PHASE II INVESTIGATION REPORT

AREA B: PARCEL B19 TRADEPOINT ATLANTIC SPARROWS POINT, MARYLAND

Prepared For:



ENVIROANALYTICS GROUP 1650 Des Peres Road, Suite 230 Saint Louis, Missouri 63131

Prepared By:



ARM GROUP INC.

9175 Guilford Road Suite 310 Columbia, Maryland 20146

ARM Project No. 150300M-15

Respectfully Submitted,

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Taylor R. Smith Project Engineer

Nul Pets

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

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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 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 feel 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[®] 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 characterized as non-hazardous. A list of all results from the aqueous waste characterized as non-hazardous.

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 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
 - \circ 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	
Pocult loss than PI	Result less than RL	Result is Qualified "B"	
Kesuit less than KL	Result greater than RL	Remove "B"	
Posult greater than PI	Result less than Blank Result	Result is Qualified "B"	
Result greater than RL	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 noncarcinogenic 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 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
	EU1 (40.8 ac.)	Surface Soil	none	6E-6
		Subsurface Soil	none	4E-6
Composite		Surface & Subsurface Soil	none	4E-6
Worker	ELIO	Surface Soil	none	4E-6
	EU2	Subsurface Soil	none	6E-6
	(++.0 ac.)	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 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 is provided in Section 4.2. No additional action is recommended with regard to the PAL exceedances at B19-034-SB and 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 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.
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- 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.



FIGURES












TABLES

TABLE 1 HISTORICAL SITE DRAWING DETAILS												
Set Name	Typical Features Shown	<u>Drawing</u> <u>Number</u>	<u>Original Date</u> <u>Drawn</u>	Latest Revision Date								
Plant Arrangement	Roads, water bodies, building/structure footprints, electric lines, above-ground pipelines (e.g.: steam, nitrogen, etc.)	5017 5023 5024 5029 5030	7/7/1958 9/8/1958 9/1/1958 8/25/1959 8/2/1958	3/12/1982 3/11/1982 3/11/1982 3/11/1982 3/11/1982								
Plant Index	Roads, water bodies, demolished buildings/structures, electric lines, above-ground pipelines	5117 5123 5124 5129 5130	Unknown Unknown Unknown Unknown Unknown	8/14/2008 11/7/2008 5/3/2007 9/10/2009 6/26/2008								
Plant Sewer Lines	Same as above plus trenches, sumps, underground piping (includes pipe materials)	5517 5523 5524 5529 5530	8/21/1959 Unknown Unknown 8/26/1959 8/15/1959	2/9/1982 2/24/1982 2/24/1982 7/14/1992 3/29/1976								
Drip Legs	Coke Oven Gas Drip Legs Locations	5886B	Unknown	Sept. 1988								

	TABLE 2 FIELD SHIFTED BORING LOCATIONS													
		Proposed	Location [¥]	<u>Final L</u>	ocation [¥]	Reloc	ation_							
Location ID	<u>Sample Target</u>	<u>Northing</u>	<u>Easting</u>	<u>Northing</u>	<u>Easting</u>	<u>Distan</u> Direc	<u>ice &</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							

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

Sample ID	<u>Parameter</u>	<u>Result</u> (mg/L)	<u>Flag</u>	<u>TCLP</u> Limit (mg/L)	<u>TCLP</u> Exceedance	Laboratory LOQ (mg/L)
	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
P10 Weste	Cadmium	0.0021	J	1	no	0.05
Disposal	Carbon tetrachloride	0.05	U	0.5	no	0.05
(2/2/17)	Chlorobenzene	1	U	100	no	1
(2/2/17)	Chloroform	0.5	U	6	no	0.5
	Chromium	0.0016	В	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

Sample ID	Parameter	<u>Result</u> (mg/L)	<u>Flag</u>	<u>TCLP</u> <u>Limit</u> (mg/L)	<u>TCLP</u> Exceedance	Laboratory LOQ (mg/L)
	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
P10 Weste	Cadmium	0.00042	J	1	no	0.05
Disposal	Carbon tetrachloride	0.05	U	0.5	no	0.05
(6/14/17)	Chlorobenzene	1	U	100	no	1
(0/14/17)	Chloroform	0.5	U	6	no	0.5
	Chromium	0.0027	В	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	В	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: 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

Sample ID	Parameter	<u>Result</u> (mg/L)	<u>Laboratory</u> <u>Flag</u>	TCLP Limit (mg/L)	<u>TCLP</u> Exceedance	Laboratory LOQ (mg/L)
	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
Water	Carbon tetrachloride	0.001	U	0.5	no	0.001
Disposal	Chlorobenzene	0.001	U	100	no	0.001
(2/2/17)	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
	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
Water	Carbon tetrachloride	0.001	U	0.5	no	0.001
Disposal	Chlorobenzene	0.001	U	100	no	0.001
(4/12/17)	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 4CHARACTERIZATION RESULTS FOR LIQUID IDW

Sample ID	<u>Parameter</u>	<u>Result</u> (mg/L)	<u>Laboratory</u> <u>Flag</u>	<u>TCLP</u> <u>Limit</u> (mg/L)	<u>TCLP</u> Exceedance	Laboratory LOQ (mg/L)
	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
Water	Cadmium	0.0803		1	no	0.003
Disposal	Carbon tetrachloride	0.005	U	0.5	no	0.005
(6/14/17)	Chlorobenzene	0.005	U	100	no	0.005
(0/14/17)	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

 TABLE 4

 CHARACTERIZATION RESULTS FOR LIQUID IDW

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

			2					-	~ P		-								
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	B19-005-SB-1	B19-005-SB-6	B19-006-SB-1*	B19-006-SB-5*	B19-007-SB-8.5*	B19-008-SB-7.5*	B19-009-SB-1	B19-010-SB-1.5	B19-010-SB-5
Volatile Organic Compounds		u	<u>.</u>	1	I	1	1	I	1			1	I	1				I	
2-Butanone (MEK)	mg/kg	190.000	N/A	N/A	N/A	N/A	N/A	0.014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Acetone	mg/kg	670.000	N/A	N/A	N/A	N/A	N/A	0.076	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	mg/kg	5.1	N/A	N/A	N/A	N/A	N/A	0.0048 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ethylbenzene	mg/kg	25	N/A	N/A	N/A	N/A	N/A	0.013 J	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Isopropylbenzene	mg/kg	9,900	N/A	N/A	N/A	N/A	N/A	0.0048 UJ	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Toluene	mg/kg	47.000	N/A	N/A	N/A	N/A	N/A	0.0048 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Xylenes	mg/kg	2 800	N/A	N/A	N/A	N/A	N/A	0.014 U	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Semi-Volatile Organic Compound	<u>م</u>	2,000	1011	1011	1011	1.011	1011	0.011.0	1 1/ 1 1	1011	1.011	1011	1011	1011	1011	1011	1.011	1 1/ 1 1	1.011
1 1-Binhenyl	mg/kg	200	0.072 U	0.081.U	0.071 U	0.08.U	0.071 U	0.082 U	0.072 U	0.082.11	0.07 U	0.089.11	0.079 U	0.081 U	0.075 U	0.085 U	0.077 U	0.054 I	0.08.11
2 4-Dimethylphenol	mg/kg	16,000	0.072 U	0.081 U	0.071 U	0.08 U	0.071 U	0.082 U	0.072 U	0.082 U	0.07 U	0.089 U	0.079 U	0.081 U	0.075 U	0.022 I	0.077 B	0.0343	0.08 U
2.4-Dinitrophenol	mg/kg	1 600	0.18 U	0.001 0	0.18 U	0.2 U	0.18 U	0.002.0	0.18 UI	0.002 0	0.17 UI	0.005 0	0.0750	0.2 U	0.19 U	0.21 U	0.19 R	0.00 0	0.00 0
2.4-Dinitrotoluene	mg/kg	7.4	0.13 U	0.081 U	0.071 U	0.2.0	0.071 U	0.082 U	0.072 U	0.082 U	0.07 U	0.22 UJ	0.2.0	0.081 U	0.075 U	0.085 U	0.17 K	0.2 03	0.2 05
2,4-Dinitrotoluene	mg/kg	1.5	0.072 U	0.081 U	0.071 U	0.08 U	0.071 U	0.082 U	0.072 U	0.082 U	0.07 U	0.087 0	0.079 U	0.081 U	0.075 U	0.085 U	0.077 U	0.08 U	0.08 U
2,0-Dimitotoluene	mg/kg	60.000	0.072 U	0.081 U	0.071 U	0.08 U	0.071 U	0.082 U	0.072 U	0.082 U	0.07 U	0.13	0.079 U	0.081 U	0.075 U	0.085 U	0.077 U	0.08 U	0.08 U
2-Chioronaphthalene	mg/kg	3,000	0.072 0	0.081 U	0.071 U	0.000 U	0.071 0	0.082 0	0.072 0	0.082 0	0.07 0	0.089 0	0.079 0	0.0082 U	0.075 U	0.083 U	0.077 0	0.08 0	0.08 U
2 ht Methylphonel(m hp Creed)	mg/kg	3,000	0.012	0.0083 U	0.07 U	0.008 U	0.014	0.015	0.14 U	0.0039 J	0.012	0.025	0.0027 J	0.0082 U	0.0070 U	0.003 J	0.018	0.16 U	0.0079 U
4 Chlorooniling	mg/kg	41,000	0.14 U	0.10 U	0.14 0	0.10 U	0.14 U	0.10 U	0.14 U	0.10 U	0.14 U	0.18 U	0.10 U	0.10 U	0.15 U	0.17 U	0.13 K	0.10 U	0.10 U
4 Nitroopiling	mg/kg	11	0.072 U	0.081 U	0.071 U	0.08 U	0.071 U	0.082 U	0.072 U	0.082 U	0.07 U	0.069 U	0.079 U	0.081 U	0.075 U	0.085 U	0.077 U	0.08 U	0.08 U
4-Milloamme	mg/kg	110	0.18 UJ	0.2 UJ	0.18 UJ	0.2 UJ	0.18 0J	0.21 0J	0.18 U	0.21 0	0.17 0	0.22 0	0.2 0	0.2 U	0.19 0	0.21 0	0.19 0J	0.2 0J	0.2 UJ
Acenaphthelene	mg/kg	45,000	0.00092 J	0.0083 U	0.011 J	0.008 U	0.012	0.0042 J	0.0022 J	0.0010 J	0.005 J	0.0050 J	0.0079 0	0.0082 U	0.0076 U	0.0014 J	0.0031 J	0.028 J	0.0079 0
Acetaphinylene	mg/kg	43,000	0.0057 J	0.0085 U	0.013 J	0.008 U	0.083	0.0025 J	0.0029 J	0.00078 J	0.0045 J	0.000 U	0.001 J	0.0082 U	0.0076 U	0.0018 J	0.0038 J	0.1	0.00005 J
Anthracana	mg/kg	220,000	0.072 0	0.081 U	0.071 0	0.000 U	0.071 0	0.082 0	0.072 0	0.082 0	0.07 0	0.069 0	0.079 0	0.0082 U	0.075 U	0.085 U	0.077 0	0.035 J	0.08 U
	mg/kg	230,000	0.0038 J	0.0083 U	0.012 J	0.008 U	0.074	0.0040 J	0.0059 J	0.0017J	0.0095	0.013	0.0018 J	0.0082 0	0.0076 U	0.0085 U	0.0073 J	0.11	0.0079 U
Benz[a]anthracene	mg/kg	21	0.025	0.0083 U	0.049 J	0.008 U	0.14	0.013	0.021	0.0072 J	0.033	0.039	0.00/1 J	0.0013 J	0.0076 U	0.0085 U	0.029	0.25	0.0079 U
Benzaldenyde	mg/kg	120,000	0.02 J	0.081 U	0.024 J	0.08 U	0.071 0	0.002 J	0.072 K	0.082 K	0.019 J	0.020 J	0.047 J	0.0082 U	0.075 U	0.085 U	0.077 K	0.054 J	0.08 K
Benzo[a]pyrene	mg/kg	2.1	0.037	0.0083 U	0.049 J	0.008 U	0.24	0.013	0.023 J	0.0054 B	0.035	0.044	0.0058 J	0.0082 U	0.0076 U	0.0085 U	0.03	0.41	0.0079 U
Benzo[b]fluorantnene	mg/kg	21	0.071	0.0083 U	0.094	0.008 U	0.51	0.025	0.056 J	0.011	0.077	0.078	0.0086	0.0082 U	0.0076 U	0.0085 U	0.066	0.45	0.0012 J
Benzo[g,h,i]perylene	mg/kg	210	0.023	0.0083 U	0.032 J	0.008 U	0.2	0.0078 J	0.02 J	0.0041 J	0.033	0.031	0.0053 J	0.0082 U	0.0076 U	0.0085 U	0.012	0.3	0.0079 UJ
Benzo[k]fluoranthene	mg/kg	210	0.069	0.0083 U	0.091	0.008 U	0.49	0.024	0.054 J	0.011	0.074	0.075	0.0043 J	0.0082 U	0.0076 U	0.0085 U	0.053	0.36	0.0079 U
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.072 U	0.081 U	0.071 UJ	0.08 U	0.071 U	0.082 U	0.0/2 U	0.082 U	0.07 U	0.089 U	0.079 U	0.081 U	0.075 U	0.085 U	0.016 B	0.09 J	0.08 U
Caprolactam	mg/kg	400,000	0.18 U	0.2 U	0.18 U	0.2 U	0.18 U	0.034 J	0.18 U	0.21 U	0.17 U	0.22 U	0.2 U	0.2 U	0.19 U	0.21 U	0.19 UJ	0.2 UJ	0.2 UJ
Carbazole	mg/kg		0.072 U	0.081 U	0.071 U	0.08 U	0.03 J	0.082 U	0.072 U	0.082 U	0.07 U	0.089 U	0.079 U	0.081 U	0.075 U	0.085 U	0.077 UJ	0.022 J	0.08 UJ
Chrysene	mg/kg	2,100	0.031	0.0083 U	0.036 J	0.008 U	0.18	0.017	0.036	0.0061 B	0.049	0.053	0.007 J	0.0082 U	0.0076 U	0.0085 U	0.035	0.54	0.0079 U
Dibenz[a,h]anthracene	mg/kg	2.1	0.0084	0.0083 U	0.07 U	0.008 U	0.073	0.0021 J	0.006 J	0.0081 U	0.0093	0.0097	0.0079 U	0.0082 U	0.0076 U	0.0085 U	0.0049 J	0.079 J	0.0079 U
Diethylphthalate	mg/kg	660,000	0.072 U	0.081 U	0.071 U	0.08 U	0.071 U	0.082 U	0.072 U	0.082 U	0.07 U	0.089 U	0.079 U	0.081 U	0.075 U	0.2	0.077 U	0.08 U	0.08 U
D1-n-butylphthalate	mg/kg	82,000	0.072 U	0.081 U	0.071 U	0.08 U	0.071 U	0.082 U	0.072 U	0.082 U	0.07 U	0.089 U	0.079 U	0.081 U	0.075 U	0.085 U	0.077 UJ	0.08 UJ	0.08 UJ
D1-n-ocytlphthalate	mg/kg	8,200	0.035 B	0.081 U	0.039 B	0.08 U	0.071 UJ	0.082 U	0.072 U	0.082 U	0.07 U	0.089 U	0.079 U	0.081 U	0.075 U	0.085 U	0.077 UJ	0.08 UJ	0.08 UJ
Fluoranthene	mg/kg	30,000	0.033	0.0083 U	0.056 J	0.008 U	0.13	0.028	0.03	0.011	0.074	0.077	0.014	0.00099 J	0.0076 U	0.0085 U	0.054	0.2	0.0079 U
Fluorene	mg/kg	30,000	0.00078 J	0.0083 U	0.0062 J	0.008 U	0.004 J	0.0073 J	0.001 J	0.0013 J	0.0017 J	0.0052 J	0.0079 U	0.0082 U	0.0076 U	0.001 J	0.0036 J	0.052 J	0.0079 U
Hexachlorobenzene	mg/kg	0.96	0.072 U	0.081 U	0.071 U	0.08 U	0.071 U	0.082 U	0.072 U	0.082 U	0.07 U	0.089 U	0.079 U	0.081 U	0.075 U	0.085 U	0.077 U	0.08 U	0.08 U
Hexachlorobutadiene	mg/kg	5.3	0.072 U	0.081 U	0.071 U	0.08 U	0.071 U	0.082 U	0.072 U	0.082 U	0.07 U	0.089 U	0.079 U	0.081 U	0.075 U	0.085 U	0.077 U	0.08 U	0.08 U
Hexachlorocyclopentadiene	mg/kg	7.5	0.072 U	0.081 U	0.0/1 U	0.08 U	0.071 U	0.082 U	0.072 U	0.082 U	0.07 U	0.089 U	0.079 U	0.081 U	0.075 U	0.085 U	0.077 U	0.08 U	0.08 U
Hexachloroethane	mg/kg	8	0.072 U	0.081 U	0.071 U	0.08 U	0.071 U	0.082 U	0.072 U	0.082 U	0.07 U	0.089 U	0.079 U	0.081 U	0.075 U	0.085 U	0.077 U	0.08 U	0.08 U
Indeno[1,2,3-c,d]pyrene	mg/kg	21	0.023	0.0083 U	0.03 J	0.008 U	0.19	0.007 J	0.016 J	0.0033 J	0.028	0.025	0.0032 J	0.0082 U	0.0076 U	0.0085 U	0.011	0.084	0.0079 UJ
Naphthalene	mg/kg	17	0.011	0.0083 U	0.051 B	0.008 U	0.02	0.022	0.01	0.012	0.013	0.037	0.006 J	0.0082 U	0.0076 U	0.0041 J	0.018	0.26	0.0079 U
N-Nitroso-di-n-propylamine	mg/kg	0.33	0.072 U	0.081 U	0.071 U	0.08 U	0.071 U	0.082 U	0.072 U	0.082 U	0.07 U	0.089 U	0.079 U	0.081 U	0.075 U	0.085 U	0.077 U	0.08 U	0.08 U
N-Nitrosodiphenylamine	mg/kg	470	0.072 U	0.081 U	0.071 U	0.08 U	0.071 U	0.082 U	0.072 U	0.082 U	0.07 U	0.089 U	0.079 U	0.081 U	0.075 U	0.085 U	0.077 U	0.08 U	0.08 U
Phenanthrene	mg/kg	-	0.016	0.0083 U	0.033 J	0.008 U	0.043	0.018	0.02	0.009	0.039	0.06	0.011	0.0011 J	0.0076 U	0.0085 U	0.043	0.3	0.0079 U
Phenol	mg/kg	250,000	0.072 U	0.081 U	0.071 U	0.08 U	0.071 U	0.082 U	0.072 U	0.082 U	0.07 U	0.089 U	0.079 U	0.081 U	0.075 U	0.085 U	0.077 R	0.02 J	0.08 U
Pyrene	mg/kg	23,000	0.03	0.0083 U	0.062 J	0.008 U	0.16	0.023	0.026	0.0088	0.065	0.067	0.011	0.001 J	0.0076 U	0.0085 U	0.046	0.65	0.00093 J
PCBs		1				-	-					-		1					
Aroclor 1254	mg/kg	0.97	0.0537 U	N/A	0.054 U	N/A	0.0543 U	N/A	0.035 J	N/A	0.19	N/A	0.02 U	N/A	N/A	N/A	0.0559 U	0.107	N/A
Aroclor 1260	mg/kg	0.99	0.0537 U	N/A	0.054 U	N/A	0.0543 U	N/A	0.0546 U	N/A	0.0627	N/A	0.0079 J	N/A	N/A	N/A	0.0559 U	0.0624 U	N/A
PCBs (total)	mg/kg	0.97	0.0537 U	N/A	0.054 U	N/A	0.0543 U	N/A	0.035 J	N/A	0.2527	N/A	0.14 U	N/A	N/A	N/A	0.0559 U	0.107	N/A
TPH/Oil and Grease																			
Diesel Range Organics	mg/kg	6,200	18.1 J	5.5 J	23.7 J	6.3 J	43.5 J	81.2 J	22.3 J	16.3	29.2	23.9	13.8 B	4.4 B	3.2 B	39.2	27.6 J	394 J	3.5 J
Gasoline Range Organics	mg/kg	6,200	16.4 U	10.3 U	12 U	9.8 U	10 U	11.4 U	11.2 U	9.5 U	11.1 U	11.1 U	14.6 U	9.5 U	8.7 U	11.1 U	10.1 B	12.1 U	9.2 U
Oil and Grease	mg/kg	6,200	303	194	674	281	442	1,040	344	750	342	957	720	626	238	533	565	7,950	283

Detections in bold

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

* indicates non-validated data result

^ PAH compounds were analyzed via SIM

N/A indicates the parameter 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 quantitation/detection limit may be higher than reported.

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

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

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

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Parameter	Units	PAL	B19-011-SB-1	B19-011-SB-5	B19-012-SB-1	B19-012-SB-5	B19-013-SB-1	B19-013-SB-5	B19-014-SB-1	B19-014-SB-5	B19-015-SB-1	B19-015-SB-5	B19-016-SB-1	B19-016-SB-4	B19-017-SB-1*	B19-017-SB-4*	B19-018-SB-1*	B19-019-SB-1*	B19-019-SB-8*
Volatile Organic Compounds	<u>u</u>	u																	
2-Butanone (MEK)	mø/kø	190.000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.011 U	0.0046 J	N/A	0.01 U	0.0031 J
Acetone	mg/kg	670.000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.011 U	0.012	N/A	0.01 U	0.021
Benzene	mg/kg	5.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.012	0.0056 U	N/A	0.005 U	0.0062.U
Ethylbenzene	mg/kg	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0021 I	0.0056 U	N/A	0.005 U	0.0062 U
Isopropylbenzene	mg/kg	9 900	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0053 U	0.0056 U	N/A	0.005 U	0.0062 U
Toluene	mg/kg	47,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0055 0	0.0056 U	N/A	0.005 U	0.0062 U
Yylanas	mg/kg	2 800	N/A	N/A N/A	N/A N/A	N/A	N/A N/A	N/A	N/A	N/A	N/A N/A	N/A N/A	N/A	N/A	0.0001	0.0050 0	N/A N/A	0.005 U	0.0002.0
Somi Volatila Organia Compound	nng/kg αA	2,800	10/A	IN/A	IN/A	10/A	IN/A	IN/A	IN/A	10/A	IN/A	IN/A	IN/A	IN/A	0.0003 1	0.017 0	IN/A	0.015 0	0.019 0
1 1 Dinkerry	.5	200	0.076 U	0.070 U	0.027.1	0.070 U	0.075 U	0.092.11	0.076 U	0.092.11	0.079.11	0.070 U	0.072 U	0.077 U	0.074 U	0.071 U	0.075 U	0.07.11	0.079.11
1,1-Bipnenyi	mg/kg	200	0.076 U	0.079 U	0.037 J	0.079 U	0.075 U	0.083 U	0.076 U	0.083 U	0.078 U	0.079 U	0.072 U	0.077 U	0.074 U	0.071 U	0.075 U	0.07 U	0.078 U
2,4-Dimethylphenol	mg/kg	16,000	0.076 UJ	0.079 U	0.075 K	0.079 U	0.075 K	0.083 R	0.076 U	0.083 U	0.078 K	0.079 U	0.072 U	0.077 UJ	0.074 U	0.0/1 U	0.075 U	0.07 U	0.021 J
2,4-Dinitrophenol	mg/kg	1,600	0.19 UJ	0.2 UJ	0.19 UJ	0.2 UJ	0.19 K	0.21 K	0.19 UJ	0.21 UJ	0.2 K	0.2 UJ	0.18 UJ	0.19 UJ	0.18 U	0.18 U	0.19 U	0.18 U	0.2 0
2,4-Dinitrotoluene	mg/kg	1.4	0.076 U	0.079 U	0.075 U	0.079 U	0.075 U	0.083 U	0.076 U	0.083 U	0.078 U	0.079 U	0.072 U	0.077 U	0.074 U	0.071 U	0.075 U	0.07 U	0.078 U
2,6-Dinitrotoluene	mg/kg	1.5	0.076 U	0.079 U	0.075 U	0.079 U	0.075 U	0.083 U	0.076 U	0.083 U	0.078 U	0.079 U	0.072 U	0.077 U	0.074 U	0.071 U	0.075 U	0.07 U	0.078 U
2-Chloronaphthalene	mg/kg	60,000	0.076 U	0.079 U	0.075 U	0.079 U	0.075 U	0.083 U	0.076 U	0.083 U	0.078 U	0.079 U	0.072 U	0.077 U	0.074 U	0.071 U	0.075 U	0.07 U	0.078 U
2-Methylnaphthalene	mg/kg	3,000	0.081	0.008 U	0.65	0.0079 U	0.0092	0.023	0.076 U	0.0084 U	0.0058 J	0.008 U	0.0099	0.0069 J	0.024	0.0053 J	0.028	0.039	0.07/9 J
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	0.15 UJ	0.16 U	0.15 R	0.16 U	0.15 R	0.16 R	0.15 U	0.17 U	0.16 R	0.16 U	0.14 U	0.15 UJ	0.15 U	0.14 U	0.15 U	0.14 U	0.038 J
4-Chloroaniline	mg/kg	11	0.076 U	0.079 U	0.075 U	0.079 U	0.075 U	0.04 J	0.076 U	0.083 U	0.078 U	0.079 U	0.072 U	0.077 U	0.074 U	0.0/1 U	0.075 U	0.07 U	0.078 U
4-Nitroaniline	mg/kg	110	0.19 UJ	0.2 UJ	0.19 UJ	0.2 UJ	0.19 UJ	0.21 UJ	0.19 UJ	0.21 UJ	0.2 UJ	0.2 UJ	0.18 UJ	0.19 UJ	0.18 U	0.18 U	0.19 U	0.18 U	0.2 U
Acenaphthene	mg/kg	45,000	0.076 U	0.008 U	0.012 J	0.0079 U	0.0012 J	0.014	0.076 U	0.0084 U	0.0031 J	0.008 U	0.0035 J	0.0018 J	0.0083	0.0042 J	0.0022 J	0.0039 J	0.14
Acenaphthylene	mg/kg	45,000	0.017 J	0.00085 J	0.018 J	0.0079 U	0.005 J	0.079	0.076 U	0.0084 U	0.0025 J	0.008 U	0.014	0.0018 J	0.0029 J	0.008	0.0073 J	0.014	0.019 J
Acetophenone	mg/kg	120,000	0.076 U	0.079 U	0.039 J	0.079 U	0.075 U	0.027 J	0.076 U	0.083 U	0.078 U	0.079 U	0.072 U	0.077 U	0.074 U	0.071 U	0.075 U	0.02 J	0.078 U
Anthracene	mg/kg	230,000	0.012 J	0.008 U	0.02 J	0.0079 U	0.0076	0.13	0.076 U	0.0084 U	0.0088	0.008 U	0.03	0.002 J	0.0048 J	0.021	0.017	0.014	0.25
Benz[a]anthracene	mg/kg	21	0.04 J	0.008 U	0.051 J	0.0079 U	0.034	0.63	0.076 U	0.0084 U	0.029	0.008 U	0.12	0.0072 J	0.02	0.18	0.048	0.029	0.49
Benzaldehyde	mg/kg	120,000	0.076 R	0.079 R	0.025 J	0.079 R	0.075 R	0.096 J	0.076 R	0.083 R	0.078 R	0.079 R	0.072 R	0.077 R	0.033 J	0.071 U	0.075 U	0.044 J	0.026 J
Benzo[a]pyrene	mg/kg	2.1	0.024 J	0.008 U	0.05 J	0.0079 U	0.04	0.51	0.076 U	0.0084 U	0.024	0.008 U	0.11	0.0064 J	0.021	0.16	0.042	0.021	0.48
Benzo[b]fluoranthene	mg/kg	21	0.043 J	0.00098 J	0.088	0.0079 U	0.097	0.97	0.018 J	0.0084 U	0.045	0.008 U	0.32	0.015	0.04	0.26	0.092	0.08	0.91
Benzo[g,h,i]perylene	mg/kg		0.046 J	0.008 U	0.15	0.0079 U	0.023	0.23	0.076 U	0.0084 U	0.01	0.008 U	0.045	0.0026 J	0.018	0.11	0.034	0.014	0.19
Benzo[k]fluoranthene	mg/kg	210	0.034 J	0.008 U	0.07 J	0.0079 U	0.077	0.27	0.014 J	0.0084 U	0.036	0.008 U	0.26	0.012	0.031	0.081	0.074	0.064	0.73
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.095	0.079 U	0.025 B	0.079 U	0.075 UJ	0.083 UJ	0.076 UJ	0.083 UJ	0.078 UJ	0.079 UJ	0.072 UJ	0.077 UJ	0.16	0.071 U	0.075 U	0.07 U	0.078 U
Caprolactam	mg/kg	400,000	0.19 UJ	0.2 UJ	0.065 J	0.2 UJ	0.19 UJ	0.21 UJ	0.19 UJ	0.21 UJ	0.2 UJ	0.2 UJ	0.18 UJ	0.19 UJ	0.18 U	0.18 U	0.19 U	0.15 J	0.2 U
Carbazole	mg/kg		0.076 UJ	0.079 UJ	0.075 UJ	0.079 UJ	0.075 UJ	0.041 J	0.076 UJ	0.083 UJ	0.078 UJ	0.079 UJ	0.023 J	0.077 UJ	0.074 U	0.071 U	0.075 U	0.07 U	0.071 J
Chrysene	mg/kg	2,100	0.021 J	0.008 U	0.071 J	0.0079 U	0.044	0.64	0.0082 J	0.0084 U	0.039	0.008 U	0.17	0.0062 J	0.032	0.17	0.054	0.041	0.47
Dibenz[a,h]anthracene	mg/kg	2.1	0.076 U	0.008 U	0.018 J	0.0079 U	0.008	0.083	0.076 U	0.0084 U	0.004 J	0.008 U	0.019	0.0076 U	0.0057 J	0.033	0.01	0.0046 J	0.073 J
Diethylphthalate	mg/kg	660,000	0.076 U	0.079 U	0.075 U	0.079 U	0.075 U	0.083 U	0.076 U	0.083 U	0.078 U	0.079 U	0.072 U	0.077 U	0.074 U	0.071 U	0.075 U	0.07 U	0.078 U
Di-n-butylphthalate	mg/kg	82,000	0.076 UJ	0.079 UJ	0.075 UJ	0.079 UJ	0.075 UJ	0.083 UJ	0.076 UJ	0.083 UJ	0.078 UJ	0.079 UJ	0.072 UJ	0.077 UJ	0.074 U	0.071 U	0.075 U	0.07 U	0.078 U
Di-n-ocytlphthalate	mg/kg	8,200	0.076 UJ	0.079 U	0.075 UJ	0.079 U	0.075 UJ	0.083 UJ	0.076 UJ	0.083 UJ	0.078 UJ	0.079 UJ	0.072 UJ	0.077 UJ	0.27	0.071 U	0.075 U	0.07 U	0.078 U
Fluoranthene	mg/kg	30,000	0.036 J	0.00075 J	0.088	0.0079 U	0.06	1.3	0.011 J	0.0084 U	0.058	0.00084 J	0.26	0.013	0.031	0.22	0.13	0.05	1
Fluorene	mg/kg	30,000	0.076 U	0.008 U	0.017 J	0.0079 U	0.0012 J	0.035	0.076 U	0.0084 U	0.0039 J	0.008 U	0.0041 J	0.004 J	0.0067 J	0.0014 J	0.0021 J	0.0059 J	0.1
Hexachlorobenzene	mg/kg	0.96	0.076 U	0.079 U	0.075 U	0.079 U	0.075 U	0.083 U	0.076 U	0.083 U	0.078 U	0.079 U	0.072 U	0.077 U	0.074 U	0.071 U	0.075 U	0.07 U	0.078 U
Hexachlorobutadiene	mg/kg	5.3	0.076 U	0.079 U	0.075 U	0.079 U	0.075 U	0.083 U	0.076 U	0.083 U	0.078 U	0.079 U	0.072 U	0.077 U	0.074 U	0.071 U	0.075 U	0.07 U	0.078 U
Hexachlorocyclopentadiene	mg/kg	7.5	0.076 U	0.079 U	0.075 U	0.079 U	0.075 U	0.083 U	0.076 U	0.083 U	0.078 U	0.079 U	0.072 U	0.077 U	0.074 U	0.071 U	0.075 U	0.07 U	0.078 U
Hexachloroethane	mg/kg	8	0.076 U	0.079 U	0.075 U	0.079 U	0.075 U	0.083 U	0.076 U	0.083 U	0.078 U	0.079 U	0.072 U	0.077 U	0.074 U	0.071 U	0.075 U	0.018 J	0.078 U
Indeno[1,2,3-c,d]pyrene	mg/kg	21	0.012 J	0.008 U	0.021 J	0.0079 U	0.021	0.25	0.076 U	0.0084 U	0.0088	0.008 U	0.045	0.0025 J	0.011	0.098	0.027	0.011	0.19
Naphthalene	mg/kg	17	0.059 B	0.008 U	0.45	0.0079 U	0.011	0.1	0.076 U	0.0084 U	0.0045 B	0.008 U	0.0098	0.033	0.032	0.004 J	0.038	0.035	0.12
N-Nitroso-di-n-propylamine	mg/kg	0.33	0.076 U	0.079 U	0.075 U	0.079 U	0.075 U	0.083 U	0.076 U	0.083 U	0.078 U	0.079 U	0.072 U	0.077 U	0.074 U	0.071 U	0.075 U	0.07 U	0.078 U
N-Nitrosodiphenylamine	mg/kg	470	0.076 U	0.079 U	0.075 U	0.079 U	0.075 U	0.083 U	0.076 U	0.083 U	0.078 U	0.079 U	0.072 U	0.077 U	0.074 U	0.071 U	0.075 U	0.028 J	0.078 U
Phenanthrene	mg/kg		0.034 J	0.008 U	0.26	0.00063 J	0.039	0.67	0.0074 J	0.0084 U	0.05	0.0011 J	0.085	0.012	0.038	0.031	0.11	0.077	0.78
Phenol	mg/kg	250,000	0.076 UJ	0.079 U	0.075 R	0.079 U	0.075 R	0.083 R	0.076 U	0.083 U	0.078 R	0.079 U	0.072 U	0.077 UJ	0.074 U	0.071 U	0.075 U	0.07 U	0.078 U
Pyrene	mg/kg	23,000	0.033 J	0.00091 J	0.081	0.0079 U	0.052	1	0.0097 J	0.0084 U	0.062	0.008 U	0.22	0.01	0.031	0.26	0.1	0.047	0.83
PCBs																			
Aroclor 1254	mg/kg	0.97	0.058 U	N/A	0.0594 U	N/A	0.0542 U	N/A	0.0662 U	N/A	0.0769 U	N/A	0.0552 U	N/A	0.0536 U	N/A	0.0561 U	0.0536 U	N/A
Aroclor 1260	mg/kg	0.99	0.058 U	N/A	0.0594 U	N/A	0.0542 U	N/A	0.0662 U	N/A	0.0769 U	N/A	0.0552 U	N/A	0.0536 U	N/A	0.0561 U	0.0536 U	N/A
PCBs (total)	mg/kg	0.97	0.058 U	N/A	0.0594 U	N/A	0.0542 U	N/A	0.0662 U	N/A	0.0769 U	N/A	0.0552 U	N/A	0.0536 U	N/A	0.0561 U	0.0536 U	N/A
TPH/Oil and Grease		0.77		11/21	0.0071-0		0.0012.0		0.0002 0		0.07070		0.0002.0		0.00000	- 1/ 2 1	0.0001 0	0.00000	
Diesel Range Organics	mg/kg	6 200	58.0 1	421	63 3 1	8 111	23.6 1	35.1.1	15.9.1	561	4751	8 111	11 1 T	26.2.1	82.6	15 2 B	26.5 B	025	78.6
Gasoline Range Organics	mg/kg	6 200	30.7 J	11 1 II	10.1 U	8011	25.0 J	13 0 U	13.0 J 0 5 P	10 8 B	11 Q TT	10.2 11	0 P	20.2 J 11 7	35.9	11.5 U	11.2 U	740 11 9 II	12.6 U
Oil and Graasa	mg/kg	6 200	511	11.1 0	200	0.9 U 922	375	10.90	9.5 D 802	5/1	11.0 0	20/	270	600	270	100	11.2 U 201	2 100	1 270
Un and Ulcase	mg/kg	0,200	511	210	507	433	515	-173	003	341	430	J0 4	317	000	417	190	40 1	5,100	1,370

Detections in bold

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

* indicates non-validated data result

^ PAH compounds were analyzed via SIM

N/A indicates the parameter 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 quantitation/detection limit may be higher than reported.

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

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

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

Table 5 Summary of Organics Detected in Soil Parcel B19 Tradepoint Atlantic ~ _

								Sparrows	Point, Marylan	a								
Parameter	Units	PAL	B19-019-SB-10*	B19-020-SB-1*	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	B19-024-SB-5	B19-025-SB-1	B19-025-SB-5	B19-026-SB-1	B19-026-SB-8	B19-027-SB-1
Volatile Organic Compounds																		
2 Putenone (MEK)	malka	100.000	N/A	0.0006 U	0.0080 II	N/A	0.0007.11	0.011 U	0.011 U	NI/A	NI/A	NI/A	N/A	0.0020.1	0.0080 111	0.0087.11	N/A	0.01 U
	mg/kg	670,000	N/A N/A	0.0090 U	0.0089 0	IN/A N/A	0.0097 0	0.011 U	0.011 U	IN/A N/A	IN/A N/A	IN/A N/A	IN/A N/A	0.0039 J	0.0089 UJ	0.0087 U	N/A	0.01 0
Ponzono	mg/kg	5 1	N/A N/A	0.0090 U	0.012	N/A N/A	0.020	0.011 B	0.014 B	N/A N/A	N/A N/A	N/A N/A	N/A N/A	0.015 J	0.0039 UJ	0.0037 U	N/A N/A	0.0000 J
Ethylhonzono	mg/kg	25	N/A N/A	0.0048 U	0.0044 U	IN/A N/A	0.0049 U	0.0053 U	0.0054 U	IN/A N/A	IN/A N/A	IN/A N/A	IN/A N/A	0.0053 U	0.0044 U	0.0043 U	N/A N/A	0.0052 U
Isopropylbenzene	mg/kg	9 900	N/A N/A	0.0027 J	0.0044 U	N/A N/A	0.0049 UI	0.0053 UI	0.0054 UI	N/A N/A	N/A N/A	N/A N/A	N/A N/A	0.0053 U	0.0044 U	0.0043 U	N/A N/A	0.0052 U
Toluene	mg/kg	47,000	N/A N/A	0.0048 U	0.0044 U	N/A N/A	0.0049.03	0.0053 U	0.0054 UJ	N/A N/A	N/A N/A	N/A N/A	N/A N/A	0.0053 U	0.0044 U	0.0043 U	N/A N/A	0.0052 U
Yylenes	mg/kg	2 800	N/A N/A	0.0048 0	0.013 U	N/A	0.0049.0	0.0055 U	0.016 U	N/A N/A	N/A N/A	N/A N/A	N/A	0.0055 U	0.013 U	0.0043 U	N/A	0.0052.0
Semi-Volatile Organic Compound	nig/Kg	2,000	10/74	0.024	0.013 0	IN/A	0.015 0	0.010 0	0.010 0	IV/A	IV/A	IN/A	IN/A	0.010 0	0.015 0	0.013 0	IN/A	0.010 0
1 1 Binhanyl	ma/ka	200	N/A	0.072 U	0.073 U	0.071 U	0.08.11	0.072 U	0.074 U	0.071 U	0.079.11	0.078 U	0.076 U	0.076 U	0.079.11	0.060 U	0.078 U	0.077 U
2.4-Dimethylphenol	mg/kg	16,000	N/A N/A	0.072 U	0.073 U	0.071 C	0.08 UI	0.072 C	0.074 C	0.071 UI	0.079 U	0.078 U	0.076 U	0.076 U	0.079 U	0.069 U	0.078 U	0.077 B
2.4-Dinitrophenol	mg/kg	1 600	N/A N/A	0.072.0	0.18 U	0.071 K	0.08 05	0.072 R	0.18 P	0.18 UI	0.0770	0.078 U	0.070 U	0.070 C	0.0770	0.007 U	0.078 0	0.10 R
2.4-Dinitrophenor	mg/kg	7.4	N/A N/A	0.072 U	0.18 0	0.071 U	0.2 UJ	0.18 K	0.074 U	0.071 U	0.2 05	0.17 03	0.17 UJ	0.031 J	0.2 05	0.069 U	0.2 03	0.17 K
2 6-Dinitrotoluene	mg/kg	1.5	N/A	0.072 U	0.073 U	0.071 U	0.08 U	0.072 U	0.074 U	0.071 U	0.079 U	0.078 U	0.076 U	0.076 U	0.079 U	0.069 U	0.078 U	0.077 U
2-Chloronanhthalene	mg/kg	60,000	N/A	0.072 U	0.073 U	0.071 U	0.08 U	0.072 U	0.074 U	0.071 U	0.079 U	0.078 U	0.076 U	0.076 U	0.079 U	0.069 U	0.078 U	0.077 U
2-Methylnaphthalene	mg/kg	3,000	N/A	0.036	0.0052 J	0.014	0.025	0.002 C	0.0074 C	0.071 U	0.008 U	0.0022.J	0.078 U	0.070 0	0.0079 U	0.007	0.078 U	0.0079 U
3&4-Methylphenol(m&p Cresol)	mg/kg	41 000	N/A	0.14 UI	0.14 U	0.014 R	0.16 UI	0.14 R	0.15 R	0.14 UI	0.16 U	0.16 U	0.15 U	0.15 U	0.16 U	0.007	0.16 U	0.15 R
4-Chloroaniline	mg/kg	11	N/A	0.072 U	0.073 U	0.071 U	0.08 U	0.072 U	0.074 U	0.071 U	0.079 U	0.078 U	0.076 U	0.076 U	0.079 U	0.069 U	0.078 U	0.077 U
4-Nitroaniline	mg/kg	110	N/A	0.18 U	0.18 U	0.18 UJ	0.2 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.2 UJ	0.19 UJ	0.19 UJ	0.19 U	0.2 U	0.17 U	0.2 U	0.19 U
Acenaphthene	mg/kg	45.000	N/A	0.003 J	0.00096 J	0.0013 J	0.006 J	0.00076 J	0.0075 U	0.073 U	0.008 U	0.0078 U	0.0078 U	0.013 J	0.0079 U	0.0013 J	0.078 U	0.0079 U
Acenaphthylene	mg/kg	45,000	N/A	0.003 J	0.0012 J	0.0016 J	0.012	0.00069 J	0.0075 U	0.073 U	0.0011 J	0.0022 J	0.0078 U	0.012 J	0.00081 J	0.0016 J	0.078 U	0.0079 U
Acetophenone	mg/kg	120,000	N/A	0.072 U	0.073 U	0.071 U	0.08 U	0.072 U	0.074 U	0.071 U	0.079 U	0.078 U	0.076 U	0.076 U	0.079 U	0.069 U	0.078 U	0.077 U
Anthracene	mg/kg	230,000	N/A	0.017	0.0054 J	0.0081	0.045	0.0042 J	0.0075 U	0.01 J	0.0027 J	0.0026 J	0.0078 U	0.03 J	0.00067 J	0.003 J	0.0087 J	0.0079 U
Benz[a]anthracene	mg/kg	21	N/A	0.044	0.027	0.028	0.12	0.015	0.0015 J	0.036 J	0.014	0.024	0.0078 U	0.077	0.0027 J	0.0035 J	0.03 J	0.0019 J
Benzaldehyde	mg/kg	120,000	N/A	0.072 U	0.073 U	0.071 R	0.052 J	0.072 U	0.074 U	0.039 J	0.079 R	0.046 J	0.076 R	0.02 J	0.079 R	0.069 R	0.078 R	0.077 R
Benzo[a]pyrene	mg/kg	2.1	0.0013 J	0.039	0.023	0.023	0.13	0.015	0.0075 U	0.027 J	0.01 J	0.027	0.0078 UJ	0.092	0.003 J	0.0016 B	0.018 B	0.0079 U
Benzo[b]fluoranthene	mg/kg	21	N/A	0.1	0.051	0.059	0.17	0.025	0.0016 J	0.065 J	0.022 J	0.055	0.00069 J	0.18	0.0052 J	0.0061 B	0.04 B	0.0018 B
Benzo[g,h,i]perylene	mg/kg		N/A	0.054	0.017	0.026	0.089	0.014	0.0075 U	0.016 J	0.003 J	0.01	0.0078 UJ	0.16	0.0033 J	0.0018 J	0.014 J	0.0079 U
Benzo[k]fluoranthene	mg/kg	210	N/A	0.083	0.041	0.057	0.083	0.024	0.0016 J	0.051 J	0.017 J	0.044	0.0078 UJ	0.14	0.0019 J	0.0059 J	0.038 J	0.0079 U
bis(2-Ethylhexyl)phthalate	mg/kg	160	N/A	0.032 J	0.073 U	0.071 U	0.08 U	0.072 U	0.074 U	0.015 B	0.079 UJ	0.078 UJ	0.076 UJ	0.032 J	0.079 U	0.069 U	0.078 U	0.077 U
Caprolactam	mg/kg	400,000	N/A	0.18 U	0.18 U	0.18 U	0.2 U	0.18 U	0.18 U	0.18 UJ	0.2 UJ	0.19 UJ	0.19 UJ	0.19 U	0.2 U	0.17 U	0.2 U	0.19 U
Carbazole	mg/kg		N/A	0.072 U	0.073 U	0.071 U	0.08 U	0.072 U	0.074 U	0.071 UJ	0.079 UJ	0.078 UJ	0.076 UJ	0.076 U	0.079 U	0.069 U	0.078 U	0.077 U
Chrysene	mg/kg	2,100	N/A	0.071	0.027	0.042	0.17	0.024	0.00084 J	0.039 J	0.012	0.021	0.0078 U	0.11	0.0043 J	0.0059 B	0.021 B	0.0012 B
Dibenz[a,h]anthracene	mg/kg	2.1	N/A	0.015	0.0058 J	0.007 J	0.03	0.0033 J	0.0075 U	0.073 U	0.0013 J	0.0042 J	0.0078 UJ	0.038 J	0.0012 J	0.0068 U	0.078 U	0.0079 U
Diethylphthalate	mg/kg	660,000	N/A	0.072 U	0.073 U	0.071 U	0.08 U	0.072 U	0.074 U	0.071 U	0.079 U	0.078 U	0.076 U	0.076 U	0.079 U	0.069 U	0.078 U	0.077 U
Di-n-butylphthalate	mg/kg	82,000	N/A	0.072 U	0.073 U	0.071 U	0.08 U	0.072 U	0.074 U	0.071 UJ	0.079 UJ	0.078 UJ	0.076 UJ	0.076 U	0.079 U	0.069 U	0.078 U	0.077 U
Di-n-ocytlphthalate	mg/kg	8,200	N/A	0.072 U	0.073 U	0.071 U	0.042 B	0.072 U	0.074 U	0.071 UJ	0.079 UJ	0.078 UJ	0.076 UJ	0.076 UJ	0.079 U	0.069 U	0.078 U	0.077 U
Fluoranthene	mg/kg	30,000	N/A	0.088	0.053	0.052	0.16	0.024	0.0014 J	0.04 J	0.025	0.02	0.0078 U	0.085	0.0046 J	0.0066 B	0.032 B	0.002 B
Fluorene	mg/kg	30,000	N/A	0.0059 J	0.0073 U	0.0017 J	0.0063 J	0.00079 J	0.0075 U	0.073 U	0.008 U	0.0078 U	0.0078 U	0.0079 J	0.007/9 U	0.0016 J	0.078 U	0.0079 U
Hexachlorobenzene	mg/kg	0.96	N/A	0.072 U	0.073 U	0.071 U	0.08 U	0.072 U	0.074 U	0.071 U	0.079 U	0.078 U	0.076 U	0.076 U	0.079 U	0.069 U	0.078 U	0.077 U
Hexachlorobutadiene	mg/kg	5.5	N/A	0.072 U	0.073 U	0.071 U	0.08 U	0.072 U	0.074 U	0.071 U	0.079 U	0.078 U	0.076 U	0.076 U	0.079 U	0.069 U	0.078 U	0.077 U
Hexachlorocyclopentadiene	mg/kg	/.5	N/A	0.072 U	0.073 U	0.071 U	0.08 U	0.072 U	0.074 U	0.071 U	0.079 U	0.078 U	0.076 U	0.076 U	0.079 U	0.069 U	0.078 U	0.077 U
Indexe[1,2,2,a,d]mmmana	mg/kg	0	IN/A N/A	0.072 0	0.073 0	0.071 0	0.08 0	0.072 0	0.074 U	0.071 U	0.079 0	0.078 U	0.076 U	0.076 U	0.079 U	0.069 0	0.078 U	0.077 U
Naphthalana	mg/kg	17	IN/A N/A	0.031	0.015	0.019	0.085	0.005 P	0.0075 U	0.011 J	0.0032 J	0.0011	0.0078 UJ	0.057 J	0.0021 J	0.0012 J	0.011 J	0.0079 U
N-Nitroso-di-n-propylamine	mg/kg	0.33	N/A N/A	0.020	0.0009 J	0.071 U	0.034	0.003 B	0.074 U	0.019 B	0.0031 B	0.0027 B	0.0078 U	0.3	0.022	0.069 U	0.078 U	0.077 U
N-Nitrosodiphenylamine	mg/kg	470	N/A N/A	0.072 U	0.073 U	0.071 U	0.08 U	0.072 U	0.074 U	0.071 U	0.079 U	0.078 U	0.076 U	0.008 J	0.079 U	0.069 U	0.078 U	0.077 U
Phenanthrene	mg/kg	170	N/A	0.11	0.031	0.045 J	0.086	0.026	0.0016 J	0.037 J	0.011	0.0061 J	0.0078 U	0.11	0.0035 J	0.0084	0.023 J	0.0015 J
Phenol	mg/kg	250,000	N/A	0.072 U	0.073 U	0.071 R	0.08 UI	0.072 R	0.074 R	0.071 UI	0.079 U	0.078 U	0.076 U	0.076 U	0.079 U	0.069 U	0.078 U	0.077 R
Pyrene	mg/kg	23,000	N/A	0.082	0.044	0.051 J	0.15	0.026	0.0011 J	0.036 J	0.02	0.018	0.0078 U	0.091	0.0042 J	0.005 J	0.026 J	0.0019 J
PCBs	ing/ng	20,000		01002		010010	0120	01020	0100110	010200	0102	01010	0.0070 0	01071	0100120	0100000	010200	0100190
Aroclor 1254	mg/kg	0.97	N/A	0.054 U	N/A	0.0553 U	N/A	0.0545 U	N/A	0.0541 U	N/A	0.0565 U	N/A	0.0554 U	N/A	0.0509 U	N/A	0.0525 U
Aroclor 1260	mg/kg	0.99	N/A	0.054 U	N/A	0.0553 U	N/A	0.0545 U	N/A	0.0541 U	N/A	0.0565 U	N/A	0.0526 J	N/A	0.0509 U	N/A	0.0525 U
PCBs (total)	mg/kg	0.97	N/A	0.054 U	N/A	0.0553 U	N/A	0.0545 U	N/A	0.0541 U	N/A	0.0565 U	N/A	0.0526 J	N/A	0.0509 U	N/A	0.0525 U
TPH/Oil and Grease																		
Diesel Range Organics	mg/kg	6,200	N/A	294	28.9	89.3 J	63.8 J	38.6 J	8.9 J	56.4 J	5 J	5.5 J	7.8 UJ	32.4 J	12.8 J	55.6	27.2	29.4
Gasoline Range Organics	mg/kg	6,200	N/A	17.1 B	10.4 U	12.2 U	10 U	11 U	11.5 U	9 B	11.2 B	10.5 B	9.9 B	14.8 U	7.8 U	8.7 U	9.1 U	12.8 U
Oil and Grease	mg/kg	6,200	N/A	641	274	286	432	271	148	606	581	382	258	1,320	657	300	665	365
		. , ,						•										

Detections in bold

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

* indicates non-validated data result

^ PAH compounds were analyzed via SIM

N/A indicates the parameter 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 quantitation/detection limit may be higher than reported.

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

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

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

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Table 5 Summary of Organics Detected in Soil Parcel B19 Tradepoint Atlantic Sn

								Sparro	ws Point, Maryl	and								
Parameter	Units	PAL	B19-027-SB-5	B19-028-SB-1	B19-028-SB-7	B19-029-SB-1*	B19-029-SB-4*	B19-030-SB-1*	B19-030-SB-5*	B19-031-SB-1*	B19-031-SB-9*	B19-032-SB-1*	B19-032-SB-4*	B19-033-SB-1	B19-033-SB-5	B19-034-SB-1	B19-034-SB-4	B19-035-SB-1
Volatile Organic Compounds	<u>I</u>		1	1						1	1			I			<u> </u>	1
2-Butanone (MEK)	mg/kg	190.000	0.01 U	0.0027.1	0.0094 U	N/A	0.016 U	N/A	0.0037 1	0.013 U	0.0097.11	N/A	N/A	0.009.111	0.0065.1	N/A	0.006 1	N/A
Acetone	mg/kg	670,000	0.0056.1	0.011	0.0084 J	N/A	0.042	N/A	0.015	0.024	0.014	N/A	N/A	0.014 J	0.045.1	N/A	0.052	N/A
Benzene	mg/kg	51	0.0017 J	0.0046 U	0.0019 J	N/A	0.0081 U	N/A	0.0012	0.0067 U	0.0048 U	N/A	N/A	0.0045 U	0.0049 U	N/A	0.0049 U	N/A
Ethylbenzene	mg/kg	25	0.0052 U	0.0046 U	0.0047 U	N/A	0.0081 U	N/A	0.0067 U	0.13	0.0021 J	N/A	N/A	0.0045 U	0.0049 U	N/A	0.0049 UJ	N/A
Isopropylbenzene	mg/kg	9,900	0.0052 U	0.0046 U	0.0047 U	N/A	0.0081 U	N/A	0.0067 U	0.0028 J	0.0048 U	N/A	N/A	0.0045 U	0.0049 U	N/A	0.0049 UJ	N/A
Toluene	mg/kg	47,000	0.0052 U	0.0046 U	0.0047 U	N/A	0.0081 U	N/A	0.0067 U	0.0022 J	0.0048 U	N/A	N/A	0.0045 U	0.0049 U	N/A	0.0049 U	N/A
Xylenes	mg/kg	2,800	0.016 U	0.014 U	0.014 U	N/A	0.024 U	N/A	0.02 U	1	0.014 J	N/A	N/A	0.013 U	0.015 U	N/A	0.015 U	N/A
Semi-Volatile Organic Compound	s^																	•
1,1-Biphenyl	mg/kg	200	0.075 U	0.073 U	0.07 U	0.068 U	0.072 U	0.076 U	0.07 U	0.02 J	0.08 U	0.07 U	0.075 U	0.053 J	0.078 U	0.075 U	0.083 U	0.076 U
2,4-Dimethylphenol	mg/kg	16,000	0.075 U	0.073 R	0.07 U	0.068 U	0.072 U	0.076 U	0.07 U	0.072 U	0.08 U	0.07 U	0.075 U	0.071 R	0.078 U	0.075 U	0.083 U	0.076 U
2,4-Dinitrophenol	mg/kg	1,600	0.19 UJ	0.18 R	0.18 UJ	0.17 U	0.18 U	0.19 U	0.18 U	0.18 U	0.2 U	0.18 U	0.19 U	0.18 R	0.2 UJ	0.19 U	0.21 U	0.19 U
2,4-Dinitrotoluene	mg/kg	7.4	0.075 U	0.073 U	0.07 U	0.068 U	0.072 U	0.076 U	0.07 U	0.072 U	0.08 U	0.07 U	0.075 U	0.071 U	0.078 U	0.075 U	0.083 U	0.076 U
2,6-Dinitrotoluene	mg/kg	1.5	0.075 U	0.073 U	0.07 U	0.068 U	0.072 U	0.076 U	0.07 U	0.072 U	0.08 U	0.07 U	0.075 U	0.067 J	0.078 U	0.075 U	0.083 U	0.076 U
2-Chloronaphthalene	mg/kg	60,000	0.075 U	0.073 U	0.07 U	0.068 U	0.072 U	0.076 U	0.07 U	0.089	0.08 U	0.07 U	0.075 U	0.071 U	0.078 U	0.075 U	0.083 U	0.076 U
2-Methylnaphthalene	mg/kg	3,000	0.014	0.0074 U	0.0047 J	0.0032 J	0.0061 J	0.026	0.0034 J	0.064	0.0079 U	0.0072 U	0.0089	0.32	0.0079 U	0.077 U	0.0084 U	0.031 J
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	0.15 U	0.14 R	0.14 U	0.14 U	0.14 U	0.15 U	0.14 U	0.14 U	0.16 U	0.14 U	0.15 U	0.14 R	0.16 U	0.15 U	0.17 U	0.15 U
4-Chloroaniline	mg/kg	11	0.075 U	0.073 U	0.07 U	0.068 U	0.072 U	0.076 U	0.07 U	0.072 U	0.08 U	0.07 U	0.075 U	0.071 U	0.078 U	0.075 U	0.083 U	0.076 U
4-Nitroaniline	mg/kg	110	0.19 U	0.18 U	0.18 U	0.17 U	0.18 U	0.19 U	0.18 U	0.18 U	0.2 U	0.18 U	0.19 U	0.18 U	0.2 U	0.19 UJ	0.21 UJ	0.19 UJ
Acenaphthene	mg/kg	45,000	0.0098	0.0074 U	0.00098 J	0.0005 J	0.0014 J	0.0033 J	0.00078 J	0.0076	0.0079 U	0.0072 U	0.011	0.014	0.0079 U	0.0098 J	0.0084 U	0.011 J
Acenaphthylene	mg/kg	45,000	0.1	0.0074 U	0.01	0.0016 J	0.009	0.012	0.0011 J	0.042	0.0079 U	0.0072 U	0.0091	0.042	0.0079 U	0.0072 J	0.0084 U	0.077 U
Acetophenone	mg/kg	120,000	0.075 U	0.073 U	0.07 U	0.068 U	0.072 U	0.076 U	0.07 U	0.072 U	0.08 U	0.07 U	0.075 U	0.063 J	0.078 U	0.075 U	0.083 U	0.076 U
Anthracene	mg/kg	230,000	0.086	0.0074 U	0.012	0.0028 J	0.0075	0.02	0.0018 J	0.041	0.0079 U	0.00066 J	0.0079	0.1	0.00073 J	0.007 J	0.0084 U	0.009 J
Benz[a]anthracene	mg/kg	21	0.51	0.0017 J	0.038	0.012	0.032	0.063	0.013	0.1	0.0079 U	0.0039 J	0.044	0.36	0.0025 J	0.022 J	0.0084 U	0.023 J
Benzaldehyde	mg/kg	120,000	0.075 R	0.073 R	0.07 R	0.068 U	0.072 U	0.021 J	0.07 U	0.072 U	0.08 U	0.07 U	0.075 U	0.11 J	0.078 R	0.024 J	0.083 U	0.023 J
Benzo[a]pyrene	mg/kg	2.1	0.54	0.0074 U	0.031	0.018	0.033	0.065	0.016	0.075	0.0079 U	0.0022 J	0.07	0.25	0.0013 J	0.036 J	0.0084 U	0.015 J
Benzo[b]fluoranthene	mg/kg	21	1	0.0011 B	0.077	0.039	0.072	0.17	0.03	0.24	0.0079 U	0.0065 J	0.13	0.61	0.0039 J	0.087	0.0084 U	0.054 J
Benzo[g,h,1]perylene	mg/kg	21 0	0.29	0.0074 U	0.021	0.017	0.021	0.06	0.012	0.072	0.0079 U	0.0026 J	0.065	0.14	0.0079 U	0.035 J	0.0084 U	0.013 J
Benzo[k]fluoranthene	mg/kg	210	0.99	0.0074 U	0.074	0.031	0.057	0.13	0.024	0.2	0.0079 U	0.0052 J	0.11	0.48	0.0031 J	0.083	0.0084 U	0.052 J
Caprolactam	mg/kg	400,000	0.022 J	0.073 U	0.07 U	0.008 U	0.072 0	0.070 U	0.07 U	0.038 J	0.08 U	0.07 U	0.073 U	0.071 0	0.078 U	0.038 B	0.085 U	0.076 UJ
Carbazole	mg/kg	400,000	0.075 U	0.073 U	0.07 U	0.068 U	0.072 U	0.076 U	0.07 U	0.072 U	0.2.0	0.13 U	0.075 U	0.059 J	0.2.0	0.075 U	0.083 U	0.005 J
Chrysene	mg/kg	2 100	0.075 0	0.0011 B	0.045	0.000 0	0.072 0	0.070 0	0.07 0	0.072 0	0.0079 U	0.07 0	0.048	0.0015	0.070 C	0.073 0	0.0084 U	0.070 C
Dibenz[a h]anthracene	mg/kg	2,100	0.12	0.0074 U	0.0064.1	0.0051 J	0.007.1	0.02	0.0033.J	0.022	0.0079 U	0.0072 U	0.02	0.05	0.0079 U	0.003 J	0.0084 U	0.001 J
Diethylphthalate	mg/kg	660,000	0.075 U	0.073 U	0.07 U	0.068 U	0.007 U	0.076 U	0.07 U	0.072 U	0.08 U	0.0072 C	0.075 U	0.071 U	0.078 U	0.075 U	0.083 U	0.076 U
Di-n-butylphthalate	mg/kg	82.000	0.075 U	0.073 U	0.07 U	0.068 U	0.072 U	0.076 U	0.07 U	0.072 U	0.08 U	0.07 U	0.075 U	0.071 U	0.078 U	0.075 U	0.083 U	0.076 U
Di-n-ocytlphthalate	mg/kg	8.200	0.075 U	0.073 U	0.07 U	0.068 U	0.072 U	0.076 U	0.07 U	0.072 U	0.08 U	0.033 JISL2	0.075 U	0.028 J	0.078 U	0.075 UJ	0.04 B	0.45 J
Fluoranthene	mg/kg	30.000	0.44	0.0017 B	0.056	0.015	0.052	0.11	0.017	0.26	0.0079 U	0.0068 J	0.062	0.83	0.0036 J	0.027 J	0.0015 J	0.039 J
Fluorene	mg/kg	30,000	0.0071 J	0.0074 U	0.0015 J	0.007 U	0.0013 J	0.0048 J	0.0072 U	0.0074	0.0079 U	0.0072 U	0.0023 J	0.018	0.0079 U	0.077 U	0.0084 U	0.077 U
Hexachlorobenzene	mg/kg	0.96	0.075 U	0.073 U	0.07 U	0.068 U	0.072 U	0.076 U	0.07 U	0.072 U	0.08 U	0.07 U	0.075 U	0.071 U	0.078 U	0.075 U	0.083 U	0.076 U
Hexachlorobutadiene	mg/kg	5.3	0.075 U	0.073 U	0.07 U	0.068 U	0.072 U	0.076 U	0.07 U	0.072 U	0.08 U	0.07 U	0.075 U	0.071 U	0.078 U	0.075 U	0.083 U	0.076 U
Hexachlorocyclopentadiene	mg/kg	7.5	0.075 U	0.073 U	0.07 U	0.068 U	0.072 U	0.076 U	0.07 U	0.072 U	0.08 U	0.07 U	0.075 U	0.071 U	0.078 U	0.075 U	0.083 U	0.076 U
Hexachloroethane	mg/kg	8	0.075 U	0.073 U	0.07 U	0.068 U	0.072 U	0.076 U	0.07 U	0.072 U	0.08 U	0.07 U	0.075 U	0.071 U	0.078 U	0.075 U	0.083 U	0.076 U
Indeno[1,2,3-c,d]pyrene	mg/kg	21	0.31	0.0074 U	0.02	0.013	0.02	0.045	0.0095	0.058	0.0079 U	0.0018 J	0.056	0.12	0.0079 U	0.018 J	0.0084 U	0.077 U
Naphthalene	mg/kg	17	0.026	0.0074 U	0.0065 B	0.0027 J	0.0077	0.024	0.0041 J	0.11	0.0079 U	0.0072 U	0.011	0.34	0.003 J	0.045 B	0.0084 U	0.056 B
N-Nitroso-di-n-propylamine	mg/kg	0.33	0.075 U	0.073 U	0.07 U	0.068 U	0.072 U	0.076 U	0.07 U	0.072 U	0.08 U	0.07 U	0.075 U	0.08	0.078 U	0.075 U	0.083 U	0.076 U
N-Nitrosodiphenylamine	mg/kg	470	0.075 U	0.073 U	0.07 U	0.068 U	0.072 U	0.076 U	0.07 U	0.072 U	0.08 U	0.07 U	0.075 U	0.071 U	0.078 U	0.075 U	0.083 U	0.076 U
Phenanthrene	mg/kg		0.074	0.0016 J	0.011	0.011	0.026	0.094	0.0084	0.19	0.0079 U	0.0043 J	0.034	0.65	0.0034 J	0.019 J	0.0012 J	0.039 J
Phenol	mg/kg	250,000	0.075 U	0.073 R	0.07 U	0.068 U	0.072 U	0.076 U	0.07 U	0.072 U	0.08 U	0.07 U	0.075 U	0.071 R	0.078 U	0.075 U	0.083 U	0.076 U
Pyrene	mg/kg	23,000	0.46	0.0016 J	0.063	0.014	0.044	0.1	0.016	0.2	0.0079 U	0.0052 J	0.052	0.66	0.0028 J	0.042 J	0.0011 J	0.055 J
PCBs	1 -			0.05-2-2-		0.0533.53		0.077.77		0.0777		0.055555		0.05		0.057.177		0.05
Aroclor 1254	mg/kg	0.97	N/A	0.0552 U	N/A	0.0508 U	N/A	0.058 U	N/A	0.0983	N/A	0.0535 U	N/A	0.0544 U	N/A	0.0581 U	N/A	0.0555 U
Aroclor 1260	mg/kg	0.99	N/A	0.0552 U	N/A	0.0508 U	N/A	0.058 U	N/A	0.0471 J	N/A	0.0535 U	N/A	0.0872	N/A	0.0581 U	N/A	0.0555 U
PCBs (total)	mg/kg	0.97	N/A	0.0552 U	N/A	0.0508 U	N/A	0.058 U	N/A	0.1454	N/A	0.0535 U	N/A	0.0872	N/A	0.0581 U	N/A	0.0555 U
TPH/Oil and Grease		6.000	1		4.5.5							00.5.5	0.55		0.5.5			607 F
Diesel Range Organics	mg/kg	6,200	146	22.6	10.6	5.8 J	6.3 B	24.1	6.5 B	55.1	7 J	22.5 B	8.5 B	79.3 J	8.3 J	257 J	17.9 J	600 J
Casoline Kange Organics	mg/kg	6,200	9.70	80	9.4 U	13./U	14 U	10.1 U	15.5 U	22.2 B	10 J	10.1 U	9.4 U	9.9 U	90	13.5 U	10.8 U	14.6 U
On and Grease	mg/kg	0,200	580	202	233	229	200	1/8	315	320	308	206	237	520	003	23,000	205	8,510
Detections in bold						U: This	analyte was not de	tected in the samp	le. The numeric va	lue represents the s	sample quantitation	n/detection limit.						

Detections in bold

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

* indicates non-validated data result

^ PAH compounds were analyzed via SIM

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

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

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

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

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

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Parameter	Units	PAL	B19-035-SB-4	B19-036-SB-1*	B19-036-SB-5*	B19-037-SB-1	B19-037-SB-8	B19-038-SB-1*	B19-038-SB-8*	B19-039-SB-1*	B19-039-SB-8.5*	B19-040-SB-1*	B19-040-SB-4*	B19-041-SB-1*	B19-041-SB-5*	B19-042-SB-1*	B19-042-SB-4*	B19-042-SB-10*
Valatila Organia Compounda																		
Volatile Organic Compounds	Га	100.000	0.011.11	NT/ A	NT/ A	0.010.11	0.0004.11	NT / A	NT / A	NT/ A	NT / A	NT / A	0.011 11	NT/ A	NT / A	NT/A	DT/A	NT/A
2-Butanone (MEK)	mg/kg	190,000	0.011 0	IN/A	N/A	0.012 U	0.0084 U	N/A	N/A	N/A	N/A	N/A	0.011 U	N/A	N/A	N/A	N/A N/A	N/A
Acetone	mg/kg	670,000	0.0082 B	IN/A	IN/A	0.012 U	0.0084 U	IN/A	IN/A	IN/A	IN/A	IN/A	0.018	IN/A	IN/A	IN/A	IN/A	IN/A
Benzene	mg/kg	5.1	0.0055 U	IN/A	N/A	0.0062 U	0.0042 U	N/A	N/A	N/A	N/A	N/A	0.0053 U	N/A	N/A	N/A	N/A N/A	N/A
Ethylbenzene	mg/kg	25	0.0055 UJ	N/A	N/A	0.0062 UJ	0.0042 UJ	N/A	N/A	N/A	N/A	N/A	0.0053 U	N/A	N/A	N/A	N/A	N/A
Isopropylbenzene	mg/kg	9,900	0.0055 UJ	N/A	N/A	0.0062 UJ	0.0042 UJ	N/A	N/A	N/A	N/A	N/A	0.0053 U	N/A	N/A	N/A	N/A	N/A
Toluene	mg/kg	47,000	0.0055 U	N/A	N/A	0.0062 U	0.0042 U	N/A	N/A	N/A	N/A	N/A	0.0053 U	N/A	N/A	N/A	N/A	N/A
Xylenes	mg/kg	2,800	0.016 U	N/A	N/A	0.018 U	0.013 U	N/A	N/A	N/A	N/A	N/A	0.016 U	N/A	N/A	N/A	N/A	N/A
Semi-Volatile Organic Compound	ls^	1	· · · · · · · · ·	· · · · · · · ·	I	 .	1	1	I									
1,1-Biphenyl	mg/kg	200	0.081 U	0.077 U	0.081 U	0.075	0.078 U	0.082 U	0.084 U	0.074 U	0.071 U	0.072 U	0.077 U	0.073 U	0.072 U	0.069 U	0.071 U	N/A
2,4-Dimethylphenol	mg/kg	16,000	0.081 U	0.077 U	0.081 U	0.075 U	0.078 U	0.082 U	0.084 U	0.074 U	0.071 U	0.072 U	0.077 U	0.073 U	0.072 U	0.069 U	0.071 U	N/A
2,4-Dinitrophenol	mg/kg	1,600	0.2 U	0.19 U	0.2 U	0.19 U	0.2 U	0.2 U	0.21 U	0.18 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.18 U	N/A
2,4-Dinitrotoluene	mg/kg	7.4	0.081 U	0.077 U	0.081 U	0.075 U	0.078 U	0.082 U	0.084 U	0.074 U	0.071 U	0.072 U	0.077 U	0.073 U	0.072 U	0.069 U	0.071 U	N/A
2,6-Dinitrotoluene	mg/kg	1.5	0.081 U	0.077 U	0.081 U	0.075 U	0.078 U	0.082 U	0.084 U	0.074 U	0.071 U	0.072 U	0.077 U	0.073 U	0.072 U	0.069 U	0.071 U	N/A
2-Chloronaphthalene	mg/kg	60,000	0.081 U	0.077 U	0.081 U	0.075 U	0.078 U	0.082 U	0.084 U	0.074 U	0.071 U	0.072 U	0.077 U	0.073 U	0.072 U	0.069 U	0.071 U	N/A
2-Methylnaphthalene	mg/kg	3,000	0.09	0.0035 J	0.0083 U	0.065	0.008 U	0.081 U	0.0083 U	0.014	0.00079 J	0.01	0.039 J	0.014	0.007 J	0.019	0.033	N/A
3&4-Methylphenol(m&p Cresol)	mg/kg	41,000	0.034 J	0.15 U	0.16 U	0.15 U	0.16 U	0.16 U	0.17 U	0.15 U	0.14 U	0.14 U	0.15 U	0.15 U	0.14 U	0.14 U	0.14 U	N/A
4-Chloroaniline	mg/kg	11	0.081 U	0.077 U	0.081 U	0.075 U	0.078 U	0.082 U	0.084 U	0.074 U	0.071 U	0.072 U	0.077 U	0.073 U	0.072 U	0.069 U	0.071 U	N/A
4-Nitroaniline	mg/kg	110	0.2 UJ	0.19 U	0.2 U	0.29 J	0.2 UJ	0.2 U	0.21 U	0.18 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.18 U	N/A
Acenaphthene	mg/kg	45,000	0.0074 J	0.00079 J	0.0083 U	0.019	0.008 U	0.081 U	0.0083 U	0.0028 J	0.0072 U	0.0011 J	0.0066 J	0.0013 J	0.0013 J	0.0028 J	0.014	N/A
Acenaphthylene	mg/kg	45,000	0.045	0.0015 J	0.0083 U	0.36	0.0012 J	0.052 J	0.0083 U	0.005 J	0.0072 U	0.00065 J	0.012 J	0.0022 J	0.002 J	0.089	0.36	N/A
Acetophenone	mg/kg	120,000	0.081 U	0.077 U	0.081 U	0.022 J	0.078 U	0.082 U	0.084 U	0.074 U	0.071 U	0.072 U	0.077 U	0.073 U	0.072 U	0.069 U	0.071 U	N/A
Anthracene	mg/kg	230,000	0.032	0.0025 J	0.0083 U	0.34	0.0022 J	0.028 J	0.0083 U	0.013	0.00085 J	0.0077	0.027 J	0.0097	0.0081	0.11	0.33	N/A
Benz[a]anthracene	mg/kg	21	0.1	0.013	0.0083 U	0.46	0.002 J	0.21	0.0083 U	0.06	0.0014 B	0.041	0.16	0.028	0.025	0.24	0.83	N/A
Benzaldehyde	mg/kg	120,000	0.049 J	0.077 U	0.081 U	0.044 J	0.078 U	0.074 J	0.084 U	0.074 U	0.071 U	0.072 U	0.034 B	0.019 B	0.072 U	0.069 U	0.071 U	N/A
Benzo[a]pyrene	mg/kg	2.1	0.11	0.013	0.0083 U	0.66	0.008 U	0.19	0.0083 U	0.072	0.0072 U	0.049	0.14	0.018	0.018	0.27	0.87	0.0014 J
Benzo[b]fluoranthene	mg/kg	21	0.23	0.03	0.0083 U	1.3	0.0023 J	0.42	0.0083 U	0.15	0.0072 U	0.058	0.32	0.053	0.054	0.87	2.6	N/A
Benzo[g,h,1]perylene	mg/kg		0.053	0.011	0.0083 U	0.51	0.008 U	0.17	0.0083 U	0.049	0.0072 U	0.037	0.095	0.019	0.014	0.21	0.54	N/A
Benzo[k]fluoranthene	mg/kg	210	0.22	0.024	0.0083 U	1.5	0.0022 J	0.33	0.0083 U	0.13	0.0014 J	0.052	0.28	0.047	0.048	0.77	2.3	N/A
bis(2-Ethylhexyl)phthalate	mg/kg	160	0.081 U	0.018 J	0.081 U	0.024 B	0.078 U	0.021 J	0.084 U	0.032 B	0.036 B	0.033 B	0.047 B	0.018 B	0.029 B	0.016 B	0.02 B	N/A
Caprolactam	mg/kg	400,000	0.2 U	0.19 U	0.2 U	0.19	0.2 U	0.2 U	0.21 U	0.18 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.18 U	N/A
Carbazole	mg/kg	2 1 0 0	0.081 U	0.077 U	0.081 U	0.036	0.078 U	0.03 J	0.084 U	0.074 U	0.071 U	0.072 U	0.077 U	0.073 U	0.072 U	0.069 U	0.046 J	N/A
Chrysene	mg/kg	2,100	0.14	0.013	0.0083 U	0.6	0.0007 J	0.22	0.0083 U	0.075	0.0072 U	0.064	0.17	0.046	0.031	0.34	0.86	N/A
Dibenz[a,h]anthracene	mg/kg	2.1	0.022	0.0031 J	0.0083 U	0.2	0.008 U	0.044 J	0.0083 U	0.015	0.0072 U	0.011	0.029 B	0.0052 B	0.0039 B	0.083	0.23	N/A
Diethylphthalate	mg/kg	660,000	0.081 U	0.077 U	0.081 U	0.075	0.078 U	0.082 U	0.084 U	0.074 U	0.014 B	0.029 B	0.031 B	0.017 B	0.072 U	0.069 U	0.0/1 U	N/A
Di-n-butyiphthalate	mg/kg	82,000	0.081 U	0.077 U	0.081 U	0.075	0.078 U	0.082 U	0.084 U	0.092 B	0.093 B	0.11	0.1 B	0.18	0.085 B	0.17	0.14	N/A
Di-n-ocytiphthalate	mg/kg	8,200	0.081 UJ	0.077 U	0.081 U	0.043 B	0.078 U	0.082 U	0.084 U	0.097	0.071 U	0.072 U	0.0770	0.073 U	0.072 U	0.069 U	0.0/1 U	N/A
Fluoranthene	mg/kg	30,000	0.16	0.019	0.0083 U	0.49	0.001 J	0.35	0.0083 U	0.099	0.001 B	0.031	0.27	0.048	0.055	0.26	0.94	N/A
Fluorene	mg/kg	30,000	0.011	0.0077 U	0.0083 U	0.018	0.008 U	0.081 U	0.0083 U	0.0019 J	0.0072 U	0.0018 J	0.0085 J	0.0016 J	0.0017 J	0.0053 J	0.014	N/A
Hexachlorobenzene	mg/kg	0.96	0.081 U	0.077 U	0.081 U	0.075	0.078 U	0.082 U	0.084 U	0.074 U	0.071 U	0.072 U	0.077 U	0.073 U	0.072 U	0.069 U	0.071 U	N/A
Hexachloroguelopentedione	mg/kg	5.5	0.081 U	0.077 U	0.081 U	0.075	0.078 U	0.082 U	0.084 U	0.074 U	0.071 U	0.072 U	0.077 U	0.073 U	0.072 U	0.009 U	0.071 U	N/A
Hexachloroothonc	mg/kg	1.3	0.081 U	0.077 U	0.081 U	0.075	0.078 U	0.082 U	0.084 U	0.074 U	0.071 U	0.072 U	0.077 U	0.072 U	0.072 U	0.009 U	0.071 U	
Hexachioroethane	mg/kg	0	0.081 0	0.0770	0.081 U	0.075	0.078 U	0.082 0	0.084 U	0.074 0	0.071 U	0.072 0	0.077 0	0.075 U	0.072 0	0.069 0	0.071 0	N/A N/A
Naphthalapa	mg/kg	17	0.055	0.0000	0.0085 U	0.5	0.008 U	0.091.11	0.0083 U	0.042	0.0072 U	0.017	0.009	0.012	0.013	0.22	0.00	N/A
N Nitroso di p propulamino	mg/kg	0.22	0.081 U	0.0030 J	0.0085 U	0.075 U	0.008 U	0.082 U	0.0085 U	0.074 U	0.0072 U	0.0093	0.040 J	0.072 U	0.072 U	0.025	0.042	N/A N/A
N Nitrosodiphenylemine	mg/kg	470	0.081 U	0.077 U	0.081 U	0.075 U	0.078 U	0.082 U	0.084 U	0.074 U	0.071 U	0.072 U	0.077 U	0.073 U	0.072 U	0.009 U	0.071 U	N/A N/A
Phononthrono	mg/kg	470	0.081 0	0.077 0	0.0082 U	0.075 0	0.078 U	0.032 0	0.0092 U	0.074 0	0.071 0	0.072 0	0.0770	0.073 0	0.072 0	0.009 0	0.071 0	N/A N/A
Phenol	mg/kg	250,000	0.15	0.077 U	0.0085 U	0.075 U	0.008 U	0.0211	0.0085 U	0.004	0.0011 J	0.042	0.12	0.030	0.030	0.060 U	0.12	N/A N/A
Durana	mg/kg	230,000	0.001 0	0.077 0	0.001 U	0.073 0	0.078 U	0.062 0	0.004 U	0.074 0	0.0/1 U	0.072 0	0.0770	0.073 0	0.072 0	0.009 0	11	N/A
	mg/kg	23,000	0.14	0.018	0.0085 U	0.02	0.00099 J	0.20	0.0083 U	0.092	0.00083 B	0.042	0.22	0.051	0.041	0.31	1.1	IN/A
Angelen 1254		0.07	NT/ 4	0.0571.11	NI/A	0.0501.11	NT/ A	0.02.11	NT/A	0.010 U	NI/A	0.019.11	NT / A	0.019.11	NT / A	0.019.11		NI/A
Aroclor 1254	mg/Kg	0.97	IN/A	0.0571 U	IN/A	0.0591 U	IN/A	0.02 U	IN/A	0.019 U	IN/A	0.018 U	IN/A	0.018 U	IN/A	0.018 U		IN/A
Alocior 1200	mg/Kg	0.99	IN/A	0.0571 U		0.0900	IN/A	0.0094 J		0.019 U	IN/A	0.018 U	IN/A	0.018 U		0.018 U		
PCBS (total)	mg/kg	0.97	N/A	0.0571.0	N/A	0.0966	N/A	0.14 U	IN/A	0.13 U	N/A	0.13 U	N/A	0.13 U	N/A	0.12 U	N/A	N/A
TPH/OII and Grease		6.000		0.0 D				00.15	402	46.2	10.0		16.5		-			N7/4
Diesel Range Organics	mg/kg	6,200	53.4 J	8.8 B	3.8 J	79.2 J	3.6 J	90.4 B	4.8 B	49.3	12.3	27	46.6	75.8	51.7	26.8	38.3	N/A
Gasoline Range Organics	mg/kg	6,200	11.8 U	10.3 J	10.1 J	16.2 U	9.2 U	11.5 U	10.9 U	11.4 U	13.6 U	9.9 U	11.2 U	11.1 U	14.3 U	110	14.5 U	N/A
Oil and Grease	mg/kg	6,200	827	237	256	643	326	976	874	206	414	224	390	170	278	261	363	N/A

Detections in bold

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^ PAH compounds were analyzed via SIM

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

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

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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
Metals				•	•			•	•	•
Aluminum	mg/kg	1,100,000	40,500	16,600	39,500	20,200	41,200	14,300	10,500	16,100
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	4	7.9	4.5	6.5	4.2	6.9	6.9	14.2
Barium	mg/kg	220,000	503 J	67.6 J	720	74.7	641	87.9	146	136
Beryllium	mg/kg	2,300	8.2	0.71 J	5.2	0.86 J	4.7	1	0.74 J	1.4
Cadmium	mg/kg	980	0.6 J	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	23.5	27.8	154	36.6	79.3	33.4	881	36.9
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	1.2 J	5.7	4.4	7.4	3.1 J	17.7	0.29 J	4.5 J
Copper	mg/kg	47,000	9.2 J	9.6 J	32.4 J	11.7 J	16 J	25.5 J	27.9 J+	26.9 J+
Iron	mg/kg	820,000	14,300	25,700	73,000	31,900	51,300	17,700	182,000	24,500
Lead	mg/kg	800	21.7 J	11.2 J	26.5 J	13.8 J	24.1 J	65.2 J	32.5	87.5
Manganese	mg/kg	26,000	3,520	122	7,970	141	7,490	578	27,300	825
Mercury	mg/kg	350	0.11 U	0.0026 J	0.1 U	0.0023 J	0.054 J	0.047 J	0.04 J	0.12 U
Nickel	mg/kg	22,000	4.6 B	11.8	12.4 J	16.5 J	8.5 J	20.3 J	17.9	10.9
Selenium	mg/kg	5,800	3 U	3.6 U	3.3 U	3.9 U	2.4 J	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	10.2	9.1 U
Vanadium	mg/kg	5,800	33.5	44.7	446	42.6	213	80.7	577	85.9
Zinc	mg/kg	350,000	111 J	33.9 J	93.7 J	43.8 J	57.1 J	172 J	263	190
Other										
Cyanide	mg/kg	150	0.28 J	0.75 U	0.47 J	0.72 U	0.25 J	0.1 J	0.32 J-	0.19 J-

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

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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
Metals										
Aluminum	mg/kg	1,100,000	32,100	9,810	19,100	18,600	16,600	26,300	14,600	24,200
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	2.3	14.5	2.2 U	4.7	2.3	3.1	3.7	3.1
Barium	mg/kg	220,000	423 J	145 J	71.4 J	119 J	58.2 J	287 J	19.4 J	75 J
Beryllium	mg/kg	2,300	5.5	0.6 J	0.77 J	0.79 J	0.55 J	4.2	0.75 J	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	160 J	522 J	23.6 J	910 J	20.4 J	503 J	21 J	904 J
Chromium VI	mg/kg	6.3	0.31 B	0.42 B	0.61 B	0.62 B	1.3 J-	0.71 B	1.9 J-	3.4 J-
Cobalt	mg/kg	350	7.2	6.5	2 J	0.87 J	2.1 J	0.67 J	2.3 J	3.7 U
Copper	mg/kg	47,000	127	62.9	11.8	31.3	9.1	9.8	6.7	21.1
Iron	mg/kg	820,000	51,600	128,000	11,500	153,000	9,200	82,900	15,800	192,000
Lead	mg/kg	800	153 J	118 J	17.2 J	42.6 J	15 J	16.5 J	10.1 J	27.2 J
Manganese	mg/kg	26,000	6,090 J	14,000 J	128 J	17,800 J	135 J	13,500 J	86.3 J	32,900 J
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	62.9	36.2	7.6 J	16.5	7.2 J	8.8	9.6	21.2
Selenium	mg/kg	5,800	2.3 J	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	0.85 J	2.6 U	0.75 J	2.4 U	2.6 U	2.5 U	1.4 J
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	114 J	1,530 J	25.7 J	414 J	22.8 J	275 J	28.9 J	861 J
Zinc	mg/kg	350,000	536 J	225 J	22 J	168 J	15.7 J	83.1 J	20.3 J	304 J
Other										
Cyanide	mg/kg	150	0.44 J	0.5 <mark>6</mark> J	0.72 U	0.38 J	0.72 U	0.51 J	0.66 U	0.15 J

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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
Metals										
Aluminum	mg/kg	1,100,000	16,200	39,500	20,200	N/A	11,300	10,700	22,700	45,800
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	14.1	1.9 U	8	2.4	8.3	4.8	7.8	2.8
Barium	mg/kg	220,000	232 J	538 J	74.9 J	N/A	54.2 J	33.5 J	368 J	590 J
Beryllium	mg/kg	2,300	0.9 J	5.8	0.66 J	N/A	0.26 J	0.37 J	2.9	5.9
Cadmium	mg/kg	980	1.6	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	235 J	89.3 J	25.5 J	N/A	805 J	16.5 J	181 J	29.1 J
Chromium VI	mg/kg	6.3	0.3 B	0.32 B	0.3 B	N/A	3.3 J-	0.84 B	0.4 B	0.36 B
Cobalt	mg/kg	350	9.2	6	5	N/A	2 J	2.8 J	7.7	0.98 J
Copper	mg/kg	47,000	159	98.2	9	N/A	16.1	5.9	56	2.8 J
Iron	mg/kg	820,000	102,000	36,200	26,100	N/A	123,000	14,900	110,000	6,300
Lead	mg/kg	800	698 J	120 J	11.5 J	N/A	37.5 J	10.1 J	74.1 J	9.2 J
Manganese	mg/kg	26,000	6,490 J	3,920 J	390 J	N/A	18,500 J	112 J	16,700 J	2,270 J
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	14.4	53.3	11.6	N/A	15.2	9.1 J	28.6	4.8 J
Selenium	mg/kg	5,800	4 U	2.1 J	3.7 U	N/A	3.9 U	3.8 U	3.1 U	2.7 J
Silver	mg/kg	5,800	2.5 J	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	156 J	45.9 J	46.3 J	N/A	484 J	22.7 J	1,370 J	143 J
Zinc	mg/kg	350,000	953 J	379 J	48.7 J	N/A	131 J	25.7 J	244 J	15.9 J
Other										
Cyanide	mg/kg	150	2.8	0.88	0.76 U	N/A	0.6 J	0.72 U	0.61	0.85

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

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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
Metals										
Aluminum	mg/kg	1,100,000	11,300	9,990	11,600	12,400	6,630	12,300	10,600	16,200
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	6.7	2.2 U	4.5	2.2 U	2.3 U	23.1	3.7	4.3
Barium	mg/kg	220,000	64.9	83.6	88.6	83.8	30	186 J	49.4 J	65.4 J
Beryllium	mg/kg	2,300	0.8 U	0.46 J	0.6 J	0.78 J	0.93 U	1	0.42 J	0.45 J
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	1,380	1,590	61.4	1,890	2,190	520 J	19.9 J	22.9 J
Chromium VI	mg/kg	6.3	11.9	9.4	0.68 B	0.56 B	8.6	0.3 B	0.32 B	0.76 B
Cobalt	mg/kg	350	1.6 J	4.5 U	6.8	4.3 U	4.6 U	3.8 J	5.4	6.8
Copper	mg/kg	47,000	30.2	16.8 J	20.9 J	15.3 J	22.3 J	66.1	11.4	12.8
Iron	mg/kg	820,000	210,000	140,000	29,000	141,000	162,000	153,000	13,300	14,000
Lead	mg/kg	800	11.8	10.8 J	46.8 J	9.4 J	6.8 J	169 J	28.9 J	19.8 J
Manganese	mg/kg	26,000	38,300	36,500	8,020	39,600	43,100	13,500 J	200 J	129 J
Mercury	mg/kg	350	0.017 J	0.006 J	0.11 J	0.1 U	0.11 U	0.017 B	0.032 B	0.015 B
Nickel	mg/kg	22,000	46.8	12.9 J	15.2 J	10.5 J	16.9 J	18.5	9.1 J	8.4 J
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	1.7 J	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	772	959	182	865	876	406 J	36.6 J	38.5 J
Zinc	mg/kg	350,000	31.5	27.3 J	163 J	9.9 J	3 B	229 J	116 J	53.7 J
Other										
Cyanide	mg/kg	150	0.41 J	0.29 J	0.33 J	0.84	0.086 J	0.53 J	0.2 J	0.71 U

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

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

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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
Metals			-	- 	- 		-		
Aluminum	mg/kg	1,100,000	N/A	11,900	16,100	8,090	17,100	16,000	20,700
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	2.6	4.8	2.3 J	4.1	10.8	7.1	4.1
Barium	mg/kg	220,000	N/A	107	29.9	36.1	148	110	74.7
Beryllium	mg/kg	2,300	N/A	0.87	0.57 J	0.81 U	1.8	0.75 J	0.61 J
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	1,090	18	1,750	128	1,050	24.3
Chromium VI	mg/kg	6.3	N/A	0.62 B	0.91 B	13.5	0.4 B	2	0.38 B
Cobalt	mg/kg	350	N/A	1.7 J	3.9 J	4.1 U	5.5	1.6 J	4.2 J
Copper	mg/kg	47,000	N/A	47.7	11.1	20	38.3	45.4	9.9
Iron	mg/kg	820,000	N/A	154,000	7,650	189,000	56,300	187,000	21,000
Lead	mg/kg	800	N/A	104	10.2	5	131	31.4	12.5
Manganese	mg/kg	26,000	N/A	20,600	37.7	35,200	3,340	24,900	68.5
Mercury	mg/kg	350	N/A	0.082 J	0.004 J	0.004 J	0.053 J	0.0096 J-	0.037 J-
Nickel	mg/kg	22,000	N/A	26.8	10.1 J	25.5	16.5	33.3	10
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	2 J	2.7 U	0.98 J	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	444	18.2	1,380	329	465	41.8
Zinc	mg/kg	350,000	N/A	213	25.7	19.3	195	113	35.6
Other									
Cyanide	mg/kg	150	N/A	0.78	0.037 J	0.17 J	0.18 J	0.64	0.72 U

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Table 6
Summary of Inorganics Detected in Soil
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
Metals										
Aluminum	mg/kg	1,100,000	12,000	26,200	15,900	39,000	26,300	48,500	19,600	30,300
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	2.4	2.9	3.6	8.5	2.3 U	5.1	9.3
Barium	mg/kg	220,000	45.3	334 J	70.8 J	898 J	385 J	428	79.8	380
Beryllium	mg/kg	2,300	0.35 J	2.7	0.58 J	6.3	3	5	0.84 J	3.3
Cadmium	mg/kg	980	1.3 U	0.51 J	1.3 U	0.34 J	0.81 J	0.56 B	1.3 U	0.91 B
Chromium	mg/kg	120,000	12.6	19.2	57.4	11.7	19.6	26.4	23.8	225
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	2.4 J	1.5 J	6.8	2 J	6.2	1.3 J	3.2 J	20.8
Copper	mg/kg	47,000	5.4	8.4 J	10.7 J	7.4 J	58.5 J	8.7	18.2	787 J
Iron	mg/kg	820,000	4,170	8,070	10,900	10,500	22,200	30,600	17,400	90,900
Lead	mg/kg	800	9.4	22.7 J	10.4 J	273 J	190 J	8.4	12	116 J
Manganese	mg/kg	26,000	17.1	3,530	137	9,400	30,400	5,680	95.5	6,700
Mercury	mg/kg	350	N/A	0.11 U	0.035 J	0.11 U	0.12 U	0.0028 J	0.011 J	0.21
Nickel	mg/kg	22,000	6.9 J	7.7	27.8	1.5 J	9.4 J	3.5 J	12	120 J
Selenium	mg/kg	5,800	3.4 U	2.9 U	3.4 U	3.3 J	4.3 U	5.5	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	5 J	9.2 U	8.8 U	9.6 U
Vanadium	mg/kg	5,800	8.7	161	23.9	41.9	58.6	41.4	28.5	371
Zinc	mg/kg	350,000	17.3	57.1 J	27.7 J	30.5 J	199 J	34.8	32.5	174 J
Other										
Cyanide	mg/kg	150	N/A	0.46 J	0.12 J	0.56 J	0.63 J	0.36 J	0.75 U	0.98

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

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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*
Metals									
Aluminum	mg/kg	1,100,000	15,300	15,100	6,030	N/A	14,000	25,600	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	9.5	5.8	3.7	4.7	4.7	8.8	3.4
Barium	mg/kg	220,000	135	71.1	33.4	N/A	90.2	254	N/A
Beryllium	mg/kg	2,300	0.68 J	0.86 J	0.89 U	N/A	1.1	3.1	N/A
Cadmium	mg/kg	980	3.1	0.43 J	1.3 U	N/A	0.6 J	1.3	N/A
Chromium	mg/kg	120,000	607	1,160	1,490	N/A	671	137	N/A
Chromium VI	mg/kg	6.3	0.85 B	2	2.1	N/A	0.62 B	0.63 B	N/A
Cobalt	mg/kg	350	10.4	3.6 J	1.7 J	N/A	5.2	18.3	N/A
Copper	mg/kg	47,000	58.7	28.1	28.9	N/A	34.7	73.5	N/A
Iron	mg/kg	820,000	78,000	234,000	179,000	N/A	144,000	67,800	N/A
Lead	mg/kg	800	266	5.5	17.7	N/A	24.4	95.5	N/A
Manganese	mg/kg	26,000	16,900	25,500	29,000	1,090	16,000	4,920	N/A
Mercury	mg/kg	350	0.071 J	0.14 U	0.044 J	N/A	0.013 J	0.04 J	N/A
Nickel	mg/kg	22,000	28.2	35.1	34.7	N/A	25.6	32.8	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	12.6	21	22.3	N/A	16.4	15.2	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	730	688	636	N/A	501	174	N/A
Zinc	mg/kg	350,000	888	20.2	14.5	N/A	86	290	N/A
Other									
Cyanide	mg/kg	150	0.29 J	1.8	0.64 J	N/A	0.23 J	1	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.

	SUMN	TABLI IARY OF SOIL PA	E 7 AL EXCEEDANC	CES		
<u>Parameter</u>	<u>CAS#</u>	<u>Frequency of</u> <u>Detections (%)</u>	<u>Sample ID of</u> <u>Max Result</u>	<u>Max Result</u>	PAL Solid	<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

SOIL PA	AL EXCEEDA	TABLE NCES F(8 DR SPECIFIC 1	TARGET	8	
Target Feature	Boring ID	Sample Depth	Parameter	PAL (mg/kg)	<u>Result</u> (mg/kg)	<u>Final</u> <u>Flag</u>
	D10 001 CD	1	Arsenic	3	4	
	B19-001-2B	5	Arsenic	3	7.9	
Eine Theining Ange	D10 002 SD	1	Arsenic	3	4.5	
Fire Training Area	B19-002-SB	4	Arsenic	3	6.5	
	D10 002 SD	1	Arsenic	3	4.2	
	B19-003-2B	5	Arsenic	3	6.9	
		1	Arsenic	3	6.9	
	B19-004-SB	1	Manganese	26,000	27,300	
Oli Trap		5	Arsenic	3	14.2	
(sanitary line)	B19-005-SB	1	Manganese	26,000	32,200	
	B19-002-2B	6	Arsenic	3	47.9	
Earman Eval Oil	B10-006-SB	1	Arsenic	3	3.5	
Former Fuel OII	D19-000-3D	5	Arsenic	3	5.4	
Storage Tank and Bermed Area	B19-007-SB	8.5	Arsenic	3	6.4	
	B19-008-SB	7.5	Arsenic	3	22.9	
	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	
	D10 012 SD	1	Arsenic	3	3.1	
Donnwood	D19-012-3D	5	Arsenic	3	3.7	
Storage Tenk		1	Arsenic	3	3.1	
Form ASTs	B19-013-SB	1	Manganese	26,000	32,900	J
Falli ASIS		5	Arsenic	3	14.1	
	B19-014-SB	5	Arsenic	3	8	
	B19-015-SB	1	Arsenic	3	8.3	
	D17-013-3D	5	Arsenic	3	4.8	
	B19-016-SB	1	Arsenic	3	7.8	
Pig Plant Caster	B19-017-SB	1	Arsenic	3	4.4	
Building	B19-018-SB	1	Manganese	26,000	30,200	
		1	Arsenic	3	3.2	
	B19-019-SB	8	Arsenic	3	8.1	
Pig Plant Castor		10	Arsenic	3	13.8	
rig rialli Caster Machina		1	Arsenic	3	5.1	
	B10-020 SP	4	Arsenic	3	6.7	
	D17-020-3D	4	Chromium VI	6.3	11.9	
		4	Manganese	26,000	38,300	

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SOIL PA	TABLE 8 SOIL PAL EXCEEDANCES FOR SPECIFIC TARGETS								
Target Feature	Boring ID	Sample Depth	Parameter	PAL (mg/kg)	Result (mg/kg)	<u>Final</u> <u>Flag</u>			
		1	Chromium VI	6.3	9.4				
	B19-021-SB	1	Manganese	26,000	36,500				
Pig Plant		7	Arsenic	3	4.5				
Storage Area		1	Manganese	26,000	39,600				
	B19-022-SB	4	Chromium VI	6.3	8.6				
		4	Manganese	26,000	43,100				
	B19-023-SB	1	Arsenic	3	23.1				
	B17-025-5B	5	Arsenic	3	3.7				
	B19-024-SB	1	Arsenic	3	4.3				
		5	Arsenic	3	3.8				
Pump Houses	B19-025-SB	1	Arsenic	3	7				
		1	Manganese	26,000	28,100				
		5	Arsenic	3	6.3				
	B19-026-SB	1	Arsenic	3	16.9				
	B17 020 5B	8	Arsenic	3	16.3				
		1	Manganese	26,000	40,000				
Rail Car	B19-027-SB	1	Thallium	12	15.4				
Dumper		5	Arsenic	3	5				
Dumper	B19-028-SB	1	Manganese	26,000	30,000				
	B17 020 5B	7	Arsenic	3	3.5				
	B19-029-SB	4	Arsenic	3	3.1				
Weir and Oil		10	Arsenic	3	5.6				
Barrier	B19-030-SB	1	Arsenic	3	5.8				
	D17-030-3D	5	Arsenic	3	5.1				

J: The positive result is a quantitative estimate

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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-Tetrach	lorophenol	0.077	mg/kg	25,000	no	R
2,4,5-Trichlorop	phenol	0.19	mg/kg	82,000	no	R
2,4,6-Trichlorop	phenol	0.077	mg/kg	210	no	R
2,4-Dichlorophe	enol	0.077	mg/kg	2,500	no	R
2,4-Dimethylph	enol	0.077	mg/kg	16,000	no	R
2,4-Dinitrophen	ol	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-Methylphe	nol(m&p Cresol)	0.15	mg/kg	41,000	no	R
Benzaldehyde		0.077	mg/kg	120,000	no	R
Pentachlorophe	enol	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



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: B19-0.

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



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: B

B19-015-SB-5

Benzaldehyde	0.079	mg/kg	120,000	no	R	



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 Cresc	ol) 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



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



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 Crese	ol) 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
		····	050.000		Р

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						
r						

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
Bromometha	ne	0.0049	mg/kg	30	no	R
Sample:	B19-035-SB-4			_		
1,4-Dioxane		0.11	mg/kg	24	no	R
Bromometha	ne	0.0055	mg/kg	30	no	R
Sample:	B19-037-SB-1			_		
1,4-Dioxane		0.12	mg/kg	24	no	R
Bromometha	ne	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



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 B19COPC Screening Analysis

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-ocytlphthalate	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

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

Table 10 - Parcel B19COPC Screening Analysis

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

Exposure Unit	Surface/Sub-Surface	Arithmetic Mean (mg/kg)
EU 1	Surface	32.7
EU I	Sub-Surface	45.3
(40.8 ac.)	Pooled	38.8
EU 2	Surface	56.1
EU 2	Sub-Surface	63.3
(44.0 ac.)	Pooled	60.1

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

Table 12 - Parcel B19Exposure Point Concentrations

			EPCs - Surface Soils					
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	16.4	95% GROS Adjusted Gamma UCL	11.1		
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	181,228	95% Student's-t UCL	142,171		
Manganese		2,600	95% Student's-t UCL	22,450	95% Student's-t UCL	21,575		
Thallium		1.20	N/A	N/A	Maximum Value	15.4		
Vanadium		580	95% Student's-t UCL	633	95% Student's-t UCL	609		

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 B19Exposure Point Concentrations

				EPCs - Sub-	Surface Soils	
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	7.48	95% KM (Chebyshev) UCL	16.1
Chromium VI	6.30	350	Maximum Value	11.9	Maximum Value	1.90
Iron		82,000	95% Adjusted Gamma UCL	92,906	95% Adjusted Gamma UCL	44,632
Manganese		2,600	95% Adjusted Gamma UCL	19,208	97.5% Chebyshev (Mean, Sd) UCL	11,177
Thallium		1.20	N/A	N/A	Maximum Value	8.30
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 B19Exposure Point Concentrations

				EPCs - P	ooled Soils	
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	11.0	95% KM (Chebyshev) UCL	12.2
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	136,410	95% Chebyshev (Mean, Sd) UCL	112,267
Manganese		2,600	95% Adjusted Gamma UCL	19,696	97.5% Chebyshev (Mean, Sd) UCL	19,979
Thallium		1.20	N/A	N/A	95% KM (Percentile Bootstrap) UCL	7.76
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

		EU 1 (40.8 ac.)							EU 2 (44.8 a	c.)	
				Composit	te Worker				Composi	te Worker	
			RSI	Ls (mg/kg)	Risk Ratio	0S		RSI	Ls (mg/kg)	Risk Rati	os
Parameter	Target Organs	EPC	Cancer	Non-Cancer	Risk	HQ	EPC	Cancer	Non-Cancer	Risk	HQ
		mg/kg					mg/kg				
Arsenic	Cardiovascular; 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			15.4		12.0		1
Vanadium	Dermal	633		5,800		0.1	609		5,800		0.1
					6E-06	\checkmark				4E-06	\checkmark

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

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

	Cardiovascular	0
	Dermal	1
Fotal HI	Respiratory	0
	Gastrointestinal	0
	Nervous	1

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

			EU 1 (40.8 ac.)						EU 2 (44.8 a	c.)	
				Composite	Worker				Composit	e Worker	
			RSI	.s (mg/kg)	Risk Rati	0S		RSI	.s (mg/kg)	Risk Rat	tios
Parameter	Target Organs	EPC mg/kg	Cancer	Non-Cancer	Risk	HQ	EPC mg/kg	Cancer	Non-Cancer	Risk	HQ
Arsenic	Cardiovascular; Dermal	7.48	3.00	480	2.5E-06	0.02	16.1	3.00	480	5.4E-06	0.03
Chromium VI	Respiratory	11.9	6.30	3,500	1.9E-06	0.003	1.90	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			8.30		12.0		0.7
Vanadium	Dermal	435		5,800		0.08	423		5,800		0.07
					4E-06	\checkmark				6E-06	\downarrow

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

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

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

Table 15 - Parcel B19 Composite Worker Pooled Soils Risk Ratios

		EU 1 (40.8 ac.)						EU 2 (44.8 a	c.)		
				Composit	te Worker				Composit	e Worker	
			RSI	.s (mg/kg)	Risk Rati	os		RSI	Ls (mg/kg)	Risk Rati	os
Parameter	Target Organs	EPC mg/kg	Cancer	Non-Cancer	Risk	HQ	EPC mg/kg	Cancer	Non-Cancer	Risk	HQ
Arsenic	Cardiovascular; 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	1				4E-06	\checkmark

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

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

	Cardiovascular	0
	Dermal	1
Total HI	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/ Description	REC & Finding/ SWMU/ AOC	Figure or Drawing of Reference	RATIONALE Number of Locations Sample Locations Box		Boring Depth	Sample Depth	Analytical Parameters: Soil 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/ Finding 266	REC Location Map/ 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/ Description	REC & Finding/ SWMU/ AOC	Figure or Drawing of Reference	RATIONALE	Number of Locations	Sample Locations	Boring Depth	Sample Depth	Analytical Parameters: Soil 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/ Description	REC & Finding/ SWMU/ AOC	Figure or Drawing of Reference	RATIONALE	Number of Locations	Sample Locations	Boring Depth	Sample Depth	Analytical Parameters: Soil Samples
Parcel B19 Coverage			Investigate potential impacts related to any historical activities which may have occurred on the site (potential leaks or releases).	12	B19-031 through B19-042	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')
			Total	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 Boring ID: B19-001-SB (page 1 of 1)			p Inc. Igineers BB of 1)	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Glumac : S. Kabis, G.I.T. : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Date Weath Northin Eastin	er ng (US ft) g (US ft)	: 10/14/2016 : 50s, sunny : 566348.8618 : 1464717.708
	Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		nscs	REMARKS
or	0	80	- 2.1 4.3	B19-001-SB-1	(0-3') SL/ (SLAG) a	AG and fine grained S Ind brown (SAND), dr	AND, very loose, black y, no plasticity, no cohesion		SW	
_Bor Logs\B19-001-SB.bc	-		2.4	B19-001-SB-5	(3-4') SIL cohesive (4-5') CL plasticity	TY SAND, loose, blac AY, soft, red-yellow a , cohesive	x, moist, medium plasticity, Ind tan, dry, very high		CL	Organic matter
ments\Parcel B19\boring Logs\z	5		1.4		(5-7') CL/ plasticity,	AY with some SILT, h	ard, red-yellow, dry, high		СН	
iparrows Point Area שושטטטט	-	. 100	1.8		(7-8') SAI plasticity, (8-10') S/ plasticity	ND, fine grained, loos , no cohesion AND, fine grained, der , no cohesion	e, red-yellow, wet, no		SP	• Wet at 8' bgs
1p/150300M EAG_S	-		-						SP	
IroAnalytics Grou	10-				End of bo	oring				
01-25-2018 P:\Env	Total Bo Boring t	orehole D terminated	epth: 10' d at 10' bç	bgs. gs due to water.						

	ARM Group Inc. Earth Resource Engineers and Consultants			p Inc.	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Glumac	Date Weather	: 10/14/2016 : 50s, sunny
E	Boring) ID: E	319-002-S	SB	Checked by Drilling Company Driller Drilling Equipment	: S. Kabis, G.I.T. : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Northing (US ft) Easting (US ft)	: 566244.6084 : 1464730.729
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION	nscs	REMARKS
0-						/El loggo dark brown dry		1
		2.0	B19-002-SB-1	no plastic	ity, no cohesion	EL, 100se, dark brown, dry,	SW	
-		4.9		(1-2') SLA	AG, hard, gray, dry, n	o plasticity, no cohesion	GW	
-	92	10.6		(2-2.5') C	LAY, soft, black, mois	st, high plasticity, cohesive	СН	
_				(2.5-5) C cohesive	LAY, hard, red-yello	w, dry, high plasticity,		
_		8.7	B19-002-SB-4				СН	
		7.7						
5—		5.0		(5-6') SIL medium p	TY CLAY, medium st plasticity, cohesive	iffness, red-yellow, dry,	CL	
-		4.7		(6-7') SAN cohesive	NDY SILT, soft, red-y	ellow, moist, no plasticity,	ML	
-	100	2.7		(7-10') SA wet, no pl	ND, very soft, red-ye asticity	llow then gray from 8-10',		- Wet at 7' bgs
-		-					SP	
-		-						
10-				End of bo	rina			
					""'y			
Total Bo Boring t	Drehole Do erminated	epth: 10' d at 10' bg	bgs. gs due to water.					

E	Boring ID: B19-003-SB (page 1 of 1)			p Inc. ngineers nts SB of 1)	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			ng (US ft) g (US ft)	: 10/14/2016 : 50s, sunny : 566123.6882 : 1464742.795
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		NSCS	REMARKS
0			B19-003-SB-1	(0-0.5') To	opsoil SILT with ORG	ANICS		OL	
-	60	2.8 27.3		(0.5-4') Si to gray, m	AG and GRAVEL windown of the provided the pr	th SAND, very loose, brown cohesion		GW	
5—		1.7	B19-003-SB-5	(4-6') CLA cohesive	∖Y with SILT, soft, bla	ıck, dry, high plasticity,		СН	Moderate petroleum odor (4-6.5')
-		15.4		(6-9.5') Sl red-yellov cohesive	LT, trace CLAY, with v, and gray, moist the	some SAND, hard, brown, n wet at 9' bgs, low plasticity	/,		
-	90	21.4						CL	Wet at 9' bos
10-		12.2		(9.5-10') \$ plasticity,	SAND, medium grain no cohesion	ed, loose, gray, wet, no		SP	
				End of bo	ring				
Total Bo Boring t	orehole Do erminated	epth: 10' d at 10' bç	bgs. gs due to water.						

E	Boring	AR Eart	M Group h Resource En and Consultar 319-004-S (page 1	BB	Client: EnviroAnalytics GroupDateARM Project No.: 150300M-15-3WeatherProject Description: Sparrows Point - Parcel B19Site LocationSite Location: Sparrows Point, MDARM Representative: L. PerrinChecked by: W. Mader P.G., CPSSNorthing (USDrilling Company: Green Services, IncEasting (US fDriller: Don MarcheseDrilling Equipment			ner ng (US ft) g (US ft)	: 10/13/2016 : 60s, cloudy : 565495.678 : 1463111.602
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		NSCS	REMARKS
0		0.0	B19-004-SB-1	(0-2') GR. dry, no pl	AVELLY SAND with S asticity, no cohesion	SILT, medium dense, brown,		SW/GW	Organic matter at surface
_	84	0.1		(2-3') SAI very mois	NDY CLAY with GRA' t, medium plasticity, o	VEL SLAG, soft, pale brown, cohesive	,	CL	
-		0.0		(3-4.5') S plasticity,	SLAG GRAVEL, medi no cohesion	um dense, gray, wet, no		GW	
5-		0.0	B19-004-SB-5	(4.5-5') C medium p	LAY, hard, dark brow plasticity, cohesive	n and gray, dry to moist,		CL	Wet at 5' bas
5-		-		(5-5.8') S plasticity,	LAG GRAVEL, mediu no cohesion	im dense, gray, wet, no		CL	wet at 5 bigs
-		-		(5.8-6.5') brown, we (6.5-9') C gray, wet	SANDY GRAVEL wit et, no plasticity, no co LAY, very soft, green , high plasticity, cohes	h SILT, medium dense, dark hesion ish gray to light greenish sive		GW/SW	
_	100	-						СН	
_		-							
		-		(9-10') Cl high plasi	∠AY, hard, greenish g ticity, cohesive	ray and yellowish red, dry,		СН	Some oxidation present
10—				End of bo	pring				L
Total Bo Boring t	orehole De erminated	epth: 10' d at 10' bo	bgs. js due to water.						

	Boring	AR Eart	M Group th Resource En and Consultant 319-005-S (page 1	BB of 1)	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin : W. Mader P.G., CPSS : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Date Weath Northi Eastir	ner ing (US ft) ng (US ft)	: 10/13/2016 : 60s, cloudy : 565503.99 : 1463126.00
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		USCS	REMARKS
0-		-	B19-005-SB-1	(0-1.5') O cohesion	RGANIC SILT, soft, t	prown, dry, no plasticity, no		OL	
-		0.0		(1.5-2.5') dry, no pl	SILTY SAND with GF asticity, no cohesion	RAVEL SLAG, loose, brown,		SM	
-	82	11.3 14.3		(2.5-5.5') medium c cohesion	SLAG, SAND and G dense, brownish gray	RAVEL, some SILT at top, wet, no plasticity, no			
-		0.2						SW/GW	
5-		0.0	B19-005-SB-6	(5.5-10.5) CLAY, very firm to f	irm (8-10'), light gray to pale			
-		0.0		cohesive	a readisit yellow, mor	st to dry, high plasticity,			
_	100	0.0						CL	
_		0.0	B19-005-SB-10						
10—		-		(10.5-12)	7') SANDY CLAY sof	t pale brown moist mediun	n		
-		0.0		plasticity,	cohesive	, paio oromi, molo, model		CL	
-	66	0.0		(12.7-13.	3') SAND, fine graine	d, dense, pale brown, wet,		SP	Wet at 12.7'
-		-		(13.3-15) reddish y	CLAY, trace SAND, ellow, moist, high plas	hard, pale brown and sticity, high cohesion	/	CL	
15—				End of bo	pring				
Total Bo Boring t	orehole Determinated	epth: 15' d at 15' bç	bgs. gs due to water.						

E	ARM Group Inc Earth Resource Engineers and Consultants Boring ID: B19-006-SB (page 1 of 1)			p Inc. gineers hts B of 1)	Client : EnviroAnalytics Group Date ARM Project No. : 150300M-15-3 Weather Project Description : Sparrows Point - Parcel B19 Weather Site Location : Sparrows Point, MD ARM Representative : L. Perrin Checked by : W. Mader P.G., CPSS Northing (US ft) Drilling Company : Green Services, Inc Easting (US ft) Driller : Don Marchese Drilling Equipment			US ft) IS ft)	: 1/9/2017 : 20s, cloudy : 565676.30 : 1463334.83
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		USCS	REMARKS
0-		0.1	B19-006-SB-1	(0-1.1') Sl brown, m	SLAG GRAVEL, medium dense, gray and pale noist, no plasticity, no cohesion			SW	
-		0.4		(1.1-2.7') yellow, dr	CLAYEY SILT, dense y, low plasticity, cohe	e, black grading to reddish sive	Λ	ИL	
-	100	0.4		(2.7-6') S medium c cohesion	LAG, SAND and GR lense, brownish gray	AVEL, some SILT at top, , wet, no plasticity, no			
5-		0.1	B19-006-SB-5				SW	//GW	
-		-		(0.0.5)) 0					
-		-		(6-9.5') Si red and g	AND, fine to medium ray mottling, moist, n	grained, dense, yellowish o plasticity, no cohesion			
-	60	0.1					s	SW	
-		0.0							
10-		0.0		(9.5-10') \$ wet, no pl	SAND, fine to mediun asticity, no cohesion	n grained, very pale brown,	S	SW	Wet at 9.5' bgs Very little recovery <5% (9.5-10')
				⊏na of bo	ייייט 				
Total Bo Boring t	orehole Do erminated	epth: 10' d at 10' bç	bgs. gs due to water.						

		Boring	AR Eart	M Group th Resource Er and Consultan B19-007-S (page 1	p Inc. agineers	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B1 : Sparrows Point, MD : L. Perrin : W. Mader P.G., CPSS : ENRC : Dan Weigman : CAT backhoe 415F2	9 North Easti	her iing (US ft) ng (US ft)	: 1/18/2017 : 50s. sunny : 565580.12 : 1462932.60
	Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		nscs	REMARKS
tics Group/150300M EAG_Sparrows Point Area B\Documents\Parcel B19\Boring Logs\2_Bor Logs\B19-007-SB.bor	0- - - 5 -	N/A	- - - - - 0.0	B19-007-SB-8.5	(0-7.5') S plasticity, (7.5-9') S striations cohesion- reddish y End of tea	AND, dense, very pal and mottling, moist, r -grades to CLAY, very ellow mottling, moist,	e brown with reddish yello no plasticity, no / firm, very pale brown with low plasticity, cohesive	mo mo w	GW SW to CL	No sample at 0-1' depth due to large slag pieces. 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. Excavated material appeared free of NAPL. Wet at 1' bgs
iroAnalytics	10-									
18 P:\Envi	Total Te Test pit	est Pit Exc terminate	cavation I ed at 9' bg	Depth: 9' bgs. gs due to excavat	tion method	and native soil.				
01-25-201	Measur hole.	ed test pit	depths v	vith O/W probe-a	re approxim	ations due to water in				

	Boring	AR Ear	M Group th Resource Er and Consulta B19-008-S (page 1	p Inc. ngineers nts	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin : W. Mader P.G., CPSS : ENRC : Dan Weigman : CAT backhoe 415F2	Date Weath Northi Eastir	ner ing (US ft) ng (US ft)	: 1/18/2017 : 50s. sunny : 565701.10 : 1462891.75
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		USCS	REMARKS
0-	N/A	- - - -		(0-6.5') S BOULDE cohesion	LAG COBBLES with RS, gray, very moist	some SAND and some to wet, no plasticity, no		GW	No sample at 0-1' depth due to large slag pieces. 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. Excavated material appeared free of NAPL; light organic odor noted. Wet at 1' bgs
		-	B19-008-SB-7.5	(6.5-8') C mottling,	LAY, very firm, very p moist, low plasticity, c	oale brown with yellowish rec cohesive	ł	CL	Light oxidation and several sand lenses 68' bgs
10-				End of tes	st pit excavation.				
Total T Test pir Measu hole.	est Pit Exc t terminate red test pit	cavation ed at 8' by t depths v	Depth: 8' bgs. gs due to excava with O/W probe-a	tion method	and native soil. ations due to water in				

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	ARM Group Inc Earth Resource Engineers and Consultants			o Inc.	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin	Date Weath	ner	: 9/20/2016 : 80s, sunny
E	Boring) ID: E	319-009-S (page 1	5B of 1)	Checked by Drilling Company Driller Drilling Equipment	: W. Mader P.G., CPSS : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Northi Eastir	ing (US ft) ng (US ft)	: 565434.98 : 1462409.41
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		nscs	REMARKS
0—		-	B19-009-SB-1	(0-1.1') S cohesion	LAG GRAVEL, loose,	gray, dry, no plasticity, no		GW	
-		0.0		(1.1-2.3') grayish-b	SLAG, SILT TO GRA rown, dry, no plasticit	VEL-sized, dark y, no cohesion		ML/GW	
-	80	0.0		(2.3-4.1') brown, m	SANDY CLAY, hard, oist, low plasticity, co	reddish yellow and very pale hesive	;		
_		0.6						CL	Wet at 4' bgs
5-		1.2		(4.1-5.9') brown, ar	SAND, fine to mediur d reddish yellow, wei	m grained, dense, very pale t, no plasticity, no cohesion		SW	
		-							
-		0.0		(5.9-10') (gray with plasticity,	CLAY with trace SAN reddish yellow mottlir cohesive	D from 6-7', very firm, light ng to all gray, moist, high			
-	100	0.0						CL	
_		0.0							
		0.0							
10—				End of Bo	pring				
Total Bo Boring t	orehole De erminated	epth: 10' ∣ d at 10' bç	bgs. gs due to water.						

	P	AR	M Groug	o Inc.	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin	Date Weat	her	: 9/22/2016 : 80s, sunny
E	Boring) ID: E	319-010-S	B of 1)	Checked by : W. Mader P.G., CPSS N Drilling Company : Green Services, Inc E Driller : Don Marchese E Drilling Equipment : Geoprobe 7822DT E			ing (US ft) ng (US ft)	: 564957.94 : 1462080.44
			(page 1					1	
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		USCS	REMARKS
0-				(0-0.4') G	RAVEL SLAG, large,	loose, brown, dry, no		SP	
-		1.3	B19-010-SB-1.5	(0.4-1.5) plasticity,	NO CONESION SAND and GRAVEL no cohesion	SLAG, brown, very moist, no	/ D	sw/Gw	Trace product- black, very viscous (0.5' bgs)
- - 5	98	1.7 1.7 0.9 0.0	B19-010-SB-5	(1.5-5') S brown an bgs, low p	ILTY CLAY to CLAY, d reddish yellow mott blasticity grading to hi	very firm to hard, light gray, ling, dry then moist at 4.8' igh plasticity, cohesive		CL	
5		0.0		(5-6') SAN moist, me	NDY CLAY, hard, ligh dium plasticity, cohe	it gray and reddish yellow, sive		CL	
-		0.0		(6-9.5') S. coarse gr 6-8.5' bgs plasticity,	AND, very fine to mea ained, dense to medi s, yellowish red from 8 no cohesion	edium grained grading to lium dense, pale brown from 8.5-9.5' bgs, wet, no		Wet at 6' bg	Wet at 6' bgs
-	100	-						sw	
_		-							
10-		0.0		(9.5-10') (red, mois	SANDY CLAY, very fi t, high plasticity, cohe	irm, light gray and yellowish ssive		CL	
					ning				
Total Bo Boring t	orehole De erminated	epth: 10' d at 10' bç	bgs. gs due to water.						

E	Boring	AR Ear	M Group th Resource Er and Consulta 319-011-S (page 1	p Inc.	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin : W. Mader P.G., CPSS : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Date Weat North Eastir	ner ing (US ft) ng (US ft)	: 9/22/2016 : 80s, sunny : 564867.76 : 1461798.60
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		nscs	REMARKS
0-		0.3	B19-011-SB-1	(0-1.5') S to wet, no	AND, SLAG, GRAVE plasticity, no cohesio	L, medium dense, brown, dr on	у	SW/GW	
-		0.4		(1.5-2.3') medium p	SILTY CLAY with SA plasticity, cohesive	ND, firm, red, very moist,		CL	
-	100	0.6		(2.3-4.1') plasticity,	CLAY, very firm, light cohesive	t yellowish brown, medium			
_		0.2						CL	
		0.1	B19-011-SB-5	(4.1-4.7') plasticity,	SANDY CLAY, very t cohesive	irm, pale brown, dry, low		CL	
5		-		no plastic	ity, no cohesion	y and reduisit yellow, moist,		SW	
-	100	-		(7-8.7') S light gray cohesion	AND, loose to mediur , and reddish yellow,	n dense, very pale brown, wet, no plasticity, no		sw	Wet at 7' bgs
-		0.1		(8.7-10') (moist, hig	CLAY, very firm, light h plasticity, cohesive	gray and reddish yellow,		CL	
10—			I	End of bo	pring			I	L
Total Bo Boring t	prehole De erminated	epth: 10' I at 10' bé	bgs. gs due to water.						

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	Boring	AR Ear	M Group th Resource Er and Consulta 319-012-S	p Inc. agineers ats	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin : W. Mader P.G., CPSS : Green Services, Inc : Don Marchese	Date Weatl North Eastir	her ing (US ft) ng (US ft)	: 9/22/2016 : 80s, sunny : 564967.66 : 1461908.91
			(page 1	of 1)	Drilling Equipment : Geoprobe 7822DT				
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		USCS	REMARKS
0		1.0	B19-012-SB-1	(0-1.8') S brown to cohesion	LAG, SAND to COBE dark brown, moist to	BLE-sized, with SILT, loose, wet, no plasticity, no		SW/GW	
-	96	3.3 11.1 4.8		(1.8-5') S brown, pa moist fror from 4-5' plasticity	ILTY CLAY to CLAY, ale brown, reddish yel n 1.8-2.4' bgs, very d bgs, low plasticity fro 2.4-5' bgs, cohesive	hard then soft from 4-5' bgs, low, and light gray mottling, ry from 2.4-4' bgs, moist m 1.8-2.4' bgs, medium	,	CL	
5		1.2	B19-012-SB-5						
5-		0.0		(5-9.7') S gray, pale bgs, no p	AND, fine to medium brown, and reddish lasticity, no cohesion	grained, very dense, light yellow, moist then wet at 6.5	'		
_		0.0							Wet at 6.5' bgs
_	100	-						SW	
-		-							
10-		0.0		(9.7-10') :	SAND, fine to coarse	grained, loose, yellowish		SW	
				End of bc	no prasticity, no cone pring	51011	/		
Total Bo Boring t	orehole D	epth: 10' d at 10' bạ	bgs. gs due to water.						

		AR	M Grou	p Inc.	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin	Date Weath	ner	: 9/22/2016 : 80s, sunny
E	Boring	g ID: E	319-013-8	SB	Checked by : W. Mader P.G., CPSS Drilling Company : Green Services, Inc Driller : Don Marchese Drilling Equipment : Controls 2822DT			ng (US ft) ng (US ft)	: 565149.86 : 1462027.14
			(page 1	of 1)					
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		NSCS	REMARKS
0-				(0-0.1') C	LAY with GRAVEL, s	oft, pale brown, moist, low		CL	
_		0.1	B19-013-SB-1	(0.1-1.1') dry, no pl	cohesive SLAG, SILT and GR asticity, no cohesion	AVEL-sized, loose, brown,]	SW/GW	
		1.3		(1.1-2') S	ILT, hard, brown, dry,	no plasticity, no cohesion		ML	
-	100	2.0		(2-4') SLA brown, ar	AG, SILT to GRAVEL- nd gray, dry to moist,	sized, medium dense, no plasticity, no cohesion		SW/GW	
		1.4							
F		2.4	B19-013-SB-5	(4-6.5') S brown, da bgs then	LAG, sand and grave ark brown, and dark g moist to wet, no plast	I, dense to very dense, reenish gray, dry from 4-5' icity, no cohesion			
5-		2.5						SW/GW	
-		0.1		(6.5-8.5') pale brow	CLAY, hard then firm n and reddish yellow	from 8-8.5' bgs, light gray, high plasticity, cohesive			
_	100	1.5						CL	
_		2.9		(8.5-10') (8.5-1	SAND, very fine to me dense, light grayish br ellow, wet, no plastici	edium grained, dense to own, very pale brown, and ty, no cohesion			Wet at 8.5' bgs
		0.3		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,, -	,,		SW	
10-				End of bo	pring				
Total Bo Boring t	orehole De erminated	epth: 10' d at 10' bç	bgs. gs due to water.						

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ARM Group Inc. Earth Resource Engineers and Consultants Boring ID: B19-014-SB (page 1 of 1)					Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin : W. Mader P.G., CPSS : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Date Weath Northi Eastir	ner ng (US ft) ng (US ft)	: 9/22/2016 : 80s, sunny : 565246.83 : 1462247.10
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		NSCS	REMARKS
0-		- 0.8	B19-014-SB-1	(0-2.3') S no cohesi	LAG, SAND and GRA	VEL, gray, wet, no plasticity	r, ,	SW/GW	
-	84	2.7 4.5		(2.3-2.5') plasticity, (2.5-3') S red, very (3-5') CL4 dark gray	GRAVEL, large, hear no cohesion ILTY SAND with GR moist, no plasticity, n AY, trace SLAG GRA and red to yellowish	vy, loose, black, wet, no AVEL rock, medium dense, o cohesion VEL, very firm to soft, very brown and gray, moist,		<u>GP</u> SM	
-	medium 0.4 B19-014-SB-5				plasticity, cohesive			CL	
5-		0.1		(5-8.5') C gray mott plasticity,	LAY, soft to very firm ling, moist then very r cohesive	, yellowish brown and light moist at 7.5' bgs, high			
-	100	0.0						CL	
_		0.0		(8.5-10') \$	SANDY CLAY, firm, y	ellowish brown, moist,			
-		0.0		medium p SAND, at plasticity,	lasticity, cohesive bottom of shoe, dens no cohesion	se, very pale brown, wet, no		CL	Wet at 10' bgs
10-				End of bo	ring				
Total Bo Boring t	prehole D erminated	epth: 10' d at 10' bo	bgs. gs due to water.						

	ARM Group Inc. Earth Resource Engineers and Consultants Boring ID: B19-015-SB (page 1 of 1)				p Inc. ngineers nts SB of 1)	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin : W. Mader P.G., CPSS : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Date Weat North Eastin	her ing (US ft) ng (US ft)	: 9/22/2016 : 80s, sunny : 565080.16 : 1462159.60
	Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		USCS	REMARKS
	0-		0.0	B19-015-SB-1	(0-1.3') S plasticity,	LAG SAND and GRA no cohesion	VEL, loose, brown, dry, no		SW/GW	
	-		0.0		(1.3-2.4') cohesive	SILT, medium firm, b	rown, dry, low plasticity,		ML	
15-SB.bor	-	84	0.0		(2.4-4.8') and yello	SILTY CLAY to CLA w brown, dry to moist	Y, very firm to soft, light gray , low to high plasticity	/		
_Bor Logs\B19-0	-		0.0	B19-0015-SB-5					CL	
19\Boring Logs\2	5—		0.0		(4.8-5') S mottling, (5-7.5') C moist, lov	ANDY CLAY, very firn moist, low plasticity, c LAY, hard, reddish ye y plasticity, cohesiye	n, brown with light gray cohesive Illow and light gray, dry to	/	CL	
ocuments\Parcel E	-		0.0						CL	
s Point Area B\Do	-	100	-		(7.5-10') wet, no p	SAND, dense to loose lasticity, no cohesion,	e, pale brown and light gray, wet			Wet at 7.5' bgs
0M EAG_Sparrow	-		-						SW	
tics Group/15030	10—		-		End of bo	pring				
EnviroAnaly	Total B		opth: 10'	bas						
01-25-2018 P:\	Boring	terminated	d at 10' b	gs due to water.						

ARM Group Inc. Earth Resource Engineers and Consultants Boring ID: B19-016-SB					Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin : W. Mader P.G., CPSS : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Date Weath North Eastir	her ing (US ft) ng (US ft)	: 9/22/2016 : 80s, sunny : 565408.28 : 1462115.07
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		USCS	REMARKS
0		-	B19-016-SB-1	(0-3.6') S brown, re bgs, no p	LAG SAND and GRA ddish brown and gray lasticity, no cohesion	VEL with some SILT, loose, y, dry then wet from 2.5-3.6'			
_	80	0.9 2.4						SW/GW	
-	9.	9.5	B19-016-SB-4	(3.6-6') S	LTY GRAVEL SLAG, medium dense, very dark				
5-		3.2		gray and	ngnt gray, dry, no pia	Sticity, no conesion		GW/GM	
-		-	- 1	(6-9.3') C low plasti	LAY, hard, pale brow city, cohesive	n and reddish yellow, dry,			
-	100	0.0						CL	Sludge odor (5-10')
-		0.0							
10-		0.0		(9.3-10') \$ yellow, w	SAND, fine to mediun et, no plasticity, no co	n grained, dense, reddish bhesion		sw	Wet at 9.3' bgs
10-				End of bo	ring				
Total Bo Boring t	erminated	epth: 10' d at 10' bç	bgs. gs due to water.						

ARM Group Inc. Earth Resource Engineers and Consultants Boring ID: B19-017-SB (page 1 of 1)					Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin : S. Kabis, G.I.T. : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Date Weather Northing (US ft) Easting (US ft)	: 9/23/2016 : 90s, sunny : 566322.818 : 1463864.468
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION	SOS	REMARKS
0—		-	B19-017-SB-1	(0-1') SIL plasticity,	T, with some SLAG G	GRAVEL, soft, brown, dry, no	ML	
-		32.4		(1-2.6') S pale brow cohesion	AND, very fine to fine n and reddish yellow	grained, medium dense, , dry, no plasticity, no	sw	
	76	23.0		(2.6-2.8')	SLAG GRAVEL, der	nse, gray, dry, no plasticity,	GP	
		59.6	B19-017-SB-4	no cohesi (2.8-12') \$	SAND and SLAG, SA	ND and GRAVEL, larger and	/	
-		7.9		and gray, cohesion	dry then moist from 9	9.5-10' bgs, no plasticity, no		
5-		-						Very small metallic grains, slight pungent odor throughout (0-10')
-		17.8						
_	70	26.2					SW/GW	
-	70	20.2						
-		28.8						
10-		0.8	B19-017-SB-10					
_		-						
		-						
-	24	-		(12-15') S gray, wet	LAG GRAVEL with s , no plasticity, no coh	ome SLAG SAND, loose, esion		-
_		-					GW/SW	Wet at 13.8' bgs
-		0.0						
15—				End of bo	ring			
Total Bo Boring t	orehole D erminated	epth: 15' d at 15' bg	bgs. gs due to water.					

E	Boring	AR Eart	M Group th Resource Er and Consulta 319-018-S (page 1	p Inc. ngineers SB of 1)	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin : S. Kabis, G.I.T. : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Date Weather Northing (US Easting (US	: 9/23/2016 : 80s, sunny ; ft) : 566361.8805 ft) : 1463866.204
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION	nscs	REMARKS
0	60	- - 0.6	B19-018-SB-1	(0-3') SAI brown, dr	NDY SILT with SLAG y then wet at 3' bgs, i	SAND and GRAVEL, loose, no plasticity, no cohesion	ML	
-		-		(3-4.5') S very dark	ILTY SLAG GRAVEL gray, wet, no plastici SLAG SAND and GR	and SAND, medium dense, ty, no cohesion	GM/S	Wet at 3' bgs
5	50	-		wet, no p	lasticity, no cohesion		GW	1
- 10—		-		(8.5-10') S CLAY len End of bc	SLAG SAND and GR ses, loose, black, we rring	AVEL with SILT and thin t, no plasticity, no cohesion	SW/0	SW
Total Bo Boring t	prehole D erminated	epth: 10' d at 10' by	bgs. gs due to water.					

	Boring	AR Ear	M Group th Resource En and Consultan 319-019-S (page 1	p Inc. gineers hts B of 1)	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin : S. Kabis, G.I.T. : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Date Weat North Eastin	her ing (US ft) ng (US ft)	: 9/23/2016 : 90s, sunny : 566399.2069 : 1464085.822
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		USCS	REMARKS
0 - - 5	82	- 43.0 1.1 13.3 18.9	B19-019-SB-1	(0-0.5') S cohesion (0.5-1.4') yellow, dr (1.4-2.4') brown, gr cohesion (2.4-6.5') dense, br no cohes	LAG GRAVEL, loose, SAND, very fine to fir y, no plasticity, no co SLAG GRAVEL and ay, and yellowish red SILTY SAND with G own, dry then moist fi	gray, dry, no plasticity, no ne grained, medium dense, hesion SAND, medium dense, , dry, no plasticity, no RAVEL SLAG, medium rom 6-6.5' bgs, no plasticity,		GP SW/GW SW/GW SM	
- - - 10	100	6.8 29.4 38.8 29.8 7.9 -	B19-019-SB-8 B19-019-SB-10	(6.5-7.5') (7.1-7.3'), wet, no p (7.8-8.6') plasticity, (8.6-9.5') plasticity, (9.5-12') (mottling,	SILT with trace GRA' dry, no plasticity, no SLAG GRAVEL, med lasticity, no cohesion SAND, fine grained, o no cohesion SANDY CLAY, very f cohesive CLAY, hard, olive bro low plasticity, cohesiv	VEL, firm, light gray but blac cohesion dium dense, gray and red, dense, olive brown, moist, n irm, olive brown, moist, low wn and reddish yellow e	k / /	ML GW SP CL CL	
- - 15—	50	- - -		(12-15') S 12.5-12.8 plasticity,	ELAG SAND and GRA bgs, light gray from no cohesion	VEL, dense, brown from 12.8-15' bgs, wet, no		SW/GW	Wet at 12.5' bgs
Total Bo Boring t	prehole D erminated	epth: 15' d at 15' bu	bgs. gs due to water.		²				

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E	ARM Group Inc. Earth Resource Engineers and Consultants Boring ID: B19-020-SB (page 1 of 1)				Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin : S. Kabis, G.I.T. : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Date Weath Northi Eastin	ner ing (US ft) ig (US ft)	: 9/23/2016 : 80s, sunny : 566356.6722 : 1463954.746
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		nscs	REMARKS
0		- 112.0	B19-020-SB-1	(0-6') SAN 5-6' bgs, I	NDY SILT with SLAG brown and gray, dry,	GRAVEL, soft then firm from no plasticity, no cohesion	n		
-	84	152.4	B19-020-SB-4					ML	
5—		23.5							
_		0.2		(6-6.9') S plasticity,	ILT with SAND, trace no cohesion	GRAVEL, red, dry, no		ML	
_	100	6.2 24.8		(6.9-9.2') brown, lig plasticity,	SILI to CLAYEY SIL ht gray, and reddish cohesive	I , hard, yellowish brown, yellow, very dry, low		ML	
- 10—		0.0		(9.2-9.7') brown, ar (9.7-10') \$ plasticity,	SANDY SILT, very fin ad light red, dry to mo SLAG GRAVEL with no cohesion	rm, reddish yellow, yellowish ist, low plasticity, cohesive SAND, loose, gray, wet, no		ML GW	• Wet at 9.7' bgs
Total Bo Boring t	prehole D erminated	epth: 10' d at 10' bថ្	bgs. gs due to water.	End of bo	ring				

ARM Group Inc. Earth Resource Engineers and Consultants Boring ID: B19-021-SB (page 1 of 1)				Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Glumac : S. Kabis, G.I.T. : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Date Weather Northing (US	: 10/14/2016 : 50s, sunny S ft) : 566534.4499 ft) : 1463953.357
		(page 1	of 1)				
% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION	SCS	REMARKS
			(0-4') SAI plasticity,	ND, medium grained, no cohesion	loose, brown, dry, no		
82	0.3	B19-021-5B-1				SI	5
	1.8						
	6.0		(4-5.5') S loose, da cohesion	LAG GRAVEL, coars rk brown, gray, and w	e grained, some SAND, very /hite, dry, no plasticity, no	G	v
	2.1		(5.5-7') C	LAY, with trace SILT,	stiff, brown and gray, dry,		
	18.3	B19-021-SB-7	nign plast	iicity, conesive		CI	+
100	38.2		(7-8.5') S cohesion	LAG GRAVEL, gray,	moist, no plasticity, no	Gl	v
	27.0		(8.5-9.5') medium p	CLAY, with trace SIL plasticity, cohesive	T, stiff, light brown, wet,	Cł	Wet at 8.5' bgs
	-		(9.5-10') wet. no p	SLAG GRAVEL, coar lasticitv. no cohesion	se grained, very loose, gray,	G\	Large slag chunks
		1	End of bo	pring		I	
orehole D terminated	epth: 10' d at 10' bo	bgs. gs due to water.					
	Boring Boring 82 82	ARE Boring ID: F Conversional and the second seco	ARM Group Earth Resource Fa and Consult (page 1) (page 1) (pa	ARM Group Inc. Earth Resource Engineers and Consultants Boring ID: B19-021-SB (page 1 of 1) Image: Inclusion of the stress of t	Image: Second Consultants Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Driller Company Driller Drilling Company Driller Drilling Company Driller Drilling Company Driller Drilling Company Driller Driller Dr	Image: Second	Image: Construction of the second s

E	ARM Group Inc. Earth Resource Engineers and Consultants Boring ID: B19-022-SB (page 1 of 1)			B of 1)	Client: EnviroAnalytics GroupDateARM Project No.: 150300M-15-3WeatherProject Description: Sparrows Point - Parcel B19Site LocationSite Location: Sparrows Point, MDARM Representative: L. GlumacChecked by: S. Kabis, G.I.T.Northing (US ft)Drilling Company: Green Services, IncEasting (US ft)Driller: Don MarcheseDrilling Equipment				: 10/14/2016 : 50s, sunny : 566556.3249 : 1464078.009
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		NSCS	REMARKS
0-		15.1	B19-022-SB-1	(0-4') SAN dry, no pl	ND, medium to fine gr asticity, no cohesion	rained, loose, dark brown,			
-	100	7.7 28.1						SP	
_		45.6	B19-022-SB-4						
5-		19.4		(4-6') SIL dark brow	TY CLAY, with some /n to gray, dry, mediu	GRAVEL and SAND, hard, um plasticity, cohesive		СН	
		-							
-		-		(6-8') SIL plasticity,	T, with some CLAY, h cohesive	hard, dark brown, dry, low		CL	
	60	23.5							
-		11.0		(8-10') SL plasticity,	AG GRAVEL, coarse no cohesion	e grained, blue-gray, wet, no		GW	Wet at 8' bgs
		11.1							
10—				End of bo	ring				
Total Bo Boring t	orehole Do erminated	epth: 10' I at 10' bç	bgs. gs due to water.						

	ARM Group Inc. Earth Resource Engineers and Consultants		o Inc.	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin	Date Weather	: 9/20/2016 : 80s, sunny	
I	Boring	j ID: E	319-023-S	SB	Checked by Drilling Company Driller Drilling Equipment	: W. Mader P.G., CPSS : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Northing (US ft) Easting (US ft)	: 565635.35 : 1462318.48
								1
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION	nscs	REMARKS
0-		0.1	B19-023-SB-1	(0-1.5') S. no plastic	ANDY SILT with SLA ity, no cohesion	G GRAVEL, soft, brown, dry	, ML	
		2.4		(1.5-1.9')	SILT, soft, pale brow	n, dry, no plasticity, no	ML	-
-	84	0.8		(1.9-2.8') plasticity,	SAND, fine to medium no cohesion	m grained, light gray, dry, no	sw	
-		0.2		(2.8-5') S moist, low	ILT to SANDY SILT, 1 / plasticity, cohesive	irm, yellowish brown to gray	,	
-		0.3	B19-023-SB-5				ML	
5—		-		(5-5.4') S plasticity,	AND, medium dense, no cohesion	greenish brown, moist, no	SW	-
-		1.2		(5.4-6.3) loose, ligh plasticity,	nt gray to gray, moist no cohesion	then wet at 8' bgs, no	SW	
	70	1.3						Wat at 9' has
-		0.0		(8.3-9.2') very dark plasticity,	SAND, very fine to fir gray, light gray, and no cohesion	ne grained, medium dense, brownish gray, wet, no	SW	
		0.0		(9.2-10') (gray, moi	CLAY, very firm, redd st, high plasticity, coh	ish yellow and brownish esive	CL	
10—				End of bo	ring		I	1
Total Bo Boring	orehole De terminated	epth: 10' I at 10' bo	bgs. gs due to water.					

	ARM Group Inc. Earth Resource Engineers and Consultants Boring ID: B19-024-SB (page 1 of 1)			p Inc. gineers hts BB of 1)	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin : W. Mader P.G., CPSS : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Date Weath Northi Eastin	ng (US ft) g (US ft)	: 9/20/2016 : 90s, sunny : 565662.87 : 1462290.01
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		NSCS	REMARKS
0-		0.0	B19-024-SB-1	(0-5') SIL very firm, red mottli	T to CLAYEY SILT, tr brown (0-2') then bro ng, dry, low plasticity	ace SAND from 4.8-5' bgs wnish gray and yellowish cohesive			Trace moss
-		0.1							
_	100	0.1						ML	
_		0.0							
5-		0.0	B19-024-SB-5						
-		0.1		(5-9.2') S. to coarse brownish wet at 7' I	AND, fine to medium from 8.5-9.2' bgs me gray and pale brown ogs, no plasticity, no o	grained from 5-8.5' bgs, fine dium dense to loose, to yellowish red, moist then cohesion			
-		0.0						SW	Wet at 7' bgs
_	100	-						-	
_		-							
10-		-		(9.2-10') (plasticity,	CLAY, firm, gray and cohesive	yellowish red, moist, high		CL	
				End of bo	ring				
Total Bo Boring t	prehole D erminated	epth: 10' d at 10' bç	bgs. gs due to water.						

	ARM Group Inc Earth Resource Engineers and Consultants Boring ID: B19-025-SB (page 1 of 1)				Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	Client : EnviroAnalytics Group Date ARM Project No. : 150300M-15-3 Weather Project Description : Sparrows Point - Parcel B19 Site Location : Sparrows Point, MD ARM Representative : L. Perrin Northing (US ft) Checked by : W. Mader P.G., CPSS Northing (US ft) Drilling Company : Green Services, Inc Easting (US ft) Driller : Don Marchese Drilling Equipment		ner ing (US ft) ng (US ft)	: 9/20/2016 : 90s, sunny : 565011.59 : 1462338.20
			(page 1	of 1)	29 =quipo.n				
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		nscs	REMARKS
0—		-	B19-025-SB-1	(0-1.1') O high plast	RGANIC CLAY, very icity, cohesive	soft, brownish gray, wet,		ОН	
-		1.7		(1.1-1.8') vellowish	SLAG GRAVEL, som	ne SAND, loose, brown,		GW	
-	82	5.0		(1.8-2.7') brown, gr	SILT with large SLA ay and brown, very d	G GRAVEL, hard, yellowish ry, low plasticity, cohesive	1	ML	
-		4 0		(2.7-5') S to very m	ANDY CLAY with GR oist, low plasticity, co	AVEL, soft to very soft, moi hesive	st		
_		0.0	D40.005.0D.5					CL	
5-		0.0	B19-025-5B-5						
-		1.9		(5-6.5') S brown (5- yellow mo cohesive	ANDY CLAY, soft to v 5.3'), yellowish browr ottling, moist to very n	very soft, red and yellowish to light gray and reddish noist, medium plasticity,		CL	2-inch GRAVEL SLAG layer at 5.3' bgs
_	100	0.5		(6.5-10.5' and reddi plasticity,) SANDY CLAY, harc sh yellow, very dry th no cohesion	l, yellowish brown, light grag en moist from 9-10' bgs, no	y		
_		1.3						SW	SAND content increases with depth
10-		1.9	B19-025-SB-10						
10		-		(10.5-13')	SAND, very fine to fi	ne, loose to medium dense	,		
-		-		wet, light bgs, yello cohesion	gray from 11-12.2' bo wish red from12.2-13	js, dark gray from 12.2-12.7 ' bgs, no plasticity, no		SW	vvet at 11 bgs
-	80	-							Strong sulphur odor (12.2-12.7')
-		-		(13-15') C	CLAY, hard, gray, moi	st, high plasticity, cohesive			
-		-						CL	
15—				End of bo	ring				
Total Bo Boring t	orehole D erminated	epth: 15' d at 15' bạ	bgs. gs due to water.						

E	ARM Group Inc. Earth Resource Engineers and Consultants Boring ID: B19-026-SB (page 1 of 1)			p Inc. gincers and BB of 1)	Client: EnviroAnalytics GroupDateARM Project No.: 150300M-15-3WeatherProject Description: Sparrows Point - Parcel B19Site LocationSite Location: Sparrows Point, MDARM Representative: L. PerrinChecked by: W. Mader P.G., CPSSNorthing (US ft)Drilling Company: Green Services, IncEasting (US ft)Driller: Don MarcheseDrilling Equipment			: 10/13/16 : 60s, cloudy : 565085.70 : 1462392.90	
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		nscs	REMARKS
0-		-	B19-026-SB-1	(0-2') CLA	AYEY SILT, soft, red,	dry, low plasticity, cohesive			
-		-						ML	
-	50	-		(2-6') CLA dense, gr plasticity,	AYEY GRAVEL, heav ay and red, dry then no cohesion	y coarse fragments, medium wet from 4-5' bgs, no	1		
-		37.3							Possible metallic tragments
-		8.6						GW-GC	Moderate oxidation
5—		-							
-		-		(6-7.4') S cohesive	ANDY CLAY, very firi	n, gray, moist, low plasticity,		CL	
_	60	0.0	B19-026-SB-8	(7.4-9.2') gray, very cohesion	SAND, fine grained, / moist then wet at 8'	dense to medium dense, bgs, no plasticity, no		SP	Wet at 8' bgs
-		0.1		(9.2-10')	SAND. fine to mediun	n grained, medium dense.			
10-		-		yellowish	red, wet, no plasticity	, no cohesion		SW	
10-				End of bo	pring				
Total Bo Boring t	prehole D	epth: 10' d at 10' bạ	bgs. gs due to water.						

E	ARM Group Inc. Earth Resource Engineers and Consultants Boring ID: B19-027-SB (page 1 of 1)			p Inc. pgineers nts BB of 1)	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin : W. Mader P.G., CPSS : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Date Weath Northin Eastin	er ng (US ft) g (US ft)	: 10/13/2016 : 60s, sunny : 565107.07 : 1462818.41
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		NSCS	REMARKS
0		25.6	B19-027-SB-1	(0-1.8') S. plasticity,	ANDY SILT, some G no cohesion	RAVEL, soft, brown, dry, no		ML	
-	100	28.9		(1.8-8') G yellow an	RAVELLY CLAY with d brown, dry, low pla	N SAND, firm, gray, reddish sticity, low cohesion			
-		3.4 24.7	B19-027-SB-5					CL	
-		- 1.7							
-	80	4.5		(8-10') CL	AYEY GRAVEL with	SAND, medium dense, dark	<		Wet at 8' bgs
-		0.6 0.5		biowii, we	et, no plasticity, no ct	JIESION		GW-GC	Slight pungent odor (8-10')
10-				End of bo	pring				
Total Bo Boring t	orehole D erminated	epth: 10' d at 10' be	bgs. gs due to water.						

E	Boring	AR Ear	M Group th Resource Er and Consultan 319-028-S	p Inc.	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin : W. Mader P.G., CPSS : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Date Weathe Northine Easting	er g (US ft) (US ft)	: 10/13/16 : 60s, cloudy : 565069.31 : 1462753.31
Depth (ft.)	% Recovery	PID Reading (PPM)	L aged) Sample ID/Interval	of 1)	DESC	RIPTION		USCS	REMARKS
0		30.0	B19-028-SB-1	(0-1.5') S brown, dr	ILT with SAND and s y, no plasticity, no co	ome GRAVEL SLAG, soft, hesion		ML	
		32.1		(1.5-2') S	ILT, firm, light gray ar	nd reddish yellow, dry, no		ML	
-	100	17.5		(2-7') SIL brown, re yellow, dr cohesion	T with large GRAVEL ddish yellow, and ligh y then very moist from	and trace SAND, firm, pale at gray to brown and reddish n 6-7' bgs, low plasticity, no			
_		37.1							
5-		8.0						ML	
5		7.9							
_		62.1	B19-028-SB-7						Wet at 6.9' bgs
_	92	12.7		(7-9.5') C wet, no p	LAYEY GRAVEL, me lasticity, no cohesion	dium dense, dark brown,			
-		9.9					C	GW-GC	
10-		19.0		(9.5-9.8') cohesive	CLAY, very firm, brow	wn, moist, low plasticity,		CL GW-GC	
				(9.8-10') (wet, no p End of bo	CLAYEY GRAVEL, m lasticity, no cohesion pring	nedium dense, dark brown,]		
Total Bo Boring t	L prehole D erminated	epth: 10' d at 10' bo	bgs. gs due to water.						

E	ARM Group Inc Earth Resource Engineers and Consultants Boring ID: B19-029-SB (page 1 of 1)			p Inc. ngineers nts BB of 1)	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin : S. Kabis, G.I.T. : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Date Weather Northing Easting ((US ft) (US ft)	: 9/23/2016 : 90s, sunny : 566102.814 : 1463959.432
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		NSCS	REMARKS
0-		-	B19-029-SB-1	(0-0.3') O cohesion	RGANIC SILT, soft, b	prown, dry, no plasticity, no		ML	Organic matter
-		-		(0.3-3.5') dry, no pl	SANDY SILT with sm asticity, no cohesion	nall SLAG GRAVEL, brown,	/	М	
_	62	8.2						IVIL	
-		41.6	B19-029-SB-4	(3.5-8') S	SLAG GRAVEL and S	AND, dense, gray, dry then			
5-		0.5		wetatri	Jys, no plasticity, no t	CONESION			
-		-					S	W/GW	
-	80	12.6							
-	80	9.3		(8-8.9') S	ILT with CLAY, very f	irm, very dark gray with trace	e	ML	
-		14.1	B19-029-SB-10	brown mc (8.9-11') \$	ottling, slightly moist, SILTY CLAY, very firr	ow plasticity, cohesive m, reddish yellow and			
10-		-		yenowish	brown, moist, iow pie	isticity, conesive		CL	
-		-		(11-17.5') medium p	CLAY, very soft, pal	e brown, very moist to wet,			
-	60	-							
_		-							
15-		-						CL	
-		-							
-		-							
-	60	-		(17.5-19.2 yellowish from 18.5	2') SAND, fine to mec brown from 17.5-18. -19.2' bas, wet, no pl	lium grained, loose to dense 5' bgs and reddish yellow asticity, no cohesion	,	SW	Wet at 17.5' bgs
_		-		(19.2-20')	CLAY, soft, brownisl	h gray, very moist, high		СН	
20-				End of bo	cohesive pring				
Total Bo	orehole D	epth: 20'	bgs.						
Boring t	erminated	d at 20' bộ	gs due to water a	ind maximun	n allowable depth.				

	ARM Group Inc. Earth Resource Engineers and Consultants Boring ID: B19-030-SB			gineers	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin : S. Kabis, G.I.T. : Green Services, Inc	Date Weather Northing (U Easting (U	JS ft) S ft)	: 9/23/2016 : 90s, sunny : 566112.6881 : 1463954.983
	Sonng	ן וט. נ	(page 1	of 1)	Driller Drilling Equipment	: Don Marchese : Geoprobe 7822DT			
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		USCS	REMARKS
0-		-	B19-030-SB-1	(0-0.3) SI	LT, with trace CLAY,	medium dense, brown, dry,		DL	Organic matter
-		-		(0.3-4.3')	SILT with SAND and	SLAG GRAVEL, medium	/		
-	60	1.1			own, dry, no plasticity		Ν	۸L	
_		2.0							
-		10.9	B19-030-SB-5	(4.3-8.5')	SLAG GRAVEL with	some SAND, medium dens	ə,		
5-		-		gray then from 7-7.	very dark gray from 5 5' bgs, wet from 7.5-8	7.5-8.5' bgs, dry then moist .5' bgs, no plasticity, no			
-		5.3		concolori			G	W	
-	86	5.3							Organic odor (7.5-8')
		2.3		(8.5-10') \$	SILT, hard, very dark	gray to yellowish brown, dry	,		
10-		0.1	B19-030-SB-10	low plasti	city, cohesive		N	۸L	
- 10		0.0		(10-16.5') brown gra	SILTY CLAY grading ading to pale brown a	to CLAY, very firm, grayish nd reddish yellow, moist to			
-		0.0		very mois	st (15-16.5 [°]), medium	plasticity, conesive			
_	100	0.0							
_		0.0					C	CL	
15—		0.0							
-		-							
_		-		(16.5-17.2	2') SANDY CLAY, firm	n, reddish yellow, moist, low	C	CL	Wot at 17.2'
-	100	-		(17.2-19. medium c	1') SAND, fine to med	ium grained, loose to		W	Wet at 17.2
-		-		reddish y	ellow from 18.2-19.1'	bgs, no plasticity, no			
20-		-		(19.1-20') very mois	CLAY with SAND, ve	ery soft, light brownish gray,	c	Н	
				End of bo	pring				
Total Bo	orehole De	epth: 20'	bgs.	nd maximum	n allowable depth				
Boring t	emmated	iai∠U D(ys uue to water a	na maximun	η αποιναρίε σερίη.				

	ARM Group Inc Earth Resource Engineers and Consultants				Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin	Date Weat	ner	: 9/23/16 : 80s, sunny
E	Boring	g ID: E	B19-031-S	ŝВ	Checked by Drilling Company Driller	: S. Kabis, G.I.T. : Green Services, Inc : Don Marchese	North Eastir	ing (US ft) ng (US ft)	: 565711.6331 : 1463810.445
			(page 1	of 1)	Drilling Equipment	: Geoprobe 7822D1			
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		nscs	REMARKS
0-				(0-0.2') S	ILTY CLAY, soft, gray	, very moist, medium		CL	
_		1,463	B19-031-SB-1	plasticity, (0.2-1.7') plasticity,	cohesive CINDER BALLAST, I no cohesion	oose, black, dry, no	/	SW/NA	Light sweet solvent-like odor
		959.2		(1 = 0 0)	0.000				
_	82	638.6		(1.7-2.9') and gray,	SAND with SLAG GF dry, no plasticity, no	RAVEL, medium dense, brow cohesion	/n	SW/GW	
-				(2.9-3.4')	SILTY SAND, very fi	ne grained, medium dense,		SM	
-		641.8		(3.4-4.7') yellowish	SILT, trace SAND, hard, dark gray grading to brown, very dry, low plasticity, cohesive				
		256.0							
5—				(4.7-5.5') moist, no	SAND, very fine to fir plasticity, no cohesio	ne, dense, yellowish brown, n		SW	
-		10.6		(5.5-6.2') and reddi	SANDY CLAY, very f sh yellow, dry, low pla	ine grained, firm, light gray asticity, cohesive		CL	
_		457.5		(6.2-8.5) low plasti	CLAY, hard, yellowisl city to medium plastic	n red and gray mottled, dry, ity, cohesive			
	100	729.5						CL	
_									
-		815.2	B19-031-SB-9	(8.5-10') (moist, hig	CLAY, soft, gray with h plasticity, cohesive	trace reddish yellow, very ; thin brown SAND lens at			
		5.1	B19-031-SB-10	DOLIONIO	liner			СН	
10-		-							Wet at 9.95' bgs
				End of bo	pring				
Total Bo Boring t	orehole De erminated	epth: 10' d at 10' be	bgs. gs due to water.						

ARM Group Inc. Earth Resource Engineers and Consultants Boring ID: B19-032-SB (page 1 of 1)					Client: EnviroAnalytics GroupDARM Project No.: 150300M-15-3VProject Description: Sparrows Point - Parcel B19Site Location: Sparrows Point, MDARM Representative: L. PerrinChecked by: S. Kabis, G.I.T.NDrilling Company: Green Services, IncEDriller: Don MarcheseDrilling Equipment: Geoprobe 7822DT			er g (US ft) I (US ft)	: 9/23/2016 : 90s, sunny : 566129.774 : 1463679.759	
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		USCS	REMARKS	
0		-	B19-032-SB-1	(0-1.8') S soft, brow	ILT with SLAG SAND m, dry, no plasticity, r	and some SLAG GRAVEL, no cohesion		ML		
-	88	1.9		(1.8-2.5') dense, gr (2.5-4.2') cohesion	SLAG SAND and GR ay and brown, dry, no SILT, hard, olive brow	AVEL with SILT, medium o plasticity, no cohesion wn, low plasticity, no	5	SW/GW		
_		9.1 0.2	B19-032-SB-4	(4.2-6') S no plastic	ILT with some GRAV ity, no cohesion	EL SLAG, soft, brown, dry,		ML		
5—		-						ML		
-	72	3.2		(6-10') SL	AG GRAVEL, dense	, gray, wet, no plasticity, no			Wet at 7.5' bgs	
-		3.9						GW	Very large SLAG GRAVEL (7.5-8')	
10—		-		End of bo	ring					
Total Bo Boring t	prehole Do erminated	epth: 10' I at 10' bç	bgs. gs due to water.							

	Boring	AR Ear	M Group th Resource En and Consultant B19-033-S	B B	Client: EnviroAnalytics GroupDateARM Project No.: 150300M-15-3WeatherProject Description: Sparrows Point - Parcel B19Site LocationSite Location: Sparrows Point, MDARM Representative: L. PerrinChecked by: W. Mader P.G., CPSSNorthing (US ft)Drilling Company: Green Services, IncEasting (US ft)Driller: Don MarcheseDrilling Equipment			: 9/21/16 : 80s, sunny : 564683.78 : 1462052.29	
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESCRIPTION			USCS	REMARKS
0		1.2 3.7	B19-033-SB-1	(0-2.2') S increases dry, no pl	ILTY SAND with SLA with depth, loose, da asticity, no cohesion	G GRAVEL, SLAG GRAVEL ark brown with trace gray,		SM	
-	100	10.2 6.0		(2.2-4') S with depti brown, dr	LAG SAND and GRA h, medium dense, pal y then wet at 3' bgs, r	VEL, gravel size increases le brown, brown, and grayish no plasticity, no cohesion		SW/GW	
5—		0.0	B19-033-SB-5	(4-9') CL/ moist, me	AY, hard to firm, gray adium plasticity, cohe:	and yellowish brown, dry to sive			
-		2.4						CL	
-	100	2.4 1.0							
10—		0.3 -	B19-033-SB-10	(9-10.5') reddish y	SANDY CLAY, very f ellow, moist, medium	irm, light gray with trace plasticity, cohesive		CL	
-	84	-		(10.5-13') yellowish	SAND, fine to mediu red, wet, no plasticity	m, dense, brownish gray to , no cohesion		SW	Wet at 11.3' bgs
-		-		(13-13.3') red, mois (13.3-13.'	SANDY CLAY, very t, high plasticity, cohe 7') GRAVELLY SAND	firm, light gray and yellowish sive), fine to medium, dense,	/	CH SW	
15—		-		(13.7-15') high plast End of bo	CLAY with SAND, fir icity, cohesive rring	rm, light gray, moist to dry,	/		
Total Bo Boring t	L prehole De erminated	epth: 15' I at 15' bạ	bgs. gs due to water.						

E	Boring	AR Eart	M Group th Resource En and Consultan 319-034-S	p Inc. gineers hts BB	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Glumac : W. Mader P.G., CPSS : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Date Weath Northi Eastir	ner ing (US ft) ng (US ft)	: 10/14/2016 : 60s, sunny : 566047.87 : 1462585.96
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		nscs	REMARKS
0-		0.5	B19-034-SB-1	(0-1') TOI	DPSOIL with ORGANICS				Mild odor from 0-0.5' bgs
-		2.2		(1-2') SLA gray/brow	AG GRAVEL, some c /n, dry, no plasticity, r	oarse SAND, medium dense no cohesion	,	GW	
_	97	2.1		(2-5.5') C plasticity,	LAY, hard but soft fro cohesive	m 4-4.5' bgs, gray, dry, high			
_		2.8	B19-034-SB-4					CL	
5-		0.2							
5-		-		(5.5-7') C wet at 7' l	LAY, some SILT, soft ogs, medium plasticity	t, gray/orange, moist then y, cohesive			
		1.9							Wet at 7' bac
	80	1.6						CL	
_		0.1							
10-		-							
10-				End of bo	ring				
Total Bo Boring t	prehole D erminated	epth: 10' l at 10' bç	bgs. gs due to water.						

	ARM Group Inc. Earth Resource Engineers and Consultants		p Inc.	Client ARM Project No. Project Description Site Location ARM Representative	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Glumac	Date Weather	: 10/14/2016 : 60s, sunny ft) : 565291.66	
E	Boring	, ID: E	319-035-S	SВ	Checked by Drilling Company Driller Drilling Equipment	: W. Mader P.G., CPSS : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Northing (US ft) Easting (US ft)	: 565291.66 : 1461848.58
			(page 1	of 1)	29 =qe.pe.u			
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION	nscs	REMARKS
0-		2.0	B19-035-SB-1	(0-1') SLA plasticity,	AG GRAVEL with brown no cohesion	wn SAND, loose, dry, no	GW	
-		2.9		(1-3') CLA medium p	XY, hard then soft at 2 lasticity, cohesive	?' bgs, light brown, dry,	CL	
_	100	20.2						
-		132.2	B19-035-SB-4	(3-3.5') Bl (BRICK) a plasticity, (3.5-6.5')	RICK and CONCRET and white (CONCRET no cohesion CLAY, hard, gray, dry	E GRAVEL, loose, red E GRAVEL), dry, no	GW	
-		16.9		()	,	, <u>.</u> , ,		
5-		-						
		-		(6.5-8') C cohesive	LAY, trace SILT, soft,	tan, dry, medium plasticity,		
	50	1.8					CL	
-		0.8		(8-9.5') C 9' bgs, dr	LAY, hard, gray and (y, high plasticity, cohe	reenish gray then black at ssive	CL	
10-		-		(9.5-10') \$ cohesive	SILT, trace SAND, so	ft, black, wet, low plasticity,	CL	Wet at 9.5' bgs
10		_		End of bo	ring		-	
Total Bo Boring t	orehole D erminated	epth: 10' d at 10' bç	bgs. gs due to water.					

E	Boring	AR Eart	M Group th Resource Er and Consulta 319-036-S (page 1	p Inc.	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B1 : Sparrows Point, MD : L. Perrin : W. Mader P.G., CPSS : Green Services, Inc : Don Marchese : Geoprobe 7822DT	9 North Easti	her ing (US ft) ng (US ft)	: 9/23/16 : 80s, sunny : 565381.61 : 1462739.49
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		USCS	REMARKS
0—		0.3	B19-036-SB-1	(0-0.7') S low plasti	ILT, trace SAND, soft city, cohesive	, light yellowish brown, mo	vist,	ML	
-	92	3.0 2.1 1.0		(0.7-2.9') and gray, (2.9-3.7') plasticity, (3.7-7.7')	SLAG SAND and GR dry to wet, no plastic CLAY, soft, dark gray cohesive CLAY, very firm, light	AVEL, medium dense, bro ity, no cohesion /, very moist, medium	own	SW/GW	4-inch CLAY lens with SLAG SAND at 2.5' bgs
-		0.0	B19-036-SB-5	moist fror plasticity,	n 3.7-7.2' bgs, very m cohesive	ioist from 7.2-7.7' bgs, higi	ר		
5-		1.2						CL	
_		5.1							
	100	4.6		(7.7-10') \$	SAND, fine to mediun	n, dense to medium dense	,		Wet at 7.7' bgs
_		-		light gray bgs, redd cohesion	from 7.7-8.5' bgs, ve ish yellow from 8.8-1(ry pale brown from 8.5-8.8)' bgs, wet, no plasticity, n	D	SW	
10-									
10				End of bo	ring				
Total Bo Boring t	orehole Do erminated	epth: 10' d at 10' bç	bgs. gs due to water.						

E	Boring	AR Eart	M Group th Resource Er and Consultant 319-037-S (page 1	B of 1)	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Glumac : S. Kabis, G.I.T. : Green Services, Inc : Don Marchese : Geoprobe 7822DT	: 10/14/2016 : 50s, sunny ft) : 566930.964 t) : 1464106.21	
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION	nscs	REMARKS
0-		07.7	B10-027-SB-1	(0-0.1') T	opsoil SILT			H Organic matter
-		97.7	B19-037-3B-1	(0.1-2') S dry, no pl	AND, coarse, mediun asticity, no cohesion	n dense, dark brown to gray,	sw	
		54.4						
_	90	58.2		(2-3') SL plasticity,	AG GRAVEL, coarse no cohesion	, dense, gray, dry, no	GW	,
_		19.3		(3-5') SIL low plasti	T, with some CLAY, I city, cohesive	nard, greenish gray, moist,		_
		5.8						
5-		9.2		(5-9') SIL yellow, lo	T, with some CLAY, I w plasticity, cohesive	nard, gray and reddish		_
-		15.8					CL	
-	92	23.0	B19-037-SB-8					
-		4.8						
10-		5.6		(9-11') Cl plasticity,	_AY, hard, reddish ye cohesive	llow and brown, wet, high	СН	Wet at 9.5' bgs
		-						
-		-		(11-14') S wet, no p	SAND, coarse, very lo lasticity, no cohesion	ose, reddish yellow to gray,		
-		-					SP	
_		-						
		-		(14-15') S plasticity,	SILT, with some CLAN cohesive	/, reddish yellow, wet, low	CL	
15—				End of bo	pring		I	1
Total Bo Boring t	orehole D erminated	epth: 15' d at 15' bç	bgs. gs due to water.					

E	Boring	AR Ear	M Group th Resource Er and Consultan B19-038-S (page 1	p Inc. gincers nts SB of 1)	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin : S. Kabis, G.I.T. : Green Services, Inc : Don Marchese : Geoprobe 7822DT	Date Weather Northing (US ft) Easting (US ft)	: 1/09/2017 : 20s, cloudy : 566595.6278 : 1463574.13
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESCRIPTION			REMARKS
0	90	- 0.3 0.1	B19-038-SB-1	(0-0.4') S cohesive (0.4-2.5') moist, no	ILT, soft, dark brown, SILTY GRAVEL, loos plasticity, no cohesic	moist, low plasticity, se, red, brown, and white, n	GW-GN	Organic matter
		0.1 0.1		(2.3-4.7) brown, dr	AND, fine to medium	grained, dense, reddish	ML SW	
-		1.9 2.2		vellow, dr (5-10') CL yellow mo	y, no plasticity, no co AY, dense, light brov ottling, moist, medium	hesion vnish gray and reddish plasticity, cohesive	/	
-	100	3.4 2.3 1.0	B19-038-SB-8 B19-038-SB-10				CL	
10-		-		(10-11.3') plasticity,	SAND, medium den no cohesion	se, reddish yellow, wet, no	SW	Wet at 10' bgs
-	100	0.7 1.6		(11.3-15') yellow mo	CLAY, dense, light to ottling, moist, high pla	prownish gray and reddish sticity, cohesive		
-		0.0 0.0					СН	
15—				End of bo	ring			
Total Bo Boring t	prehole D erminated	epth: 15' d at 15' b	bgs. gs due to water.					

		Boring	AR Ear	M Group th Resource Er and Consulta 319-039-S (page 1	p Inc. ngineers nts SB of 1)	Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company Driller Drilling Equipment	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin : S. Kabis, G.I.T. : Allied Well Drilling : Rick Miller : Geoprobe 7822DT	Date Weat North Eastin	her ing (US ft) ng (US ft)	: 5/24/17 : 60s, cloudy : 556151.89 : 1463881.78
	Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	DESCRIPTION			REMARKS
	0-		-	B19-039-SB-1	(0-2.7') S dry, no pl	ILTY SAND with GRA lasticity, no cohesion	VEL, medium dense, brown	,		
	-		0.9						SM/GW	
SB.bor	_	86	13.5		(2.7-10') medium (SLAG, coarse GRAVI dense, light grav, dry t	EL to COBBLE-sized,			
-ogs\B19-039-S	-		12.0		cohesion					
g Logs\2_Bor L	5—		0.5							
arcel B19\Borin	-		-							
3\Documents\P;	-		-						GW	
ws Point Area E	-	66	4.8							
M EAG_Sparro	-		16.5	B19-039-SB-8.5						Wet at 8.5' bgs
up\150300	10-		2.2							
iroAnalytics Grot	10-				End of bo	pring				
01-25-2018 P:\Env	Total Bo Boring t	orehole D terminated	epth: 10' d at 10' di	ue to water						

ARM Group Inc. Earth Resource Engineers and Consultants Boring ID: B19-040-SB (page 1 of 1)					Client: EnviroAnalytics GroupDARM Project No.: 150300M-15-3WProject Description: Sparrows Point - Parcel B19Site Location: Sparrows Point, MDARM Representative: L. PerrinChecked by: S. Kabis, G.I.T.Drilling Company: Allied Well DrillingDriller: Rick MillerDrilling Equipment: Geoprobe 7822DT			er ng (US ft) g (US ft)	: 5/24/17 : 60s, cloudy : 566315.536 : 1464024.000
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESCRIPTION			NSCS	REMARKS
0—		-	B19-040-SB-1	(0-0.5') C (0.5-3.5') brown, re	ONCRETE, white, dr SAND with GRAVEL d from 3.2-3.5' bgs, d	y, no plasticity, no cohesion , fine to very coarse grained, Iry, no plasticity, no cohesion			Non-native
-	90	2.9 21.9						SW	
-		26.3	B19-040-SB-4	(3.5-4.5') dark brow	SILTY SAND with GF /n, and red, dry, no pl	RAVEL, firm, grayish brown, lasticity, no cohesion		SM	
5—		2.3		(4.5-10') wet at 6.4	SLAG, SAND and GR ' bgs, no plasticity, no	AVEL-sized, gray, dry then o cohesion			
-		5.7							Wet at 6.4' bgs
-	72	3.6						SW/GW	
-		34.0 1.4							
10—				End of bo	ring				
Total Bo Boring t	Drehole Doterminated	epth: 10' d at 10' bç	bgs. gs due to water.						

01-25-2018 P:\EnviroAnalytics Group\150300M EAG_Sparrows Point Area B\Documents\Parcel B19\Boring Logs\2_Bor Logs\B19-040-SB.bor

-		Boring	AR Ear	M Group th Resource Er and Consulta 319-041-S (page 1	p Inc. ngineers nts SB of 1)	Client: EnviroAnalytics GroupDateARM Project No.: 150300M-15-3WeatherProject Description: Sparrows Point - Parcel B19Site Location: Sparrows Point, MDARM Representative: L. PerrinChecked by: S. Kabis, G.I.T.Northing (USDrilling Company: Allied Well DrillingEasting (USDrilling Equipment: Geoprobe 7822DTImage: Company				: 5/24/17 : 60s, cloudy : 566539.755 : 1463806.683
-	Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESCRIPTION			USCS	REMARKS
	0— - -	78	- 0.2 0.3	B19-041-SB-1	(0-6') SA dense, br no cohes	ND with GRAVEL, fine rown, moist then dry fi ion	e to coarse grained, medium rom 1.3-5' bgs, no plasticity,			Non-native
igs\B19-041-SB.bor	- - 5—		0.3 0.1 0.3	B19-041-SB-5					SW	
arcel B19\Boring Logs\2_Bor Lo	-	100	0.3 0.5 0.5		(6-11') Cl and reddi cohesive	_AY, firm to hard, gray ish yellow, moist grad	/ grading to brownish yellow ing to dry, low plasticity,		CL	
vs Point Area B\Documents\P	10— -		3.2 - -	B19-041-SB-10	(11-15') S wet, no p	SLAG, GRAVEL, fine t lasticity, no cohesion	to coarse grained, light gray,			
Group\150300M EAG_Sparrov	-	46	-						GW	Wet at 12.7' bgs
iroAnalytics (15—				End of bo	pring			1	
01-25-2018 P:\Env	Total Bo Boring t	orehole D terminated	epth: 15' d at 15' b	bgs. gs due to water.						

	ARM Group Inc Earth Resource Engineers and Consultants Boring ID: B19-042-SB				Client ARM Project No. Project Description Site Location ARM Representative Checked by Drilling Company	: EnviroAnalytics Group : 150300M-15-3 : Sparrows Point - Parcel B19 : Sparrows Point, MD : L. Perrin : S. Kabis, G.I.T. : Allied Well Drilling	Date Weathe Northin Easting	er g (US ft) (US ft)	: 5/24/17 : 60s, cloudy : 566353.036 : 1464196.526
Ľ	Boring	g ID: E	319-042-S (page 1	6 B of 1)	Driller Drilling Equipment	: Rick Miller : Geoprobe 7822DT	-		
Depth (ft.)	% Recovery	PID Reading (PPM)	Sample ID/Interval		DESC	RIPTION		USCS	REMARKS
0—		- 0.5	B19-042-SB-1	(0-0.5') S plasticity, (0.5-1') S gray, dry,	ILT with SAND and G no cohesion AND and GRAVEL w no plasticity, no cohe	RAVEL, soft, brown, dry, no ith SILT, loose, brown and esion		ML GW-GM	Moderate amount of organic
-	74	1.2		(1.75-2.5 cohesive (2.5-3.8') and gray,	SILT, nard, yellowis SLAG, SAND and GF dry, no plasticity, no	n brown, dry, low plasticity, RAVEL-sized, loose, brown cohesion		ML	
_		7.1 0.9	B19-042-SB-4	(3.8-5') S	ILT, hard, brown, dry,	low plasticity, cohesive		ML	
5—		5.4 1.4		(5-11.25') yellowish brown, m	SILTY CLAY grading red SAND, very firm oist, low plasticity, co	g to CLAY, with trace grading to firm, grayish hesive			
-	100	0.9 0.2						CL	
- 10-		0.1	B19-042-SB-10						
_		-		(11 25-14		with SAND and SILT loose			
-	50	-		light brow	n to dark gray, wet, n	o plasticity, no cohesion	c	GW-GM	Wet at 12.5' bgs
- 15—		-		(14.2-15') low plasti	SANDY SILT, soft, c city, cohesive	lark gray, very moist to wet,		ML	
					nng				
Total Bo Boring t	orehole De	epth: 15' d at 15' by	bgs. gs due to water.						

APPENDIX C

	PID CALIBRATION LOG													
PROJECT NAM	PROJECT NAME: Area B, Parcel B19 Phase II SAMPLER NAME: L. Perrin, N. Kurtz													
PROJECT NUM	BER: 150300M-	-15			DATE: September 201	6	PAGE 1 of 1							
DATE/TIME	SAMPLER INITIALS	PID SERIAL #	FRESH AIR CAL READING	STANDARD	STANDARD CONCENTRATION	CAL GAS READING	COMMENTS							
9/21/16 0820	LP	592-913262	0.0	Isobutylene	100 ppm	100.0	-							
9/22/16 0830	LP	592-913262	0.0	Isobutylene	100 ppm	100.0	-							
9/23/16 0810	LP	592-913262	0.0	Isobutylene	100 ppm	100.0	-							
10/13/16 0910	LP	592-913262	0.0	Isobutylene	100 ppm	99.5	-							
10/14/16 0803	NK	592-913262	0.0	Isobutylene	100 ppm	99.7	-							
01/09/17 0855	LP	592-913262	0.0	Isobutylene	100 ppm	100.3	-							
01/18/17 0949	LP	592-913262	0.0	Isobutylene	100 ppm	100.0	-							
5/24/17 0820	LP	592-907529	0.0	Isobutylene	100 ppm	100.5	-							
				Isobutylene	100 ppm									
				Isobutylene	100 ppm									
				Isobutylene	100 ppm									
				Isobutylene	100 ppm									
				Isobutylene	100 ppm									
				Isobutylene	100 ppm									
				Isobutylene	100 ppm									
				Isobutylene	100 ppm									
				Isobutylene	100 ppm									
				Isobutylene	100 ppm									
				Isobutylene	100 ppm									
				Isobutylene	100 ppm									
				Isobutylene	100 ppm									
				Isobutylene	100 ppm									
				Isobutylene	100 ppm									
				Isobutylene	100 ppm									
				Isobutylene	100 ppm									
				Isobutylene	100 ppm									

APPENDIX D

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

APPENDIX E



APPENDIX F

QA/QC Tracking Log - Soil

Irip Blanki	Data	Consulta IDo				<u>Trip</u>	Data	Consulta IDo		
DIdIIK.	Date:	Sample IDs			1 [Date:	Sample IDs		
		1) B19-033-SB-1	-		-	1B-1		1) B19-029-SB-4		
		2) B19-033-SB-5	-		-	18-1		2) B19-029-SB-10		
	9/21/2016	3) B19-033-SB-10	-		-	TD 4		3) B19-030-SB-1		
		4) B19-025-SB-1	-			IB-1	9/23/2016	4) B19-030-SB-5		
		5) B19-025-SB-5	-		-			5) B19-030-SB-10		
		6) B19-025-SB-10				TB-1		6) B19-019-SB-1		
		7) B19-011-SB-1	Duplicate:	B19-014-SB-5		TB-1		7) B19-019-SB-8	Duplicate:	B19-028-SB-1
		8) B19-011-SB-5	Date:	9/22/2016				8) B19-019-SB-10	Date:	10/13/2016
		9) B19-012-SB-1	MS/MSD:	B19-010-SB-5		TB-1		9) B19-028-SB-1	MS/MSD:	B19-021-SB-1
		10) B19-012-SB-5	Date:	9/22/2016		TB-1		10) B19-028-SB-7	Date:	10/14/2016
		11) B19-010-SB-1	Field Blank:			TB-1		11) B19-027-SB-1	Field Blank	<u>:</u>
		12) B19-010-SB-5	Date:	9/22/2016		TB-1		12) B19-027-SB-5	Date:	10/13/2016
	9/22/2016	13) B19-015-SB-1	Eq. Blank:			TB-1		13) B19-026-SB-1	Eq. Blank:	
	5,22,2010	14) B19-015-SB-5	Date:	9/22/2016			10/13/2016	14) B19-026-SB-8	Date:	10/13/2016
		15) B19-013-SB-1						15) B19-004-SB-1		
		16) B19-013-SB-5				TB-1		16) B19-004-SB-5		
		17) B19-016-SB-1						17) B19-005-SB-1		
		18) B19-016-SB-4						18) B19-005-SB-6		
		19) B19-009-SB-1				TB-1		19) B19-005-SB-10		
		20) P10 014 CP 1					10/14/2016	20) B19-021-SB-1		
		20/ 019-014-30-1					/ /	20, 010 011 00 1		
]	20) 819-014-38-1					, _ ,			
]	1) B19-014-SB-5				TB-1		1) B19-021-SB-7		
		 B19-014-SB-5 B19-014-SB-10 	_			TB-1 TB-1		 B19-021-SB-7 B19-022-SB-1 		
		 B19-014-SB-5 B19-014-SB-10 B19-014-SB-10 B19-023-SB-1 				TB-1 TB-1 TB-1		 B19-021-SB-7 B19-022-SB-1 B19-022-SB-4 		
	9/22/2016	 B19-014-SB-1 B19-014-SB-5 B19-014-SB-10 B19-023-SB-1 B19-023-SB-5 				TB-1 TB-1 TB-1 TB-1		 B19-021-SB-7 B19-022-SB-1 B19-022-SB-4 B19-037-SB-1 		
	9/22/2016	 B19-014-SB-5 B19-014-SB-5 B19-014-SB-10 B19-023-SB-1 B19-023-SB-5 B19-024-SB-1 				TB-1 TB-1 TB-1 TB-1 TB-1		 B19-021-SB-7 B19-022-SB-1 B19-022-SB-4 B19-037-SB-1 B19-037-SB-8 		
	9/22/2016	 B19-014-SB-5 B19-014-SB-10 B19-014-SB-10 B19-023-SB-1 B19-023-SB-5 B19-023-SB-5 B19-024-SB-1 B19-024-SB-5 				TB-1 TB-1 TB-1 TB-1 TB-1		 B19-021-SB-7 B19-022-SB-1 B19-022-SB-4 B19-037-SB-1 B19-037-SB-8 B19-003-SB-1 		
	9/22/2016	 B19-014-SB-1 B19-014-SB-5 B19-014-SB-10 B19-023-SB-1 B19-023-SB-5 B19-024-SB-1 B19-024-SB-5 B19-024-SB-5 B19-030-SB-1 	Duplicate:	B19-031-SB-9		TB-1 TB-1 TB-1 TB-1 TB-1 TB-1		 B19-021-SB-7 B19-022-SB-1 B19-022-SB-4 B19-037-SB-1 B19-037-SB-8 B19-003-SB-1 B19-003-SB-5 	Duplicate:	B19-022-SB-4
	9/22/2016	 B19-014-SB-5 B19-014-SB-5 B19-014-SB-10 B19-023-SB-1 B19-023-SB-5 B19-024-SB-5 B19-024-SB-5 B19-024-SB-5 B19-030-SB-1 B19-030-SB-5 	Duplicate:	B19-031-SB-9 9/23/2016		TB-1 TB-1 TB-1 TB-1 TB-1 TB-1	10/14/2016	 B19-021-SB-7 B19-022-SB-1 B19-022-SB-4 B19-037-SB-1 B19-037-SB-8 B19-003-SB-1 B19-003-SB-5 B19-002-SB-1 	Duplicate:	B19-022-SB-4
	9/22/2016	 B19-014-SB-1 B19-014-SB-5 B19-014-SB-10 B19-023-SB-1 B19-023-SB-5 B19-024-SB-1 B19-024-SB-5 B19-030-SB-1 B19-030-SB-5 B19-031-SB-1 	Duplicate: Date:	B19-031-SB-9 9/23/2016 B19-020-SB-1		TB-1 TB-1 TB-1 TB-1 TB-1 TB-1	10/14/2016	 B19-021-SB-7 B19-022-SB-1 B19-022-SB-4 B19-037-SB-1 B19-037-SB-8 B19-003-SB-1 B19-003-SB-5 B19-002-SB-1 B19-002-SB-4 	Duplicate: Date: MS/MSD:	B19-022-SB-4 10/14/2016 B19-037-SB-8
	9/22/2016	 B19-014-SB-1 B19-014-SB-5 B19-014-SB-10 B19-023-SB-1 B19-023-SB-5 B19-024-SB-1 B19-024-SB-5 B19-030-SB-1 B19-030-SB-5 B19-031-SB-1 B19-031-SB-9 	Duplicate: Date: MS/MSD: Date:	B19-031-SB-9 9/23/2016 B19-020-SB-1 9/23/2016		TB-1 TB-1 TB-1 TB-1 TB-1 TB-1	10/14/2016	 B19-021-SB-7 B19-022-SB-1 B19-022-SB-4 B19-037-SB-1 B19-037-SB-8 B19-003-SB-1 B19-003-SB-5 B19-002-SB-1 B19-002-SB-4 B19-002-SB-4 B19-001-SB-1 	Duplicate: Date: MS/MSD: Date:	B19-022-SB-4 10/14/2016 B19-037-SB-8 10/14/2016
	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 7) B19-030-SB-1 8) B19-030-SB-1 8) B19-031-SB-1 10) B19-031-SB-9 11) B19-031-SB-1	Duplicate: Date: MS/MSD: Date:	B19-031-SB-9 9/23/2016 B19-020-SB-1 9/23/2016		TB-1 TB-1 TB-1 TB-1 TB-1 TB-1	10/14/2016	1) B19-021-SB-7 2) B19-022-SB-1 3) B19-022-SB-4 4) B19-037-SB-1 5) B19-037-SB-8 6) B19-003-SB-1 7) B19-003-SB-5 8) B19-002-SB-1 9) B19-002-SB-1 10) B19-001-SB-1 11) B19-001-SB-5	Duplicate: Date: MS/MSD: Date: Eiold Black	B19-022-SB-4 10/14/2016 B19-037-SB-8 10/14/2016
	9/22/2016	1) B19-014-SB-5 2) 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 7) B19-030-SB-1 8) B19-030-SB-5 9) B19-031-SB-1 10) B19-031-SB-10 11) B19-031-SB-10 12) B10	Duplicate: Date: MS/MSD: Date: Field Blank:	B19-031-SB-9 9/23/2016 B19-020-SB-1 9/23/2016		TB-1 TB-1 TB-1 TB-1 TB-1 TB-1	10/14/2016	1) B19-021-SB-7 2) B19-022-SB-1 3) B19-022-SB-4 4) B19-037-SB-1 5) B19-037-SB-8 6) B19-003-SB-1 7) B19-003-SB-1 7) B19-003-SB-1 9) B19-002-SB-4 10) B19-001-SB-5 11) B19-001-SB-5 12) B10-001-SB-5	Duplicate: Date: MS/MSD: Date: Field Blank	B19-022-SB-4 10/14/2016 B19-037-SB-8 10/14/2016
TB-1 TB-1 TB-1	9/22/2016	1) B19-014-SB-1 2) 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 7) B19-030-SB-1 8) B19-030-SB-5 9) B19-031-SB-1 10) B19-031-SB-1 11) B19-031-SB-10 12) B19-020-SB-1	Duplicate: Date: MS/MSD: Date: Field Blank: Date:	B19-031-SB-9 9/23/2016 B19-020-SB-1 9/23/2016 9/23/2016		TB-1 TB-1 TB-1 TB-1 TB-1 TB-1	10/14/2016	1) B19-021-SB-7 2) B19-022-SB-1 3) B19-022-SB-1 3) B19-037-SB-1 5) B19-037-SB-8 6) B19-003-SB-1 7) B19-003-SB-5 8) B19-002-SB-1 9) B19-002-SB-1 10) B19-001-SB-5 11) B19-001-SB-5 12) B19-034-SB-1	Duplicate: Date: MS/MSD: Date: Field Blank Date: Eg. Blank:	B19-022-SB-4 10/14/2016 B19-037-SB-8 10/14/2016 : 10/14/2016
TB-1 TB-1 TB-1 TB-1	9/22/2016	1) B19-014-SB-1 2) 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 7) B19-030-SB-1 8) B19-030-SB-5 9) B19-031-SB-1 10) B19-031-SB-9 11) B19-031-SB-10 12) B19-020-SB-1 13) B19-020-SB-4 14) B10-021-SB-4	Duplicate: Date: MS/MSD: Date: Field Blank: Date: Eq. Blank:	B19-031-SB-9 9/23/2016 B19-020-SB-1 9/23/2016 9/23/2016		TB-1 TB-1 TB-1 TB-1 TB-1 TB-1	10/14/2016	1) B19-021-SB-7 2) B19-022-SB-1 3) B19-022-SB-4 4) B19-037-SB-1 5) B19-037-SB-8 6) B19-003-SB-1 7) B19-003-SB-5 8) B19-003-SB-5 8) B19-002-SB-1 9) B19-002-SB-1 10) B19-001-SB-5 11) B19-001-SB-5 12) B19-034-SB-1 13) B19-034-SB-4 14) B10-035-5	Duplicate: Date: MS/MSD: Date: Field Blank Date: Eq. Blank:	B19-022-SB-4 10/14/2016 B19-037-SB-8 10/14/2016 10/14/2016
TB-1 TB-1 TB-1 TB-1 TB-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-5 6) B19-024-SB-5 7) B19-030-SB-1 8) B19-031-SB-1 10) B19-031-SB-9 11) B19-031-SB-10 12) B19-020-SB-1 13) B19-020-SB-4 14) B19-018-SB-1	Duplicate: Date: MS/MSD: Date: Field Blank: Date: Eq. Blank: Date:	B19-031-SB-9 9/23/2016 B19-020-SB-1 9/23/2016 9/23/2016 9/23/2016		TB-1 TB-1 TB-1 TB-1 TB-1 TB-1	10/14/2016	1) B19-021-SB-7 2) B19-022-SB-1 3) B19-022-SB-1 3) B19-037-SB-1 5) B19-037-SB-3 6) B19-003-SB-1 7) B19-003-SB-5 8) B19-002-SB-1 9) B19-002-SB-1 10) B19-001-SB-5 11) B19-001-SB-5 12) B19-034-SB-1 13) B19-035-SB-1 14) B19-035-SB-1	Duplicate: Date: MS/MSD: Date: Field Blank Date: Eq. Blank: Date:	B19-022-SB-4 10/14/2016 B19-037-SB-8 10/14/2016 10/14/2016 10/14/2016
TB-1 TB-1 TB-1 TB-1 TB-1 TB-1 TB-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 7) B19-030-SB-1 8) B19-031-SB-1 10) B19-031-SB-1 11) B19-031-SB-10 12) B19-020-SB-1 13) B19-020-SB-1 13) B19-018-SB-1 15) B19-017-SB-1	Duplicate: Date: MS/MSD: Date: Field Blank: Date: Eq. Blank: Date:	B19-031-SB-9 9/23/2016 B19-020-SB-1 9/23/2016 9/23/2016 9/23/2016		TB-1 TB-1 TB-1 TB-1 TB-1 TB-1	10/14/2016	1) B19-021-SB-7 2) B19-022-SB-1 3) B19-022-SB-4 4) B19-037-SB-1 5) B19-037-SB-8 6) B19-003-SB-1 7) B19-003-SB-5 8) B19-002-SB-1 9) B19-002-SB-1 10) B19-001-SB-5 11) B19-001-SB-5 12) B19-0034-SB-1 13) B19-034-SB-1 13) B19-035-SB-1 15) B19-035-SB-1	Duplicate: Date: Date: Date: Field Blank Date: Eq. Blank: Date:	B19-022-SB-4 10/14/2016 B19-037-SB-8 10/14/2016 10/14/2016 10/14/2016
TB-1 TB-1 TB-1 TB-1 TB-1 TB-1 TB-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 7) B19-030-SB-5 9) B19-031-SB-1 10) B19-031-SB-9 11) B19-031-SB-10 12) B19-020-SB-1 13) B19-020-SB-4 14) B19-018-SB-1 15) B19-017-SB-1 16) B19-017-SB-4	Duplicate: Date: MS/MSD: Date: Field Blank: Date: Eq. Blank: Date:	B19-031-SB-9 9/23/2016 B19-020-SB-1 9/23/2016 9/23/2016 9/23/2016		TB-1 TB-1 TB-1 TB-1 TB-1 TB-1	10/14/2016	1) B19-021-SB-7 2) B19-022-SB-1 3) B19-022-SB-1 3) B19-037-SB-1 5) B19-037-SB-1 5) B19-003-SB-1 7) B19-003-SB-5 8) B19-002-SB-1 9) B19-002-SB-1 10) B19-001-SB-5 12) B19-001-SB-5 12) B19-034-SB-1 13) B19-035-SB-1 14) B19-035-SB-1 15) B19-035-SB-1 16) B19-003-SB-1	Duplicate: Date: MS/MSD: Date: Field Blank Date: Eq. Blank: Date:	B19-022-SB-4 10/14/2016 B19-037-SB-8 10/14/2016 <u>:</u> 10/14/2016 10/14/2016
TB-1 TB-1 TB-1 TB-1 TB-1 TB-1 TB-1	9/22/2016	1) B19-014-SB-1 2) 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 7) B19-030-SB-1 8) B19-030-SB-5 9) B19-031-SB-1 10) B19-031-SB-10 11) B19-031-SB-10 12) B19-020-SB-1 13) B19-020-SB-4 14) B19-017-SB-1 15) B19-017-SB-1 16) B19-017-SB-10 17) B19-017-SB-10	Duplicate: Date: MS/MSD: Date: Field Blank: Date: Eq. Blank: Date:	B19-031-SB-9 9/23/2016 B19-020-SB-1 9/23/2016 9/23/2016 9/23/2016		TB-1 TB-1 TB-1 TB-1 TB-1 TB-1	10/14/2016	1) B19-021-SB-7 2) B19-022-SB-1 3) B19-022-SB-1 3) B19-037-SB-1 5) B19-037-SB-8 6) B19-003-SB-1 7) B19-003-SB-5 8) B19-003-SB-1 9) B19-002-SB-1 10) B19-001-SB-5 11) B19-001-SB-5 12) B19-001-SB-5 12) B19-001-SB-5 12) B19-001-SB-5 13) B19-0034-SB-1 13) B19-034-SB-1 14) B19-035-SB-1 15) B19-035-SB-1 15) B19-006-SB-1 17) B19-006-SB-5	Duplicate: Date: MS/MSD: Date: Field Blank Date: Eq. Blank: Date:	B19-022-SB-4 10/14/2016 B19-037-SB-8 10/14/2016 10/14/2016 10/14/2016
TB-1 TB-1 TB-1 TB-1 TB-1 TB-1 TB-1	9/22/2016	1) B19-014-SB-1 2) B19-014-SB-5 2) B19-023-SB-1 3) B19-023-SB-5 3) B19-023-SB-5 5) B19-024-SB-1 6) B19-030-SB-1 8) B19-030-SB-1 8) B19-031-SB-1 10) B19-031-SB-1 11) B19-031-SB-1 12) B19-020-SB-1 13) B19-020-SB-1 14) B19-017-SB-1 15) B19-017-SB-1 16) B19-017-SB-10 18) B19-022-SB-1 16) B19-017-SB-10 18) B19-022-SB-1	Duplicate: Date: MS/MSD: Date: Field Blank: Date: Eq. Blank: Date:	B19-031-SB-9 9/23/2016 B19-020-SB-1 9/23/2016 9/23/2016 9/23/2016		TB-1 TB-1 TB-1 TB-1 TB-1 TB-1	10/14/2016	1) B19-021-SB-7 2) B19-022-SB-1 3) B19-022-SB-1 3) B19-037-SB-1 5) B19-037-SB-8 6) B19-003-SB-1 7) B19-003-SB-5 8) B19-003-SB-1 9) B19-002-SB-1 9) B19-002-SB-1 10) B19-001-SB-5 12) B19-001-SB-5 12) B19-034-SB-1 13) B19-034-SB-1 14) B19-035-SB-1 15) B19-035-SB-1 16) B19-006-SB-5 18) B19-038-SB-1 17) B19-006-SB-5	Duplicate: Date: Date: Date: Field Blank Date: Eq. Blank: Date:	B19-022-SB-4 10/14/2016 B19-037-SB-8 10/14/2016 10/14/2016 10/14/2016
TB-1 TB-1 TB-1 TB-1 TB-1 TB-1 TB-1	9/22/2016	200 B19-014-SB-1 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 7) B19-030-SB-1 8) B19-031-SB-1 10) B19-031-SB-10 12) B19-020-SB-1 13) B19-020-SB-1 14) B19-017-SB-1 15) B19-017-SB-1 16) B19-017-SB-10 17) B19-017-SB-1 18) B19-022-SB-4 17) B19-017-SB-10 18) B19-022-SB-1 19) B19-032-SB-1	Duplicate: Date: MS/MSD: Date: Field Blank: Date: Eq. Blank: Date:	B19-031-SB-9 9/23/2016 B19-020-SB-1 9/23/2016 9/23/2016 9/23/2016		TB-1 TB-1 TB-1 TB-1 TB-1	10/14/2016	1) B19-021-SB-7 2) B19-022-SB-1 3) B19-022-SB-1 3) B19-037-SB-1 5) B19-037-SB-3 6) B19-003-SB-1 7) B19-003-SB-5 8) B19-002-SB-1 9) B19-002-SB-1 10) B19-001-SB-5 11) B19-001-SB-5 12) B19-034-SB-1 13) B19-034-SB-1 14) B19-035-SB-1 15) B19-035-SB-1 16) B19-006-SB-1 17) B19-006-SB-5 18) B19-038-SB-1 19) B19-038-SB-1	Duplicate: Date: MS/MSD: Date: Field Blank Date: Eq. Blank: Date:	B19-022-SB-4 10/14/2016 B19-037-SB-8 10/14/2016 10/14/2016 10/14/2016

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>			
Blank:	Date:	Sample IDs	
TB-1	1/18/2017	1) B19-007-SB-8.5	
		2) B19-008-SB-7.5	-
		3)	-
		4)	-
		5)	-
		6)	
		7)	Duplicate: B19-008-SB-7.5
		8)	Date: 1/18/2017
		9)	MS/MSD: B19-007-SB-8.5
		10)	Date: 1/18/2017
		11)	Field Blank:
		12)	Date: 1/18/2017
		13)	Eq. Blank:
		14)	Date: 1/18/2017
		15)	
		16)	
		17)	
		18)	
		19)	
		20)	
		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	
	5/24/2017	6) B19-041-SB-1	
		7) B19-041-SB-5	Duplicate: B19-041-SB-1
		8) B19-041-SB-10	Date: 5/24/2017
		9) B19-039-SR-1	MS/MSD: B19-039-SB-8 5
		10) B19-039-SB-8 5	Date: 5/24/2017
<u> </u>	I	11)	Field Blank:
		12)	Date: 5/24/2017
		13)	Eq. Blank:
		14)	Date: 5/24/2017
		15)	Date. 5/24/2017
		16)	-
		17)	-
		10)	-
		10)	4
		70) TA)	4
		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.

<u>Trip</u> Blank:

Date:

Sample IDs	
1)	
2)	
3)	
4)	
5)	
6)	
7)	Duplicate:
8)	Date:
9)	MS/MSD:
10)	Date:
11)	Field Blank:
12)	Date:
13)	Eq. Blank:
14)	Date:
15)	
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7)	Duplicate:
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10)	Date:
11)	Field Blank:
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14)	Date:
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CRRGPFKZ'I "

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	mø/kø	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	mø/kø	25	0	0	25	100.00%
Aroclor 1262	PCB	Soil	mø/kø	25	0	0	25	100.00%
PCBs (total)	PCB	Soil	mg/kg	25	6	0	25	100.00%
1 1-Binhenyl	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	30	79.59%
2.4 Dinitrotoluene	SVOC	Soil	mg/kg	49	1	0	40	100.00%
2.6 Dinitrotoluene	SVOC	Soil	mg/kg	49	2	0	49	100.00%
2 Chloronanhthalana	SVOC	Soil	mg/kg	49	0	0	49	100.00%
2 Chlorophenol	SVOC	Soil	mg/kg	49	0	11	38	77 55%
2 Methylpaphthalene	SVOC	Soil	mg/kg	49	28	0	10	100.00%
2 Methylphenol	SVOC	Soil	mg/kg	49	28	11	38	77 55%
2 Nitroanilina	SVOC	Soil	mg/kg	49	0	0	40	100.00%
2 rd Mathylphanol(m fra Crasol)	SVOC	Soil	mg/kg	49	1	11	49	77.55%
2 2' Dichlorohonzidino	SVOC	Soil	mg/kg	49	1	0	30	100.00%
4 Chloroopilino	SVOC	Soil	mg/kg	49	1	0	49	100.00%
4-Chioroaniline	SVOC	Soil	mg/kg	49	1	0	49	100.00%
4-Nitioannine	SVOC	Soil	mg/kg	49	20	0	49	100.00%
A consubthyland	SVOC	5011	mg/kg	49	20	0	49	100.00%
Acetaphunyiene	SVUC	5011	mg/Kg	49	54	0	49	100.00%
Actionne	SVUC	5011 C - '1	mg/Kg	49	20	0	49	100.00%
Anuracene	SVUC	5011 C - '1	mg/Kg	49	30	0	49	100.00%
Denz[a]antnracene	SVUC	5011	mg/kg	49	39 17	0	49	100.00%
Benzaldenyde	SVOC	Soil	mg/kg	49	17	25	24	48.98%
Denzo[a]pyrene	SVUC	5011	mg/kg	49	32	0	49	100.00%
Benzo[b]Iluoranthene	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-ocytlphthalate	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	mø/kø	49	2	0	49	100.00%
N-Nitrosodinhenvlamine	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	ТРН	Soil	mg/kg	49	46	0	49	100.00%
Gasoline Range Organics	ТРН	Soil	mg/kg	49	1	0	49	100.00%
Oil and Grease	ТРИ	Soil	mg/kg	49	1	0	49	100.00%
1 1 1 Trichloroethane	VOC	Soil	mg/kg	17	49	0	17	100.00%
1,1,2,2 Tetrachloroethane	VOC	Soil	mg/kg	17	0	0	17	100.00%
1,1,2,2-1 etf action of the first state of the firs	VOC	Soil	mg/kg	17	0	0	17	100.00%
1,1,2 Trichloroothana	VOC	Soil	mg/kg	17	0	0	17	100.00%
1,1,2-Themolocitane	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-Dichlorobenzene	VOC	Soil	mg/kg	17	0	0	17	100.00%
1,2,5-IIICIII0I00elizelle	VOC	Soil	mg/kg	17	0	0	17	100.00%
1,2,4-Themeological	VOC	Soil	mg/kg	17	0	0	17	100.00%
1,2-Dibromosthana	VOC	Soil	mg/kg	17	0	0	17	100.00%
1,2-Diblombenzana	VOC	Soil	mg/kg	17	0	0	17	100.00%
1,2-Dichloroothana	VOC	Soil	mg/kg	17	0	0	17	100.00%
1,2-Dichloroethane (Total)	VOC	Soil	mg/kg	17	0	0	17	100.00%
1,2-Dichlangungen	VOC	S011	mg/kg	17	0	0	17	100.00%
1,2-Dichlarshansana	VOC	5011	mg/kg	17	0	0	17	100.00%
1,5-Dichlarshansans	VOC	5011	mg/kg	17	0	0	17	100.00%
1,4-Dichlorobenzene	VOC	5011	mg/kg	17	<u> </u>	0	17	100.00%
2-Butanone (MEK)	VOC	5011 Sel1	mg/Kg	17	5	0	17	100.00%
2-riexanone	VOC	501	mg/kg	17	0	0	17	100.00%
4-ivietnyi-2-pentanone (MIBK)	VOC	501	mg/kg	17	10	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