                    |   |      |   |

Total Test Pit Excavation Depth: 8' bgs.  
 Test pit terminated at 8' bgs due to excavation method and native soil.

Measured test pit depths with O/W probe-are approximations due to water in hole.



**ARM Group Inc.**  
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Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 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 : 9/20/2016  
 Weather : 80s, sunny  
 Northing (US ft) : 565434.98  
 Easting (US ft) : 1462409.41

**Boring ID: B19-009-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS  | REMARKS       |
|-------------|------------|-------------------|--------------------|--|-------|---------------|
| 0           |            | -                 | B19-009-SB-1       | (0-1.1') SLAG GRAVEL, loose, gray, dry, no plasticity, no cohesion   | GW    | Wet at 4' bgs |
|             |            | 0.0               |                    | (1.1-2.3') SLAG, SILT TO GRAVEL-sized, dark grayish-brown, dry, no plasticity, no cohesion   | ML/GW |               |
| 80          |            | 0.0               |                    | (2.3-4.1') SANDY CLAY, hard, reddish yellow and very pale brown, moist, low plasticity, cohesive   | CL    |               |
|             |            | 0.6               |                    |  |       |               |
|             |            | 1.2               |                    | (4.1-5.9') SAND, fine to medium grained, dense, very pale brown, and reddish yellow, wet, no plasticity, no cohesion                       | SW    |               |
| 5           |            | -                 |                    |  |       |               |
|             |            | 0.0               |                    | (5.9-10') CLAY with trace SAND from 6-7', very firm, light gray with reddish yellow mottling to all gray, moist, high plasticity, cohesive | CL    |               |
| 100         |            | 0.0               |                    |  |       |               |
|             |            | 0.0               |                    |  |       |               |
|             |            | 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. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 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 : 9/22/2016  
 Weather : 80s, sunny  
 Northing (US ft) : 564957.94  
 Easting (US ft) : 1462080.44

**Boring ID: B19-010-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION   | USCS  | REMARKS                                       |
|-------------|------------|-------------------|--------------------|---|-------|---|
| 0           |            | 1.3               |                    | (0-0.4') GRAVEL SLAG, large, loose, brown, dry, no plasticity, no cohesion  | SP    | Trace product- black, very viscous (0.5' bgs) |
|             |            |                   | B19-010-SB-1.5     | (0.4-1.5') SAND and GRAVEL SLAG, brown, very moist, no plasticity, no cohesion  | SW/GW |   |
|             |            | 1.7               |                    | (1.5-5') SILTY CLAY to CLAY, very firm to hard, light gray, brown and reddish yellow mottling, dry then moist at 4.8' bgs, low plasticity grading to high plasticity, cohesive            | CL    |   |
|             | 98         | 1.7               |                    |   |       |   |
|             |            | 0.0               | B19-010-SB-5       |   |       |   |
| 5           |            | 0.0               |                    | (5-6') SANDY CLAY, hard, light gray and reddish yellow, moist, medium plasticity, cohesive  | CL    | Wet at 6' bgs                                 |
|             |            | 0.0               |                    | (6-9.5') SAND, very fine to medium grained grading to coarse grained, dense to medium dense, pale brown from 6-8.5' bgs, yellowish red from 8.5-9.5' bgs, wet, no plasticity, no cohesion | SW    |   |
|             | 100        | -                 |                    |   |       |   |
|             |            | 0.0               |                    | (9.5-10') SANDY CLAY, very firm, light gray and yellowish red, 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. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 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 : 9/22/2016  
 Weather : 80s, sunny  
 Northing (US ft) : 564867.76  
 Easting (US ft) : 1461798.60

**Boring ID: B19-011-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS  | REMARKS       |
|-------------|------------|-------------------|--------------------|--|-------|---------------|
| 0           |            | 0.3               | B19-011-SB-1       | (0-1.5') SAND, SLAG, GRAVEL, medium dense, brown, dry to wet, no plasticity, no cohesion                               | SW/GW | Wet at 7' bgs |
|             |            | 0.4               |                    | (1.5-2.3') SILTY CLAY with SAND, firm, red, very moist, medium plasticity, cohesive                                    | CL    |               |
|             | 100        | 0.6               |                    | (2.3-4.1') CLAY, very firm, light yellowish brown, medium plasticity, cohesive   | CL    |               |
|             |            | 0.2               |                    |  |       |               |
|             |            | 0.1               | B19-011-SB-5       | (4.1-4.7') SANDY CLAY, very firm, pale brown, dry, low plasticity, cohesive  | CL    |               |
| 5           |            | -                 |                    | (4.7-7') SAND, dense, light gray and reddish yellow, moist, no plasticity, no cohesion                                 | SW    |               |
|             |            | -                 |                    |  |       |               |
|             | 100        | -                 |                    | (7-8.7') SAND, loose to medium dense, very pale brown, light gray, and reddish yellow, wet, no plasticity, no cohesion | SW    |               |
|             |            | -                 |                    |  |       |               |
|             |            | 0.1               |                    | (8.7-10') CLAY, very firm, light gray and reddish yellow, 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. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 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 : 9/22/2016  
 Weather : 80s, sunny  
 Northing (US ft) : 564967.66  
 Easting (US ft) : 1461908.91

**Boring ID: B19-012-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION   | USCS  | REMARKS         |
|-------------|------------|-------------------|--------------------|---|-------|-----------------|
| 0           |            | 1.0               | B19-012-SB-1       | (0-1.8') SLAG, SAND to COBBLE-sized, with SILT, loose, brown to dark brown, moist to wet, no plasticity, no cohesion  | SW/GW |                 |
|             |            | 3.3               |                    |   |       |                 |
|             | 96         | 11.1              |                    | (1.8-5') SILTY CLAY to CLAY, hard then soft from 4-5' bgs, brown, pale brown, reddish yellow, and light gray mottling, moist from 1.8-2.4' bgs, very dry from 2.4-4' bgs, moist from 4-5' bgs, low plasticity from 1.8-2.4' bgs, medium plasticity 2.4-5' bgs, cohesive | CL    |                 |
|             |            | 4.8               |                    |   |       |                 |
|             |            | 1.2               | B19-012-SB-5       |   |       |                 |
| 5           |            | 0.0               |                    | (5-9.7') SAND, fine to medium grained, very dense, light gray, pale brown, and reddish yellow, moist then wet at 6.5' bgs, no plasticity, no cohesion   | SW    | Wet at 6.5' bgs |
|             | 100        | -                 |                    |   |       |                 |
|             |            | 0.0               |                    |   |       |                 |
| 10          |            |                   |                    | (9.7-10') SAND, fine to coarse grained, loose, yellowish red, wet, no plasticity, no cohesion   | SW    |                 |
|             |            |                   |                    | End of boring   |       |                 |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 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 : 9/22/2016  
 Weather : 80s, sunny  
 Northing (US ft) : 565149.86  
 Easting (US ft) : 1462027.14

**Boring ID: B19-013-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION   | USCS  | REMARKS         |
|-------------|------------|-------------------|--------------------|---|-------|-----------------|
| 0           |            |                   |                    | (0-0.1') CLAY with GRAVEL, soft, pale brown, moist, low plasticity, cohesive  | CL    |                 |
|             |            | 0.1               | B19-013-SB-1       | (0.1-1.1') SLAG, SILT and GRAVEL-sized, loose, brown, dry, no plasticity, no cohesion   | SW/GW |                 |
|             |            | 1.3               |                    | (1.1-2') SILT, hard, brown, dry, no plasticity, no cohesion   | ML    |                 |
|             | 100        | 2.0               |                    | (2-4') SLAG, SILT to GRAVEL-sized, medium dense, brown, and gray, dry to moist, no plasticity, no cohesion  | SW/GW |                 |
|             |            | 1.4               |                    |   |       |                 |
|             |            | 2.4               | B19-013-SB-5       | (4-6.5') SLAG, sand and gravel, dense to very dense, brown, dark brown, and dark greenish gray, dry from 4-5' bgs then moist to wet, no plasticity, no cohesion | SW/GW |                 |
| 5           |            | 2.5               |                    |   | SW/GW |                 |
|             |            | 0.1               |                    | (6.5-8.5') CLAY, hard then firm from 8-8.5' bgs, light gray, pale brown and reddish yellow, high plasticity, cohesive   | CL    |                 |
|             | 100        | 1.5               |                    |   |       |                 |
|             |            | 2.9               |                    | (8.5-10') SAND, very fine to medium grained, dense to medium dense, light grayish brown, very pale brown, and reddish yellow, wet, no plasticity, no cohesion   | SW    | Wet at 8.5' bgs |
|             |            | 0.3               |                    |   |       |                 |
| 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. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 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 : 9/22/2016  
 Weather : 80s, sunny  
 Northing (US ft) : 565246.83  
 Easting (US ft) : 1462247.10

**Boring ID: B19-014-SB**

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| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION   | USCS  | REMARKS        |
|-------------|------------|-------------------|--------------------|---|-------|----------------|
| 0           |            | -                 | B19-014-SB-1       | (0-2.3') SLAG, SAND and GRAVEL, gray, wet, no plasticity, no cohesion   | SW/GW |                |
|             | 84         | 0.8               |                    |   |       |                |
|             |            | 2.7               |                    | (2.3-2.5') GRAVEL, large, heavy, loose, black, wet, no plasticity, no cohesion  | GP    |                |
|             |            | 4.5               |                    | (2.5-3') SILTY SAND with GRAVEL rock, medium dense, red, very moist, no plasticity, no cohesion   | SM    |                |
|             |            | 0.4               | B19-014-SB-5       | (3-5') CLAY, trace SLAG GRAVEL, very firm to soft, very dark gray and red to yellowish brown and gray, moist, medium plasticity, cohesive | CL    |                |
| 5           |            | 0.1               |                    | (5-8.5') CLAY, soft to very firm, yellowish brown and light gray mottling, moist then very moist at 7.5' bgs, high plasticity, cohesive   | CL    |                |
|             | 100        | 0.0               |                    |   |       |                |
|             |            | 0.0               |                    |   |       |                |
|             |            | 0.0               |                    | (8.5-10') SANDY CLAY, firm, yellowish brown, moist, medium plasticity, cohesive   | CL    |                |
|             |            | 0.0               |                    | SAND, at bottom of shoe, dense, very pale brown, wet, no plasticity, no cohesion  | CL    |                |
| 10          |            |                   |                    | End of boring   |       | Wet at 10' bgs |

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



**ARM Group Inc.**  
Earth Resource Engineers  
and Consultants

Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 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 : 9/22/2016  
 Weather : 80s, sunny  
 Northing (US ft) : 565080.16  
 Easting (US ft) : 1462159.60

**Boring ID: B19-015-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION   | USCS  | REMARKS         |
|-------------|------------|-------------------|--------------------|---|-------|-----------------|
| 0           |            | 0.0               | B19-015-SB-1       | (0-1.3') SLAG SAND and GRAVEL, loose, brown, dry, no plasticity, no cohesion  | SW/GW |                 |
|             |            | 0.0               |                    | (1.3-2.4') SILT, medium firm, brown, dry, low plasticity, cohesive  | ML    |                 |
|             | 84         | 0.0               |                    | (2.4-4.8') SILTY CLAY to CLAY, very firm to soft, light gray and yellow brown, dry to moist, low to high plasticity | CL    |                 |
|             |            | 0.0               | B19-0015-SB-5      | (4.8-5') SANDY CLAY, very firm, brown with light gray mottling, moist, low plasticity, cohesive                     | CL    |                 |
| 5           |            | 0.0               |                    | (5-7.5') CLAY, hard, reddish yellow and light gray, dry to moist, low plasticity, cohesive                          | CL    |                 |
|             | 100        | -                 |                    | (7.5-10') SAND, dense to loose, pale brown and light gray, wet, no plasticity, no cohesion, wet                     | SW    | Wet at 7.5' bgs |
| 10          |            |                   |                    | End of boring   |       |                 |

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





Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 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 : 9/22/2016  
 Weather : 80s, sunny  
 Northing (US ft) : 565408.28  
 Easting (US ft) : 1462115.07

**Boring ID: B19-016-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS  | REMARKS             |
|-------------|------------|-------------------|--------------------|--|-------|---------------------|
| 0           |            | -                 | B19-016-SB-1       | (0-3.6') SLAG SAND and GRAVEL with some SILT, loose, brown, reddish brown and gray, dry then wet from 2.5-3.6' bgs, no plasticity, no cohesion | SW/GW |                     |
|             | 80         | 0.9               |                    |  |       |                     |
|             |            | 2.4               |                    |  |       |                     |
|             |            | 9.5               | B19-016-SB-4       | (3.6-6') SILTY GRAVEL SLAG, medium dense, very dark gray and light gray, dry, no plasticity, no cohesion                                       | GW/GM |                     |
| 5           |            | -                 |                    | (6-9.3') CLAY, hard, pale brown and reddish yellow, dry, low plasticity, cohesive  | CL    | Sludge odor (5-10') |
|             | 100        | 0.0               |                    |  |       |                     |
|             |            | 0.0               |                    |  |       |                     |
|             |            | 0.0               |                    | (9.3-10') SAND, fine to medium grained, dense, reddish yellow, wet, no plasticity, no cohesion   | SW    | Wet at 9.3' bgs     |
| 10          |            |                   |                    | End of boring  |       |                     |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Perrin  
 Checked by : S. Kabis, G.I.T.  
 Drilling Company : Green Services, Inc  
 Driller : Don Marchese  
 Drilling Equipment : Geoprobe 7822DT

Date : 9/23/2016  
 Weather : 90s, sunny  
 Northing (US ft) : 566322.818  
 Easting (US ft) : 1463864.468

**Boring ID: B19-017-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery    | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS  | REMARKS  |
|-------------|---------------|-------------------|--------------------|--|-------|--|
| 0           |               | -                 | B19-017-SB-1       | (0-1') SILT, with some SLAG GRAVEL, soft, brown, dry, no plasticity, no cohesion   | ML    | Very small metallic grains, slight pungent odor throughout (0-10') |
|             | 76            | 32.4              |                    | (1-2.6') SAND, very fine to fine grained, medium dense, pale brown and reddish yellow, dry, no plasticity, no cohesion   | SW    |  |
|             |               | 23.0              |                    | (2.6-2.8') SLAG GRAVEL, dense, gray, dry, no plasticity, no cohesion   | GP    |  |
|             |               | 59.6              | B19-017-SB-4       | (2.8-12') SAND and SLAG, SAND and GRAVEL, larger and more SLAG GRAVEL from 9-10' bgs, loose, grayish brown and gray, dry then moist from 9.5-10' bgs, no plasticity, no cohesion | SW/GW |  |
| 5           |               | 7.9               |                    |  |       |  |
|             |               | -                 |                    |  |       |  |
|             | 78            | 17.8              |                    |  |       |  |
|             |               | 26.2              |                    |  |       |  |
|             |               | 28.8              |                    |  |       |  |
| 10          |               | 0.8               | B19-017-SB-10      |  |       |  |
|             |               | -                 |                    |  |       |  |
|             | 24            | -                 |                    | (12-15') SLAG GRAVEL with some SLAG SAND, loose, gray, wet, no plasticity, no cohesion   | GW/SW |  |
|             |               | -                 |                    |  |       |  |
|             |               | 0.0               |                    |  |       |  |
| 15          | End of boring |                   |                    |  |       |  |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Perrin  
 Checked by : S. Kabis, G.I.T.  
 Drilling Company : Green Services, Inc  
 Driller : Don Marchese  
 Drilling Equipment : Geoprobe 7822DT

Date : 9/23/2016  
 Weather : 80s, sunny  
 Northing (US ft) : 566361.8805  
 Easting (US ft) : 1463866.204

**Boring ID: B19-018-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION   | USCS  | REMARKS       |
|-------------|------------|-------------------|--------------------|---|-------|---------------|
| 0           |            | -                 | B19-018-SB-1       | (0-3') SANDY SILT with SLAG SAND and GRAVEL, loose, brown, dry then wet at 3' bgs, no plasticity, no cohesion | ML    | Wet at 3' bgs |
| 60          | 0.6        |                   |                    | (3-4.5') SILTY SLAG GRAVEL and SAND, medium dense, very dark gray, wet, no plasticity, no cohesion            | GM/SW |               |
| 5           |            |                   |                    | (4.5-8.5') SLAG SAND and GRAVEL, medium dense, gray, wet, no plasticity, no cohesion                          | GW    |               |
| 50          |            |                   |                    | (8.5-10') SLAG SAND and GRAVEL with SILT and thin CLAY lenses, loose, black, wet, no plasticity, no cohesion  | SW/GW |               |
| 10          |            |                   | End of boring      |   |       |               |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Perrin  
 Checked by : S. Kabis, G.I.T.  
 Drilling Company : Green Services, Inc  
 Driller : Don Marchese  
 Drilling Equipment : Geoprobe 7822DT

Date : 9/23/2016  
 Weather : 90s, sunny  
 Northing (US ft) : 566399.2069  
 Easting (US ft) : 1464085.822

**Boring ID: B19-019-SB**

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| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS  | REMARKS |
|-------------|------------|-------------------|--------------------|--|-------|---------|
| 0           |            | -                 | B19-019-SB-1       | (0-0.5') SLAG GRAVEL, loose, gray, dry, no plasticity, no cohesion   | GP    |         |
|             |            | 43.0              |                    | (0.5-1.4') SAND, very fine to fine grained, medium dense, yellow, dry, no plasticity, no cohesion                              | SW/GW |         |
|             | 82         | 1.1               |                    | (1.4-2.4') SLAG GRAVEL and SAND, medium dense, brown, gray, and yellowish red, dry, no plasticity, no cohesion                 | SW/GW |         |
|             |            | 13.3              |                    | (2.4-6.5') SILTY SAND with GRAVEL SLAG, medium dense, brown, dry then moist from 6-6.5' bgs, no plasticity, no cohesion        | SM    |         |
|             |            | 18.9              |                    |  |       |         |
| 5           |            | 6.8               |                    |  |       |         |
|             |            | 29.4              |                    | (6.5-7.5') SILT with trace GRAVEL, firm, light gray but black (7.1-7.3'), dry, no plasticity, no cohesion                      | ML    |         |
|             | 100        | 38.8              | B19-019-SB-8       | (7.5-7.8') SLAG GRAVEL, medium dense, gray and red, wet, no plasticity, no cohesion  | GW    |         |
|             |            | 29.8              |                    | (7.8-8.6') SAND, fine grained, dense, olive brown, moist, no plasticity, no cohesion   | SP    |         |
|             |            | 7.9               | B19-019-SB-10      | (8.6-9.5') SANDY CLAY, very firm, olive brown, moist, low plasticity, cohesive   | CL    |         |
| 10          |            | -                 |                    | (9.5-12') CLAY, hard, olive brown and reddish yellow mottling, low plasticity, cohesive  | CL    |         |
|             | 50         | -                 |                    | (12-15') SLAG SAND and GRAVEL, dense, brown from 12.5-12.8' bgs, light gray from 12.8-15' bgs, wet, no plasticity, no cohesion | SW/GW |         |
|             |            | -                 |                    |  |       |         |
|             |            | -                 |                    |  |       |         |
| 15          |            |                   |                    | End of boring  |       |         |

Wet at 12.5' bgs

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. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Perrin  
 Checked by : S. Kabis, G.I.T.  
 Drilling Company : Green Services, Inc  
 Driller : Don Marchese  
 Drilling Equipment : Geoprobe 7822DT

Date : 9/23/2016  
 Weather : 80s, sunny  
 Northing (US ft) : 566356.6722  
 Easting (US ft) : 1463954.746

**Boring ID: B19-020-SB**

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| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS | REMARKS         |
|-------------|------------|-------------------|--------------------|--|------|-----------------|
| 0           |            | -                 | B19-020-SB-1       | (0-6') SANDY SILT with SLAG GRAVEL, soft then firm from 5-6' bgs, brown and gray, dry, no plasticity, no cohesion                | ML   |                 |
|             | 84         | 112.0             |                    |  |      |                 |
|             |            | 152.4             |                    |  |      |                 |
|             |            | 108.0             | B19-020-SB-4       |  |      |                 |
| 5           |            | 23.5              |                    |  |      |                 |
|             |            | 0.2               |                    |  |      |                 |
|             |            | 0.1               |                    | (6-6.9') SILT with SAND, trace GRAVEL, red, dry, no plasticity, no cohesion  | ML   |                 |
|             | 100        | 6.2               |                    | (6.9-9.2') SILT to CLAYEY SILT, hard, yellowish brown, brown, light gray, and reddish yellow, very dry, low plasticity, cohesive | ML   |                 |
|             |            | 24.8              |                    |  |      |                 |
|             |            | 0.0               |                    | (9.2-9.7') SANDY SILT, very firm, reddish yellow, yellowish brown, and light red, dry to moist, low plasticity, cohesive         | ML   |                 |
| 10          |            |                   |                    | (9.7-10') SLAG GRAVEL with SAND, loose, gray, wet, no plasticity, no cohesion  | GW   | Wet at 9.7' bgs |
|             |            |                   |                    | End of boring  |      |                 |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Glumac  
 Checked by : S. Kabis, G.I.T.  
 Drilling Company : Green Services, Inc  
 Driller : Don Marchese  
 Drilling Equipment : Geoprobe 7822DT

Date : 10/14/2016  
 Weather : 50s, sunny  
 Northing (US ft) : 566534.4499  
 Easting (US ft) : 1463953.357

**Boring ID: B19-021-SB**

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| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION   | USCS | REMARKS           |
|-------------|------------|-------------------|--------------------|---|------|-------------------|
| 0           |            | -                 | B19-021-SB-1       | (0-4') SAND, medium grained, loose, brown, dry, no plasticity, no cohesion  | SP   |                   |
|             | 82         | 0.3               |                    |   |      |                   |
|             |            | 0.5               |                    |   |      |                   |
|             |            | 1.8               |                    |   |      |                   |
| 5           |            | 6.0               |                    | (4-5.5') SLAG GRAVEL, coarse grained, some SAND, very loose, dark brown, gray, and white, dry, no plasticity, no cohesion | GW   |                   |
|             |            | 2.1               |                    | (5.5-7') CLAY, with trace SILT, stiff, brown and gray, dry, high plasticity, cohesive                                     | CH   |                   |
|             |            | 18.3              | B19-021-SB-7       |   |      |                   |
|             | 100        | 38.2              |                    | (7-8.5') SLAG GRAVEL, gray, moist, no plasticity, no cohesion   | GW   |                   |
|             |            | 27.0              |                    | (8.5-9.5') CLAY, with trace SILT, stiff, light brown, wet, medium plasticity, cohesive                                    | CH   | Wet at 8.5' bgs   |
| 10          |            | -                 |                    | (9.5-10') SLAG GRAVEL, coarse grained, very loose, gray, wet, no plasticity, no cohesion                                  | GW   | Large slag chunks |
|             |            |                   |                    | 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. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Glumac  
 Checked by : S. Kabis, G.I.T.  
 Drilling Company : Green Services, Inc  
 Driller : Don Marchese  
 Drilling Equipment : Geoprobe 7822DT

Date : 10/14/2016  
 Weather : 50s, sunny  
 Northing (US ft) : 566556.3249  
 Easting (US ft) : 1464078.009

**Boring ID: B19-022-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS | REMARKS       |
|-------------|------------|-------------------|--------------------|--|------|---------------|
| 0           |            | 15.1              | B19-022-SB-1       | (0-4') SAND, medium to fine grained, loose, dark brown, dry, no plasticity, no cohesion                  | SP   |               |
|             |            | 7.7               |                    |  |      |               |
| 100         |            | 28.1              |                    |  |      |               |
|             |            | 45.6              | B19-022-SB-4       |  |      |               |
| 5           |            | 19.4              |                    | (4-6') SILTY CLAY, with some GRAVEL and SAND, hard, dark brown to gray, dry, medium plasticity, cohesive | CH   |               |
|             |            | -                 |                    | (6-8') SILT, with some CLAY, hard, dark brown, dry, low plasticity, cohesive                             | CL   |               |
| 60          |            | 23.5              |                    |  |      |               |
|             |            | 11.0              |                    | (8-10') SLAG GRAVEL, coarse grained, blue-gray, wet, no plasticity, no cohesion                          | GW   | Wet at 8' bgs |
|             |            | 11.1              |                    |  |      |               |
| 10          |            |                   |                    | End of boring  |      |               |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 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 : 9/20/2016  
 Weather : 80s, sunny  
 Northing (US ft) : 565635.35  
 Easting (US ft) : 1462318.48

**Boring ID: B19-023-SB**

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| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS | REMARKS       |
|-------------|------------|-------------------|--------------------|--|------|---------------|
| 0           |            |                   |                    | (0-1.5') SANDY SILT with SLAG GRAVEL, soft, brown, dry, no plasticity, no cohesion   | ML   | Wet at 8' bgs |
|             |            | 0.1               | B19-023-SB-1       |  |      |               |
|             |            | 2.4               |                    | (1.5-1.9') SILT, soft, pale brown, dry, no plasticity, no cohesion   | ML   |               |
|             | 84         | 0.8               |                    | (1.9-2.8') SAND, fine to medium grained, light gray, dry, no plasticity, no cohesion   | SW   |               |
|             |            | 0.2               |                    | (2.8-5') SILT to SANDY SILT, firm, yellowish brown to gray, moist, low plasticity, cohesive  | ML   |               |
|             |            | 0.3               | B19-023-SB-5       |  |      |               |
| 5           |            | -                 |                    | (5-5.4') SAND, medium dense, greenish brown, moist, no plasticity, no cohesion   | SW   |               |
|             |            | 1.2               |                    | (5.4-8.3') SLAG SAND, trace GRAVEL, fine to coarse, loose, light gray to gray, moist then wet at 8' bgs, no plasticity, no cohesion      | SW   |               |
|             | 70         | 1.3               |                    |  |      |               |
|             |            | 0.0               |                    | (8.3-9.2') SAND, very fine to fine grained, medium dense, very dark gray, light gray, and brownish gray, wet, no plasticity, no cohesion | SW   |               |
|             |            | 0.0               |                    | (9.2-10') CLAY, very firm, reddish yellow and brownish gray, moist, high 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. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 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 : 9/20/2016  
 Weather : 90s, sunny  
 Northing (US ft) : 565662.87  
 Easting (US ft) : 1462290.01

**Boring ID: B19-024-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS | REMARKS       |
|-------------|------------|-------------------|--------------------|--|------|---------------|
| 0           |            | 0.0               | B19-024-SB-1       | (0-5') SILT to CLAYEY SILT, trace SAND from 4.8-5' bgs very firm, brown (0-2') then brownish gray and yellowish red mottling, dry, low plasticity, cohesive  | ML   | Trace moss    |
|             |            | 0.1               |                    |  |      |               |
| 100         |            | 0.1               |                    |  |      |               |
|             |            | 0.0               |                    |  |      |               |
|             |            | 0.0               | B19-024-SB-5       | (5-9.2') SAND, fine to medium grained from 5-8.5' bgs, fine to coarse from 8.5-9.2' bgs medium dense to loose, brownish gray and pale brown to yellowish red, moist then wet at 7' bgs, no plasticity, no cohesion | SW   | Wet at 7' bgs |
| 5           |            | 0.1               |                    |  |      |               |
|             |            | 0.0               |                    |  |      |               |
|             | 100        | -                 |                    | (9.2-10') CLAY, firm, gray and yellowish red, 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. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 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 : 9/20/2016  
 Weather : 90s, sunny  
 Northing (US ft) : 565011.59  
 Easting (US ft) : 1462338.20

**Boring ID: B19-025-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS | REMARKS  |
|-------------|------------|-------------------|--------------------|--|------|--|
| 0           |            | -                 | B19-025-SB-1       | (0-1.1') ORGANIC CLAY, very soft, brownish gray, wet, high plasticity, cohesive  | OH   |  |
|             | 82         | 1.7               |                    | (1.1-1.8') SLAG GRAVEL, some SAND, loose, brown, yellowish brown and gray, dry, no plasticity, no cohesion   | GW   |  |
|             |            | 5.0               |                    | (1.8-2.7') SILT with large SLAG GRAVEL, hard, yellowish brown, gray and brown, very dry, low plasticity, cohesive  | ML   |  |
|             |            | 4.0               |                    | (2.7-5') SANDY CLAY with GRAVEL, soft to very soft, moist to very moist, low plasticity, cohesive  | CL   |  |
| 5           |            | 0.0               | B19-025-SB-5       |  |      |  |
|             |            | 1.9               |                    | (5-6.5') SANDY CLAY, soft to very soft, red and yellowish brown (5-5.3'), yellowish brown to light gray and reddish yellow mottling, moist to very moist, medium plasticity, cohesive    | CL   | 2-inch GRAVEL SLAG layer at 5.3' bgs               |
|             | 100        | 0.5               |                    |  |      |  |
|             |            | 1.2               |                    | (6.5-10.5') SANDY CLAY, hard, yellowish brown, light gray and reddish yellow, very dry then moist from 9-10' bgs, no plasticity, no cohesion   | SW   | SAND content increases with depth                  |
|             |            | 1.3               |                    |  |      |  |
|             |            | 1.9               | B19-025-SB-10      |  |      |  |
| 10          |            | -                 |                    |  |      |  |
|             | 80         | -                 |                    | (10.5-13') SAND, very fine to fine, loose to medium dense, wet, light gray from 11-12.2' bgs, dark gray from 12.2-12.7' bgs, yellowish red from 12.2-13' bgs, no plasticity, no cohesion | SW   | Wet at 11' bgs<br>Strong sulphur odor (12.2-12.7') |
|             |            | -                 |                    |  |      |  |
|             |            | -                 |                    | (13-15') CLAY, hard, gray, moist, high plasticity, cohesive  | CL   |  |
| 15          |            |                   |                    | End of boring  |      |  |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 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 : 10/13/16  
 Weather : 60s, cloudy  
 Northing (US ft) : 565085.70  
 Easting (US ft) : 1462392.90

**Boring ID: B19-026-SB**

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| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS  | REMARKS  |
|-------------|------------|-------------------|--------------------|--|-------|--|
| 0           | -          | -                 | B19-026-SB-1       | (0-2') CLAYEY SILT, soft, red, dry, low plasticity, cohesive   | ML    | Possible metallic fragments<br><br>Moderate oxidation<br><br><br>Wet at 8' bgs |
| 50          | -          | 37.3              |                    | (2-6') CLAYEY GRAVEL, heavy coarse fragments, medium dense, gray and red, dry then wet from 4-5' bgs, no plasticity, no cohesion | GW-GC |  |
|             |            | 8.6               |                    | (6-7.4') SANDY CLAY, very firm, gray, moist, low plasticity, cohesive  | CL    |  |
| 60          | 0.0        |                   | B19-026-SB-8       | (7.4-9.2') SAND, fine grained, dense to medium dense, gray, very moist then wet at 8' bgs, no plasticity, no cohesion            | SP    |  |
|             | 0.1        |                   |                    | (9.2-10') SAND, fine to medium grained, medium dense, yellowish red, wet, no plasticity, no cohesion                             | SW    |  |
| 10          |            |                   |                    | End of boring  |       |  |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 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 : 10/13/2016  
 Weather : 60s, sunny

Northing (US ft) : 565107.07  
 Easting (US ft) : 1462818.41

**Boring ID: B19-027-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION   | USCS  | REMARKS                     |
|-------------|------------|-------------------|--------------------|---|-------|-----------------------------|
| 0           |            | 25.6              | B19-027-SB-1       | (0-1.8') SANDY SILT, some GRAVEL, soft, brown, dry, no plasticity, no cohesion                            | ML    |                             |
|             |            | 12.4              |                    |   |       |                             |
| 100         |            | 28.9              |                    | (1.8-8') GRAVELLY CLAY with SAND, firm, gray, reddish yellow and brown, dry, low plasticity, low cohesion |       |                             |
|             |            | 3.4               |                    |   |       |                             |
| 5           |            | 24.7              | B19-027-SB-5       |   | CL    |                             |
|             |            | -                 |                    |   |       |                             |
|             |            | 1.7               |                    |   |       |                             |
| 80          |            | 4.5               |                    |   |       |                             |
|             |            | 0.6               |                    | (8-10') CLAYEY GRAVEL with SAND, medium dense, dark brown, wet, no plasticity, no cohesion                | GW-GC | Wet at 8' bgs               |
|             |            | 0.5               |                    |   |       | Slight pungent odor (8-10') |
| 10          |            |                   |                    | End of boring   |       |                             |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 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 : 10/13/16  
 Weather : 60s, cloudy  
 Northing (US ft) : 565069.31  
 Easting (US ft) : 1462753.31

**Boring ID: B19-028-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS        | REMARKS         |
|-------------|------------|-------------------|--------------------|--|-------------|-----------------|
| 0           |            | 30.0              | B19-028-SB-1       | (0-1.5') SILT with SAND and some GRAVEL SLAG, soft, brown, dry, no plasticity, no cohesion   | ML          | Wet at 6.9' bgs |
|             |            | 32.1              |                    | (1.5-2') SILT, firm, light gray and reddish yellow, dry, no plasticity, no cohesion  | ML          |                 |
| 100         |            | 17.5              |                    | (2-7') SILT with large GRAVEL and trace SAND, firm, pale brown, reddish yellow, and light gray to brown and reddish yellow, dry then very moist from 6-7' bgs, low plasticity, no cohesion | ML          |                 |
|             |            | 37.1              |                    |  |             |                 |
|             |            | 8.0               |                    |  | ML          |                 |
| 5           |            | 7.9               |                    |  |             |                 |
|             |            | 62.1              | B19-028-SB-7       |  |             |                 |
|             |            | 92                |                    | (7-9.5') CLAYEY GRAVEL, medium dense, dark brown, wet, no plasticity, no cohesion  | GW-GC       |                 |
|             |            | 9.9               |                    |  | CL<br>GW-GC |                 |
| 10          |            | 19.0              |                    | (9.5-9.8') CLAY, very firm, brown, moist, low plasticity, cohesive   |             |                 |
|             |            |                   |                    | (9.8-10') CLAYEY GRAVEL, medium dense, dark brown, wet, no plasticity, no cohesion   |             |                 |
|             |            |                   |                    | End of boring  |             |                 |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Perrin  
 Checked by : S. Kabis, G.I.T.  
 Drilling Company : Green Services, Inc  
 Driller : Don Marchese  
 Drilling Equipment : Geoprobe 7822DT

Date : 9/23/2016  
 Weather : 90s, sunny  
 Northing (US ft) : 566102.814  
 Easting (US ft) : 1463959.432

**Boring ID: B19-029-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS  | REMARKS          |
|-------------|------------|-------------------|--------------------|--|-------|------------------|
| 0           |            | -                 | B19-029-SB-1       | (0-0.3') ORGANIC SILT, soft, brown, dry, no plasticity, no cohesion  | ML    | Organic matter   |
|             | 62         | -                 |                    | (0.3-3.5') SANDY SILT with small SLAG GRAVEL, brown, dry, no plasticity, no cohesion   | ML    |                  |
|             |            | 8.2               |                    |  |       |                  |
|             |            | 41.6              | B19-029-SB-4       | (3.5-8') SLAG GRAVEL and SAND, dense, gray, dry then wet at 7' bgs, no plasticity, no cohesion   |       |                  |
| 5           |            | 0.5               |                    |  | SW/GW |                  |
|             | 80         | -                 |                    |  |       |                  |
|             |            | 12.6              |                    |  |       |                  |
|             |            | 9.3               |                    |  |       |                  |
|             |            | 18.9              |                    | (8-8.9') SILT with CLAY, very firm, very dark gray with trace brown mottling, slightly moist, low plasticity, cohesive   | ML    |                  |
| 10          |            | 14.1              | B19-029-SB-10      | (8.9-11') SILTY CLAY, very firm, reddish yellow and yellowish brown, moist, low plasticity, cohesive   | CL    |                  |
|             | 60         | -                 |                    | (11-17.5') CLAY, very soft, pale brown, very moist to wet, medium plasticity, cohesive   | CL    |                  |
|             |            | -                 |                    |  |       |                  |
| 15          |            | -                 |                    |  |       |                  |
|             | 60         | -                 |                    | (17.5-19.2') SAND, fine to medium grained, loose to dense, yellowish brown from 17.5-18.5' bgs and reddish yellow from 18.5-19.2' bgs, wet, no plasticity, no cohesion | SW    | Wet at 17.5' bgs |
|             |            | -                 |                    | (19.2-20') CLAY, soft, brownish gray, very moist, high plasticity, cohesive  | CH    |                  |
| 20          |            | -                 |                    | End of boring  |       |                  |

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



**ARM Group Inc.**  
Earth Resource Engineers  
and Consultants

Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Perrin  
 Checked by : S. Kabis, G.I.T.  
 Drilling Company : Green Services, Inc  
 Driller : Don Marchese  
 Drilling Equipment : Geoprobe 7822DT

Date : 9/23/2016  
 Weather : 90s, sunny  
 Northing (US ft) : 566112.6881  
 Easting (US ft) : 1463954.983

**Boring ID: B19-030-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS | REMARKS               |
|-------------|------------|-------------------|--------------------|--|------|-----------------------|
| 0           |            | -                 | B19-030-SB-1       | (0-0.3) SILT, with trace CLAY, medium dense, brown, dry, no plasticity, no cohesion  | OL   | Organic matter        |
|             | 60         | -                 |                    | (0.3-4.3') SILT with SAND and SLAG GRAVEL, medium dense, brown, dry, no plasticity, no cohesion  | ML   |                       |
|             |            | 1.1               |                    |  |      |                       |
|             |            | 2.0               |                    |  |      |                       |
|             |            | 10.9              | B19-030-SB-5       | (4.3-8.5') SLAG GRAVEL with some SAND, medium dense, gray then very dark gray from 7.5-8.5' bgs, dry then moist from 7-7.5' bgs, wet from 7.5-8.5' bgs, no plasticity, no cohesion | GW   | Organic odor (7.5-8') |
| 5           |            | -                 |                    |  |      |                       |
|             | 86         | 5.3               |                    |  |      |                       |
|             |            | 5.3               |                    |  |      |                       |
|             |            | 2.3               |                    |  |      |                       |
|             |            | 0.1               | B19-030-SB-10      | (8.5-10') SILT, hard, very dark gray to yellowish brown, dry, low plasticity, cohesive   | ML   |                       |
| 10          |            | 0.0               |                    | (10-16.5') SILTY CLAY grading to CLAY, very firm, grayish brown grading to pale brown and reddish yellow, moist to very moist (15-16.5'), medium plasticity, cohesive              | CL   |                       |
|             | 100        | 0.0               |                    |  |      |                       |
|             |            | 0.0               |                    |  |      |                       |
|             |            | 0.0               |                    |  |      |                       |
| 15          |            | -                 |                    |  |      |                       |
|             | 100        | -                 |                    | (16.5-17.2') SANDY CLAY, firm, reddish yellow, moist, low plasticity, cohesive   | CL   | Wet at 17.2'          |
|             |            | -                 |                    | (17.2-19.1') SAND, fine to medium grained, loose to medium dense, yellowish brown from 17.2-18.2' bgs and reddish yellow from 18.2-19.1' bgs, no plasticity, no cohesion           | SW   |                       |
|             |            | -                 |                    | (19.1-20') CLAY with SAND, very soft, light brownish gray, very moist, high plasticity, cohesive   | CH   |                       |
| 20          |            | -                 |                    | End of boring  |      |                       |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Perrin  
 Checked by : S. Kabis, G.I.T.  
 Drilling Company : Green Services, Inc  
 Driller : Don Marchese  
 Drilling Equipment : Geoprobe 7822DT

Date : 9/23/16  
 Weather : 80s, sunny  
 Northing (US ft) : 565711.6331  
 Easting (US ft) : 1463810.445

**Boring ID: B19-031-SB**

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| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS  | REMARKS                       |
|-------------|------------|-------------------|--------------------|--|-------|-------------------------------|
| 0           |            |                   |                    | (0-0.2') SILTY CLAY, soft, gray, very moist, medium plasticity, cohesive   | CL    | Light sweet solvent-like odor |
|             |            | 1,463             | B19-031-SB-1       | (0.2-1.7') CINDER BALLAST, loose, black, dry, no plasticity, no cohesion   | SW/NA |                               |
|             |            | 959.2             |                    | (1.7-2.9') SAND with SLAG GRAVEL, medium dense, brown and gray, dry, no plasticity, no cohesion                                      | SW/GW |                               |
| 82          |            | 638.6             |                    | (2.9-3.4') SILTY SAND, very fine grained, medium dense, dark brown, moist, no plasticity, no cohesion                                | SM    |                               |
|             |            | 641.8             |                    | (3.4-4.7') SILT, trace SAND, hard, dark gray grading to yellowish brown, very dry, low plasticity, cohesive                          | ML    |                               |
|             |            | 256.0             |                    | (4.7-5.5') SAND, very fine to fine, dense, yellowish brown, moist, no plasticity, no cohesion  | SW    |                               |
| 5           |            | 10.6              |                    | (5.5-6.2') SANDY CLAY, very fine grained, firm, light gray and reddish yellow, dry, low plasticity, cohesive                         | CL    |                               |
|             |            | 457.5             |                    | (6.2-8.5') CLAY, hard, yellowish red and gray mottled, dry, low plasticity to medium plasticity, cohesive                            | CL    |                               |
|             | 100        | 729.5             |                    | (8.5-10') CLAY, soft, gray with trace reddish yellow, very moist, high plasticity, cohesive; thin brown SAND lens at bottom of liner | CH    |                               |
|             |            | 815.2             | B19-031-SB-9       |  |       |                               |
|             |            | 5.1               | B19-031-SB-10      |  |       |                               |
| 10          |            |                   |                    | End of boring  |       | Wet at 9.95' bgs              |

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





**ARM Group Inc.**  
Earth Resource Engineers  
and Consultants

Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Perrin  
 Checked by : S. Kabis, G.I.T.  
 Drilling Company : Green Services, Inc  
 Driller : Don Marchese  
 Drilling Equipment : Geoprobe 7822DT

Date : 9/23/2016  
 Weather : 90s, sunny  
 Northing (US ft) : 566129.774  
 Easting (US ft) : 1463679.759

**Boring ID: B19-032-SB**

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| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS  | REMARKS                         |
|-------------|------------|-------------------|--------------------|--|-------|---------------------------------|
| 0           |            | -                 | B19-032-SB-1       | (0-1.8') SILT with SLAG SAND and some SLAG GRAVEL, soft, brown, dry, no plasticity, no cohesion          | ML    |                                 |
|             |            | 0.3               |                    |  |       |                                 |
|             | 88         | 1.9               |                    | (1.8-2.5') SLAG SAND and GRAVEL with SILT, medium dense, gray and brown, dry, no plasticity, no cohesion | SW/GW |                                 |
|             |            | 9.1               | B19-032-SB-4       | (2.5-4.2') SILT, hard, olive brown, low plasticity, no cohesion  | ML    |                                 |
|             |            | 0.2               |                    | (4.2-6') SILT with some GRAVEL SLAG, soft, brown, dry, no plasticity, no cohesion                        |       |                                 |
| 5           |            | -                 |                    |  | ML    |                                 |
|             |            | 3.2               |                    |  |       |                                 |
|             | 72         | 1.8               |                    | (6-10') SLAG GRAVEL, dense, gray, wet, no plasticity, no cohesion  |       | Wet at 7.5' bgs                 |
|             |            | 3.9               |                    |  | GW    | Very large SLAG GRAVEL (7.5-8') |
|             |            | -                 |                    |  |       |                                 |
| 10          |            |                   |                    | End of boring  |       |                                 |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 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 : 9/21/16  
 Weather : 80s, sunny  
 Northing (US ft) : 564683.78  
 Easting (US ft) : 1462052.29

**Boring ID: B19-033-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION   | USCS     | REMARKS          |
|-------------|------------|-------------------|--------------------|---|----------|------------------|
| 0           |            | 1.2               | B19-033-SB-1       | (0-2.2') SILTY SAND with SLAG GRAVEL, SLAG GRAVEL increases with depth, loose, dark brown with trace gray, dry, no plasticity, no cohesion                              | SM       | Wet at 11.3' bgs |
|             |            | 3.7               |                    |   |          |                  |
| 100         |            | 10.2              |                    | (2.2-4') SLAG SAND and GRAVEL, gravel size increases with depth, medium dense, pale brown, brown, and grayish brown, dry then wet at 3' bgs, no plasticity, no cohesion | SW/GW    |                  |
|             |            | 6.0               |                    |   |          |                  |
| 5           |            | 0.0               | B19-033-SB-5       | (4-9') CLAY, hard to firm, gray and yellowish brown, dry to moist, medium plasticity, cohesive  |          |                  |
|             |            | 0.3               |                    |   |          |                  |
|             |            | 2.4               |                    |   | CL       |                  |
| 100         |            | 2.4               |                    |   |          |                  |
|             |            | 1.0               |                    |   |          |                  |
| 10          |            | 0.3               | B19-033-SB-10      | (9-10.5') SANDY CLAY, very firm, light gray with trace reddish yellow, moist, medium plasticity, cohesive   | CL       |                  |
|             |            | -                 |                    |   |          |                  |
|             |            | -                 |                    | (10.5-13') SAND, fine to medium, dense, brownish gray to yellowish red, wet, no plasticity, no cohesion   | SW       |                  |
| 84          |            | -                 |                    |   |          |                  |
|             |            | -                 |                    | (13-13.3') SANDY CLAY, very firm, light gray and yellowish red, moist, high plasticity, cohesive  | CH<br>SW |                  |
|             |            | -                 |                    | (13.3-13.7') GRAVELLY SAND, fine to medium, dense, yellowish red, moist, no plasticity, no cohesion   |          |                  |
| 15          |            | -                 |                    | (13.7-15') CLAY with SAND, firm, light gray, moist to dry, high plasticity, cohesive  | CL       |                  |
|             |            |                   |                    | 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. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Glumac  
 Checked by : W. Mader P.G., CPSS  
 Drilling Company : Green Services, Inc  
 Driller : Don Marchese  
 Drilling Equipment : Geoprobe 7822DT

Date : 10/14/2016  
 Weather : 60s, sunny  
 Northing (US ft) : 566047.87  
 Easting (US ft) : 1462585.96

**Boring ID: B19-034-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS  | REMARKS                   |
|-------------|------------|-------------------|--------------------|--|-------|---------------------------|
| 0           |            |                   |                    | (0-1') TOPSOIL with ORGANICS   | OL/OH | Mild odor from 0-0.5' bgs |
|             |            | 0.5               | B19-034-SB-1       |  |       |                           |
|             |            | 2.2               |                    | (1-2') SLAG GRAVEL, some coarse SAND, medium dense, gray/brown, dry, no plasticity, no cohesion    | GW    |                           |
|             | 97         | 2.1               |                    | (2-5.5') CLAY, hard but soft from 4-4.5' bgs, gray, dry, high plasticity, cohesive                 | CL    |                           |
|             |            | 2.8               | B19-034-SB-4       |  |       |                           |
| 5           |            | 0.2               |                    |  |       |                           |
|             |            | -                 |                    | (5.5-7') CLAY, some SILT, soft, gray/orange, moist then wet at 7' bgs, medium plasticity, cohesive | CL    | Wet at 7' bgs             |
|             | 80         | 1.9               |                    |  |       |                           |
|             |            | 1.6               |                    |  |       |                           |
|             |            | 0.1               |                    |  |       |                           |
| 10          |            | -                 |                    | End of boring  |       |                           |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Glumac  
 Checked by : W. Mader P.G., CPSS  
 Drilling Company : Green Services, Inc  
 Driller : Don Marchese  
 Drilling Equipment : Geoprobe 7822DT

Date : 10/14/2016  
 Weather : 60s, sunny  
 Northing (US ft) : 565291.66  
 Easting (US ft) : 1461848.58

**Boring ID: B19-035-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION   | USCS | REMARKS         |
|-------------|------------|-------------------|--------------------|---|------|-----------------|
| 0           |            | 2.0               | B19-035-SB-1       | (0-1') SLAG GRAVEL with brown SAND, loose, dry, no plasticity, no cohesion  | GW   |                 |
|             |            | 2.9               |                    | (1-3') CLAY, hard then soft at 2' bgs, light brown, dry, medium plasticity, cohesive                                | CL   |                 |
| 100         |            | 20.2              |                    |   |      |                 |
|             |            | 132.2             | B19-035-SB-4       | (3-3.5') BRICK and CONCRETE GRAVEL, loose, red (BRICK) and white (CONCRETE GRAVEL), dry, no plasticity, no cohesion | GW   |                 |
|             |            | 16.9              |                    | (3.5-6.5') CLAY, hard, gray, dry, high plasticity, cohesive   | CL   |                 |
| 5           |            | -                 |                    |   |      |                 |
|             |            | -                 |                    | (6.5-8') CLAY, trace SILT, soft, tan, dry, medium plasticity, cohesive  | CL   |                 |
| 50          |            | 1.8               |                    |   |      |                 |
|             |            | 0.8               |                    | (8-9.5') CLAY, hard, gray and greenish gray then black at 9' bgs, dry, high plasticity, cohesive                    | CL   |                 |
|             |            | -                 |                    | (9.5-10') SILT, trace SAND, soft, black, wet, low plasticity, cohesive  | CL   |                 |
| 10          |            |                   |                    | End of boring   |      | Wet at 9.5' bgs |

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



**ARM Group Inc.**  
Earth Resource Engineers  
and Consultants

Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 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 : 9/23/16  
 Weather : 80s, sunny  
 Northing (US ft) : 565381.61  
 Easting (US ft) : 1462739.49

**Boring ID: B19-036-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS  | REMARKS                                     |
|-------------|------------|-------------------|--------------------|--|-------|---|
| 0           |            | 0.3               | B19-036-SB-1       | (0-0.7') SILT, trace SAND, soft, light yellowish brown, moist, low plasticity, cohesive  | ML    | 4-inch CLAY lens with SLAG SAND at 2.5' bgs |
|             |            | 3.0               |                    | (0.7-2.9') SLAG SAND and GRAVEL, medium dense, brown and gray, dry to wet, no plasticity, no cohesion  | SW/GW |   |
|             | 92         | 2.1               |                    | (2.9-3.7') CLAY, soft, dark gray, very moist, medium plasticity, cohesive  | CL    |   |
|             |            | 1.0               |                    | (3.7-7.7') CLAY, very firm, light gray and reddish yellow, moist from 3.7-7.2' bgs, very moist from 7.2-7.7' bgs, high plasticity, cohesive  |       |   |
|             |            | 0.0               | B19-036-SB-5       |  |       |   |
| 5           |            | 1.2               |                    |  | CL    |   |
|             |            | 5.1               |                    |  |       |   |
|             | 100        | 4.6               |                    |  |       |   |
|             |            | -                 |                    | (7.7-10') SAND, fine to medium, dense to medium dense, light gray from 7.7-8.5' bgs, very pale brown from 8.5-8.8' bgs, reddish yellow from 8.8-10' bgs, wet, no plasticity, no cohesion | SW    | Wet at 7.7' bgs                             |
|             |            | -                 |                    |  |       |   |
| 10          |            |                   |                    | End of boring  |       |   |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Glumac  
 Checked by : S. Kabis, G.I.T.  
 Drilling Company : Green Services, Inc  
 Driller : Don Marchese  
 Drilling Equipment : Geoprobe 7822DT

Date : 10/14/2016  
 Weather : 50s, sunny  
 Northing (US ft) : 566930.964  
 Easting (US ft) : 1464106.21

**Boring ID: B19-037-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS  | REMARKS         |
|-------------|------------|-------------------|--------------------|--|-------|-----------------|
| 0           |            | 97.7              | B19-037-SB-1       | (0-0.1') Topsoil SILT  | OL/OH | Organic matter  |
|             |            | 54.4              |                    | (0.1-2') SAND, coarse, medium dense, dark brown to gray, dry, no plasticity, no cohesion   | SW    |                 |
|             | 90         | 58.2              |                    | (2-3') SLAG GRAVEL, coarse, dense, gray, dry, no plasticity, no cohesion                   | GW    |                 |
|             |            | 19.3              |                    | (3-5') SILT, with some CLAY, hard, greenish gray, moist, low plasticity, cohesive          | CL    |                 |
|             |            | 5.8               |                    |  |       |                 |
| 5           |            | 9.2               |                    | (5-9') SILT, with some CLAY, hard, gray and reddish yellow, low plasticity, cohesive       | CL    |                 |
|             | 92         | 23.0              | B19-037-SB-8       |  |       |                 |
|             |            | 4.8               |                    |  |       |                 |
| 10          |            | 5.6               |                    | (9-11') CLAY, hard, reddish yellow and brown, wet, high plasticity, cohesive               | CH    | Wet at 9.5' bgs |
|             |            | -                 |                    | (11-14') SAND, coarse, very loose, reddish yellow to gray, wet, no plasticity, no cohesion | SP    |                 |
|             |            | -                 |                    |  |       |                 |
|             |            | -                 |                    | (14-15') SILT, with some CLAY, reddish yellow, wet, low plasticity, cohesive               | CL    |                 |
| 15          |            |                   |                    | End of boring  |       |                 |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Perrin  
 Checked by : S. Kabis, G.I.T.  
 Drilling Company : Green Services, Inc  
 Driller : Don Marchese  
 Drilling Equipment : Geoprobe 7822DT

Date : 1/09/2017  
 Weather : 20s, cloudy  
 Northing (US ft) : 566595.6278  
 Easting (US ft) : 1463574.13

**Boring ID: B19-038-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION   | USCS  | REMARKS        |
|-------------|------------|-------------------|--------------------|---|-------|----------------|
| 0           |            | -                 | B19-038-SB-1       | (0-0.4') SILT, soft, dark brown, moist, low plasticity, cohesive  | OL    | Organic matter |
|             |            | 0.3               |                    | (0.4-2.5') SILTY GRAVEL, loose, red, brown, and white, moist, no plasticity, no cohesion                  | GW-GM |                |
| 90          |            | 0.1               |                    | (2.5-4.7') SILT grading to SANDY SILT, dense, strong brown, dry, low plasticity, cohesive                 | ML    |                |
|             |            | 0.1               |                    |   |       |                |
| 5           |            | 1.9               |                    | (4.7-5') SAND, fine to medium grained, dense, reddish yellow, dry, no plasticity, no cohesion             | SW    |                |
|             |            | 2.2               |                    | (5-10') CLAY, dense, light brownish gray and reddish yellow mottling, moist, medium plasticity, cohesive  |       |                |
| 100         |            | 3.4               | B19-038-SB-8       |   | CL    |                |
|             |            | 2.3               |                    |   |       |                |
|             |            | 1.0               | B19-038-SB-10      |   |       |                |
| 10          |            | -                 |                    | (10-11.3') SAND, medium dense, reddish yellow, wet, no plasticity, no cohesion                            | SW    |                |
|             |            | 0.7               |                    | (11.3-15') CLAY, dense, light brownish gray and reddish yellow mottling, moist, high plasticity, cohesive |       |                |
| 100         |            | 1.6               |                    |   | CH    |                |
|             |            | 0.0               |                    |   |       |                |
| 15          |            | 0.0               |                    | 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. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Perrin  
 Checked by : S. Kabis, G.I.T.  
 Drilling Company : Allied Well Drilling  
 Driller : Rick Miller  
 Drilling Equipment : Geoprobe 7822DT

Date : 5/24/17  
 Weather : 60s, cloudy  
 Northing (US ft) : 556151.89  
 Easting (US ft) : 1463881.78

**Boring ID: B19-039-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION   | USCS  | REMARKS         |
|-------------|------------|-------------------|--------------------|---|-------|-----------------|
| 0           |            | -                 | B19-039-SB-1       | (0-2.7') SILTY SAND with GRAVEL, medium dense, brown, dry, no plasticity, no cohesion                               | SM/GW |                 |
| 0.9         |            |                   |                    |   |       |                 |
| 13.5        | 86         |                   |                    |   |       |                 |
| 12.0        |            |                   |                    | (2.7-10') SLAG, coarse GRAVEL to COBBLE-sized, medium dense, light gray, dry then moist, no plasticity, no cohesion |       |                 |
| 0.5         |            |                   |                    |   |       |                 |
| 5           |            | -                 |                    |   | GW    |                 |
|             |            | -                 |                    |   |       |                 |
| 66          |            | 4.8               |                    |   |       |                 |
| 16.5        |            |                   |                    |   |       |                 |
|             |            |                   | B19-039-SB-8.5     |   |       | Wet at 8.5' bgs |
| 2.2         |            |                   |                    |   |       |                 |
| 10          |            |                   |                    | End of boring   |       |                 |

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





Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Perrin  
 Checked by : S. Kabis, G.I.T.  
 Drilling Company : Allied Well Drilling  
 Driller : Rick Miller  
 Drilling Equipment : Geoprobe 7822DT

Date : 5/24/17  
 Weather : 60s, cloudy  
 Northing (US ft) : 566315.536  
 Easting (US ft) : 1464024.000

**Boring ID: B19-040-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION   | USCS  | REMARKS         |  |
|-------------|------------|-------------------|--------------------|---|-------|-----------------|--|
| 0           |            |                   |                    | (0-0.5') CONCRETE, white, dry, no plasticity, no cohesion   |       | Non-native      |  |
|             |            |                   | B19-040-SB-1       | (0.5-3.5') SAND with GRAVEL, fine to very coarse grained, brown, red from 3.2-3.5' bgs, dry, no plasticity, no cohesion | SW    |                 |  |
|             | 90         | -                 | 2.9                |   |       |                 |  |
|             |            |                   | 21.9               |   | SM    |                 |  |
|             |            |                   | 26.3               | (3.5-4.5') SILTY SAND with GRAVEL, firm, grayish brown, dark brown, and red, dry, no plasticity, no cohesion            |       |                 |  |
| 5           |            |                   | 2.3                | (4.5-10') SLAG, SAND and GRAVEL-sized, gray, dry then wet at 6.4' bgs, no plasticity, no cohesion                       | SW/GW | Wet at 6.4' bgs |  |
|             |            |                   | -                  |   |       |                 |  |
|             | 72         |                   | 5.7                |   |       |                 |  |
|             |            |                   | 3.6                |   |       |                 |  |
|             |            |                   | 34.0               |   |       |                 |  |
|             |            |                   | 1.4                |   |       |                 |  |
| 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. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Perrin  
 Checked by : S. Kabis, G.I.T.  
 Drilling Company : Allied Well Drilling  
 Driller : Rick Miller  
 Drilling Equipment : Geoprobe 7822DT

Date : 5/24/17  
 Weather : 60s, cloudy  
 Northing (US ft) : 566539.755  
 Easting (US ft) : 1463806.683

**Boring ID: B19-041-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION  | USCS | REMARKS          |
|-------------|------------|-------------------|--------------------|--|------|------------------|
| 0           |            | -                 | B19-041-SB-1       | (0-6') SAND with GRAVEL, fine to coarse grained, medium dense, brown, moist then dry from 1.3-5' bgs, no plasticity, no cohesion | SW   | Non-native       |
|             | 78         | 0.2               |                    |  |      |                  |
|             |            | 0.3               |                    |  |      |                  |
|             |            | 0.3               |                    |  |      |                  |
| 5           |            | 0.1               | B19-041-SB-5       |  |      |                  |
|             |            | 0.3               |                    | (6-11') CLAY, firm to hard, gray grading to brownish yellow and reddish yellow, moist grading to dry, low plasticity, cohesive   | CL   |                  |
|             | 100        | 0.3               |                    |  |      |                  |
|             |            | 0.5               |                    |  |      |                  |
|             |            | 0.5               |                    |  |      |                  |
| 10          |            | 3.2               | B19-041-SB-10      |  |      |                  |
|             |            | -                 |                    | (11-15') SLAG, GRAVEL, fine to coarse grained, light gray, wet, no plasticity, no cohesion                                       | GW   | Wet at 12.7' bgs |
|             | 46         | -                 |                    |  |      |                  |
|             |            | -                 |                    |  |      |                  |
|             |            | -                 |                    |  |      |                  |
| 15          |            |                   |                    | End of boring  |      |                  |

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



Client : EnviroAnalytics Group  
 ARM Project No. : 150300M-15-3  
 Project Description : Sparrows Point - Parcel B19  
 Site Location : Sparrows Point, MD  
 ARM Representative : L. Perrin  
 Checked by : S. Kabis, G.I.T.  
 Drilling Company : Allied Well Drilling  
 Driller : Rick Miller  
 Drilling Equipment : Geoprobe 7822DT

Date : 5/24/17  
 Weather : 60s, cloudy  
 Northing (US ft) : 566353.036  
 Easting (US ft) : 1464196.526

**Boring ID: B19-042-SB**

(page 1 of 1)

| Depth (ft.) | % Recovery | PID Reading (PPM) | Sample ID/Interval | DESCRIPTION   | USCS  | REMARKS                                   |
|-------------|------------|-------------------|--------------------|---|-------|---|
| 0           |            | -                 | B19-042-SB-1       | (0-0.5') SILT with SAND and GRAVEL, soft, brown, dry, no plasticity, no cohesion  | ML    | Moderate amount of organic matter present |
|             |            |                   |                    | (0.5-1') SAND and GRAVEL with SILT, loose, brown and gray, dry, no plasticity, no cohesion  | GW-GM |   |
|             | 74         | 0.5               |                    | (1.75-2.5') SILT, hard, yellowish brown, dry, low plasticity, cohesive  | ML    |   |
|             |            | 1.2               |                    | (2.5-3.8') SLAG, SAND and GRAVEL-sized, loose, brown and gray, dry, no plasticity, no cohesion  | SW/GW |   |
|             |            | 7.1               | B19-042-SB-4       | (3.8-5') SILT, hard, brown, dry, low plasticity, cohesive   | ML    |   |
|             |            | 0.9               |                    | (5-11.25') SILTY CLAY grading to CLAY, with trace yellowish red SAND, very firm grading to firm, grayish brown, moist, low plasticity, cohesive | CL    |   |
| 5           |            | 5.4               |                    |   |       |   |
|             | 100        | 0.9               |                    |   |       |   |
|             |            | 0.2               |                    |   |       |   |
|             |            | 0.1               | B19-042-SB-10      |   |       |   |
| 10          |            | -                 |                    | (11.25-14.2') SLAG GRAVEL with SAND and SILT, loose, light brown to dark gray, wet, no plasticity, no cohesion                                  | GW-GM | Wet at 12.5' bgs                          |
|             | 50         | -                 |                    | (14.2-15') SANDY SILT, soft, dark gray, very moist to wet, low plasticity, cohesive   | ML    |   |
| 15          |            | -                 |                    | End of boring   |       |   |

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

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## **APPENDIX C**

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## **APPENDIX D**

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### Parcel B19 - IDW Drum Log

| Drum ID                     | Designation | Activity/Phase                            | Contents | Open Date  |
|-----------------------------|-------------|---|----------|------------|
| 722-Liners-9/21/16-B19      | Non-Haz     | Area B: Parcel B19 Phase II Investigation | Liners   | 9/21/2016  |
| 723-Soil-9/21/16-B19        | Non-Haz     | Area B: Parcel B19 Phase II Investigation | Soil     | 9/21/2016  |
| 724-PPE-9/21/16             | Non-Haz     | Area B: Parcel B19 Phase II Investigation | PPE      | 9/21/2016  |
| 725-PPE-10/12/16-B19        | Non-Haz     | Area B: Parcel B19 Phase II Investigation | PPE      | 9/23/2016  |
| 726-Soil-9/23/16-B19        | Non-Haz     | Area B: Parcel B19 Phase II Investigation | Soil     | 10/12/2016 |
| 831-Soil-5/24/17-B19        | Non-Haz     | Area B: Parcel B19 Phase II/RADWP B19-1   | Soil     | 5/24/2017  |
| 832-Decon Water-5/24/17-B19 | Non-Haz     | Area B: Parcel B19 Phase II/RADWP B19-1   | Water    | 5/24/2017  |
| 833-Liners-5/24/17-B19      | Non-Haz     | Area B: Parcel B19 Phase II/RADWP B19-1   | Liners   | 5/24/2017  |

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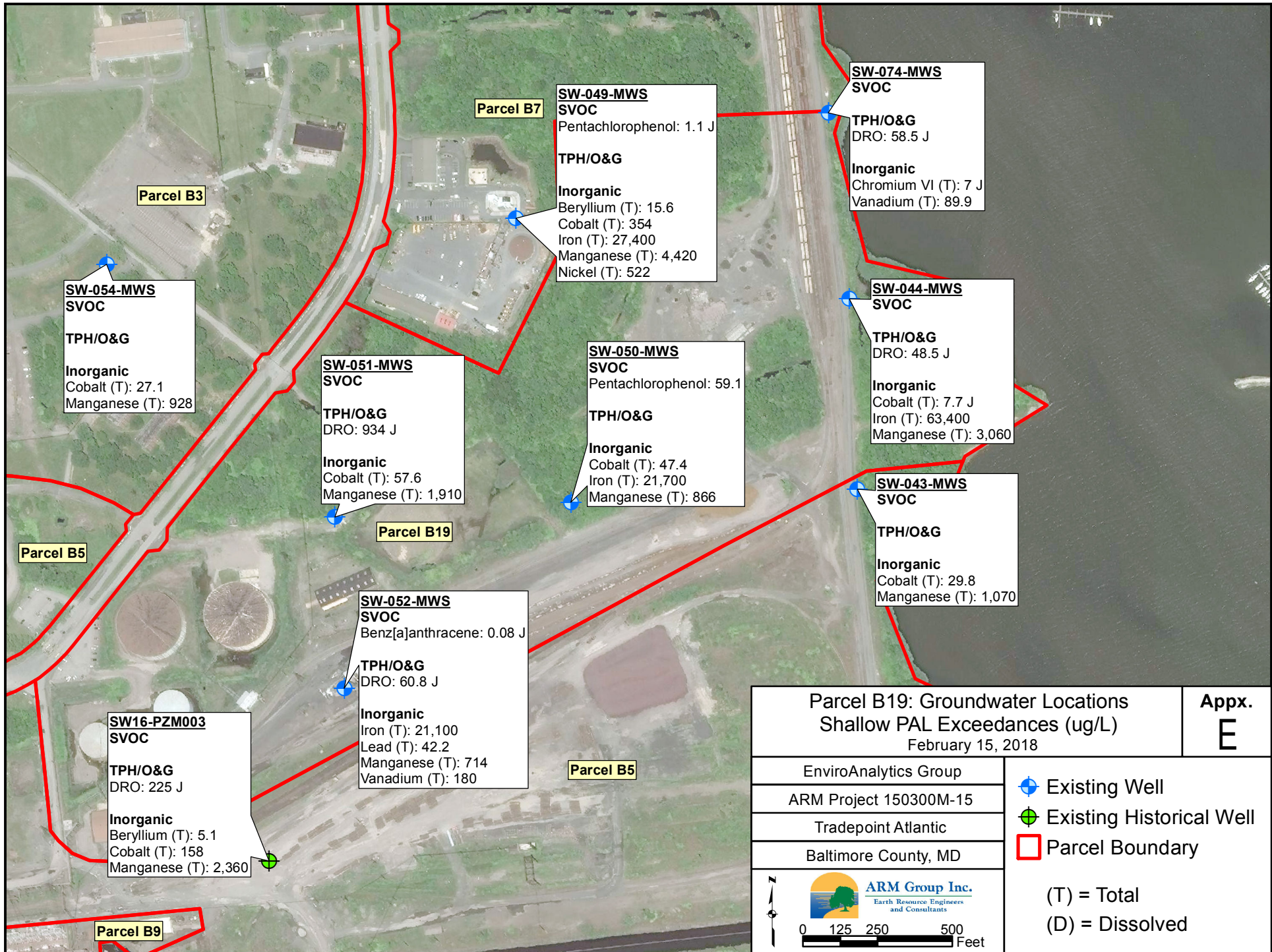
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## **APPENDIX E**

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**SW-054-MWS**  
SVOC

TPH/O&G

Inorganic  
Cobalt (T): 27.1  
Manganese (T): 928

**SW-051-MWS**  
SVOC

TPH/O&G  
DRO: 934 J

Inorganic  
Cobalt (T): 57.6  
Manganese (T): 1,910

**SW-049-MWS**  
SVOC

Pentachlorophenol: 1.1 J

TPH/O&G

Inorganic  
Beryllium (T): 15.6  
Cobalt (T): 354  
Iron (T): 27,400  
Manganese (T): 4,420  
Nickel (T): 522

**SW-050-MWS**  
SVOC

Pentachlorophenol: 59.1

TPH/O&G

Inorganic  
Cobalt (T): 47.4  
Iron (T): 21,700  
Manganese (T): 866

**SW-074-MWS**  
SVOC

TPH/O&G  
DRO: 58.5 J

Inorganic  
Chromium VI (T): 7 J  
Vanadium (T): 89.9

**SW-044-MWS**  
SVOC

TPH/O&G  
DRO: 48.5 J

Inorganic  
Cobalt (T): 7.7 J  
Iron (T): 63,400  
Manganese (T): 3,060

**SW-043-MWS**  
SVOC

TPH/O&G

Inorganic  
Cobalt (T): 29.8  
Manganese (T): 1,070

**SW-052-MWS**  
SVOC

Benz[a]anthracene: 0.08 J

TPH/O&G  
DRO: 60.8 J

Inorganic  
Iron (T): 21,100  
Lead (T): 42.2  
Manganese (T): 714  
Vanadium (T): 180

**SW16-PZM003**  
SVOC

TPH/O&G  
DRO: 225 J

Inorganic  
Beryllium (T): 5.1  
Cobalt (T): 158  
Manganese (T): 2,360

|  |  |   |
|--|--|---|
| <b>Parcel B19: Groundwater Locations</b><br><b>Shallow PAL Exceedances (ug/L)</b><br>February 15, 2018 |  | <b>Appx.</b><br><b>E</b>  |
| EnviroAnalytics Group<br>ARM Project 150300M-15<br>Tradepoint Atlantic<br>Baltimore County, MD         |  | <ul style="list-style-type: none"> <li><span style="color: blue;">+</span> Existing Well</li> <li><span style="color: green;">+</span> Existing Historical Well</li> <li><span style="border: 1px solid red; display: inline-block; width: 10px; height: 10px;"></span> Parcel Boundary</li> </ul> <p>(T) = Total<br/>(D) = Dissolved</p> |
|  |  |   |
|  |  |   |

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## **APPENDIX F**

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## QA/QC Tracking Log - Soil

| Trip Blank: | Date:     | Sample IDs       |                         |
|-------------|-----------|------------------|-------------------------|
|             | 9/21/2016 | 1) B19-033-SB-1  |                         |
|             |           | 2) B19-033-SB-5  |                         |
|             |           | 3) B19-033-SB-10 |                         |
|             |           | 4) B19-025-SB-1  |                         |
|             |           | 5) B19-025-SB-5  |                         |
|             |           | 6) B19-025-SB-10 |                         |
|             | 9/22/2016 | 7) B19-011-SB-1  | Duplicate: B19-014-SB-5 |
|             |           | 8) B19-011-SB-5  | Date: 9/22/2016         |
|             |           | 9) B19-012-SB-1  | MS/MSD: B19-010-SB-5    |
|             |           | 10) B19-012-SB-5 | Date: 9/22/2016         |
|             |           | 11) B19-010-SB-1 | Field Blank:            |
|             |           | 12) B19-010-SB-5 | Date: 9/22/2016         |
|             |           | 13) B19-015-SB-1 | Eq. Blank:              |
|             |           | 14) B19-015-SB-5 | Date: 9/22/2016         |
|             |           | 15) B19-013-SB-1 |                         |
|             |           | 16) B19-013-SB-5 |                         |
|             |           | 17) B19-016-SB-1 |                         |
|             |           | 18) B19-016-SB-4 |                         |
|             |           | 19) B19-009-SB-1 |                         |
|             |           | 20) B19-014-SB-1 |                         |

| Trip Blank: | Date:      | Sample IDs        |                         |
|-------------|------------|-------------------|-------------------------|
| TB-1        | 9/23/2016  | 1) B19-029-SB-4   |                         |
| TB-1        |            | 2) B19-029-SB-10  |                         |
|             |            | 3) B19-030-SB-1   |                         |
| TB-1        |            | 4) B19-030-SB-5   |                         |
|             |            | 5) B19-030-SB-10  |                         |
| TB-1        |            | 6) B19-019-SB-1   |                         |
| TB-1        | 9/23/2016  | 7) B19-019-SB-8   | Duplicate: B19-028-SB-1 |
|             |            | 8) B19-019-SB-10  | Date: 10/13/2016        |
| TB-1        | 10/13/2016 | 9) B19-028-SB-1   | MS/MSD: B19-021-SB-1    |
| TB-1        |            | 10) B19-028-SB-7  | Date: 10/14/2016        |
| TB-1        |            | 11) B19-027-SB-1  | Field Blank:            |
| TB-1        |            | 12) B19-027-SB-5  | Date: 10/13/2016        |
| TB-1        |            | 13) B19-026-SB-1  | Eq. Blank:              |
|             |            | 14) B19-026-SB-8  | Date: 10/13/2016        |
|             |            | 15) B19-004-SB-1  |                         |
| TB-1        |            | 16) B19-004-SB-5  |                         |
|             |            | 17) B19-005-SB-1  |                         |
|             |            | 18) B19-005-SB-6  |                         |
| TB-1        |            | 19) B19-005-SB-10 |                         |
|             |            | 20) B19-021-SB-1  |                         |

|      |           |                   |                         |
|------|-----------|-------------------|-------------------------|
|      | 9/22/2016 | 1) B19-014-SB-5   |                         |
|      |           | 2) B19-014-SB-10  |                         |
|      |           | 3) B19-023-SB-1   |                         |
|      |           | 4) B19-023-SB-5   |                         |
|      |           | 5) B19-024-SB-1   |                         |
|      |           | 6) B19-024-SB-5   |                         |
|      | 9/23/2016 | 7) B19-030-SB-1   | Duplicate: B19-031-SB-9 |
|      |           | 8) B19-030-SB-5   | Date: 9/23/2016         |
| TB-1 |           | 9) B19-031-SB-1   | MS/MSD: B19-020-SB-1    |
| TB-1 |           | 10) B19-031-SB-9  | Date: 9/23/2016         |
|      |           | 11) B19-031-SB-10 | Field Blank:            |
| TB-1 |           | 12) B19-020-SB-1  | Date: 9/23/2016         |
| TB-1 |           | 13) B19-020-SB-4  | Eq. Blank:              |
|      |           | 14) B19-018-SB-1  | Date: 9/23/2016         |
| TB-1 |           | 15) B19-017-SB-1  |                         |
| TB-1 |           | 16) B19-017-SB-4  |                         |
|      |           | 17) B19-017-SB-10 |                         |
|      |           | 18) B19-032-SB-1  |                         |
|      |           | 19) B19-032-SB-4  |                         |
|      |           | 20) B19-029-SB-1  |                         |

|      |            |                   |                         |
|------|------------|-------------------|-------------------------|
| TB-1 | 10/14/2016 | 1) B19-021-SB-7   |                         |
| TB-1 |            | 2) B19-022-SB-1   |                         |
| TB-1 |            | 3) B19-022-SB-4   |                         |
| TB-1 |            | 4) B19-037-SB-1   |                         |
| TB-1 |            | 5) B19-037-SB-8   |                         |
|      |            | 6) B19-003-SB-1   |                         |
| TB-1 | 10/14/2016 | 7) B19-003-SB-5   | Duplicate: B19-022-SB-4 |
|      |            | 8) B19-002-SB-1   | Date: 10/14/2016        |
|      | 1/9/2017   | 9) B19-002-SB-4   | MS/MSD: B19-037-SB-8    |
|      |            | 10) B19-001-SB-1  | Date: 10/14/2016        |
|      |            | 11) B19-001-SB-5  | Field Blank:            |
|      |            | 12) B19-034-SB-1  | Date: 10/14/2016        |
|      |            | 13) B19-034-SB-4  | Eq. Blank:              |
|      |            | 14) B19-035-SB-1  | Date: 10/14/2016        |
| TB-1 |            | 15) B19-035-SB-4  |                         |
|      |            | 16) B19-006-SB-1  |                         |
|      |            | 17) B19-006-SB-5  |                         |
|      |            | 18) B19-038-SB-1  |                         |
|      |            | 19) B19-038-SB-8  |                         |
|      |            | 20) B19-038-SB-10 |                         |

Samples intervals with PID readings of 10 ppm or higher were collected for VOCs.  
 VOC and GRO samples were placed in a cooler with a trip blank.

# QA/QC Tracking Log - Soil

| <u>Trip</u> | <u>Date:</u> | <u>Sample IDs</u> |                     |                |
|-------------|--------------|-------------------|---------------------|----------------|
| TB-1        | 1/18/2017    | 1)                | B19-007-SB-8.5      |                |
|             |              | 2)                | B19-008-SB-7.5      |                |
|             |              | 3)                |                     |                |
|             |              | 4)                |                     |                |
|             |              | 5)                |                     |                |
|             |              | 6)                |                     |                |
|             |              | 7)                | <u>Duplicate:</u>   | B19-008-SB-7.5 |
|             |              | 8)                | <u>Date:</u>        | 1/18/2017      |
|             |              | 9)                | <u>MS/MSD:</u>      | B19-007-SB-8.5 |
|             |              | 10)               | <u>Date:</u>        | 1/18/2017      |
|             |              | 11)               | <u>Field Blank:</u> |                |
|             |              | 12)               | <u>Date:</u>        | 1/18/2017      |
|             |              | 13)               | <u>Eq. Blank:</u>   |                |
|             |              | 14)               | <u>Date:</u>        | 1/18/2017      |
|             |              | 15)               |                     |                |
|             |              | 16)               |                     |                |
|             |              | 17)               |                     |                |
|             |              | 18)               |                     |                |
|             |              | 19)               |                     |                |
|             |              | 20)               |                     |                |

| <u>Trip</u> | <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</u> | <u>Date:</u> | <u>Sample IDs</u> |                     |                |
|-------------|--------------|-------------------|---------------------|----------------|
|             | 5/24/2017    | 1)                | B19-040-SB-1        |                |
|             |              | 2)                | B19-040-SB-4        |                |
|             |              | 3)                | B19-042-SB-1        |                |
| TB-1        |              | 4)                | B19-042-SB-4        |                |
|             |              | 5)                | B19-042-SB-10       |                |
|             |              | 6)                | B19-041-SB-1        |                |
|             |              | 7)                | <u>Duplicate:</u>   | B19-041-SB-1   |
|             |              | 8)                | <u>Date:</u>        | 5/24/2017      |
|             |              | 9)                | <u>MS/MSD:</u>      | B19-039-SB-8.5 |
|             |              | 10)               | <u>Date:</u>        | 5/24/2017      |
|             |              | 11)               | <u>Field Blank:</u> |                |
|             |              | 12)               | <u>Date:</u>        | 5/24/2017      |
|             |              | 13)               | <u>Eq. Blank:</u>   |                |
|             |              | 14)               | <u>Date:</u>        | 5/24/2017      |
|             |              | 15)               |                     |                |
|             |              | 16)               |                     |                |
|             |              | 17)               |                     |                |
|             |              | 18)               |                     |                |
|             |              | 19)               |                     |                |
|             |              | 20)               |                     |                |

| <u>Trip</u> | <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)               |                     |

Samples intervals with PID readings of 10 ppm or higher were collected for VOCs. VOC and GRO samples were placed in a cooler with a trip blank.

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**CRRGP FİZİ** "

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**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 | 49                          | 37         | 0                          | 49                             | 100.00%      |
| Aluminum                     | Metal           | Soil   | mg/kg | 51                          | 51         | 0                          | 51                             | 100.00%      |
| Antimony                     | Metal           | Soil   | mg/kg | 51                          | 2          | 0                          | 51                             | 100.00%      |
| Arsenic                      | Metal           | Soil   | mg/kg | 52                          | 42         | 0                          | 52                             | 100.00%      |
| Barium                       | Metal           | Soil   | mg/kg | 51                          | 51         | 0                          | 51                             | 100.00%      |
| Beryllium                    | Metal           | Soil   | mg/kg | 51                          | 47         | 0                          | 51                             | 100.00%      |
| Cadmium                      | Metal           | Soil   | mg/kg | 51                          | 5          | 0                          | 51                             | 100.00%      |
| Chromium                     | Metal           | Soil   | mg/kg | 51                          | 51         | 0                          | 51                             | 100.00%      |
| Chromium VI                  | Metal           | Soil   | mg/kg | 49                          | 10         | 0                          | 49                             | 100.00%      |
| Cobalt                       | Metal           | Soil   | mg/kg | 51                          | 45         | 0                          | 51                             | 100.00%      |
| Copper                       | Metal           | Soil   | mg/kg | 51                          | 51         | 0                          | 51                             | 100.00%      |
| Iron                         | Metal           | Soil   | mg/kg | 51                          | 51         | 0                          | 51                             | 100.00%      |
| Lead                         | Metal           | Soil   | mg/kg | 51                          | 50         | 0                          | 51                             | 100.00%      |
| Manganese                    | Metal           | Soil   | mg/kg | 51                          | 51         | 0                          | 51                             | 100.00%      |
| Mercury                      | Metal           | Soil   | mg/kg | 49                          | 16         | 0                          | 49                             | 100.00%      |
| Nickel                       | Metal           | Soil   | mg/kg | 51                          | 50         | 0                          | 51                             | 100.00%      |
| Selenium                     | Metal           | Soil   | mg/kg | 51                          | 7          | 0                          | 51                             | 100.00%      |
| Silver                       | Metal           | Soil   | mg/kg | 51                          | 8          | 0                          | 51                             | 100.00%      |
| Thallium                     | Metal           | Soil   | mg/kg | 51                          | 5          | 0                          | 51                             | 100.00%      |
| Vanadium                     | Metal           | Soil   | mg/kg | 51                          | 51         | 0                          | 51                             | 100.00%      |
| Zinc                         | Metal           | Soil   | mg/kg | 51                          | 50         | 0                          | 51                             | 100.00%      |
| Aroclor 1016                 | PCB             | Soil   | mg/kg | 25                          | 0          | 0                          | 25                             | 100.00%      |
| Aroclor 1221                 | PCB             | Soil   | mg/kg | 25                          | 0          | 0                          | 25                             | 100.00%      |
| Aroclor 1232                 | PCB             | Soil   | mg/kg | 25                          | 0          | 0                          | 25                             | 100.00%      |
| Aroclor 1242                 | PCB             | Soil   | mg/kg | 25                          | 0          | 0                          | 25                             | 100.00%      |
| Aroclor 1248                 | PCB             | Soil   | mg/kg | 25                          | 0          | 0                          | 25                             | 100.00%      |
| Aroclor 1254                 | PCB             | Soil   | mg/kg | 25                          | 3          | 0                          | 25                             | 100.00%      |
| Aroclor 1260                 | PCB             | Soil   | mg/kg | 25                          | 4          | 0                          | 25                             | 100.00%      |
| Aroclor 1262                 | PCB             | Soil   | mg/kg | 25                          | 0          | 0                          | 25                             | 100.00%      |
| Aroclor 1268                 | PCB             | Soil   | mg/kg | 25                          | 0          | 0                          | 25                             | 100.00%      |
| PCBs (total)                 | PCB             | Soil   | mg/kg | 25                          | 6          | 0                          | 25                             | 100.00%      |
| 1,1-Biphenyl                 | SVOC            | Soil   | mg/kg | 49                          | 4          | 0                          | 49                             | 100.00%      |
| 1,2,4,5-Tetrachlorobenzene   | SVOC            | Soil   | mg/kg | 49                          | 0          | 0                          | 49                             | 100.00%      |
| 2,3,4,6-Tetrachlorophenol    | SVOC            | Soil   | mg/kg | 49                          | 0          | 11                         | 38                             | 77.55%       |
| 2,4,5-Trichlorophenol        | SVOC            | Soil   | mg/kg | 49                          | 0          | 11                         | 38                             | 77.55%       |
| 2,4,6-Trichlorophenol        | SVOC            | Soil   | mg/kg | 49                          | 0          | 11                         | 38                             | 77.55%       |
| 2,4-Dichlorophenol           | SVOC            | Soil   | mg/kg | 49                          | 0          | 11                         | 38                             | 77.55%       |
| 2,4-Dimethylphenol           | SVOC            | Soil   | mg/kg | 49                          | 0          | 11                         | 38                             | 77.55%       |
| 2,4-Dinitrophenol            | SVOC            | Soil   | mg/kg | 49                          | 1          | 10                         | 39                             | 79.59%       |
| 2,4-Dinitrotoluene           | SVOC            | Soil   | mg/kg | 49                          | 1          | 0                          | 49                             | 100.00%      |
| 2,6-Dinitrotoluene           | SVOC            | Soil   | mg/kg | 49                          | 2          | 0                          | 49                             | 100.00%      |
| 2-Chloronaphthalene          | SVOC            | Soil   | mg/kg | 49                          | 0          | 0                          | 49                             | 100.00%      |
| 2-Chlorophenol               | SVOC            | Soil   | mg/kg | 49                          | 0          | 11                         | 38                             | 77.55%       |
| 2-Methylnaphthalene          | SVOC            | Soil   | mg/kg | 49                          | 28         | 0                          | 49                             | 100.00%      |
| 2-Methylphenol               | SVOC            | Soil   | mg/kg | 49                          | 0          | 11                         | 38                             | 77.55%       |
| 2-Nitroaniline               | SVOC            | Soil   | mg/kg | 49                          | 0          | 0                          | 49                             | 100.00%      |
| 3&4-Methylphenol(m&p Cresol) | SVOC            | Soil   | mg/kg | 49                          | 1          | 11                         | 38                             | 77.55%       |
| 3,3'-Dichlorobenzidine       | SVOC            | Soil   | mg/kg | 49                          | 0          | 0                          | 49                             | 100.00%      |
| 4-Chloroaniline              | SVOC            | Soil   | mg/kg | 49                          | 1          | 0                          | 49                             | 100.00%      |
| 4-Nitroaniline               | SVOC            | Soil   | mg/kg | 49                          | 1          | 0                          | 49                             | 100.00%      |
| Acenaphthene                 | SVOC            | Soil   | mg/kg | 49                          | 28         | 0                          | 49                             | 100.00%      |
| Acenaphthylene               | SVOC            | Soil   | mg/kg | 49                          | 34         | 0                          | 49                             | 100.00%      |
| Acetophenone                 | SVOC            | Soil   | mg/kg | 49                          | 5          | 0                          | 49                             | 100.00%      |
| Anthracene                   | SVOC            | Soil   | mg/kg | 49                          | 36         | 0                          | 49                             | 100.00%      |
| Benz[a]anthracene            | SVOC            | Soil   | mg/kg | 49                          | 39         | 0                          | 49                             | 100.00%      |
| Benzaldehyde                 | SVOC            | Soil   | mg/kg | 49                          | 17         | 25                         | 24                             | 48.98%       |
| Benzo[a]pyrene               | SVOC            | Soil   | mg/kg | 49                          | 32         | 0                          | 49                             | 100.00%      |
| Benzo[b]fluoranthene         | SVOC            | Soil   | mg/kg | 49                          | 39         | 0                          | 49                             | 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 | 49                          | 34         | 0                          | 49                             | 100.00%      |
| Benzo[k]fluoranthene                  | SVOC            | Soil   | mg/kg | 49                          | 38         | 0                          | 49                             | 100.00%      |
| bis(2-chloroethoxy)methane            | SVOC            | Soil   | mg/kg | 49                          | 0          | 0                          | 49                             | 100.00%      |
| bis(2-Chloroethyl)ether               | SVOC            | Soil   | mg/kg | 49                          | 0          | 0                          | 49                             | 100.00%      |
| bis(2-Chloroisopropyl)ether           | SVOC            | Soil   | mg/kg | 49                          | 0          | 0                          | 49                             | 100.00%      |
| bis(2-Ethylhexyl)phthalate            | SVOC            | Soil   | mg/kg | 49                          | 4          | 0                          | 49                             | 100.00%      |
| Caprolactam                           | SVOC            | Soil   | mg/kg | 49                          | 5          | 0                          | 49                             | 100.00%      |
| Carbazole                             | SVOC            | Soil   | mg/kg | 49                          | 6          | 0                          | 49                             | 100.00%      |
| Chrysene                              | SVOC            | Soil   | mg/kg | 49                          | 35         | 0                          | 49                             | 100.00%      |
| Dibenz[a,h]anthracene                 | SVOC            | Soil   | mg/kg | 49                          | 26         | 0                          | 49                             | 100.00%      |
| Diethylphthalate                      | SVOC            | Soil   | mg/kg | 49                          | 1          | 0                          | 49                             | 100.00%      |
| Di-n-butylphthalate                   | SVOC            | Soil   | mg/kg | 49                          | 1          | 0                          | 49                             | 100.00%      |
| Di-n-octylphthalate                   | SVOC            | Soil   | mg/kg | 49                          | 2          | 0                          | 49                             | 100.00%      |
| Fluoranthene                          | SVOC            | Soil   | mg/kg | 49                          | 39         | 0                          | 49                             | 100.00%      |
| Fluorene                              | SVOC            | Soil   | mg/kg | 49                          | 26         | 0                          | 49                             | 100.00%      |
| Hexachlorobenzene                     | SVOC            | Soil   | mg/kg | 49                          | 1          | 0                          | 49                             | 100.00%      |
| Hexachlorobutadiene                   | SVOC            | Soil   | mg/kg | 49                          | 1          | 0                          | 49                             | 100.00%      |
| Hexachlorocyclopentadiene             | SVOC            | Soil   | mg/kg | 49                          | 1          | 0                          | 49                             | 100.00%      |
| Hexachloroethane                      | SVOC            | Soil   | mg/kg | 49                          | 1          | 0                          | 49                             | 100.00%      |
| Indeno[1,2,3-c,d]pyrene               | SVOC            | Soil   | mg/kg | 49                          | 33         | 0                          | 49                             | 100.00%      |
| Isophorone                            | SVOC            | Soil   | mg/kg | 49                          | 0          | 0                          | 49                             | 100.00%      |
| Naphthalene                           | SVOC            | Soil   | mg/kg | 49                          | 24         | 0                          | 49                             | 100.00%      |
| Nitrobenzene                          | SVOC            | Soil   | mg/kg | 49                          | 0          | 0                          | 49                             | 100.00%      |
| N-Nitroso-di-n-propylamine            | SVOC            | Soil   | mg/kg | 49                          | 2          | 0                          | 49                             | 100.00%      |
| N-Nitrosodiphenylamine                | SVOC            | Soil   | mg/kg | 49                          | 0          | 0                          | 49                             | 100.00%      |
| Pentachlorophenol                     | SVOC            | Soil   | mg/kg | 49                          | 0          | 11                         | 38                             | 77.55%       |
| Phenanthrene                          | SVOC            | Soil   | mg/kg | 49                          | 42         | 0                          | 49                             | 100.00%      |
| Phenol                                | SVOC            | Soil   | mg/kg | 49                          | 1          | 11                         | 38                             | 77.55%       |
| Pyrene                                | SVOC            | Soil   | mg/kg | 49                          | 43         | 0                          | 49                             | 100.00%      |
| Diesel Range Organics                 | TPH             | Soil   | mg/kg | 49                          | 46         | 0                          | 49                             | 100.00%      |
| Gasoline Range Organics               | TPH             | Soil   | mg/kg | 49                          | 1          | 0                          | 49                             | 100.00%      |
| Oil and Grease                        | TPH             | Soil   | mg/kg | 49                          | 49         | 0                          | 49                             | 100.00%      |
| 1,1,1-Trichloroethane                 | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| 1,1,2,2-Tetrachloroethane             | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| 1,1,2-Trichloroethane                 | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| 1,1-Dichloroethane                    | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| 1,1-Dichloroethene                    | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| 1,2,3-Trichlorobenzene                | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| 1,2,4-Trichlorobenzene                | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| 1,2-Dibromo-3-chloropropane           | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| 1,2-Dibromoethane                     | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| 1,2-Dichlorobenzene                   | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| 1,2-Dichloroethane                    | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| 1,2-Dichloroethene (Total)            | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| 1,2-Dichloropropane                   | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| 1,3-Dichlorobenzene                   | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| 1,4-Dichlorobenzene                   | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| 2-Butanone (MEK)                      | VOC             | Soil   | mg/kg | 17                          | 5          | 0                          | 17                             | 100.00%      |
| 2-Hexanone                            | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| 4-Methyl-2-pentanone (MIBK)           | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| Acetone                               | VOC             | Soil   | mg/kg | 17                          | 10         | 0                          | 17                             | 100.00%      |
| Benzene                               | VOC             | Soil   | mg/kg | 17                          | 2          | 0                          | 17                             | 100.00%      |
| Bromodichloromethane                  | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| Bromoform                             | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| Bromomethane                          | VOC             | Soil   | mg/kg | 17                          | 0          | 13                         | 4                              | 23.53%       |
| Carbon disulfide                      | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| Carbon tetrachloride                  | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 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 |
|--------------------------------|-----------------|--------|-------|-----------------------------|------------|----------------------------|--------------------------------|--------------|
| Chlorobenzene                  | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| Chloroethane                   | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| Chloroform                     | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| Chloromethane                  | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| cis-1,2-Dichloroethene         | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| cis-1,3-Dichloropropene        | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| Cyclohexane                    | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| Dibromochloromethane           | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| Dichlorodifluoromethane        | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| Ethylbenzene                   | VOC             | Soil   | mg/kg | 17                          | 1          | 0                          | 17                             | 100.00%      |
| Isopropylbenzene               | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| Methyl Acetate                 | VOC             | Soil   | mg/kg | 17                          | 0          | 4                          | 13                             | 76.47%       |
| Methyl tert-butyl ether (MTBE) | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| Methylene Chloride             | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| Styrene                        | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| Tetrachloroethene              | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| Toluene                        | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| trans-1,2-Dichloroethene       | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| trans-1,3-Dichloropropene      | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| Trichloroethene                | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| Trichlorofluoromethane         | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| Vinyl chloride                 | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| Xylenes                        | VOC             | Soil   | mg/kg | 17                          | 0          | 0                          | 17                             | 100.00%      |
| 1,4-Dioxane                    | VOC/SVOC        | Soil   | mg/kg | 17                          | 0          | 17                         | 0                              | 0.00%        |

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